



HOW TO USE THIS CATALOG

Welcome to the Jergens Master Catalog which contains a vast product offering from workholding, tooling and fixture components to hoist rings and power clamping systems.

You can find what you need several different ways.

You can find any part by using the Alphabetical Index, the Numerical Index, or by section. Each item is bookmarked, which will link directly to the page the items appear on.

To find a part using the numerical index, click the **INDEX BOX** to expand the list, and then click **NUMERICAL INDEX**. Each series of parts will be listed in **GROUPS OF NUMBERS** (Example: 100 Series, parts 100-125).

The first three numbers for that part series will be shown. Once you find the part or series of parts, click once and it will link directly to that part. You can navigate back to the index by clicking the **BACK BUTTON** on the top of your menu bar, or click **NUMERICAL** in the index bookmark.

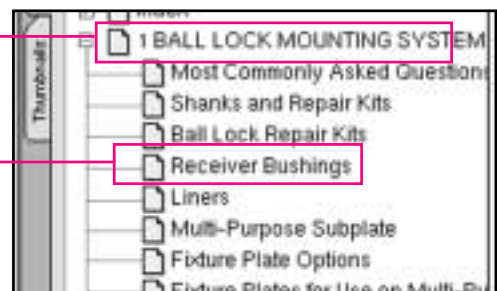
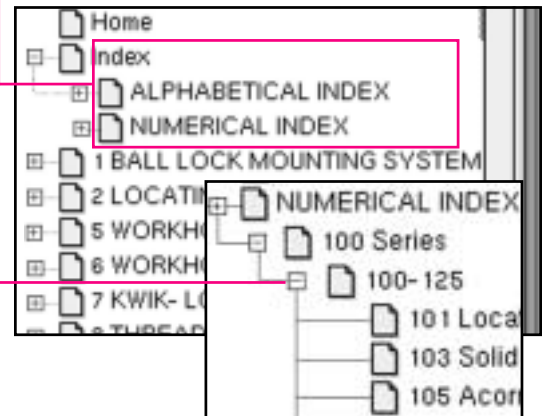
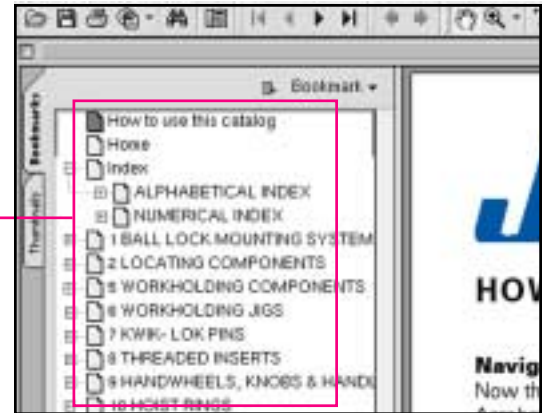
To view an index by **SECTION**, click on the section bookmark once. This will bring you directly to the index for that section only. You can navigate through that section the same way as the Alphabetical Index.

If you know exactly what part you want. Find the **PART NAME** listed in the section bookmark and click once.

Example: Ball Lock Receiver Bushings.
Find it and click once.

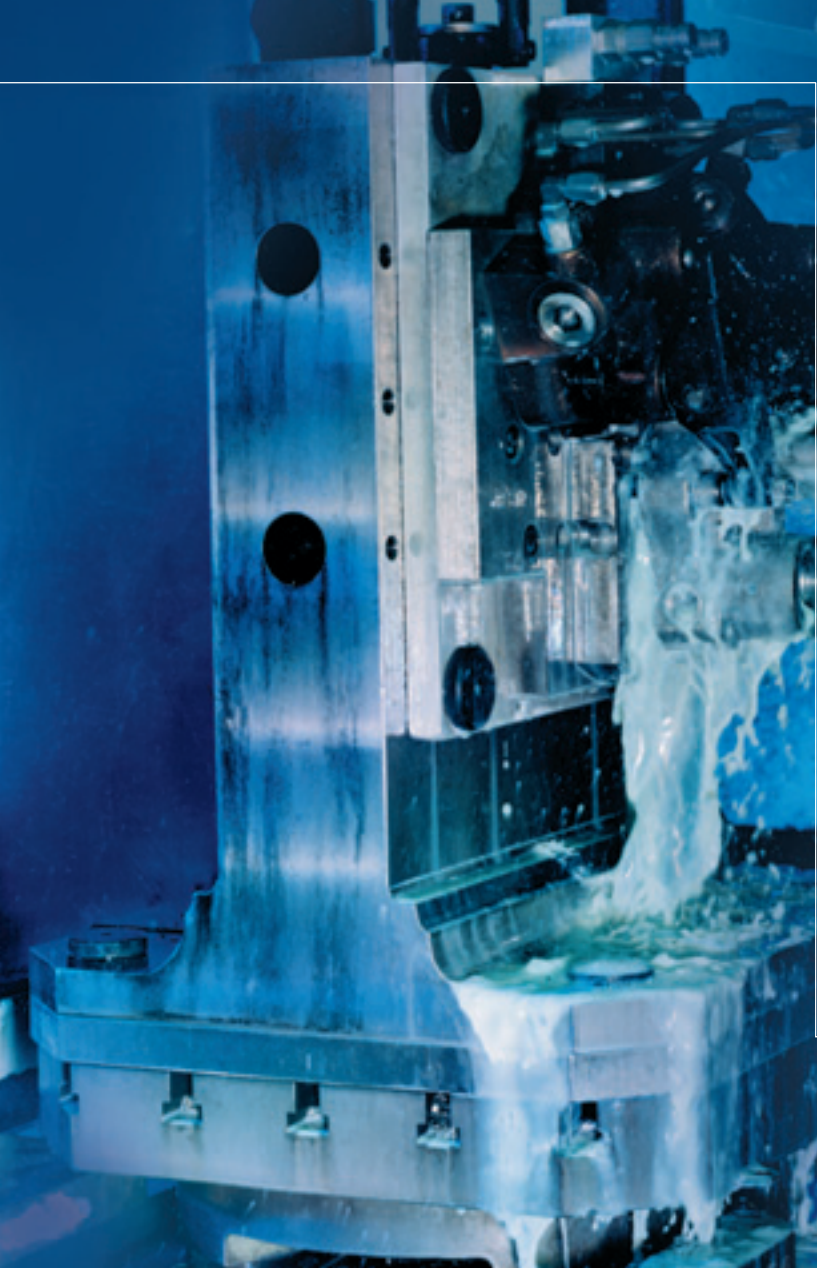
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NEW PRODUCTS

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25009	Adjustable Jack Screws	2.18	36726	Swing Style Radius Nose Straps	5.45
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12517	Double Cam Clamp Assemblies	5.4	68831	I D Expansion Clamps - Metric	5.59
12518	Double Cam Clamp Assemblies	5.4	68832	I D Expansion Clamps - Metric	5.59
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NEW PRODUCTS

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1

Ball Lock
Mounting
System



2

Locating
Components



3

Gripper
Products



4

Spring Loaded
Devices



5

Workholding
Components



6

Production
Vises



7

Kwik-Lok™
Pins



8

Threaded
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9

Handwheels,
Knobs &
Handles



10

Hoist Rings &
Lifting Products



11

Power
Clamping



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Staylock
Clamps



13

Toggle
Clamps



14

Chuck Jaws &
Turning Tooling



15

Acme
Drill Bushings



For New Products
see index pages
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the catalog

Distribution of Jergens and Acme Products

Jergens and Acme are proud to be represented by a network of qualified distributors throughout the world. If you do not know the name of the distributor nearest you, please call Jergens Customer Service at 1-800-JERGENS (537-4367) or Acme Customer Service at 1-800-323-5582.

Quality Policy

Jergens, Inc. manufactures and supplies only *quality* products. Our quality system is ISO 9001: 2000 Certified. Center-Pull and Side-Pull Hoist Rings are CE Certified. If there is a problem with any of our products, please contact your local Jergens Distributor or contact our Customer Service Department.

Design Aids

Jergens, Inc. offers several CAD drawing formats for use in fixture design. Our FixturePro™ software is available on CD. Our internet site (www.jergensinc.com) offers our complete catalog with hot links to CAD drawings on most of our products. We also offer 3D solid models of our products via the internet.

Application Assistance

Jergens Inc. maintains a complete Technical Sales Department to work with you. Please feel free to call upon their knowledge and experience. Application videos are available for the Ball Lock Mounting System™, StayLock Clamps™, and Swivel Eyebolt™ products.

Engineering Changes

Product improvement is a continuing process at Jergens, Inc. Specifications and engineering data are subject to change without notice. **If current information is critical to your design, it is suggested that you contact the Jergens Customer Service Department, or download the most current drawing from our website*, to verify any dimensions or specifications.** In the event there is a difference between the information contained in the Acme Industrial Company section of this catalog and the Acme Industrial Company Precision Bushing Catalog, the information in the Acme Industrial Precision Bushing Catalog will take priority. For a copy of that catalog, or for technical assistance for Acme products, call 800-323-5582.

* 3D Solid Models are available from www.jergensinc.com

Bar Coding

Jergens' boxed and bagged products are fully bar coded for automatic identification. The bar code labels contain the ASCII Code 39 format, which was chosen as being suitable for most bar code readers. Jergens' bar codes will identify part numbers and manufacturer's codes.

Specials

Jergens, Inc. and Acme Industrial Company will modify any item that is similar to our standard component parts. Please contact your Jergens/Acme Distributor with your request for a quote. Prints or sketches should be furnished if possible.

TCMA Standards

Products throughout this catalog meet the standards of the Tooling Component Manufacturers' Association. The items are asterisked and are interchangeable with other tooling component manufacturer's products.

Material and Finish Specifications

Stressproof®: A severely cold worked, furnace treated steel bar. Produced by a LaSalle patented process to obtain high strength, free machinability, good wear, and minimum warpage in the bar.

Alloy Steel - 4140 or equivalent

Low Carbon Steel - Free Machining 1215, 1018, or equivalent

52100: QQS-624

Zinc Plate: Per B633, Type III, Class FE/ZN 5

Cadmium Plate: per Mil. Spec. QQ-P-416, Class 3, Type 1

Black Oxide: per Mil. Spec. Mil-C-13924B and AMS-2485

Black Anodize: per Mil. Spec. MIL-A-8625, Type II, Class 2 and AMS-2472

Passivate: QQ-P-35 Type II

Alternate Finishes available upon request.

Jergens, Inc.
Manufacturing Number: 697830
FSCM #94882

ISO 9001: 2000
Registration #9711001

Acme Industrial Co.
(A Subsidiary of Jergens, Inc.)
Manufacturing Number: 697016
FSCM #00175



Jergens Company Profile

Jergens Inc. was founded in 1942 by Jack Schron, Sr. and his father Christy, to provide standard components for building jigs and fixtures. Today the fourth generation of family involvement continues stronger than ever. Throughout it's sixty-year history the company has grown into four separate operating divisions: Tooling Component Division (TCD), Jergens Industrial Supply (JIS), Acme Industrial Company (AIC), and Advanced Systems Group (ASG) Division of Jergens. While all divisions are vital to the Jergens family, the TCD Division is the centerpiece of our manufacturing capabilities. In June 1999, Jergens moved into a new 110,000 square foot facility and prides itself by manufacturing over 80% of it's product offering, as well as setting the standard for producing the highest quality components in our industry.

Here at Jergens we have a very diverse product offering, which ranges from basic workholding components, to

hydraulic clamps and high quality hoist rings through TCD. Innovative products such as the Ball Lock™ Mounting System demonstrate the Jergens commitment to providing the industrial marketplace with superior engineered solutions and products. Additionally, we offer a wide range of metal-working tools, clamps, and supplies to manufacturers in Northeastern Ohio, through our JIS Division. Acme Industrial, located in Carpentersville, Illinois, is a premium manufacturer of precision drill bushings and keylocking thread inserts. Our ASG Division specializes in products for light assembly ranging from torque-controlled electric screwdrivers to automation systems.

In addition to our unique product designs, we lead the industry with unparalleled customer service and delivery. Our website is a good example of our commitment to be the most innovative company in our industry. Customers and distributors can check stock and order on-line, view the Jergens catalog, and even download 2D, 3D and solid model CAD drawings in a variety of formats. **Visit our website at www.jergensinc.com for the latest news and product information, as well as links to our other divisions.** The Jergens family thanks you for your business.

On April 21, 2001, we were proud to launch **Tooling University LLC** that provides on-line training designed to serve the educational needs for the manufacturing community. This is another example of how Jergens is committed to maintaining our leadership position by providing our customers with the best source for innovative products and engineering expertise in the industry. To take a tour or a free trial class please visit www.toolingu.com.

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Certificate of Quality System Assessment

AQA International, LLC, a provider of ISO 9001
third party quality system registrations and accredited by the
American National Accreditation Program for
Registrars of Quality Systems, ANSI-RAB, attests that:

Jergens, Inc.
15700 South Waterloo Rd.
Cleveland, Ohio 44110

with a scope of :

Design and Manufacture of Tooling Components, Lifting Products, and
Quick-Change Devices and the ASG Division of Jergens Distributes
Assembly Tools used in Light Assembly.

**has established a quality management system that is in compliance
with the International Quality System Standard ISO 9001 and Q9001 - 2000.**

*"Further clarifications regarding the scope of this certificate and the applicability of
ISO 9001:2000 requirements may be obtained by consulting the organization."*

July 2, 2004
Registration Date

4197
Certificate No.

November 17, 2006
Registration Period Ending


President, AQA International



1105 Belleview Avenue
Columbia, South Carolina 29201, USA
(803) 779-8150

Accredited by
Member of the
IAF MLA for
QMS



Jergens Conversion Charts

Decimal Equivalents of Standard Drill Sizes

Size	Decimal Conversion	Size	Decimal Conversion	Size	Decimal Conversion	Size	Decimal Conversion	Size	Decimal Conversion	Size	Decimal Conversion
80	.0135	5/64	.0781	17	.1730	N	.3020	43/64	.6719	1-7/32	1.2188
79	.0145	47	.0785	16	.1770	5/16	.3125	11/16	.6875	1-15/64	1.2344
1/64	.0156	46	.0810	15	.1800	O	.3160	45/64	.7031	1-1/4	1.2500
78	.0160	45	.0820	14	.1820	P	.3230	23/32	.7188	1-17/64	1.2656
77	.0180	44	.0860	13	.1850	21/64	.3281	47/64	.7344	1-9/32	1.2812
76	.0200	43	.0890	3/16	.1875	Q	.3320	3/4	.7500	1-19/64	1.2969
75	.0210	42	.0935	12	.1890	R	.3390	49/64	.7656	1-5/16	1.3125
74	.0225	3/32	.0938	11	.1810	11/32	.3438	25/32	.7812	1-21/64	1.3281
73	.0240	41	.0960	10	.1935	S	.3480	51/64	.7969	1-11/32	1.3438
72	.0250	40	.0980	9	.1960	T	.3580	13/16	.8125	1-23/64	1.3594
71	.0260	39	.0995	8	.1990	23/64	.3594	53/64	.8281	1-3/8	1.3750
70	.0280	38	.1015	7	.2010	U	.3680	27/32	.8438	1-25/64	1.3906
69	.0292	37	.1040	13/64	.2031	3/8	.3750	55/64	.8594	1-13/32	1.4062
68	.0310	36	.1065	6	.2040	V	.3770	7/8	.8750	1-27/64	1.4219
1/32	.0312	7/64	.1094	5	.2055	W	.3860	57/64	.8906	1-7/16	1.4375
67	.0320	35	.1100	4	.2090	25/64	.3906	29/32	.9062	1-29/64	1.4531
66	.0330	34	.1110	3	.2130	X	.3970	59/64	.9219	1-15/32	1.4688
65	.0350	33	.1130	7/32	.2188	Y	.4040	15/16	.9375	1-31/64	1.4844
64	.0360	32	.1160	2	.2210	13/32	.4062	61/64	.9531	1-1/2	1.5000
63	.0370	31	.1200	1	.2280	Z	.4130	31/32	.9688	1-33/64	1.5156
62	.0380	1/8	.1250	A	.2340	27/64	.4219	63/64	.9844	1-17/32	1.5312
61	.0390	30	.1285	15/64	.2344	7/16	.4375	1"	1.0000	1-35/64	1.5469
60	.0400	29	.1360	B	.2380	29/64	.4531	1-1/64	1.0156	1-9/16	1.5625
59	.0410	28	.1405	C	.2420	15/32	.4688	1-1/32	1.0312	1-37/64	1.5781
58	.0420	9/64	.1406	D	.2460	31/64	.4844	1-3/64	1.0469	1-19/32	1.5938
57	.0430	27	.1440	1/4	.2500	1/2	.5000	1-1/16	1.0625	1-39/64	1.6094
56	.0465	26	.1470	F	.2570	33/64	.5156	1-5/64	1.0781	1-5/8	1.6250
3/64	.0469	25	.1495	G	.2610	17/32	.5312	1-3/32	1.0938	1-41/64	1.6406
55	.0520	24	.1520	17/64	.2656	35/64	.5469	1-7/64	1.1094	1-21/32	1.6562
54	.0550	23	.1540	H	.2660	9/16	.5625	1-1/8	1.1250	1-43/64	1.6719
53	.0595	5/32	.1562	I	.2720	37/64	.5781	1-9/64	1.1406	1-11/16	1.6875
1/16	.0625	22	.1570	J	.2770	19/32	.5938	1-5/32	1.1562	1-45/64	1.7031
52	.0635	21	.1590	K	.2810	39/64	.6094	1-11/64	1.1719	1-23/32	1.7188
51	.0670	20	.1610	9/32	.2812	5/8	.6250	1-3/16	1.1875	1-47/64	1.7344
50	.0700	19	.1660	L	.2900	41/64	.6406	1-13/64	1.2031	1-3/4	1.7500
49	.0730	18	.1695	M	.2950	21/32	.6562				
48	.0760	11/64	.1719	19/64	.2969						

Decimal Equivalents of Millimeter Sizes

mm	Decimal	mm	Decimal	mm	Decimal	mm	Decimal	mm	Decimal	mm	Decimal
.35	.0138	1.75	.0689	3.4	.1339	5.75	.2264	8.1	.3189	12.5	.4921
.4	.0157	1.8	.0709	3.5	.1378	5.8	.2283	8.2	.3228	13.0	.5118
.45	.0177	1.85	.0728	3.6	.1417	5.9	.2323	8.25	.3248	13.5	.5315
.5	.0197	1.9	.0748	3.7	.1457	6.0	.2362	8.3	.3268	14.0	.5512
.55	.0217	1.95	.0768	3.75	.1477	6.1	.2401	8.4	.3307	14.5	.5709
.6	.0236	2.0	.0787	3.8	.1496	6.2	.2441	8.5	.3346	15	.5906
.65	.0256	2.05	.0807	3.9	.1535	6.25	.2461	8.6	.3386	15.5	.6102
.7	.0276	2.1	.0827	4.0	.1575	6.3	.2480	8.7	.3425	16	.6299
.75	.0295	2.15	.0846	4.1	.1614	6.4	.2520	8.75	.3445	16.5	.6496
.8	.0315	2.2	.0866	4.2	.1654	6.5	.2559	8.8	.3465	17	.6693
.85	.0335	2.25	.0886	4.25	.1674	6.6	.2598	8.9	.3504	17.5	.6890
.9	.0354	2.3	.0905	4.3	.1693	6.7	.2638	9.0	.3543	18.0	.7087
.95	.0374	2.35	.0925	4.4	.1732	6.75	.2658	9.1	.3583	18.5	.7283
1.0	.0394	2.4	.0945	4.5	.1772	6.8	.2677	9.2	.3622	19.0	.7480
1.05	.0413	2.45	.0965	4.6	.1811	6.9	.2716	9.25	.3642	19.5	.7677
1.1	.0433	2.5	.0984	4.7	.1850	7.0	.2756	9.3	.3661	20.0	.7874
1.15	.0453	2.55	.1004	4.75	.1870	7.1	.2795	9.4	.3701	20.5	.8071
1.2	.0472	2.6	.1024	4.8	.1890	7.2	.2835	9.5	.3740	21.0	.8268
1.25	.0492	2.65	.1043	4.9	.1929	7.25	.2855	9.6	.3780	21.5	.8465
1.3	.0512	2.7	.1063	5.0	.1968	7.3	.2874	9.7	.3819	22.0	.8661
1.35	.0531	2.75	.1083	5.1	.2008	7.4	.2913	9.75	.3839	22.5	.8858
1.4	.0551	2.8	.1102	5.2	.2047	7.5	.2953	9.8	.3858	23.0	.9055
1.45	.0571	2.9	.1142	5.25	.2067	7.6	.2992	9.9	.3898	23.5	.9252
1.5	.0591	3.0	.1181	5.3	.2087	7.7	.3031	10.0	.3937	24.0	.9449
1.55	.0610	3.1	.1220	5.4	.2126	7.75	.3051	10.5	.4134	24.5	.9646
1.6	.0629	3.2	.1260	5.5	.2165	7.8	.3071	11.0	.4330	25.0	.9843
1.65	.0650	3.25	.1280	5.6	.2205	7.9	.3110	11.5	.4528		
1.7	.0669	3.3	.1299	5.7	.2244	8.0	.3150	12.0	.4724		

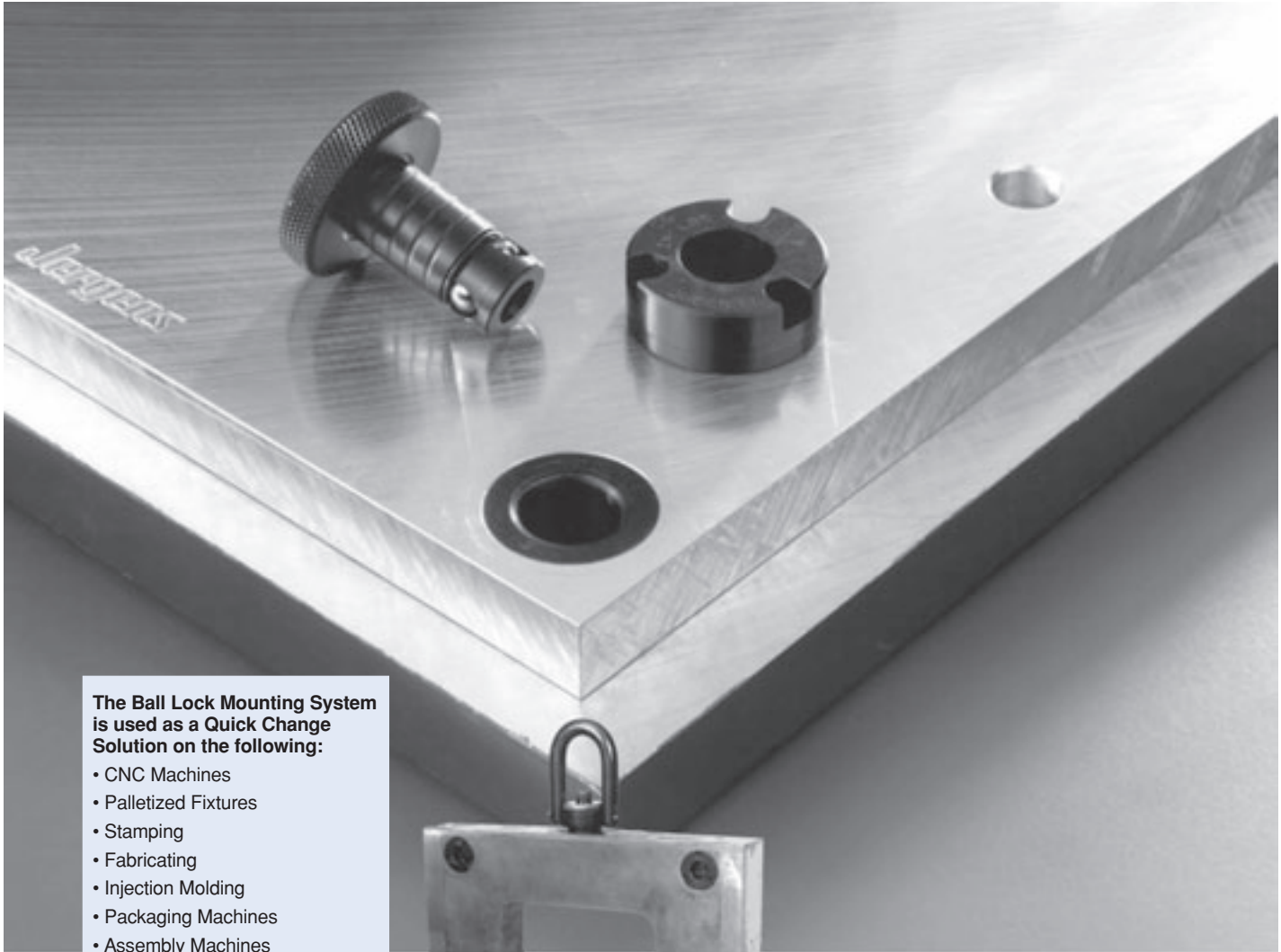
Millimeters to Inch Conversion

mm	Inches	mm	Inches	mm	Inches
1	.0394	35	1.3780	68	2.6772
2	.0787	36	1.4173	69	2.7165
3	.1181	37	1.4567	70	2.7559
4	.1575	38	1.4961	71	2.7953
5	.1969	39	1.5354	72	2.8336
6	.2362	40	1.5748	73	2.8740
7	.2756	41	1.6142	74	2.9134
8	.3150	42	1.6535	75	2.9528
9	.3543	43	1.6929	76	2.9921
10	.3937	44	1.7323	77	3.0315
11	.4331	45	1.7717	78	3.0709
12	.4724	46	1.8110	79	3.1102
13	.5118	47	1.8504	80	3.1496
14	.5512	48	1.8898	81	3.1890
15	.5906	49	1.9291	82	3.2283
16	.6299	50	1.9685	83	3.2677
17	.6693	51	2.0079	84	3.3071
18	.7087	52	2.0472	85	3.3465
19	.7480	53	2.0866	86	3.3858
20	.7874	54	2.1260	87	3.4252
21	.8268	55	2.1654	88	3.4646
22	.8661	56	2.2047	89	3.5039
23	.9055	57	2.2441	90	3.5433
24	.9449	58	2.2835	91	3.5827
25	.9843	59	2.3228	92	3.6220
26	1.0236	60	2.3622	93	3.6614
27	1.0630	61	2.4016	94	3.7008
28	1.1024	62	2.4409	95	3.7402
29	1.1417	63	2.4803	96	3.7795
30	1.1811	64	2.5197	97	3.8189
31	1.2205	65	2.5591	98	3.8583
32	1.2598	66	2.5984	99	3.8976
33	1.2992	67	2.6378	100	3.9370
34	1.3386				



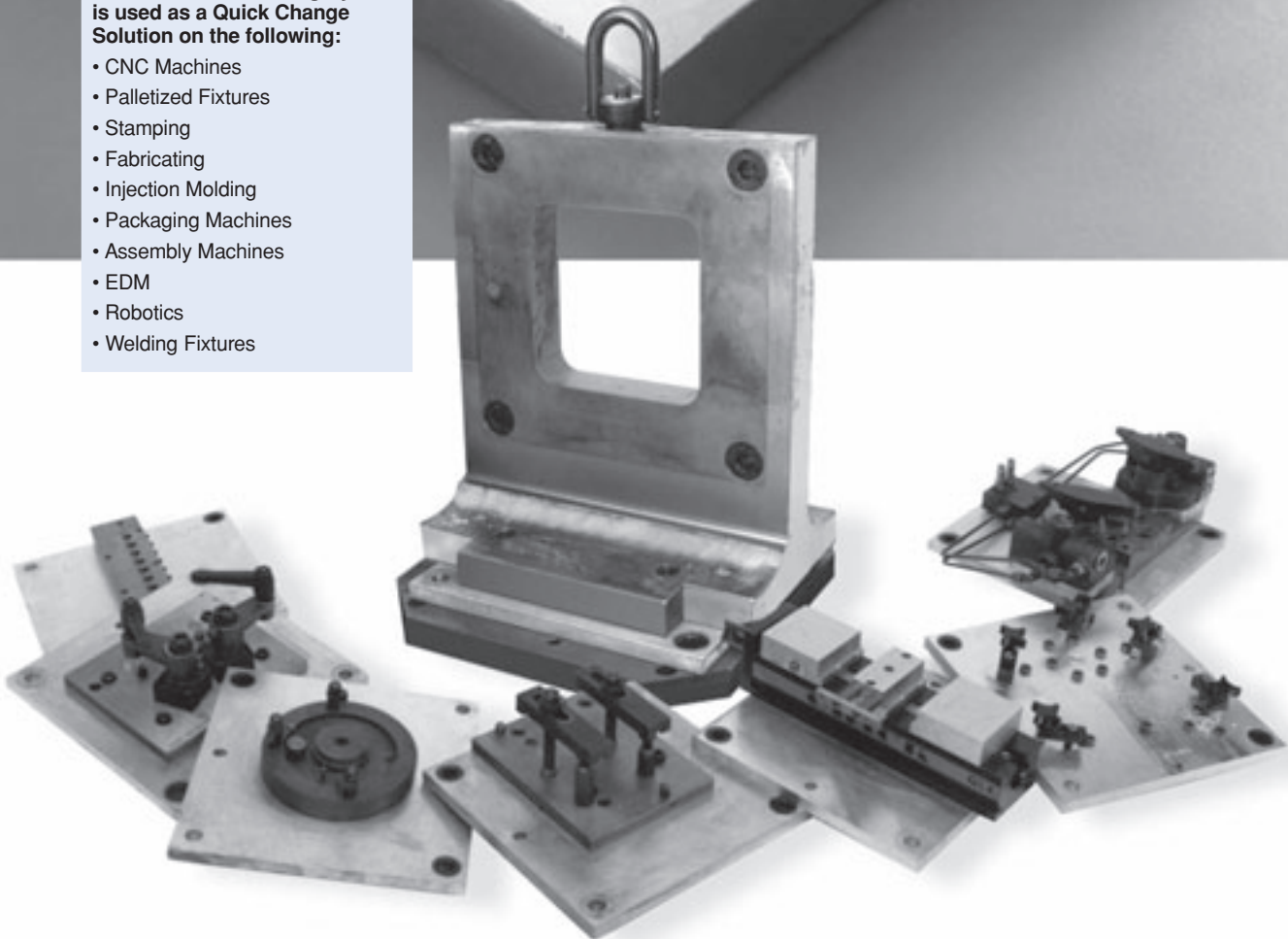
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The Ball Lock Mounting System was designed to locate and lock two flat stationary surfaces in a machine tool. Use of the Ball Lock Mounting System in other applications can result in different forces and stresses being exerted on the system components. End users must calculate the forces and stresses generated prior to their using Ball Lock in a different application.



The Ball Lock Mounting System is used as a Quick Change Solution on the following:

- CNC Machines
- Palletized Fixtures
- Stamping
- Fabricating
- Injection Molding
- Packaging Machines
- Assembly Machines
- EDM
- Robotics
- Welding Fixtures



Lean Manufacturing and Set Up Reduction Applications

Accurately Locate and *Lock Fixture* Plates to Subplates in Seconds...



00:60

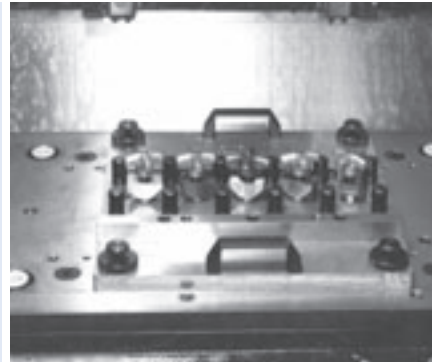
Machining Cast Part

Previous Set Up Method:
Located part with dowel pins, bolted part to tombstone fixture. Indicated part to zero datum point.

Previous Set-Up Time:
15 minutes

Set Up Using Ball Lock System:
Mount parts to fixture plate while machining other parts. Mount fixture plate to tombstone using Ball Lock shanks. No indicating required because system provides ± 0.0005 repeatability.

Set Up Time With Ball Lock System:
60 seconds



00:60

CNC Machine Base:

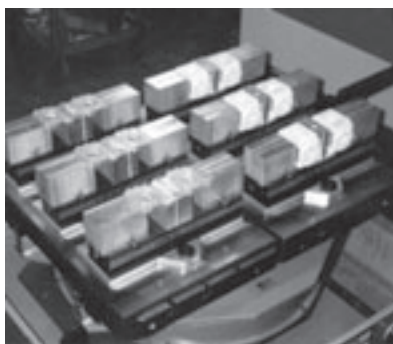
Drilling and reaming forged part.

Previous Set Up Method:
Fixture plate located with dowel pins bolted to machine base. Fixture plate and parts indicated.

Previous Set Up Time:
7 minutes

Set Up Using Ball Lock System:
Parts are pre-mounted on fixture plate, which is then mounted to machine base using Ball Lock shanks. No need to indicate.

Set Up Time with Ball Lock System:
60 seconds



01:20

CNC Vertical Machining Center

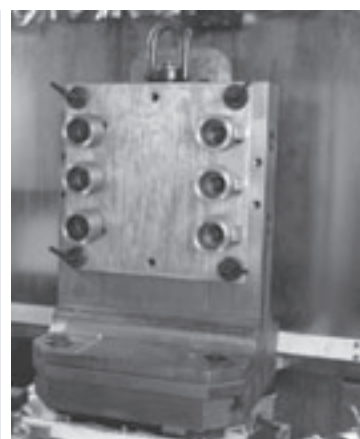
Machining aircraft valve parts

Previous Set Up Method:
New Project. New Machine. No Prior History.

Previous Set Up Time:
New Set Up.

Set Up Using Ball Lock System:
Using Ball Lock Jig Saw Plate on Multi-Purpose Subplate enables operator to mount two more vises on the fixture. No indicating needed.

Set Up Time With Ball Lock System:
80 seconds setting up six vises.



00:45

Two-Sided Tombstone:

Drilling and tapping cylindrical bodies.

Previous Set Up Method:
Fixture located and bolted to tombstone. Had to be indicated.

Previous Set Up Time:
12 minutes

Set Up Using Ball Lock System:
Fixture plate mounted and located with Ball Lock shanks. No need to indicate.

Set Up Time with Ball Lock System:
45 seconds

...With No Indicating Required



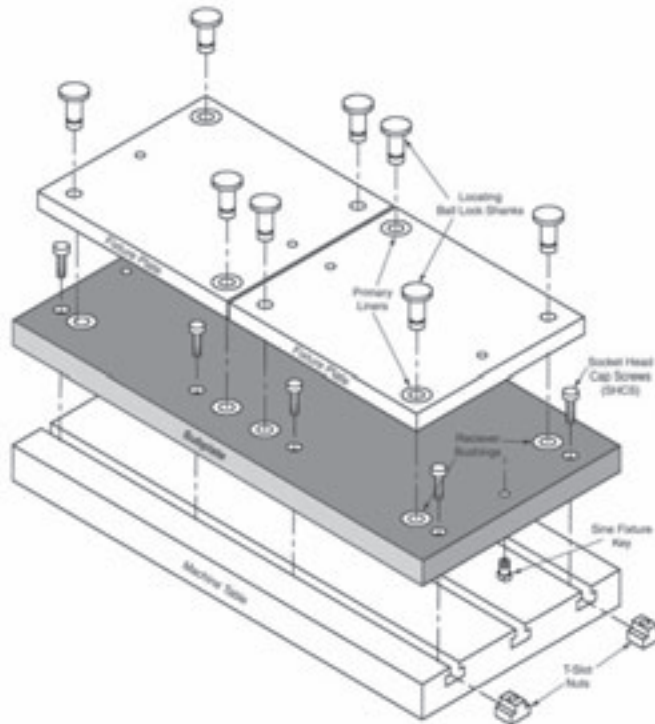
Locates

The Ball Lock™ System accurately positions your workpiece...to within $\pm .0005$ " repeatability, minimizing the need to indicate your fixture.



Locks

The Ball Lock System securely holds fixture plates to subplates with up to 20,000 lbs. of hold-down force per shank.



The Ball Lock Mounting System is designed to speed accurate locating and locking of fixture plates and subplates. The system consists of three parts: a Locating Shank, a Liner Bushing, and a Receiver Bushing. Using the Ball Lock Mounting System is a simple three step process. Install receiver bushings in your machine table or subplate,

and liner bushings in your fixture plate; then insert the locating shanks through the liners and into the receivers to provide accurate location. A couple of turns of the set screw in each of the locating shanks provides positive holding force. Eighteen locating shanks, two types of receiver bushings, and two types of liner bushings are available to

suit your individual requirements. It is recommended that the use of the Ball Lock Mounting System for locating and clamping of fixture plates be incorporated in a systematic process. All fixture plates should have two locating points positioned as far apart as possible. There is no advantage to

Most Commonly Asked Questions

Q. What is the Ball Lock System?

A. A means of locating and locking two flat surfaces together. These are usually a fixture plate and a subplate.

Q. How does it locate the plate?

A. It locates in the same manner as locating pins. In other words, there are two precision bores (receiver bushings) located on two precision pins (shanks).

Q. How many shanks (pins) do I need to locate the plate or part?

A. Two shanks are the maximum needed to locate. Anything more is a hindrance rather than a help. (This also applies to locating pins.)

Q. How does it lock?

A. The Ball Lock system achieves its holding force by a combination of force generators. A threaded screw exerts force onto a center ball which, in turn, directs this force onto three balls that register on a taper seat.

Q. How many do I need to lock the part?

A. This would depend on the particular application, but in most cases, we would recommend that at least four shanks be used (two shanks to locate and lock, and two shanks to lock only).

Q. If I should only locate on two shanks, how do I install the other two shanks without causing interference?

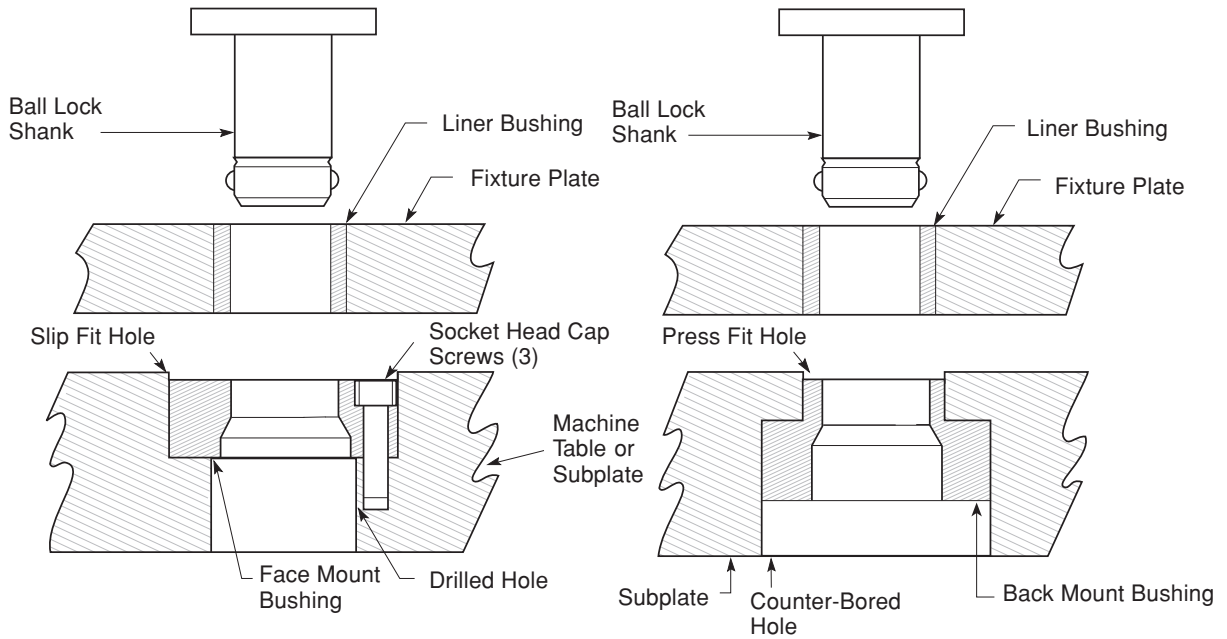
A. This is accomplished by only using liner bushings for the locating shanks and drilling a clearance hole (shank diameter plus approximately .030") for the remaining shanks.

Q. How close a repeatability can I expect?

A. If the center distance between the two locating holes (receiver bushings) is held to $\pm .0002$ " tolerance, and two primary liner bushings are used, then repeatability of $\pm .0005$ " can be maintained.

Q. What is the difference between the primary and the secondary liner bushings?

A. The only difference between the primary and the secondary liner bushings is that the secondary liner



**Mounting Method With
Face Mount Bushing**

**Mounting Method With
Back Mount Bushing**

having more than two locating points. If more than two flanged shanks are required to provide additional hold-down force, omit liner bushings in the additional holes in the fixture plate and allow .030 over the nominal size. The additional clearance will insure that these holes have no influence on the locating holes.

How Accurate Does Your Positioning Have to Be?

The center distance of the receiver bushings in the machine table, tombstone, or subplate should be as accurate as possible ($\pm .0002$ recommended). Accurate location will insure a sound base for interchangeability of numerous fixture plates. For accurate repeatability within .0005 of true position,

both of the liner bushings in the fixture plate should be *primary* liners and the center distance tolerance should be $\pm .0002$. For slightly less accurate repeatability (within .0015 of true position), use one *primary* and one *secondary* liner with a center distance tolerance of $\pm .001$.

bushing has an oversized I.D. to accommodate the wider center distance tolerance on your fixture.

Q. Is there a preferable location for the liner bushing?

A. The location of the liner bushing is not critical, but in order to be consistent, we recommend that wherever possible, locate the liner bushings at bottom left and at top right.

Q. What are the advantages of using the Ball Lock System over the conventional method of dowel pins and cap screws?

A. Both locating and locking are accomplished in the same motion. Two and one half turns are the maximum needed to

lock (whereas a 1/2–13 cap screw with one and a half diameters of thread engagement would need ten turns to lock). On CNC machines, the repeatability of fixture locations makes indicating of the fixture unnecessary.

Q. If I need to recess the fixture plate in order to have a clear surface, what do I have to do?

A. Counterbore the fixture plate to a diameter large enough to allow easy removal of the shank. Note: The thickness of the plate section under the head of the shank is critical! It must conform to plate thickness recommended in the catalog.

Q. What if my plate is thinner than the recommended thickness?

A. It is possible that by adjusting the depth of the counterbore for the receiver bushing, you can still use the Ball Lock System. If there are any questions on this type of application, please call 1-800-JERGENS.

Q. Can I use the shanks in a heated environment?

A. The shank is made of alloy steel, heat treated to 40-45Rc and should stand temperatures up to 400°F. However, the "O" Ring that retains the balls could disintegrate.

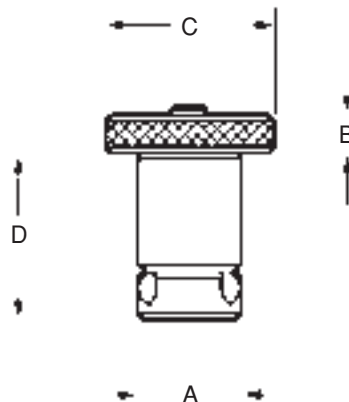
Note: Be aware that thermal expansion of your plate could affect the center distance tolerance and repeatability.

Locating and Clamping Shanks



- Material: Shank/Bushing, 4340
Liner, 52100
- Finish: Black Oxide
- Heat Treat: Shanks, RC 40-45
Bushings, RC 50-54
Liners, RC 62-64
- Operating Temperature Range
-20° to 400°F, -30° to 200°C
- Stainless Steel available in all sizes

U.S. Patent 3,498,653
4,135,418



Ball Lock Repair Kits



Each Kit Includes:

- Replacement Screw
- Locking Balls
- Drive Ball
- O-Ring

Any Ball Lock application requires at least two sets of shanks, receiver bushings and liners. The liners are placed into the fixture plate to insure extremely accurate positioning. If more than two shanks are required (to provide additional hold down force), omit the liner bushing so that these additional holes will not interfere with your primary locating holes.

See page 1.19 for additional
Shank styles and options.

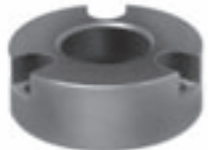
Locating and Clamping Shank Dimensions

Shank Diameter (mm) A	Fixture Plate Thickness ± .005	Shank Part Number	Head of Shank		Length Under Head D	Hex Wrench Size for Set Screw	Maximum		Recommended		Shank Repair Kit Part Number
			Height B	Diameter C			Screw Torque (Ft/lb)	Hold-Down Force (lbs)	Screw Torque (Ft/lb)	Hold-Down Force (lbs)	
13	0.50	49605	0.25	0.87	1.08	3/32	1.2	750	1	625	49905
	0.75	49606			1.33						49906
16	0.50	49607	0.32	1.50	1.15	1/8	3	1200	2	800	49907
	0.75	49608			1.40						49908
20	0.75	49601	0.38	1.75	1.53	1/8	4	3000	3	2250	49901
	1.00	49602			1.78						49902
25	0.75	49611	0.38	2.00	1.70	5/32	9	7000	7	5444	49911
	1.00	49612			1.95						49912
30	0.75	49621	0.50	2.25	1.88	3/16	15	10000	12	8000	49921
	1.00	49622			2.13						49922
35	0.75	49631	0.50	2.25	1.97	1/4	25	15500	19	11780	49931
	1.00	49632			2.22						49932
	1.50	49633			2.72						49933
	2.00	49634			3.22						49934
50	0.75	49641	0.75	3.00	2.45	3/8	50	20000	38	15200	49941
	1.00	49642			2.70						49942
	1.50	49643			3.20						49943
	2.00	49644			3.70						49944

Receiver Bushings



Back Mount

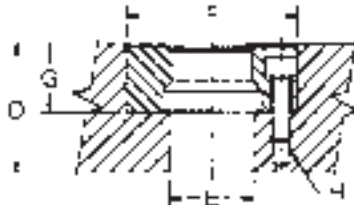


Face Mount

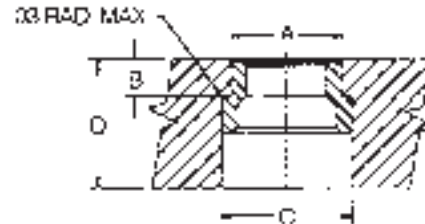
Two styles of receiver bushings are available. Generally, the face mount receiver bushing is utilized in blind hole applications (Slip Fit). The back mount receiver bushing is used in through hole applications (Light Press Fit).

Note: Installed bushings should be approximately .012" below subplate surface.

See reference below for installation of back mount style bushings.



**Face Mount Bushing
Installation Instructions**



**Back Mount Bushing
Installation Instructions**

Installation Dimensions

Face Mount

Shank Dia. (mm)	Face Mount Part Number	Actual O.D. +.0000 - .0004	Clearance Drill Diameter E	Bore +.0005 - .0000 F	Depth +.002 - .000 G	Tap Size & Depth ¹ H	Bolt Circle Diameter 3 PL Equally Spaced	Min. Subplate Thickness D
13	49506	1.3750	11/16	1.3750	0.469	8-32x5/16	0.984	3/4
16	49507	1.4370	13/16	1.4370	0.469	8-32x5/16	1.125	3/4
20	49501	1.6873	13/16	1.6873	0.637	10-32x3/8	1.362	1
25	49502	2.0623	1	2.0623	0.799	1/4-28x1/2	1.644	1-1/4
30	49503	2.2654	1 3/16	2.2654	0.871	1/4-28x3/4	1.876	1-3/8
35	49504	2.6873	1 9/16	2.6873	0.904	5/16-24x7/8	2.178	1-1/2
50	49505	3.4998	2 5/32	3.4998	1.239	3/8-24x1	2.916	2

¹Cap Screws Supplied with Face Mount Bushings.

Back Mount

Shank Dia. (mm)	Back Mount Part Number	Actual O.D. +.0000 - .0004 A	Depth +.000 - .002 B	C-Bore ±.006 C	Min. Subplate Thickness D
13	49516	0.7870	.277	1.000	3/4
16	49517	0.8760	.285	1.155	3/4
20	49511	1.0950	.345	1.280	7/8
25	49512	1.3763	.416	1.593	1
30	49513	1.6264	.432	1.906	1-1/4
35	49514	1.8764	.493	2.155	1-5/16
50	49515	2.6269	.621	2.988	1-3/4

Liners



Locating repeatability will determine if one primary and one secondary or two primary liners are needed. With two primary liners, repeatability of ±.0005" can be maintained if the two holes for receiver bushings are held to a centerline distance of ±.0002" tolerance.

Note on Installation of Back Mount Style:

To alleviate the possibility of binding the shank in the bore, the maximum interference fit between bore and bushing O.D. should not exceed .0005".

Liner Dimensions

Fixture Plate Thickness ±.005	Shank Diameter (mm)	Primary Liner Part Number	Secondary Liner Part Number	Liner O.D. +.0000 - .0004
.50	13	49705	49805	0.7518
.75	13	49706	49806	0.7518
.50	16	49707	49807	1.0018
.75	16	49708	49808	1.0018
.75	20	49701	49801	1.3772
1.00	20	49702	49802	1.3772
.75	25	49711	49811	1.3772
1.00	25	49712	49812	1.3772
.75	30	49721	49821	1.7523

Fixture Plate Thickness ±.005	Shank Diameter (mm)	Primary Liner Part Number	Secondary Liner Part Number	Liner O.D. +.0000 - .0004
1.00	30	49722	49822	1.7523
.75	35	49731	49831	1.7523
1.00	35	49732	49832	1.7523
1.50	35	49733	49833	1.7523
2.00	35	49734	49834	1.7523
.75	50	49741	49841	2.5025
1.00	50	49742	49842	2.5025
1.50	50	49743	49843	2.5025
2.00	50	49744	49844	2.5025

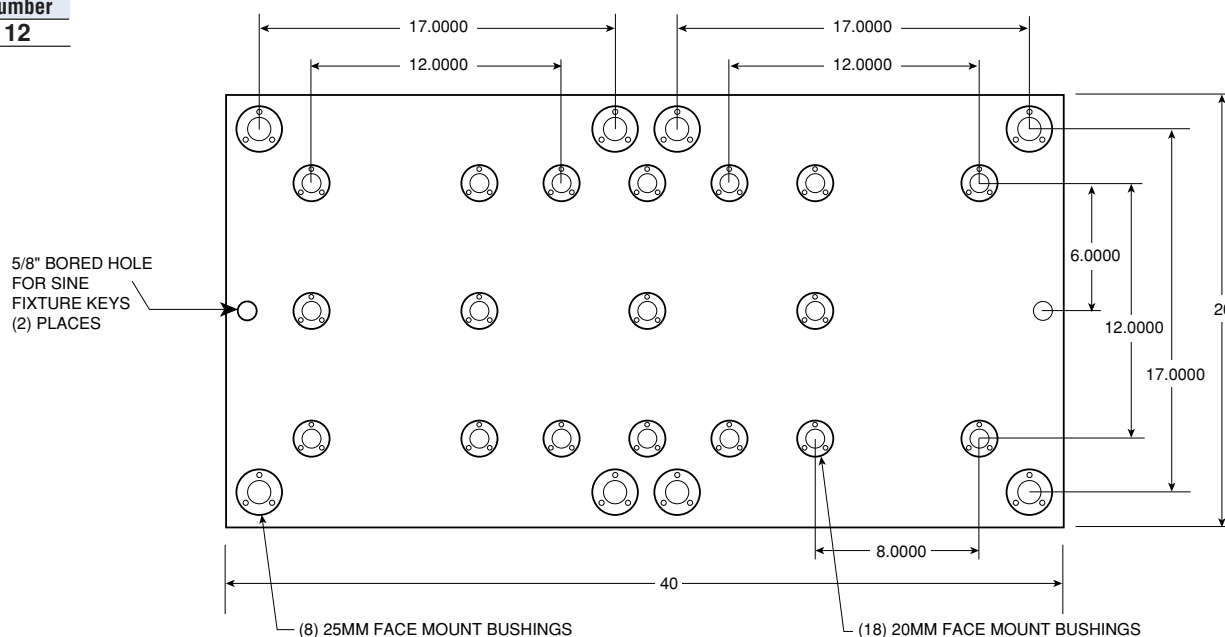
Multi-Purpose Subplates

The Jergens Multi-Purpose Subplate is ideal for adapting your machine tools to accommodate most fixtures. Its versatility, coupled with the quick change capabilities of the Ball Lock Mounting System, makes it ideal for any size production run.

- Material: FreMax™ 15 Steel or Equivalent
- Thickness: 1 1/4"
- Thickness Tolerance: $\pm .005$
- Weight: 285 Lbs.
- Subplate will accept combinations of six different standard Ball Lock Fixture Plates
- Includes installed Ball Lock Receiver Bushings
- Ideal solution to increase production
- Made in U.S.A.

20x40 Multi-Purpose Subplate

Part Number
49112



Fixture Plate Options for Multi-Purpose Subplates – Aluminum or Steel

Fixture Plate* Part Number	Thickness of Fixture Plate	Number of Fixture Plates That Mount on Multi-Purpose Subplate	Receiver Bushing Center Distance	Receiver Bushing Size	Required Ball Lock Shank Part Number	Number of Shanks Required Per Fixture Plate
28713 (14 x 14) Fixture Plate	3/4"	2	12 x 12	20 mm	49601	4
28715 (16 x 16) Fixture Plate	3/4"	2	12 x 12	20 mm	49601	4
28801 (16 x 16) Modular Grid Plate	1 1/8"***	2	12 x 12	20 mm	49602	4
28706 Jigsaw Interlocking Plate	3/4"	4	8 x 12	20 mm	49601	3
28727 (20 x 20) Fixture Plate	1"	2	17 x 17	25 mm	49612	4
28719 (20 x 16) Fixture Plate	3/4"	1	16 x 12	20 mm	49601	4

* See next page for dimensional data on fixture plates. Part numbers shown for aluminum plates, also available in steel.

** Counterbored to 1" at mounting holes.

Fixture Plates for Use on Multi-Purpose Subplate

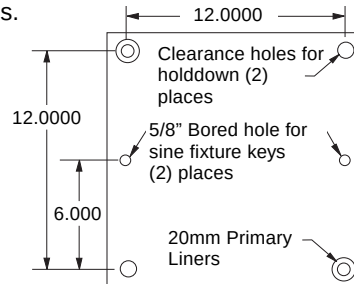
14x14 Fixture Plate

Aluminum Plate Part Number	Steel Plate Part Number
28713	28813

16x16 Fixture Plate

Aluminum Plate Part Number	Steel Plate Part Number
28715	28815

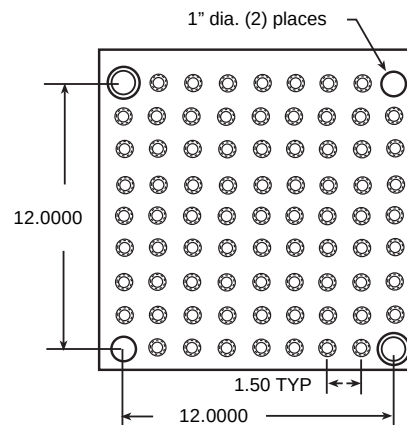
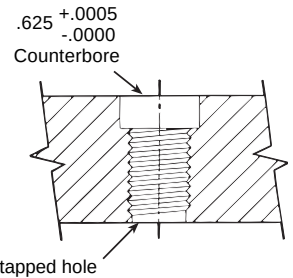
- Material: Alca Plus Cast Aluminum or FreMax 15 Steel
- Thickness: 3/4"
- Thickness Tolerance: $\pm .005$
- Weight (14x14): Aluminum 14 lbs., Steel 42 lbs.
- Weight (16x16): Aluminum 18 lbs., Steel 55 lbs.



16x16 Modular Grid Fixture Plate

Steel Plate Part Number
28801

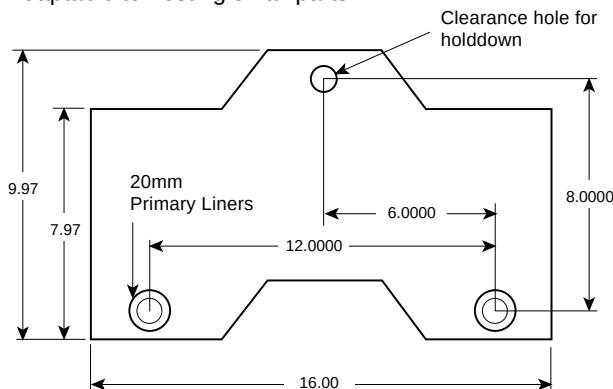
- Material: FreMax 15 Steel
- Thickness: 1 1/8"
- Thickness Tolerance: $\pm .005$
- Weight: 80 lbs.



Jigsaw Interlocking Plate

Aluminum Plate Part Number	Steel Plate Part Number
28706	28806

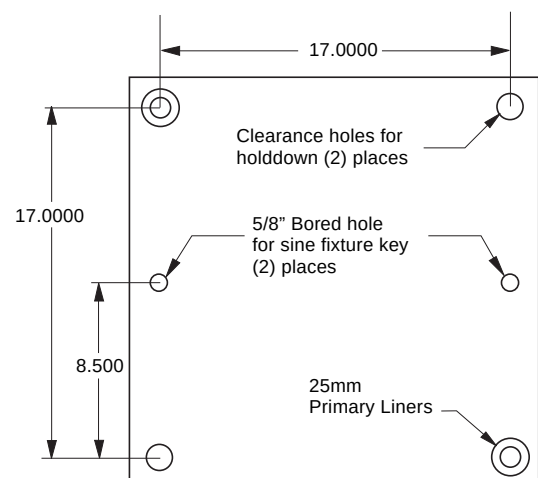
- Material: Alca Plus Cast Aluminum or FreMax 15 Steel
- Thickness: 3/4"
- Thickness Tolerance: $\pm .005$
- Weight: Aluminum 9 lbs., Steel 27 lbs.
- For use with straight base 4" or 6" vises
- Unique design minimizes center distances between vises allowing for more parts on a production run
- Easily mounts to Multi-Purpose Subplate using the Ball Lock Mounting System
- Adaptable to nesting small parts



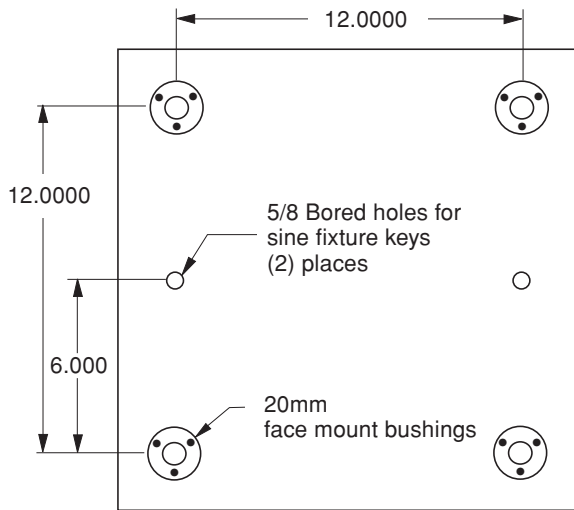
20x20 Fixture Plate

Aluminum Plate Part Number	Steel Plate Part Number
28727	28827

- Material: Alca Plus Cast Aluminum or FreMax 15 Steel
- Thickness: 1"
- Thickness Tolerance: $\pm .005$
- Weight: Aluminum 38 Lbs., Steel 114 lbs.



Pre-Machined Ball Lock Steel Subplates



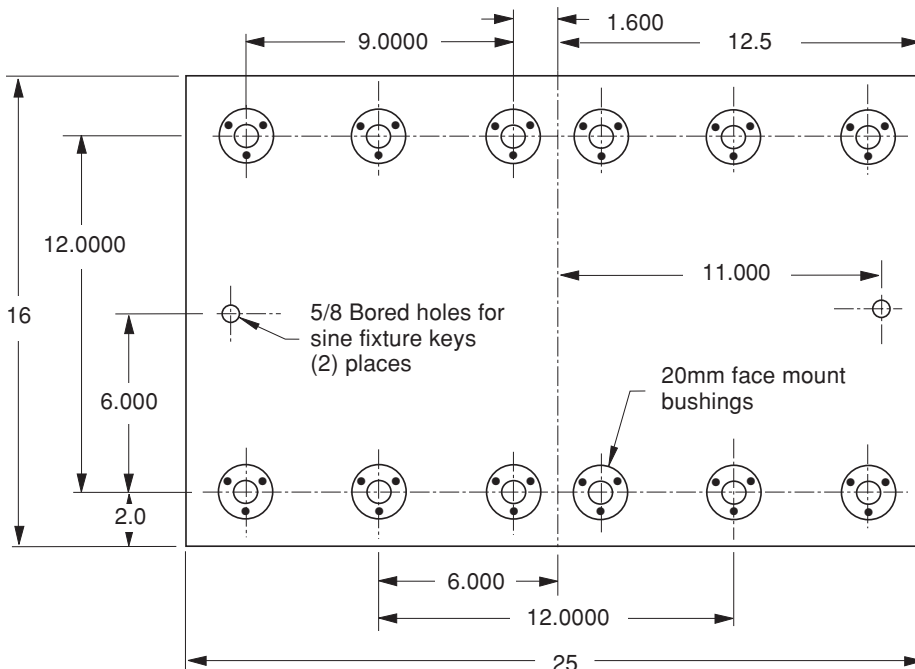
To make the job easier, the Ball Lock Quick Change Kit includes all components needed in a single package. See page 1.15 for details.

16x16 Subplate

Part Number
49101

Equipped with four 20mm receiver bushings for use with 14x14 or 16x16 fixture plates. Ideal for horizontal machining centers or multiple pallet machining centers.

- Material: Fremax™ 15 steel plate
- Flat within .001
- Thickness: 1-1/8"
- Thickness tolerance: $\pm .005$
- Weight: 81 lbs.



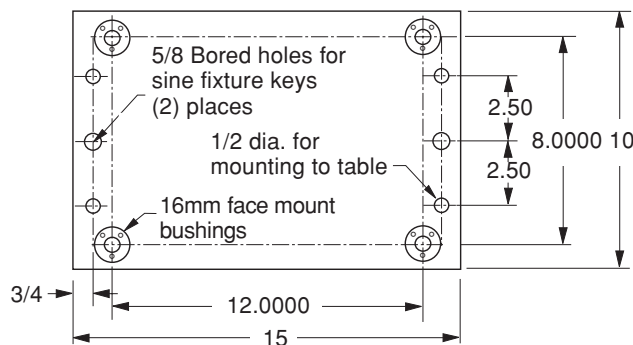
16x25 Dual Station Subplate

Part Number
49111

Equipped with twelve installed 20mm receiver bushings to easily locate and mount the following fixture plates:

Part Number	Number of Fixture Plates	Plate Width and Length
28713	1	14"x14"
28715	1	16"x16"
28711	2	12"x14"
49012	2	12"x14"

- Ideal for vertical machining centers.
- Thickness: 1-1/8"
- Weight: 128 lbs.



10x15 Bridgeport™ - Style Subplate

Part Number
49121

Equipped with four installed 16mm receiver bushings and 1/2" mounting holes. Used with the Bridgeport™ style fixture plate.

- Thickness: 3/4"
- Weight: 32 lbs.

Pre-Machined Ball Lock Fixture Plates

- Material: Alca Plus Cast Aluminum* or FreeMax 15 Steel
- Flat within .005
- Thickness tolerance $\pm .005$
- 6061-T-651 plates, flat within .001 available upon request

Pre-Machined Ball Lock Fixture Plates

Part Number				Plate Width and Length (in.)	Plate Thickness (in.)	Ball Lock Shank Size (mm)
Aluminum	Weight (lbs)	Steel	Weight (lbs)			
28706	9	28806	27	9.97 x 16	.75	20
28711	12	28811	36	12 x 14	.75	20
28713	14	28813	42	14 x 14	.75	20
28715	18	28815	55	16 x 16	.75	20
28722	16	28822	48	12 x 14	1.00	25
28724	19	28824	56	14 x 14	1.00	25
28726	24	28826	73	16 x 16	1.00	25
28719	23	28819	68	20 x 16	.75	20
28727	38	28827	114	20 x 20	1.00	25
28731	11	28831	32	10 x 15	.75	16
—	—	28801	80	16 x 16	1.125	20

Note: Each plate has two primary liners installed.

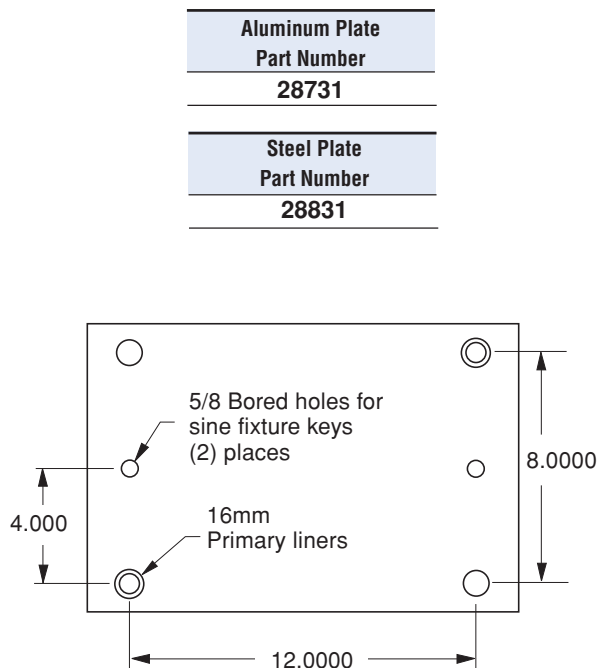
- Pre-machined to close distance tolerance
- Ensure $\pm .0005$ " repeatability of the Ball Lock System
- Includes pre-installed primary liners
- Reduces fixture set-up and assembly time
- Provided with 5/8" reamed holes for sine fixture keys
- Ideal for horizontal or vertical machining centers, Bridgeport™ style machines, or multiple pallet machining centers

* Alca Plus is a trademark of Alcoa Aluminum Co.

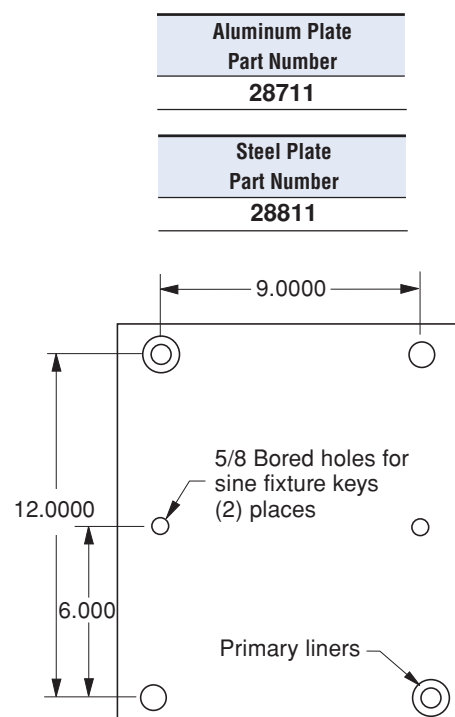
Custom Sizes Available

Jergens will make any size Ball Lock fixture plate or subplate to your specifications. Call 1-800-JERGENS for further information.

10x15 Fixture Plate Bridgeport™ Style



12x14 Fixture Plate



Pre-Machined Ball Lock T-Columns

- Material: Class 40 Meehanite cast iron
- Also available in Aluminum
- Ball Lock Receiver Bushings and Liners installed
- Provides accurate fixturing base for CNC machining centers
- Perpendicularity is .001 per foot

Custom Sizes Available

We are able to quote you on your special requirement columns, pre-machined with or without the Ball Lock components installed in place. Call 1-800-JERGENS for design specification information.

Cast Iron T-Columns With Ball Lock Receiver Bushings Installed

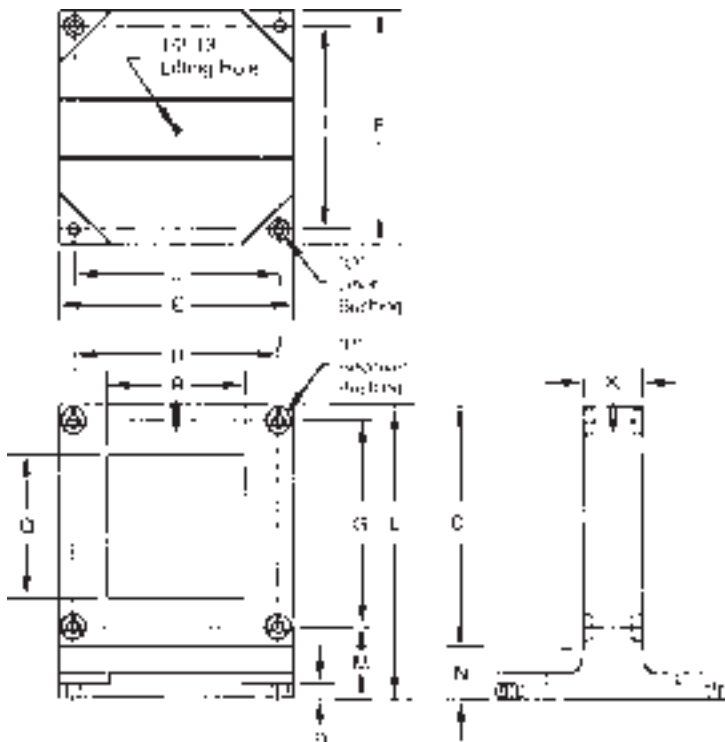
Part Number	C	D	E	F	G	H	I	J	K	L	Wt. (lbs)
69101	16.375	1	16	16	14	14	14	14	4	19.875	425
69111	22.375	1	20	20	19	17	17	17	4.7	25.875	700
69121	26.375	1.5	25	25	23	22	21	21	4	29.875	1125

Dimensions continued from above.

Part Number	M	N	O (mm)	P (mm)	Fixture Plate Part Number	Sub Plate Part Number
69101	4.875	3.5	20	20	28717	49102
69111	5.375	3.5	25	25	28745	49103
69121	5.375	3.5	35	25	28746	49104

Note: Window sections are also available on T-Columns.

Window size and location (Q and R Dimensions) to be specified by customer.



Engineering Changes

Product improvement is a continuing process at Jergens. Specifications and engineering data are subject to change without notice. If current information is critical to your design, it is suggested that you contact Jergens Technical Sales Department to verify any dimensions or specifications.

Use Hoist Ring **23411** for lifting and handling – Order separately.

Pre-Machined Ball Lock 4-Sided Tooling Columns

- Material: Class 40 Meehanite cast iron
- Also available in Aluminum
- Ball Lock Receiver Bushings and Liners installed
- Provides accurate fixturing base for CNC machining centers
- Perpendicularity is .001 per foot

Cast Iron 4-Sided Tooling Columns With Ball Lock Receiver Bushings Installed

Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Wt. (lbs)
69001	10	10	20	1	16	16	18	6.75	14	14	1.75	23.875	4.875	3.875	510
69011	12	12	25	1	20	20	22	8	17	17	1.625	28.875	5.375	3.875	736
69021	16	16	26	1.5	25	25	23	11.50	21	21	2	29.875	5.375	3.875	1122

Dimensions continued from above.

Part Number	O (mm)	P (mm)	Fixture Plate Part Number	Sub Plate Part Number
69001	20	20	28741	49102
69011	25	25	28742	49103
69021	35	25	28743	49104

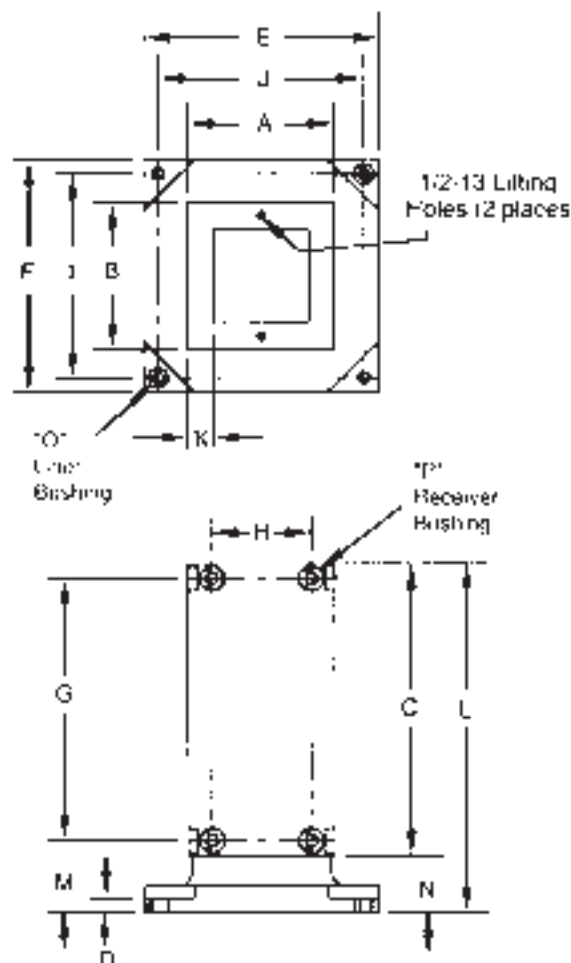
Custom Sizes Available

We are able to quote you on your special requirement columns, pre-machined with or without the Ball Lock components installed in place. Call 1-800-JERGENS for design specification information.

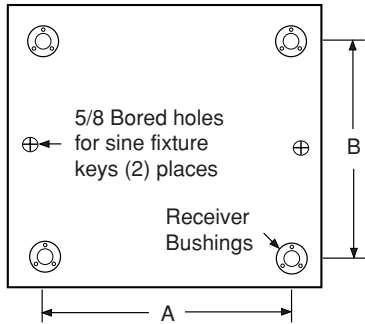
Use Hoist Ring **23411** for lifting and handling – Order separately.

Engineering Changes

Product improvement is a continuing process at Jergens. Specifications and engineering data are subject to change without notice. If current information is critical to your design, it is suggested that you contact Jergens Technical Sales Department to verify any dimensions or specifications.



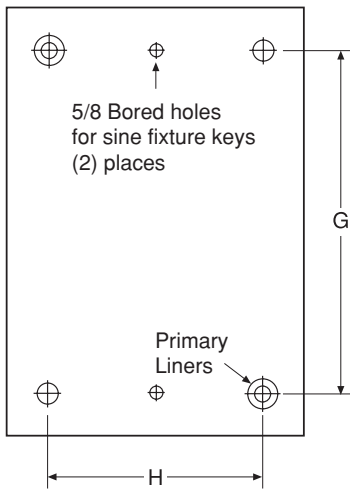
Standard Subplates and Fixture Plates for Tooling Columns



Standard Steel Subplates for Tooling Columns

Part Number	Pallet Size (mm)	For Tooling Columns	A (in.)	B (in.)	Receiver Size (mm)	Thickness of Subplate (in.)	Wt (lbs)
49102	400	69001, 69101	14	14	20	1.125	79
49103	500	69011, 69111	17	17	25	1.25	137
49104	630	69021, 69121	21	21	35	1.375	240

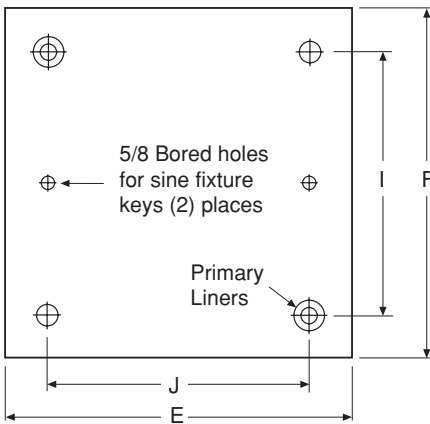
Note: Mounting holes can be provided per customer specification.
Supplied with Ball Lock Receiver Bushings installed.



Fixture Plates for Standard Tooling Columns and T-Columns

Part Number				For Tooling Columns	Fixture Plate Size (in.)	H (in.)	G (in.)	Liner Size (mm)	Fixture Plate Thickness (in.)
Aluminum	(lbs)	Steel	(lbs)						
28741	14	28841	43	69001	10x20	6.75	18	20	.75
28742	28	28842	86	69011	12x25	8	22	25	1
28743	39	28843	119	69021	16x26	11.50	23	25	1
28717	18	28817	55	69101	16x16	14	14	20	.75
28745	41	28845	125	69111	20x22	17	19	25	1
28746	61	28846	186	69121	25x26	22	23	25	1

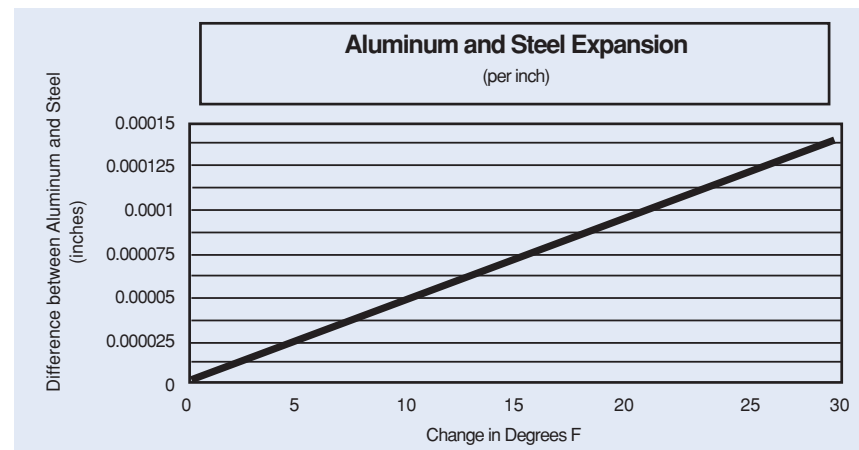
Supplied with Ball Lock Liner Bushings installed.



Fixture Plates for Tooling Column Subplates

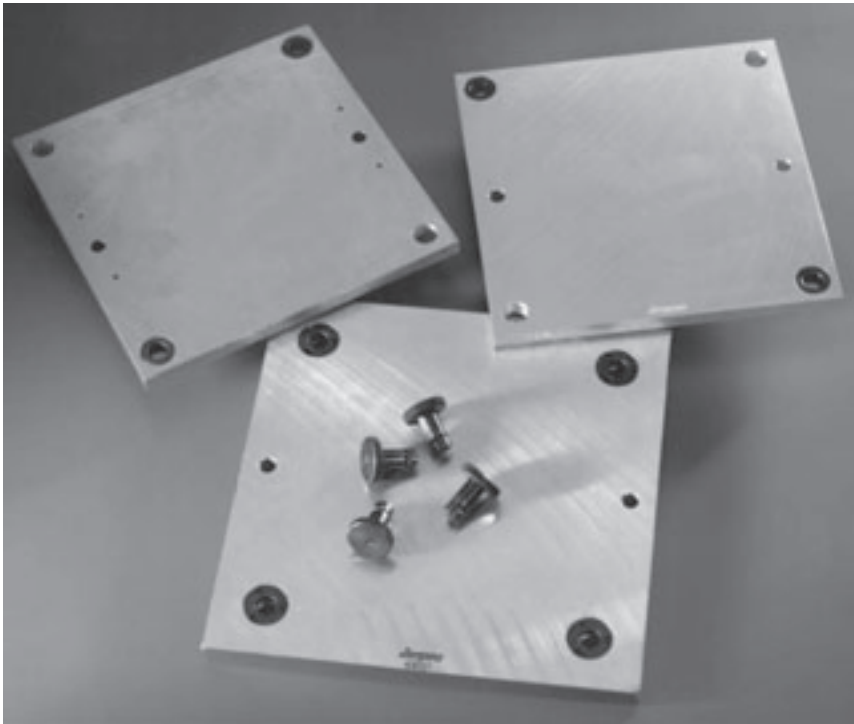
Part Number				For Subplate	E (in.)	F (in.)	I (in.)	J (in.)	Liner Size (mm)	Fixture Plate Thickness (in.)
Aluminum	(lbs)	Steel	(lbs)							
28717	18	28817	55	49102	16	16	14	14	20	.75
28727	38	28827	114	49103	20	20	17	17	25	1
28732	58	28832	177	49104	25	25	21	21	35	1

Supplied with Ball Lock Liner Bushings installed.



NOTE: Aluminum and steel expand at different rates. Please take this information into consideration when creating your own Ball Lock fixture and subplates.

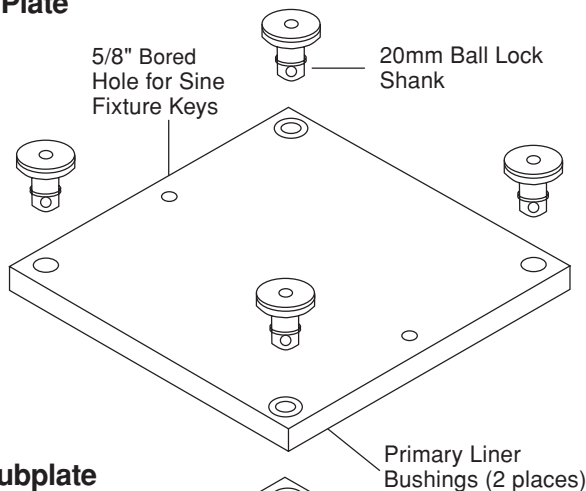
Quick Change Kits



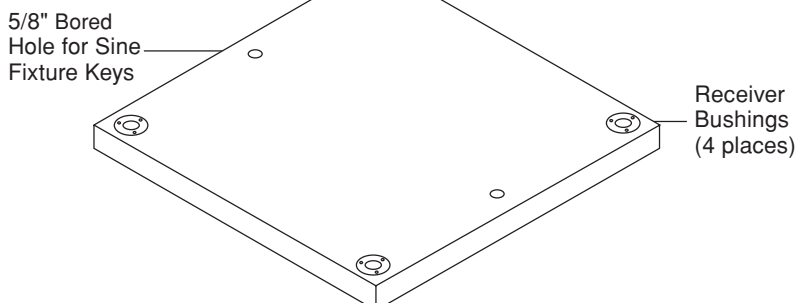
Everything You Need to Change Fixtures in Less Than One Minute

The Jergens Ball Lock™ Quick Change Kits speed fixture changeover in all types of manufacturing operations. Each kit includes two aluminum fixture plates with liner bushings installed; one steel subplate with receiver bushings installed; and four 20mm Ball Lock shanks with working loads of 3000 lbs. each. While one fixture plate is on the machine, the operator can load parts on the other. This minimizes downtime for true set-up reduction. To enable the subplate to be mounted on a slotted table without the need to indicate the subplate, sine fixture keys can be used. The sine fixture key reamed holes are oriented parallel to the receiver bushings on the subplate and to the liner bushings on the fixture plate. These also allow the fixture plate to be mounted on a toolroom mill without the need to indicate it. This is extremely useful when machining location points on your fixture.

Aluminum Fixture Plate



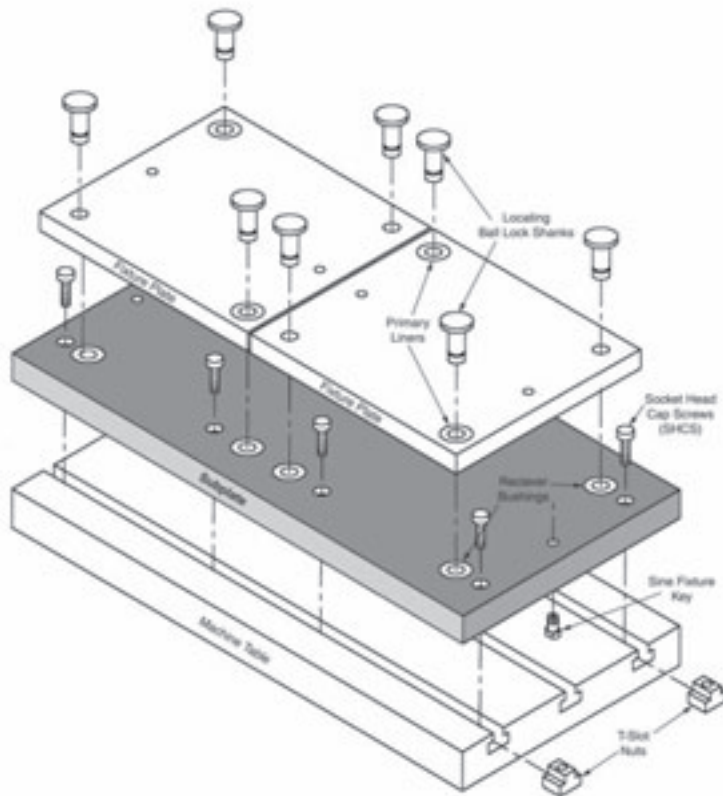
Steel Subplate



Quick Change Kits

Part No.	Kit Includes
49001	2 - 3/4"x14"x14" aluminum fixture plates with 20mm liner bushings installed 1 - 1-1/8"x16"x16" steel subplate with receiver bushings installed 4 - 20mm Ball Lock Shanks
49002	2 - 3/4"x16"x16" aluminum fixture plates with 20mm liner bushings installed 1 - 1-1/8"x16"x16" steel subplate with receiver bushings installed 4 - 20mm Ball Lock Shanks
49004	Bridgeport™-Style 2- 3/4"x10"x15" aluminum fixture plates with 16mm liner bushings installed 1- 3/4"x10"x15" steel subplate with receiver bushings installed 4- 16mm Ball Lock Shanks

Pre-Engineered Ball-Lock™ Fixture Kits for HAAS*



These kits include:

- Steel Subplate
- Aluminum Fixture Plate(s)
- Pre installed receiver and Liner Bushings
- Ball-Lock Shanks
- T-Slot nuts for mounting subplate to machine table
- 2 Sine Fixture Keys for accurate subplate locating
- Socket head cap screws

Benefits:

- Save time specifying and ordering
- Saves installation time and cost
- Eliminates potential installation errors



Jergens Kit Number	Fix. Plates	Jigsaw Plates	HAAS Model Number
50000	1	—	MINI-MILL
50001	1	—	
50002	2	—	
50003	2	—	
50004	—	2	VF-E, VF-O, VF-1
50005	2	—	
50006	—	3	
50007	2	—	
50008	—	3	VF-OE, VF-2
50009	2	—	
50010	3	—	
50011	—	5	
50012	2	—	VF-3
50013	2	—	
50014	2	—	
50015	2	—	
50016	—	5	

Ask about other manufacturers available.

Call customer support services at 1-800-537-4367 or see Jergens Ball Lock kits for HAAS* catalog for additional information.

*HAAS is a trademark of HAAS Automation Inc.

Jergens Kit Number	Fix. Plates	Jigsaw Plates	HAAS Model Number
50017	3	—	VF-4
50018	4	—	
50019	—	6	
50020	2	—	
50021	2	—	
50022	2	—	
50023	2	—	
50024	3	—	
50025	3	—	
50026	—	6	
50027	—	6	VF-5
50028	2	—	
50029	2	—	
50030	3	—	
50031	—	6	
50032	2	—	
50033	2	—	
50034	3	—	
50035	3	—	
50036	—	6	

Ask about other manufacturers available.

Ball Lock™ For Rotary Indexers

Problem:

Although your rotary indexer increases the versatility of a vertical machining center, it has one major limitation: set-up is so laborious and time-consuming that it limits the machine's flexibility. In many cases, folks dedicate their units to a single machine tool to avoid the agony of an extended set-up and changeover.

Subplates and fixture plates come with bushings pre-installed.

Benefits:

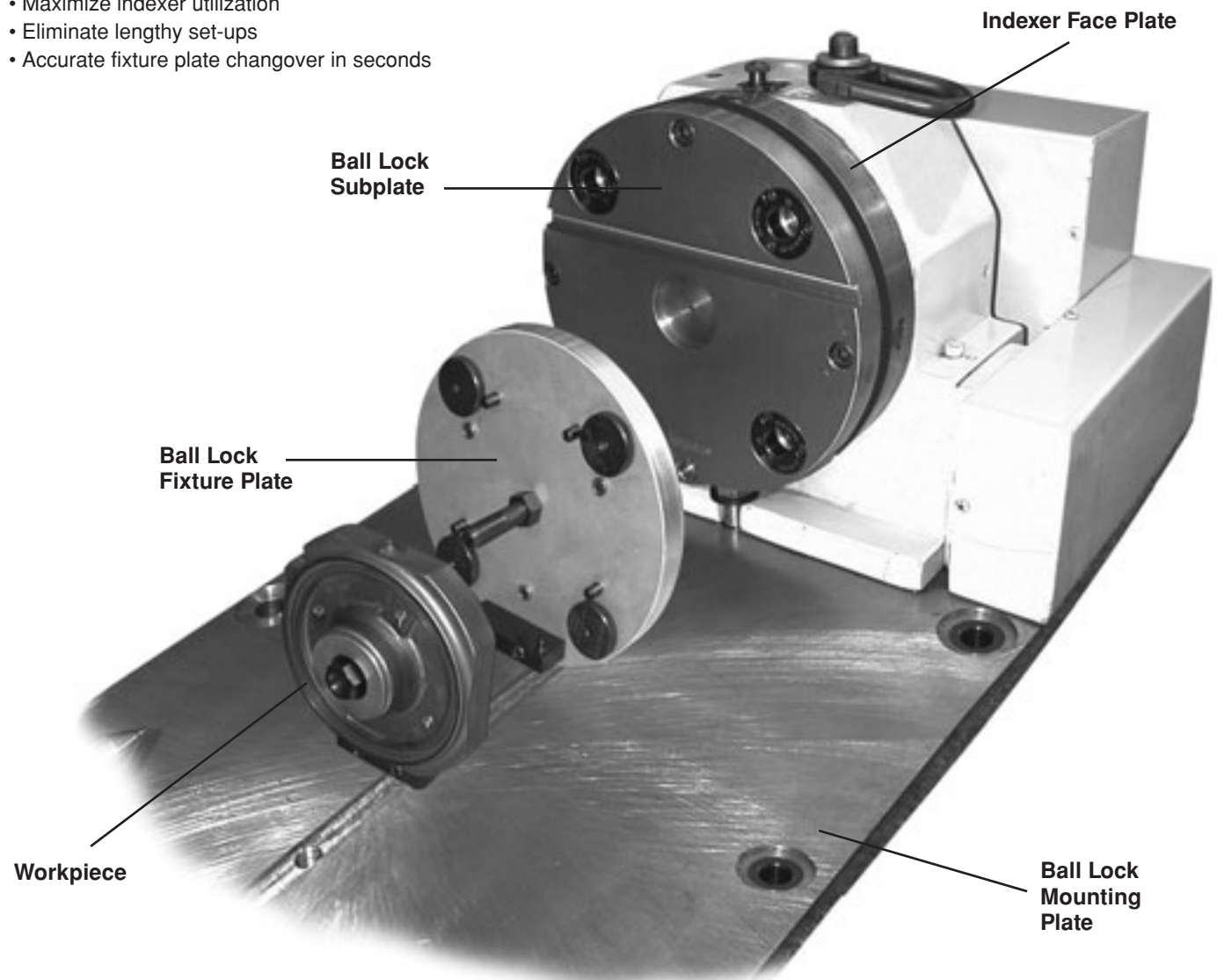
- Maximize indexer utilization
- Eliminate lengthy set-ups
- Accurate fixture plate changeover in seconds

Jergen's Solution:

Our new Ball Lock Mounting System for Indexers provides a two-pronged solution.

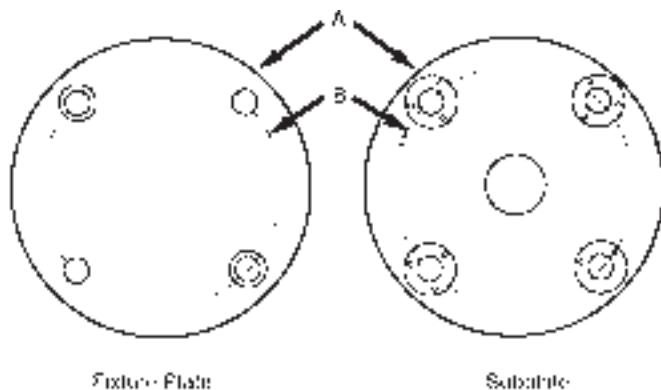
First, Ball Lock mounting plates free up your machine tool for additional work by allowing a fast and accurate quick change of the complete indexer. No longer will you spend hours doing set up. The Ball Lock System does it in minutes, with repeatability at $\pm .0005"$ ($\pm .013\text{mm}$). Low profile, positive clamping, proven in over ten years of field use.

Second, the Ball Lock System puts your fixture plate changeovers into high gear. By mounting the round subplate to the indexer faceplate, you'll "plug-in" new fixtures in record time (less than 60 seconds).



Building a System

Standard Systems



Indexer:

Make: _____

Model: _____

Diameter: _____

Light Duty or Heavy Duty: _____

Through Hole Bore: _____

Machine It Is Going On:

Make: _____

Model: _____

Weight Capacity: _____

Indexer Faceplate:

T-Slot Size: _____

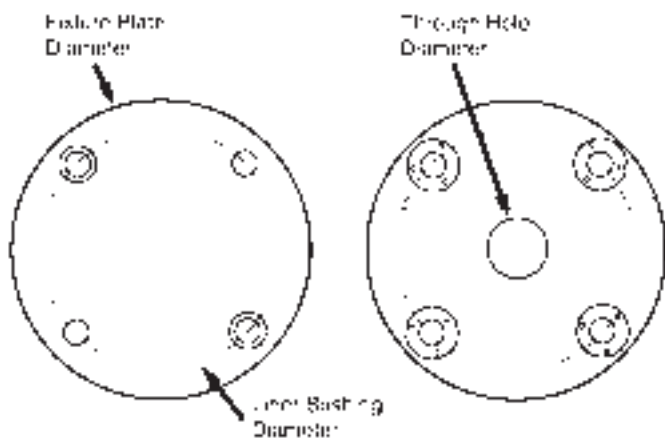
Configuration/Orientation: _____

or

Drilled Tapped Hole Size: _____

Configuration/Orientation: _____

Custom Systems



Material:

- Fixture Plate: Alca Plus™ cast aluminum, $\pm .005$ thickness tolerance
- Subplate: Fremax™ 15 steel, $\pm .005$ thickness tolerance

Fixture Plate

Part No.	A	B	Thickness	Ball Lock Liner	Ball Lock Shank	Weight
28707	8"	6"	0.75"	16mm	49608	3.5 lbs.
28708	10"	8"	1.00"	20mm	49602	7.0 lbs.
28709	12"	10"	1.00"	20mm	49602	11.0 lbs.

Subplate

Part No.	A	B	Thickness	Ball Lock Receiver	Center Hole	Weight
49107	8"	6"	0.75"	16mm	1.00"	11.0 lbs.
49108	10"	8"	1.00"	20mm	2.00"	21.0 lbs.
49109	12"	10"	1.00"	20mm	2.00"	33.0 lbs.

Metric sizes also available; please call for information.

Engineering Changes

Product improvement is a continuing process at Jergens. Specifications and engineering data are subject to change without notice. If current information is critical to your design, it is suggested that you contact Jergens Technical Sales Department to verify any dimensions or specifications.

Accessories

Tapered Caps and Plugs

Keep debris out of your subplate's receiver bushings when they are not in use. Polyethylene caps easily snap in and out.



Packaged
10 per
pack.

Receiver Bushing Diameter	Part Number
13	49201
16	49202
20	49203
25	49204
30	49205
35	49206
50	49207

Adjustable Handles

For easy engagement and disengagement of 16mm through 35mm Ball Lock™ shanks. Handle moves out of the way of the machine operator. To install: remove existing set screw on shank and replace with handle.



Part Number	Plate Thickness	Shank Diam
34315	1/2 3/4	16mm 20mm
34316	1	20mm
34328	3/4	25mm
34329	1	25mm
34334	3/4	30mm
34335	1	30mm
34339	3/4 1	35mm 35mm

Lifting Handles

For easy handling of fixture plate.



Part Number
33701

Sine Fixture Keys



Locate subplates or fixture plates to slotted machine tables without having to slot the plate. Available in inch sizes from 1/2" to 7/8" slots, and in metric sizes from 14mm to 22mm slots.

NOTE: See page 2.19 for dimensions.

Part Number	Table Slot Size	Part Number	Table Slot Size (mm)
39501	1/2	39562	14
39502	9/16	39563	16
39503	5/8	39564	18
39504	11/16	39565	20
39505	3/4	39566	22
39506	13/16		
39507	7/8		

NOTE: All shanks are 5/8" diameter

Fast Acting Ball Lock™ Shanks

Ball Lock Shank Diameter (mm)	Fixture Plate Thickness (in.)	FAST ACTING			
		Jergens Ball Lock Shank w/Jergens Thumb Screw		Jergens Ball Lock Shank w/Elesa Adjustable Handle	
		Part Number		Part Number	
		Assembly	T-Screw	Assembly	Handle
16	1/2	49607-S	43904	49607-H	34314
	3/4	49608-S	43904	49608-H	34315
20	3/4	49601-S	43904	49601-H	34315
	1	49602-S	43905	49602-H	34316
25	3/4	49611-S	43907	49611-H	34328
	1	49612-S	43908	49612-H	34329
30	3/4	49621-S	43910	49621-H	34334
	1	49622-S	43911	49622-H	34335
35	3/4	49631-S	43913	49631-H	34339
	1	49632-S	43913	49632-H	34339
	1-1/2	49633-S	43914	N/A	
	2	49634-S	43914	N/A	



Thumb Screw



Adjustable Handle

Lite Lock™ Mounting System

Light Duty Mounting System Locates and Locks One Plate to Another

The Jergens Lite Lock Mounting System is a cost-effective method of eliminating downtime and reducing the changeover cycle in the production process. With only one moving part, changing assembly fixtures, fixture plates, or any process involving mounting one plate on top of another, becomes a simple and quick operation.

The Lite Lock Mounting System, like the heavier duty Jergens Ball Lock™ Mounting System, locates and locks two plates together accurately and quickly. By simply pushing the release button located on the Lite Lock cartridge, an operator can change the top plate, loaded with parts, in a matter of seconds!

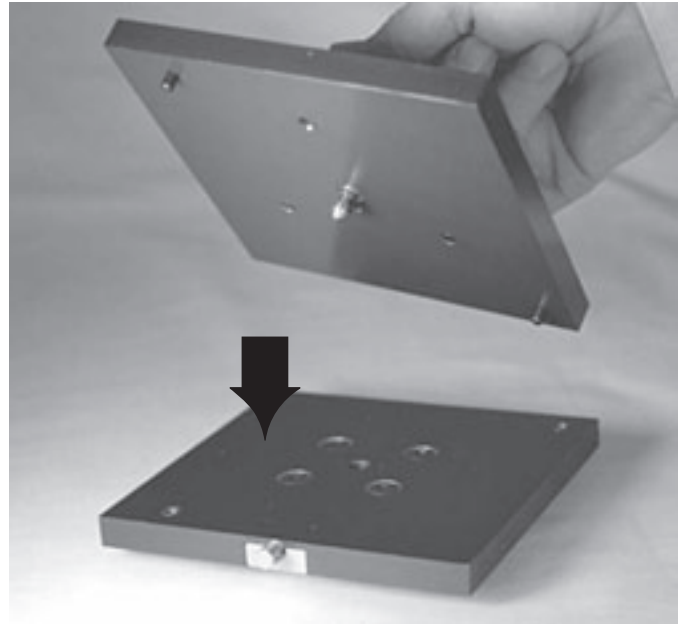
This quick release concept is adaptable to a wide range of applications and machinery. It eliminates the need for conventional fasteners such as bolts and screws.

The Lite Lock Mounting System is available as a complete assembly or as individual components for installation on your existing plates. Several sizes of top and receiver plates are available. The accurate repeatability and rugged design is ideal for the following applications:

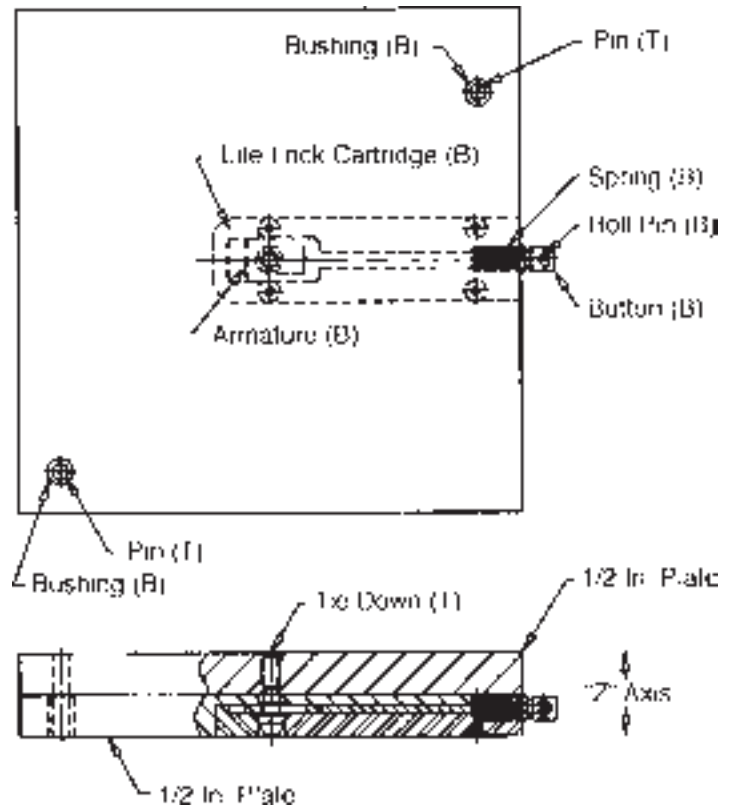
- Product assembly
- Part transfers
- Fusion welding
- Electronic assembly
- Laser machining
- Light machining
- Circuit board drilling
- Laser etching
- Product finishing

Plate Specifications:

- Plate Material: 6061 T651 Aluminum
- Plate Thickness: 1/2", ± 0.003
- Plate Flatness: Flat and Parallel within ± 0.002
- Plate Width and Length: ± 0.003
- Repetitive Accuracy: ± 0.003

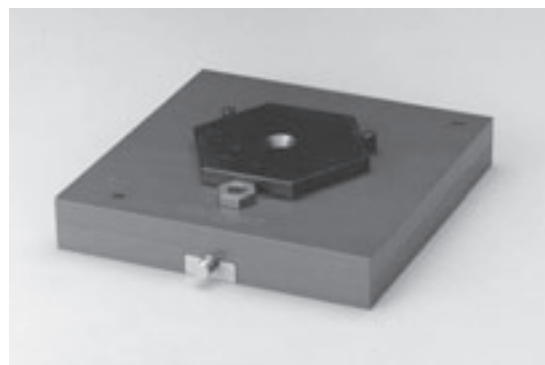
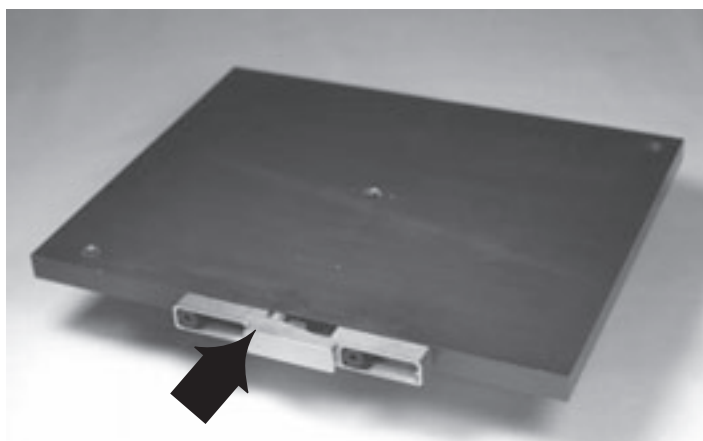


U.S. Patent No. 5,588,862



(T) Components in top actuating plate hardware kit

(B) Components in bottom plate hardware kit



Slide Lock Mechanism standard on 8"x10" and 12"x12" Receiver Plates.
Available as option for smaller plates. Order Part Number 49303.

Complete Assembly

Plate Size	Top and Receiver Plate Assembled Part Number
6" x 6" x 1/2"	49341
6" x 8" x 1/2"	49342
8" x 10" x 1/2"	49343
12" x 12" x 1/2"	49344

Top Plate Assembly

(includes installed hardware)

Plate Size	Top Plate Part Number
6" x 6" x 1/2"	49336
6" x 8" x 1/2"	49337
8" x 10" x 1/2"	49338
12" x 12" x 1/2"	49339

Receiver Plate Assembly

(includes installed hardware)

Plate Size	Receiver Plate Part Number
6" x 6" x 1/2"	49331
6" x 8" x 1/2"	49332*
8" x 10" x 1/2"	49333*
12" x 12" x 1/2"	49334

*Lite Lock Cartridge side-mounted on rectangular plates.

Kits

Top Plate Hardware Kit

(includes tie down pin and two dowel pins)

Part Number	49302

Receiver Plate Hardware Kit

(includes two bushings and an assembled cartridge)

Part Number	49301

Length of adjusting rod can be modified to size.

Blank Plates

Plate Size	Part Number
6" x 6" x 1/2"	49321
6" x 8" x 1/2"	49322
8" x 10" x 1/2"	49323
12" x 12" x 1/2"	49324

Special Orders

Call us with your special requirements for any product shown in the Ball Lock Mounting System section:

- Pre-Machined Ball Lock Fixture Plates
- Subplates
- Pre-Machined Tooling Columns
- Lite Lock™ Assemblies and Components

Set-Up Reduction Worksheet

Benefits of Set-Up Reduction (Capacity)

Current Method		Example (actual case study):
Minutes per set-up	= _____ minutes	60 minutes
Number of set-ups per 8 hour shift	= _____ set-ups	1.5 set-ups
Total minutes of set-up per shift (set-up minutes x number of set-ups)	= _____ minutes	90 minutes

Using the Ball Lock System

Minutes per set-up	= _____ minutes	8 minutes
Number of set-ups per 8 hour shift	= _____ set-ups	1.5 set-ups
Total minutes of set-up per shift (set-up minutes x number of set-ups)	= _____ minutes	12 minutes
Increased capacity per machine per shift (current method - Ball Lock method)	= _____ minutes	78 minutes
Savings per machine per shift	= _____ minutes	78 minutes
Increased capacity (number of minutes / 60)	= _____ hours	1.3 hours

Benefits of Set-Up Reduction (Profit)

Machine cost per hour	= \$ _____	\$80.00
Increased production hours per shift (increased capacity from above)	= _____ hours	1.3 hours
Savings (profit) per machine per shift (machine cost per hour x increased production hours)	= \$ _____	\$104.00



Adjustable Locating Buttons	2.18
Alloy Steel Pull Dowel Pins	2.4-2.5
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Rest Buttons	2.11-2.13
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Tooling/Inspection Balls	2.27-2.29
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Work Support Jacks, Manual	2.17

Kwik-Strip® Stripper Bolts

A New Perspective on Stripper Plates

Today's more complex dies require more time to service. The advantage of time saving devices such as ball and roll lock punches is minimized unless the stripper plate can be removed first.

The patented Jergens Kwik-Strip Stripper Bolts provide an inexpensive, simple method of stripper plate removal. The stripper can be removed with the die still mounted in the press!

Installation

Step 1: Drill a through hole 1/32" larger than the nominal body diameter of the bolt to be used.

Step 2: Using a Jergens Drill Jig, drill the auxiliary 1/4" hole. The 1/4" hole may be located radially at any position on the periphery of the body hole. Drill the 1/4" hole slightly deeper than the proposed counterbore.

Step 3: Using a standard counterboring tool, counterbore to required depth. See counterbore selection chart for proper size.

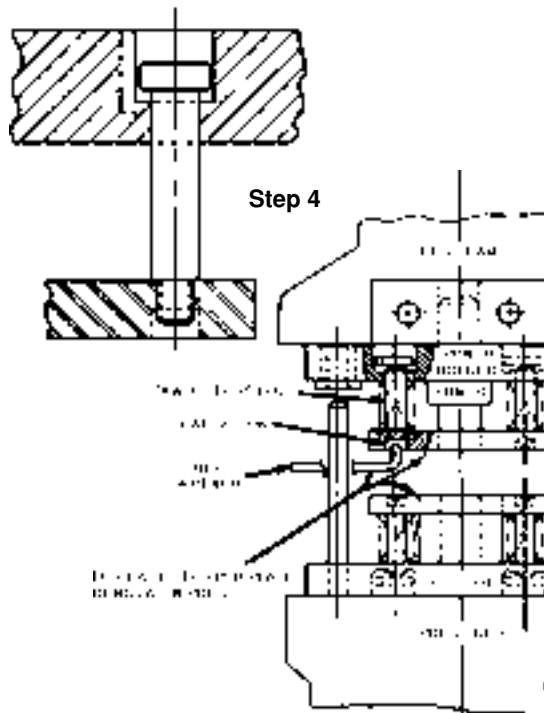
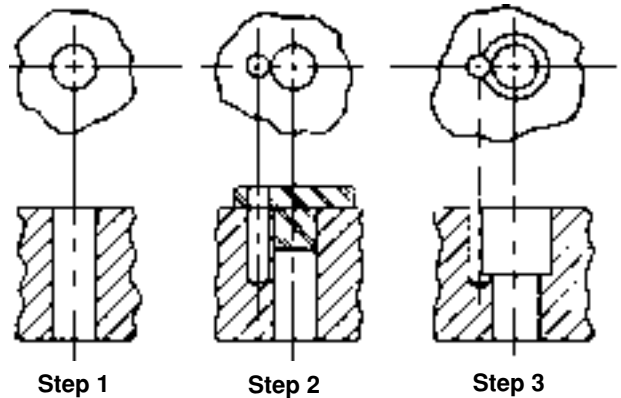
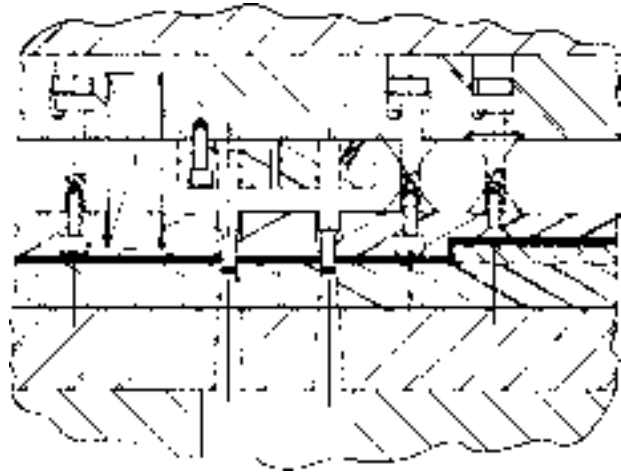
Step 4: Drill and counterbore the stripper plate for a socket head cap screw.

Installation in Existing Dies

To convert an existing die for use with Jergens Kwik-Strip Stripper Bolts, simply mill a 1/4" slot down the side of the stripper counterbore, then drill and counterbore the stripper plate. If the same size thread must be maintained, the through hole and counterbore in the punch holder will have to be increased.

Disassembly in the Press

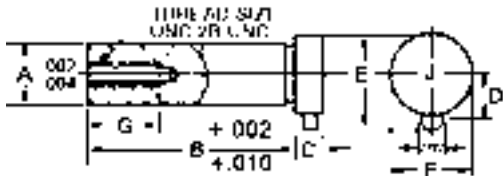
Block the stripper plate in position, remove the cap screws using a hex wrench, then carefully remove stripper plate. Replace stripper plate after completion of required service.



Kwik-Strip® Stripper Bolts



- Material: 4140
- Heat Treat: Rc 32-36
- Available in FixturePro™ Design Software



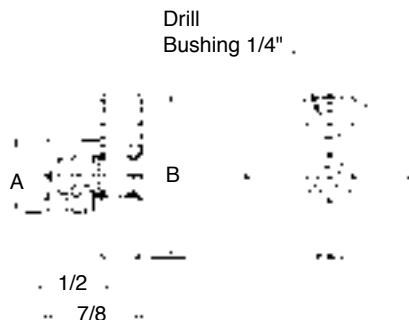
Selection of Sizes

Size selections should be based upon thread size. For example, if your application calls for a 1/2" stripper bolt (with a 3/8" thread) use a 5/8" Kwik-Strip bolt (with a 3/8" thread). Kwik-Strip bolts may be shortened by 1/4" and still have sufficient thread depth for the cap screw.

Part Number	A	B	C	D	E	F	G	Thread Size	Wt. (lbs)
46601	1/2	2	5/16	.409	57/64	3/4	1	5/16-18	.14
46602	1/2	2 1/2	5/16	.409	57/64	3/4	1	5/16-18	.17
46603	1/2	3	5/16	.409	57/64	3/4	1	5/16-18	.20
46604	1/2	3 1/2	5/16	.409	57/64	3/4	1	5/16-18	.23
46605	1/2	4	5/16	.409	57/64	3/4	1	5/16-18	.26
46606	1/2	4 1/2	5/16	.409	57/64	3/4	1	5/16-18	.29
46607	1/2	5	5/16	.409	57/64	3/4	1	5/16-18	.32
46608	5/8	2	3/8	.472	1 1/64	7/8	1 1/8	3/8-16	.18
46609	5/8	2 1/2	3/8	.472	1 1/64	7/8	1 1/8	3/8-16	.23
46610	5/8	3	3/8	.472	1 1/64	7/8	1 1/8	3/8-16	.27
46611	5/8	3 1/2	3/8	.472	1 1/64	7/8	1 1/8	3/8-16	.32
46612	5/8	4	3/8	.472	1 1/64	7/8	1 1/8	3/8-16	.36
46613	5/8	4 1/2	3/8	.472	1 1/64	7/8	1 1/8	3/8-16	.41
46614	5/8	5	3/8	.472	1 1/64	7/8	1 1/8	3/8-16	.45
46615	3/4	2	1/2	.534	1 9/64	1	1 1/4	1/2-13	.26
46616	3/4	2 1/2	1/2	.534	1 9/64	1	1 1/4	1/2-13	.33
46617	3/4	3	1/2	.534	1 9/64	1	1 1/4	1/2-13	.39
46618	3/4	3 1/2	1/2	.534	1 9/64	1	1 1/4	1/2-13	.46
46619	3/4	4	1/2	.534	1 9/64	1	1 1/4	1/2-13	.52
46620	3/4	4 1/2	1/2	.534	1 9/64	1	1 1/4	1/2-13	.59
46621	3/4	5	1/2	.534	1 9/64	1	1 1/4	1/2-13	.65

Drill Jigs

Position in drilled hole, rotate set screw to lock, then proceed to drill 1/4" hole to desired depth.



Part Number	Bolt Size*	A	B	Wt. (lbs)
46641	1/2	.528	1 1/2	.20
46642	5/8	.653	1 1/2	.22
46643	3/4	.778	1 5/8	.24

1/4" Drill bushing is included.

Counterbore Tools

Counterbores for installing Jergens Kwik-Strip Stripper Bolts.

Part Number	Counterbore	Bolt Size*
46647	31/32	5/8
46648	1 1/32	3/4

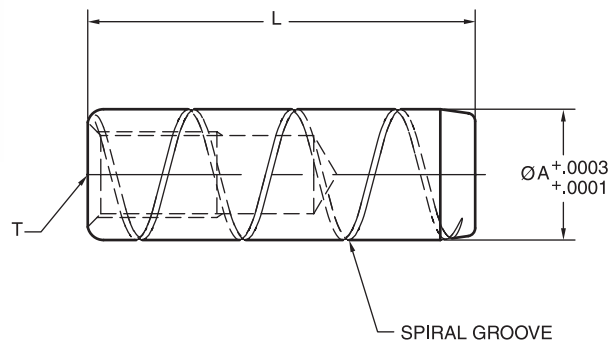
*Refers to "A" Dimension on stripper bolts.

Alloy Steel Pull Dowel Pins

Jergens Offers 3 Styles of Precision Ground Pull Dowels



Spiral Groove
(Grooves Help to Relieve Trapped Air)

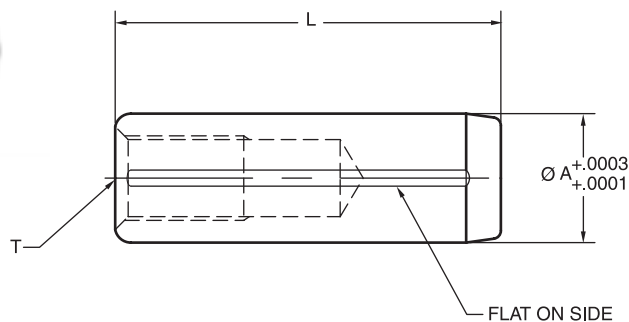


Features, Applications & Benefits

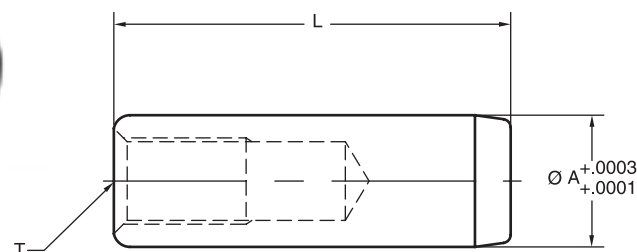
- Internally threaded hole allows removal of pull dowels with a standard screw.
- Standard Round Pull Dowels are typically used in applications featuring a through hole.
- Spiral Groove Pull Dowels feature a groove cut to allow trapped air to be released.
- Flat Vent Pull Dowels feature a ground flat on one side to release trapped air.
- Spiral Groove and Flat Vent Pull Dowels are typically used in blind hole applications.
- All of Jergens Precision Ground Pull Dowels are constructed of heat treated alloy steel.



Flat Vent
(Ground Flat Helps to Relieve Trapped Air)



Standard Round
(Non-Vented)



Precision Ground Pull Dowels

Spiral Groove	Flat Vent	Standard Round	Diameter	Nominal	Length	Internal Thread
31800	31400	31600	1/4	.2502	1/2	8 - 32
31801	31401	31601	1/4	.2502	3/4	8 - 32
31802	31402	31602	1/4	.2502	1	8 - 32
31803	31403	31603	1/4	.2502	1-1/4	8 - 32
31804	31404	31604	1/4	.2502	1-1/2	8 - 32
31805	31405	31605	1/4	.2502	1-3/4	8 - 32
31806	31406	31606	1/4	.2502	2	8 - 32
31807	31407	31654	1/4	.2502	2-1/4	8 - 32
31808	31408	31607	1/4	.2502	2-1/2	8 - 32
31809	31409	31608	5/16	.3127	3/4	10 - 32
31810	31410	31609	5/16	.3127	1	10 - 32
31811	31411	31610	5/16	.3127	1-1/4	10 - 32
31812	31412	31611	5/16	.3127	1-1/2	10 - 32
31813	31413	31612	5/16	.3127	2	10 - 32
31814	31414	31613	5/16	.3127	2-1/4	10 - 32
31815	31415	31614	5/16	.3127	2-1/2	10 - 32
31816	31416	31615	3/8	.3752	3/4	10 - 32
31817	31417	31616	3/8	.3752	1	10 - 32
31818	31418	31617	3/8	.3752	1-1/4	10 - 32
31819	31419	31618	3/8	.3752	1-1/2	10 - 32
31820	31420	31619	3/8	.3752	1-3/4	10 - 32
31821	31421	31620	3/8	.3752	2	10 - 32
31822	31422	31621	3/8	.3752	2-1/4	10 - 32
31823	31423	31622	3/8	.3752	2-1/2	10 - 32
31824	31424	31623	3/8	.3752	3	10 - 32
31825	31425	31624	7/16	.4377	1	1/4 - 20
31826	31426	31625	7/16	.4377	1-1/2	1/4 - 20
31827	31427	31626	7/16	.4377	2	1/4 - 20
31828	31428	31627	1/2	.5002	3/4	1/4 - 20
31829	31429	31628	1/2	.5002	1	1/4 - 20
31830	31430	31629	1/2	.5002	1-1/4	1/4 - 20
31831	31431	31630	1/2	.5002	1-1/2	1/4 - 20
31832	31432	31631	1/2	.5002	1-3/4	1/4 - 20
31833	31433	31632	1/2	.5002	2	1/4 - 20
31834	31434	31633	1/2	.5002	2-1/4	1/4 - 20
31835	31435	31634	1/2	.5002	2-1/2	1/4 - 20
31836	31436	31635	1/2	.5002	3	1/4 - 20
31837	31437	31636	1/2	.5002	3-1/2	1/4 - 20
31838	31438	31637	1/2	.5002	4	1/4 - 20
31839	31439	31638	5/8	.6252	1-1/4	1/4 - 20
31840	31440	31639	5/8	.6252	1-1/2	1/4 - 20
31841	31441	31640	5/8	.6252	2	1/4 - 20
31842	31442	31641	5/8	.6252	2-1/4	1/4 - 20
31843	31443	31642	5/8	.6252	2-1/2	1/4 - 20
31844	31444	31643	5/8	.6252	3	1/4 - 20
31845	31445	31644	5/8	.6252	4	1/4 - 20
31846	31446	31645	3/4	.7502	1-1/2	5/16 - 18
31847	31456	31655	3/4	.7502	1-3/4	5/16 - 18
31848	31447	31646	3/4	.7502	2	5/16 - 18
31849	31448	31647	3/4	.7502	2-1/2	5/16 - 18
31850	31449	31648	3/4	.7502	3	5/16 - 18
31851	31451	31649	3/4	.7502	4	5/16 - 18
31856	31452	31656	1	1.0002	1-3/4	5/16 - 18
31852	31452	31650	1	1.0002	2	5/16 - 18
31853	31453	31651	1	1.0002	2-1/2	5/16 - 18
31854	31454	31652	1	1.0002	3	5/16 - 18
31855	31455	31653	1	1.0002	4	5/16 - 18

Technical Data

Material:

Alloy Steel

Length Tolerance:

± .010"

Core Hardness:

47 - 58 Rockwell C

Diameter Tolerance:

± .0001"

Surface Hardness:

60 - 64 Rockwell C

Recommended Hole Size:

.0005" under Nom. Dia.

Surface Finish:

8 Micro-Inch

Specification:

ASME B18.8.2

Spiral Groove



Flat Vent



Standard Round

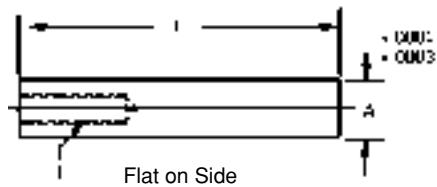


Pull Dowels



- Material: Low Carbon Steel
- Heat Treat: Case Hardened
- Available in FixturePro™ Design Software

Flat ground on the side for air release in blind holes.

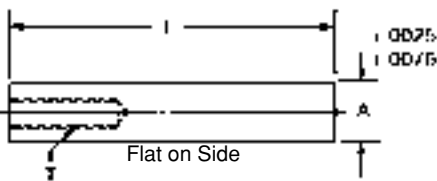


Part Number	A	L	T	Wt. (lbs)
31741	1/4	3/4	8-32x3/8	.01
31742	1/4	1	8-32x3/8	.01
31743	1/4	1 1/4	8-32x3/8	.01
31744	1/4	1 1/2	8-32x3/8	.02
31746	1/4	2	8-32x3/8	.02
31730	5/16	3/4	10-32x1/4	.01
31701	5/16	1	10-32x1/4	.01
31702	5/16	1 1/4	10-32x1/4	.02
31703	5/16	1 1/2	10-32x1/4	.02
31731	5/16	2	10-32x1/4	.03
31704	3/8	1	10-32x3/8	.02
31705	3/8	1 1/4	10-32x3/8	.03
31706	3/8	1 1/2	10-32x3/8	.03
31707	3/8	2	10-32x3/8	.03
31734	3/8	2 1/2	10-32x3/8	.05
31708	3/8	3	10-32x3/8	.06
31709	7/16	1 1/2	1/4-20x3/8	.04
31710	7/16	2	1/4-20x3/8	.05

Part Number	A	L	T	Wt. (lbs)
31711	1/2	1	1/4-20x1/2	.04
31712	1/2	1 1/4	1/4-20x1/2	.05
31713	1/2	1 1/2	1/4-20x1/2	.05
31735	1/2	1 3/4	1/4-20x1/2	.06
31714	1/2	2	1/4-20x1/2	.07
31715	1/2	2 1/2	1/4-20x1/2	.08
31716	1/2	3	1/4-20x1/2	.10
31717	5/8	1 1/2	5/16-18x1/2	.08
31718	5/8	2	5/16-18x1/2	.10
31720	5/8	2 1/2	5/16-18x1/2	.13
31721	5/8	3	5/16-18x1/2	.17
31722	3/4	2	3/8-16x1/2	.15
31723	3/4	2 1/2	3/8-16x1/2	.19
31724	3/4	3	3/8-16x1/2	.23
31725	1	2 1/2	3/8-16x1/2	.34
31726	1	3	3/8-16x1/2	.41

Button head screw not included.

Pull Dowels Metric



Part Number	A	L	T
31751	8	20	M5 x 1.0
31753	8	30	M5 x 1.0
31755	8	40	M5 x 1.0
31759	10	20	M6 x 1.0
31761	10	30	M6 x 1.0
31763	10	40	M6 x 1.0
31765	10	50	M6 x 1.0
31767	10	70	M6 x 1.0
31769	12	20	M6 x 1.0
31771	12	30	M6 x 1.0
31773	12	40	M6 x 1.0

Part Number	A	L	T
31775	12	50	M6 x 1.0
31776	12	60	M6 x 1.0
31777	12	70	M6 x 1.0
31780	16	40	M8 x 1.25
31782	16	50	M8 x 1.25
31783	16	60	M8 x 1.25
31784	16	70	M8 x 1.25
31787	20	50	M10 x 1.6
31788	20	60	M10 x 1.6
31789	20	70	M10 x 1.6

Button head screw not included.

Precision Expanding Dowels



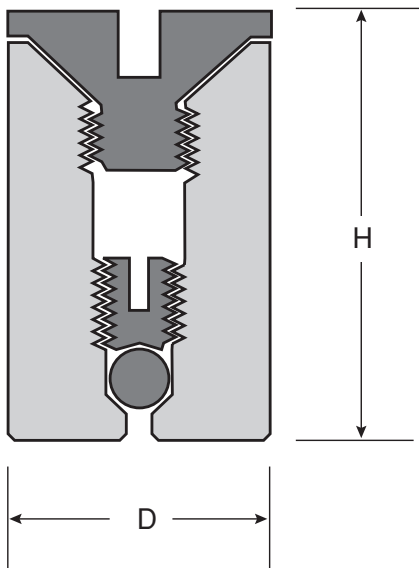
- Material: Steel, hardened to 50-55 Rockwell C
- Self-Centering and Repeatable to within $\pm .0005"$
- Top and bottom half of dowel expand separately
- Patented

Standard

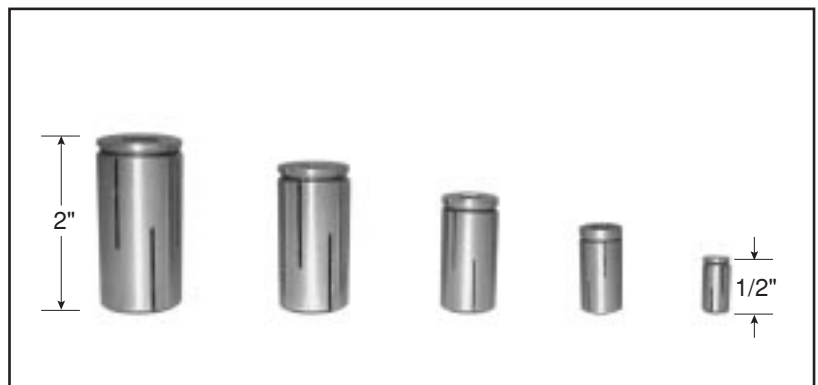
Part Number	Diameter	Height
29401	1/4	1/2
29402	3/8	3/4
29403	1/2	1
29404	5/8	1 - 1/4
29405	3/4	1 - 1/2
29406	1	2

Metric

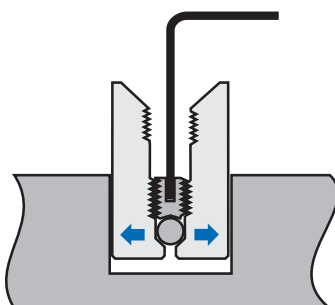
Part Number	Diameter	Height
29451	10	20
29452	12	24
29453	14	28
29454	16	32
29455	20	40



Wide range of sizes to suit any application

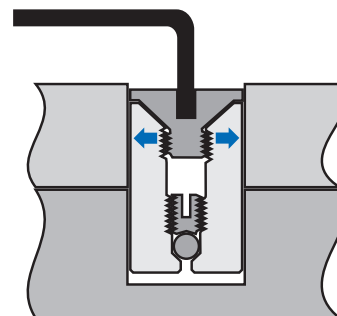


Installation Instructions



Step 1

Remove the top screw, insert the dowel into the locating hole of the first part, and expand the bottom half with a hex wrench.



Step 2

Replace the top screw, slide the locating hole of the second part over the dowel and expand top half with a hex wrench.

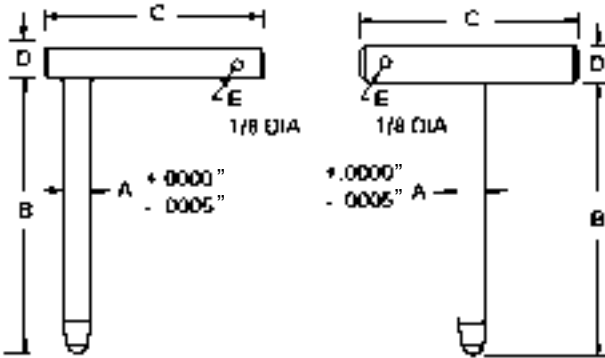
L-Pins and T-Pins



Jergens L-Pins and T-Pins are precision ground locating devices for aligning workpieces in jigs or fixtures. Each pin has a 1/8" diameter hole in the handle for attaching the nylon covered lanyard shown on page 2.10.

Part Number		A	B	C	D
L-pin	T-pin				
24001	24201	.125	2 1/2	1 1/2	1/4
24002	24202	.1875	3	2 1/2	5/16
24003	24203	.1875	6	2 1/2	5/16
24004	24204	.191	3	2 1/2	5/16
24005	24205	.191	6	2 1/2	5/16
24026	24226	.250	2	2 1/2	3/8
24007	24207	.250	3	2 1/2	3/8
24008	24208	.250	4	2 1/2	3/8
24009	24209	.250	6	2 1/2	3/8
24010	24210	.257	3	2 1/2	3/8
24030	24230	.3125	2	2 1/2	7/16
24011	24211	.3125	3 1/2	3	7/16
24012	24212	.3125	6	3	7/16
24013	24213	.375	4	3 1/2	1/2
24014	24214	.375	6	3 1/2	1/2
24015	24215	.4375	4	3 1/2	9/16
24016	24216	.4375	6	3 1/2	9/16
24017	24217	.500	4	3 1/2	5/8
24018	24218	.500	6	3 1/2	5/8
24019	24219	.5625	4	3 1/2	5/8
24020	24220	.5625	6	3 1/2	5/8
24021	24221	.625	6	3 1/2	7/8
24022	24222	.750	6	3 1/2	7/8

- Material: Heat Treated Steel
- Finish: Black Oxide
- Available in FixturePro™ Design Software



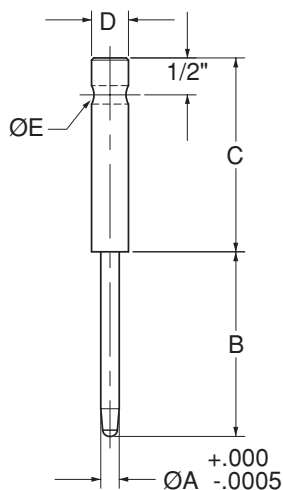
Metric

Part Number		A	B	C	D
L-pin	T-pin				
24051	24251	4	88	64	8
24052	24252	5	76	64	8
24054	24254	6	152	64	8
24055	24255	6	76	64	10
24056	24256	6	152	64	10
24057	24257	8	88	76	11
24058	24258	8	152	76	11
24059	24259	10	76	64	13
24060	24260	10	152	88	13
24061	24261	12	102	88	16
24062	24262	12	152	88	16
24063	24263	16	152	88	22
24064	24264	16	204	88	22
24065	24265	20	152	88	22
24066	24266	20	204	88	22

Jig Pins



Straight Handle Jig Pin

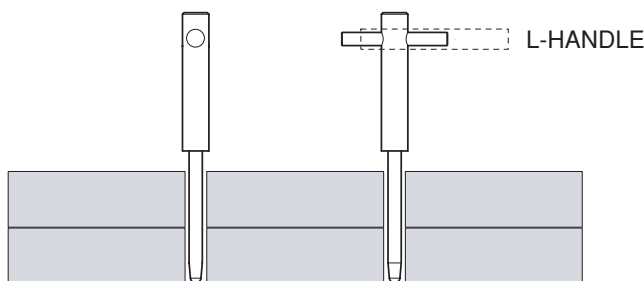


Jig Pins are precision ground locating devices. The straight handle style comes with a hole for easy attachment of a lanyard. The T-handle style can be converted to an L-handle style by tapping the roll pin with a hammer.

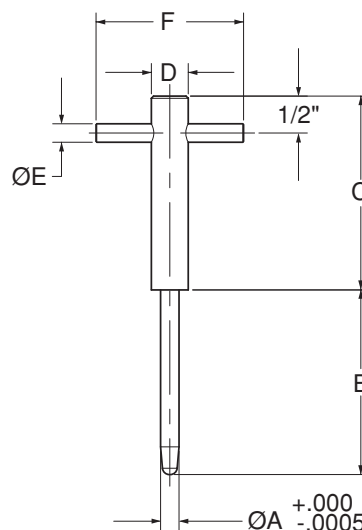
- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened Rc 58-62 (pin only)

Straight Handle Jig Pin

Part Number	A	B	C	D	E
24101	.2500	2 1/2	2 5/8	1/2	1/4
24102	.3125	2 1/2	2 5/8	9/16	1/4
24103	.3750	4	2 5/8	5/8	1/4
24104	.5000	3	2 5/8	3/4	5/16



T-Handle Jig Pins



T- Handle Jig Pin

Part Number	A	B	C	D	E	F
24111	.2500	2 1/2	2 5/8	1/2	1/4	2
24112	.3125	2 1/2	2 5/8	9/16	1/4	3
24113	.3750	4	2 5/8	5/8	1/4	3
24114	.5000	3	2 5/8	3/4	5/16	3

Slotted Locator Bushing

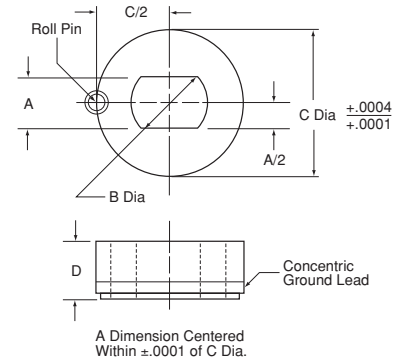


- Use with L Pins to align two holes without binding.
- Available for 3/16" through 1" diameter pins (6mm-25mm in metric sizes).
- Tool Steel, heat treated to Rc 58-62
- Supplied with Roll Pin: Locate within $\pm .002$ " of slot centerline.



Press Fit

Part Number	Pin Dia	A	Dia B	Dia C	D
24301	3/16	.1876/.1882	0.312	0.75	0.400
24302	1/4	.2501/.2507	0.375	0.75	0.400
24303	1/4	.2501/.2507	0.375	1	0.400
24304	5/16	.3126/.3132	0.437	1	0.400
24305	3/8	.3751/.3757	0.5	1	0.400
24306	1/2	.5001/.5007	0.625	1	0.400
24307	1/2	.5001/.5007	0.625	1	0.900
24308	5/8	.6251/.6257	.075	1.25	0.900
24309	3/4	.7501/.7510	0.812	1.5	1.0000
24310	7/8	.8751/.8760	1	1.5	1.0000
24311	1	1.0001/1.0010	1.062	1.5	1.0000

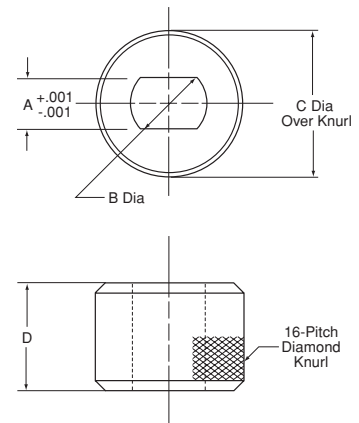


Press Fit Metric

Part Number	Pin Dia	A	Dia B	Dia C	D
24351	6mm	6.00/6.03	9.0	20.000	9.0
24352	8mm	8.00/8.03	11.0	24.000	9.0
24353	10mm	10.00/10.03	13.0	24.000	9.0
24354	12mm	12.00/12.03	15.0	24.000	14.0
24355	16mm	16.00/16.03	18.0	30.000	12.0
24356	20mm	20.00/20.03	22.0	35.999	19.0
24357	25mm	25.00/25.03	27.0	40.000	19.0

Knurled

Part Number	Pin Dia	A	Dia B	Dia C	D
24331	3/16	0.188	0.312	0.565	.50
24332	1/4	0.25	0.375	0.64	.50
24333	5/16	0.313	0.437	0.765	.50
24334	3/8	0.375	0.5	0.89	.50



Lanyards



- To attach lanyard to L or T Pins order Split Ring **890000**
- To permanently attach Lanyard to L or T Pins add -C to Lanyard part number.
- For Lanyard & Tab drawings see page 7.19

Lanyard Part Numbers

Length (in.)	Round Tab		Square Tab		No Tab		Loop/Eye*
	Alum.	S.S.	Alum.	S.S.	2 Loops	1 Loop	S.S.
4	890004	890054	890104	890154	890204	890254	890304
6	890006	890056	890106	890156	890206	890256	890306
8	890008	890058	890108	890158	890208	890258	890308
10	890010	890060	890110	890160	890210	890260	890310
12	890012	890062	890112	890162	890212	890262	890312
16	890016	890066	890116	890166	890216	890266	890316
20	890020	890070	890120	890170	890220	890270	890320
24	890024	890074	890124	890174	890224	890274	890324

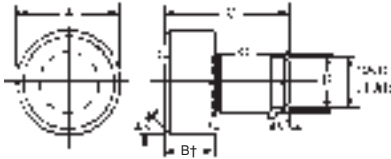
*Does not include ring.

Rest Buttons

Ground and Unground



- Material:
Ground, Low Carbon Steel
Unground, 52100
- Finish: Black Oxide
- Heat Treat:
Ground, Case Hardened
75-77 R30N
Unground, 58-62 Rc
- Available in FixturePro™ Design Software



†"B" dimension for ground style is $\pm .0005/- .000$, unground $\pm .010/\pm .015$

The Closest Tolerances in the Industry...

Jergens is proud of the close tolerances held on the "B" dimension of our Ground Rest Buttons. When it becomes necessary through constant wear to replace rest buttons, they can be replaced with the assurance of being within $\pm .0005$ ($\pm .013$ mm)

of the original location. Where replacement is not going to be a problem, we recommend the use of the Unground Buttons, which have a $\pm .010$ ($\pm .25$ mm) grinding stock to be ground after the fixture is assembled.

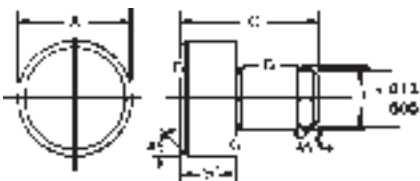
Part Number "B" Ground†	Part Number "B" Unground†	A	B	C	D	Wt. (lbs) 10 Pcs.
	45719	1/4	1/4	15/32	.1885-.188	.05
34701*	45721	3/8	1/4	15/32	.1885-.188	.08
34702*	45722	3/8	3/8	19/32	.1885-.188	.16
34703*	45723	3/8	1/2	23/32	.1885-.188	.16
34704*	45724	1/2	1/4	23/32	.251-.2505	.16
34705*	45725	1/2	3/8	27/32	.251-.2505	.21
34706*	45726	1/2	1/2	31/32	.251-.2505	.31
34707*	45727	5/8	1/4	23/32	.376-.3755	.31
34708*	45728	5/8	3/8	27/32	.376-.3755	.47
	45729	5/8	7/16	29/32	.376-.3755	.50
34709*	45730	5/8	1/2	31/32	.376-.3755	.55
34710*	45731	5/8	5/8	1 3/32	.376-.3755	.62
34711	45732	5/8	3/4	1 7/32	.376-.3755	.78
	45733	7/8	3/8	31/32	.501-.5005	.68
34712	45734	7/8	7/16	1 1/32	.501-.5005	.78
	45735	7/8	1/2	1 3/32	.501-.5005	.94
34713*	45736	7/8	5/8	1 7/32	.501-.5005	1.10
34714	45737	7/8	3/4	1 11/32	.501-.5005	1.25
	45738	1	3/8	1 3/32	.626-.6255	1.20
34715	45739	1	7/16	1 5/32	.626-.6255	1.45
34716*	45740	1	1/2	1 7/32	.626-.6255	1.65
	45741	1	5/8	1 11/32	.626-.6255	2.00
	45742	1	3/4	1 15/32	.626-.6255	2.50
	45743	1 1/4	3/8	1 7/32	.751-.7505	1.80
	45744	1 1/4	7/16	1 9/32	.751-.7505	2.10
	45745	1 1/4	1/2	1 11/32	.751-.7505	2.50
34717*	45746	1 1/4	5/8	1 15/32	.751-.7505	3.10
34718	45747	1 1/2	3/4	1 31/32	1.001-1.0005	6.90

*Conforms to TCMA

Rest Buttons

Metric

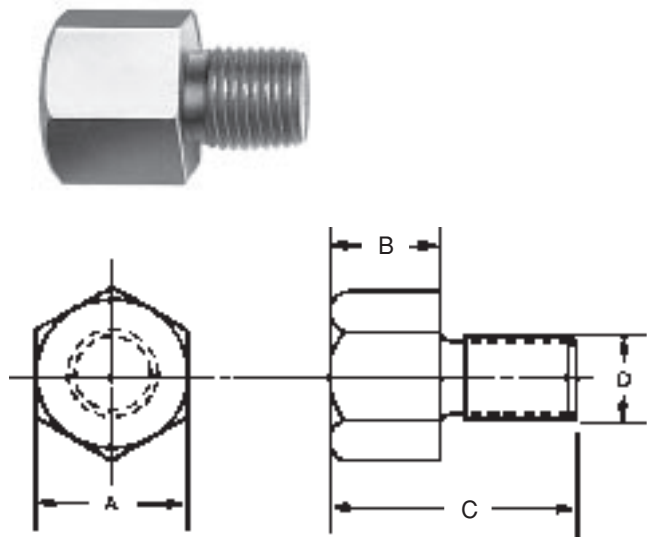
Ground and Unground



"B" Ground† Part Number	"B" Unground† Part Number	A	B	C	D
34751	45771	10	6	12	5
34754	45774	13	6	18	6
34757	45777	16	6	18	10
34758	45778	16	10	22	10
34759	45780	16	12	25	10
34763	45786	22	16	31	12
34766	45790	25	12	30	16

†"B" Dimension for ground style is $\pm .013/- .000$ mm, ungrounded style is $\pm .25/\pm .38$ mm.

Threaded Rest Buttons

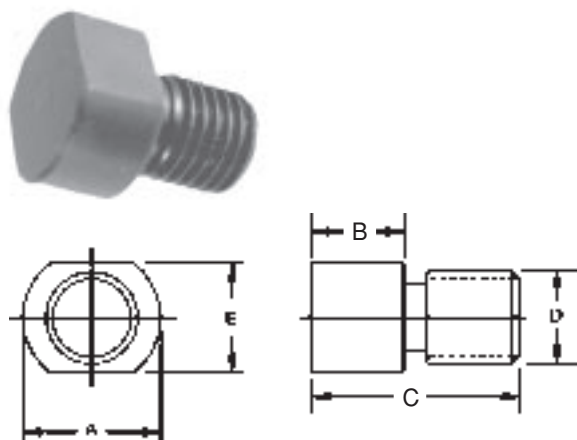


Thread into job instead of press fit. "B" dimension left with .010-.015 for finishing after assembly. For cutter setting blocks on milling fixtures, grind to your own specifications. Case hardened to approximately .030 deep.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened 75-77 R30N
- Thread: 2A-UNF
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	Thread Pitch	wt/lbs 10 pcs.
21501	3/8	1/4	9/16	1/4-28	fine	.16
21521	3/8	1/4	9/16	1/4-20	coarse	.16
21502	3/8	3/8	11/16	1/4-28	fine	.16
21522	3/8	3/8	11/16	1/4-20	coarse	.16
21503	3/8	1/2	13/16	1/4-28	fine	.16
21523	3/8	1/2	13/16	1/4-20	coarse	.16
21504	1/2	1/4	11/16	3/8-24	fine	.24
21524	1/2	1/4	11/16	3/8-16	coarse	.24
21505	1/2	3/8	13/16	3/8-24	fine	.31
21525	1/2	3/8	13/16	3/8-16	coarse	.31
21506	1/2	1/2	15/16	3/8-24	fine	.47
21526	1/2	1/2	15/16	3/8-16	coarse	.47
21507	1/2	3/4	1 3/16	3/8-24	fine	.47
21527	1/2	3/4	1 3/16	3/8-16	coarse	.47
21508	3/4	3/8	15/16	1/2-20	fine	.78
21528	3/4	3/8	15/16	1/2-13	coarse	.78
21509	3/4	1/2	1 1/16	1/2-20	fine	.94
21529	3/4	1/2	1 1/16	1/2-13	coarse	.94
21510	3/4	1	1 9/16	1/2-20	fine	1.56
21530	3/4	1	1 9/16	1/2-13	coarse	1.56
21511	1	1/2	1 3/16	5/8-18	fine	1.72
21531	1	1/2	1 3/16	5/8-11	coarse	1.72
21512	1	1 1/2	2 3/16	5/8-18	fine	4.10
21532	1	1 1/2	2 3/16	5/8-11	coarse	4.10

Threaded Rest Buttons Metric

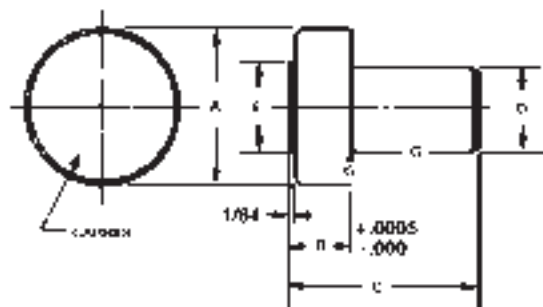


- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened 75-77 R30N
- Thread: Class 6g

Part Number	Dia. A	B	C†	D	Across Flats E
21551	10	6	14	M6x1.0	8
21554	13	6	17	M10x1.5	10
21558	16	10	25	M12x1.75	14
21561	25	12	30	M16x2.9	20

† +.25/+.38 mm Grinding Stock

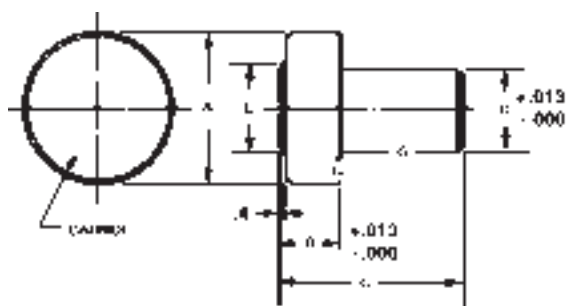
Carbide Insert Rest Buttons



- Material: Body, Low Carbon Steel
Insert, Carbide
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	Wt. (lbs) 10 Pcs.
34901	1/2	.250	23/32	.2505/.2510	3/8	.25
34902	5/8	.250	23/32	.3755/.3760	3/8	.42
34903	5/8	.375	27/32	.3755/.3760	3/8	.58
34904	3/4	.4375	1 1/32	.5005/.5010	1/2	.92
34905	1	.4375	1 5/32	.6255/.6260	3/4	1.80

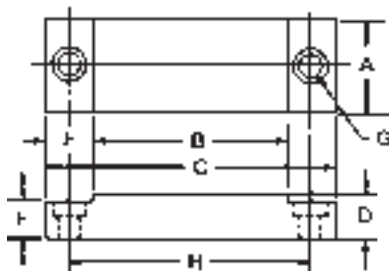
Metric Carbide Insert Rest Buttons



- Material: Body, Low Carbon Steel
Insert, Carbide

Part Number	A	B	C	D	E
34951	13	6	18	6	10
34953	16	10	22	10	10
34955	25	12	30	16	19

Rest Pad



Jergens Feature:

By holding close tolerances on the "D" dimension, when replacement becomes necessary, your original tolerances are maintained within .0005 (.013)

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened 75-77 R30N
- Available in FixturePro™ Design Software

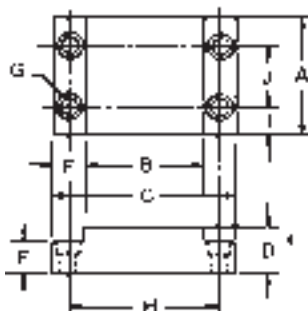
Rest Pads are designed to be used when you need a larger hardened wearing surface for heavy duty applications. Rest Pads can also be used as hardened work rests or as wear plates on your jigs and fixtures.

Part Number	A	B	C	+.0005 -.000 D	E	F	G	H	Wt. (lbs)
35901	1	1	2	.475	3/8	1/2	#10	1 1/2	.22
35902	1 1/2	1 1/2	2 1/2	.600	1/2	1/2	1/4	2	.58
35904	1	2	3 1/2	.720	5/8	3/4	5/16	2 3/4	.63
35905	1	3	4 1/2	.720	5/8	3/4	5/16	3 3/4	.84
35906	1	4	5 1/2	.720	5/8	3/4	5/16	4 3/4	1.06

Metric

Part Number	A	B	C	+.013 -.000 D	E	F	G	H
35951	25	25	50	12	10	13	M5	38
35952	25	38	64	15	13	13	M6	50
35954	25	50	89	18	16	19	M8	70

Rest Pad



Rest Pads are designed to be used when you need a larger hardened wearing surface for heavy duty applications. Rest Pads can also be used as hardened work rests or as wear plates on your jigs and fixtures.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened 75-77 R30N
- Available in FixturePro™ Design Software

Part Number	A	B	C	+.0005 -.000 D	E	F	G	H	I	J	Wt. (lbs)
35903	2	2	3	.725	1/2	1/2	1/4	2 1/2	1/2	1	1.06

Metric

Part Number	A	B	C	+.013 -.000 D	E	F	G	H	I	J
35953	50	50	75	18	12	13	M6	64	13	25

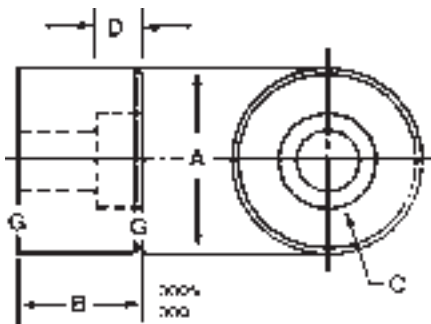
Jig Feet



- Material: Low Carbon Steel
- Finish: Black Oxide
- Cap Screw included
- Heat Treat: Case Hardened
75-77 R30N
- Available in FixturePro™ Design Software

Jergens Feature:

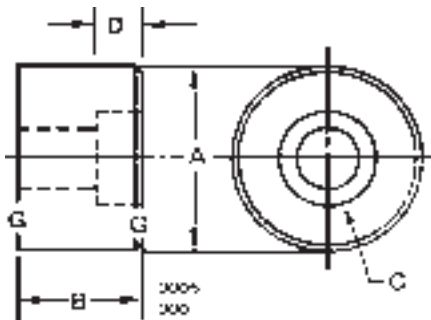
By holding close tolerances on the “B” dimension, when replacement becomes necessary, your original tolerances are maintained within .0005 (.013)



Part Number	A	+ .0005 - .000 B	Socket Head Capscrew C	D	Wt. (lbs) 10 Pcs.
25701*	5/8	3/8	1/4-20 x 3/8	9/32	.31
25702*	5/8	1/2	1/4-20 x 1/2	9/32	.31
25703*	5/8	5/8	1/4-20 x 5/8	9/32	.47
25704*	5/8	3/4	1/4-20 x 3/4	9/32	.55
25705	5/8	7/8	1/4-20 x 7/8	9/32	.62
25706	5/8	1	1/4-20 x 1	9/32	.78
25707*	7/8	1/2	5/16-18 x 1/2	11/32	.78
25708*	7/8	5/8	5/16-18 x 5/8	11/32	.94
25709*	7/8	3/4	5/16-18 x 3/4	11/32	1.03
25710	7/8	7/8	5/16-18 x 7/8	11/32	1.12
25711*	7/8	1	5/16-18 x 1	11/32	1.15
25712	7/8	1 1/8	5/16-18 x 1 1/4	11/32	1.17
25713	7/8	3/4	3/8-16 x 3/4	13/32	1.11
25714*	1 1/4	3/4	3/8-16 x 3/4	13/32	2.50
25715	1 1/4	7/8	3/8-16 x 7/8	13/32	2.70
25716*	1 1/4	1	3/8-16 x 1	13/32	3.30
25717*	1 1/4	1 1/2	3/8-16 x 1 1/2	13/32	5.00
25718	1 1/4	2	3/8-16 x 2	13/32	6.60
25719	1 5/8	1 1/4	1/2-13 x 1 1/2	17/32	7.00
25720	1 5/8	1 3/4	1/2-13 x 1 3/4	17/32	9.80
25721	1 5/8	2 1/4	1/2-13 x 2 1/2	17/32	13.75

*Conforms to TCMA

Metric Jig Feet



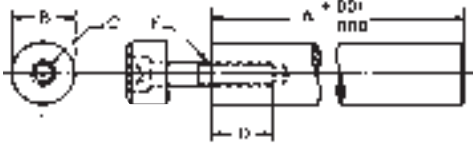
Part Number	A	+ .013 - .000 B	Socket Head Capscrew C	D
25751	16	10	M6 x 10	7
25752	16	12	M6 x 12	7
25754	16	20	M6 x 20	7
25757	22	12	M8 x 12	9
25759	22	20	M8 x 20	9
25761	22	24	M8 x 25	9
25766	32	24	M10 x 25	11

Jig Legs



The Jergens Jig Legs are ideal for cutting costs in simple jig plates. They assure lasting accuracy in your jig plate with a larger bearing surface at the top the the leg. The large diameter rest button provides more bearing surface for spot facing or counterboring on the bottom side. Both legs and rest buttons are hardened for long life.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened 75-77 R30N
- Cap Screw Included
- Available in FixturePro™ Design Software



Part Number	A	B	C	D	Cap Screw F	Wt. (lbs)
25301	1	5/8	1/4-20	5/8	1/4-20 x 1	.13
25302	2	5/8	1/4-20	5/8	1/4-20 x 1	.20
25303	3	5/8	1/4-20	7/8	1/4-20 x 1	.28
25304	4	7/8	3/8-16	7/8	3/8-16 x 1 3/4	.81
25305	5	7/8	3/8-16	7/8	3/8-16 x 1 3/4	1.00
25306	6	7/8	3/8-16	7/8	3/8-16 x 1 3/4	1.10

Flat Feet



- Material: Low Carbon Steel
- Heat Treat: Case Hardened 75-77 R30N
- Cap Screw Included
- Available in FixturePro™ Design Software

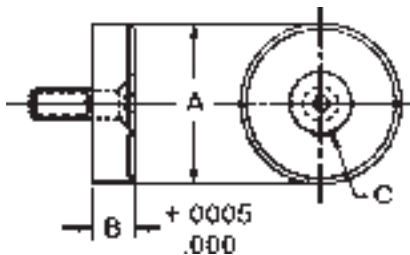
Jergens Feature:

By holding close tolerances on the "B" dimension, when replacement becomes necessary, your original tolerances are maintained within .0005 (.013mm)

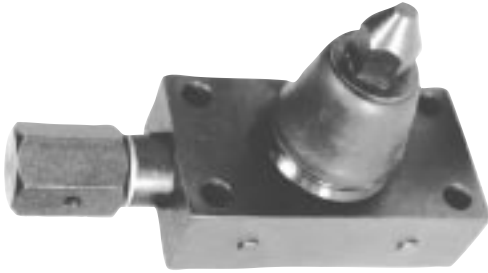
Part Number	A	+.0005 -.000 B	Flat Head Screw C	Wt. (lbs) 10 Pcs
19301	1/2	1/8	8-32 x 3/8	.06
19302	1/2	1/4	8-32 x 1/2	.16
19303	5/8	1/4	10-32 x 5/8	.21
19304	7/8	3/8	1/4-20 x 3/4	.62
19305	1 1/4	3/8	5/16-18 x 3/4	1.25
19306	1 5/8	3/8	3/8-16 x 3/4	2.20

Metric

Part Number	A	+.013 -.000 B	Flat Head Screw C	Wt. (Kg) 10 Pcs
19351	13	3	M4 x 10	.03
19352	13	6	M4 x 12	.09
19353	16	6	M5 x 16	.11
19354	22	10	M6 x 20	.33
19355	31	10	M8 x 20	.47

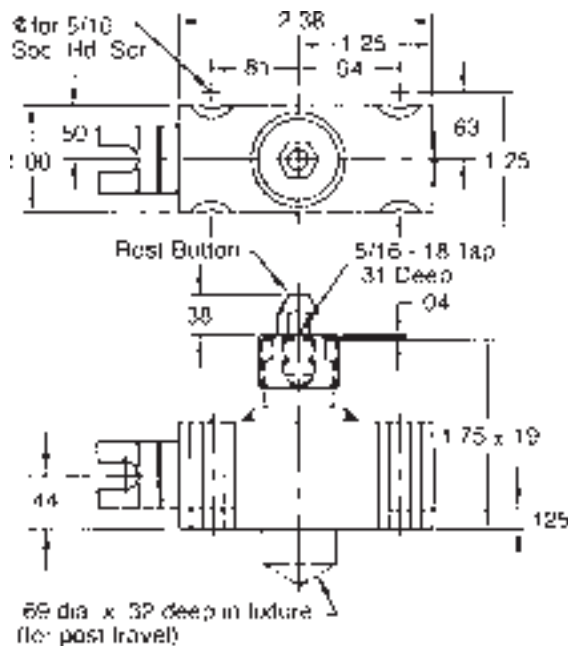


Work Support Jacks



The Jergens Spring Loaded Work Jacks provide consistent support and rigidity to odd shaped workpieces. They are designed to prevent workpiece deflection under forces created during machining operations. Precision mated locking jaws grip the jackpost from both sides creating a vise-like action.

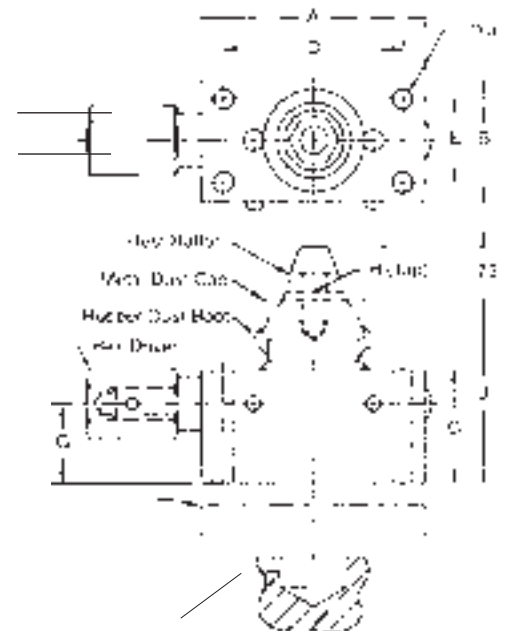
- Load capacities 300-4500 lbs.
- Rugged design
- Quality construction
- Dual jaw locking action
- Rubber boot or dust cap models available



25201

Riser Optional on Part Number 25207 & 25208

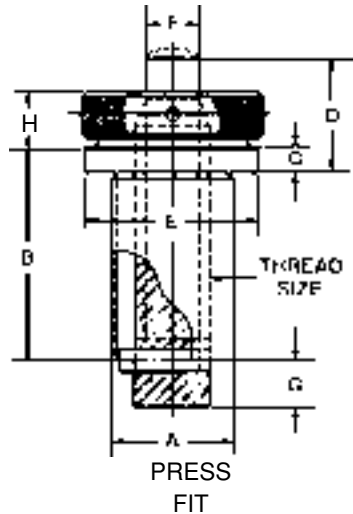
1/4"	25211
1/2"	25212
3/4"	25213



If risers are not used, hole must be provided in fixture base:
1.12" dia. x .50" deep for Part No.'s 25207 & 25208

Part Number	Load Rating	Type Of Dust Protector	Type Of Driver	A	B	C	D	E	Dia. F	G	Tap H	Jackpost J	
												Mean Ht.	Travel
25201	300 lbs at 10 ft-lbs Torque	Cap		Slotted, See Detailed View for Dimensions								1.75	±.19
25203 25204	1400 lbs	Cap Boot	.750 Hex	3.75	2.00	2.00	3.00	1.38	11/32	1.13	3/8-16 .44 Deep	3.31	±.25
25207 25208	2500 lbs	Cap Boot	.750 Hex	3.75	2.00	1.12	3.00	1.38	11/32	.56	3/8-16 .44 Deep	2.38	±.25
25205	4500 lbs	Cap	.937 Hex	4.54	2.50	2.50	3.50	1.88	13/32	1.63	1/2-13 .59 deep	4.13	±.38

Fixture Jacks

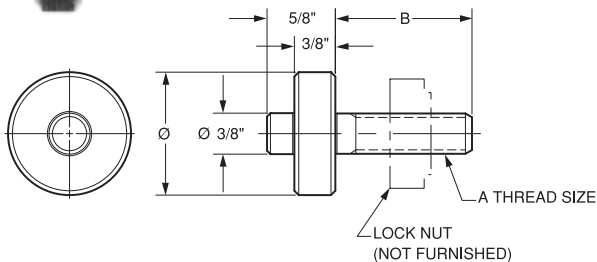


Designed as a positive locking jack for irregular clamping to achieve various heights requiring a positive pressure stop. Adjustable to fit height irregularities of milling operations. Available in either a smooth radius head or a hardened tool steel serrated gripping surface. Elevates vertically, no rotation. Outer diameter of bushing ground for press-fit.

- Material: Bushing, Low Carbon Steel
Radius Stem, Low Carbon Steel
Serrated Stem, 4140
- Finish: Bushing, Black Oxide
Radius Stem, Black Oxide
Serrated Stem, Black Oxide
- Heat Treat: Bushing, Case Hardened
74-77 R30N
Radius Stem, Case Hardened
Serrated Stem, Rc 45-48
- Available in FixturePro™ Design Software

Part Number Radius	Part Number Serrated	Press Fit A	B	C	D		E	F	G	H	Thread Size	Wt. (lbs)
					Min.	Max.						
24901	25101	5/8	1 3/16	3/16	9/16	1 1/2	1	1/4	5/32	3/8	3/8-16	.19
24902	25102	1	1 5/8	3/16	7/8	2 7/16	1 5/16	15/32	7/16	7/16	5/8-11	.55
24903	25103	1 1/2	2 3/4	3/16	7/8	3 1/2	1 3/4	13/16	1/2	9/16	1-8	1.90

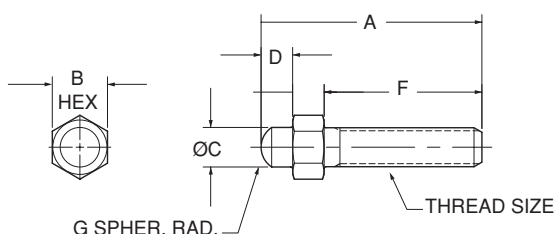
Adjustable Jack Screws



Part Number	A	B	C	Wt. (lbs)	Lock Nut (Not Included)
25001	3/8-16	1-1/4	1-1/8	0.15	28101
25003	3/8-16	2	1-1/8	0.18	28101
25005	1/2-13	1-5/8	1-1/8	0.20	28102
25007	1/2-13	2-1/2	1-1/8	0.25	28102
25009	5/8-11	2	1-3/8	0.34	28103
25011	5/8-11	3	1-3/8	0.43	28103

Adjustable Locating Buttons

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened 87-92 R15N

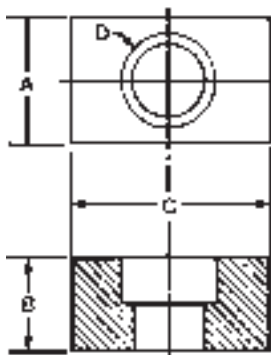


Part Number	Thread Size	A	B	C	D	E	F	G
21401	10-32	1	1/4	3/16	1/8	1/8	3/4	1/8
21402	1/4-28	1 1/2	3/8	1/4	3/16	3/16	1 1/8	3/16
21403	5/16-24	1 3/4	7/16	5/16	1/4	1/4	1 1/4	3/16
21404	3/8-24	2	1/2	3/8	1/4	1/4	1 1/2	1/4
21405	1/2-20	2 1/2	5/8	1/2	5/16	5/16	1 7/8	5/16
21406	5/8-18	3	3/4	5/8	3/8	3/8	1 1/4	3/8
21407	3/4-16	3 1/2	7/8	3/4	7/16	7/16	2 5/8	7/16

Standard Fixture Keys



- Material: C-1018
- Finish: Black Oxide
- Heat Treat: Case Hardened 74-77 R30N
- Available in FixturePro™ Design Software



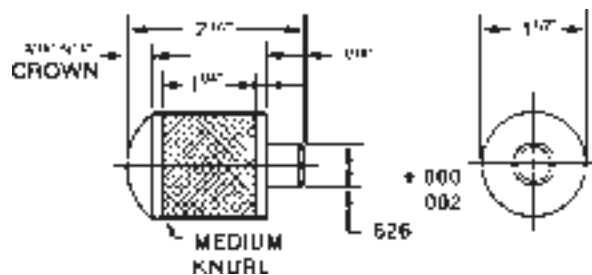
Part Number	-.0005 -.0010 A	B	C	Socket Head Screw D	Wt. (lbs) 10 Pcs.
19701*	.5000	1/2	3/4	1/4	.14
19702*	.5625	1/2	3/4	1/4	.65
19703*	.6250	1/2	3/4	5/16	.68
19704*	.6875	1/2	1	5/16	.98
19705	.7500	1/2	1 1/4	5/16	1.10
19706	.8125	1/2	1 1/4	5/16	1.25

*Conforms to TCMA

Metric

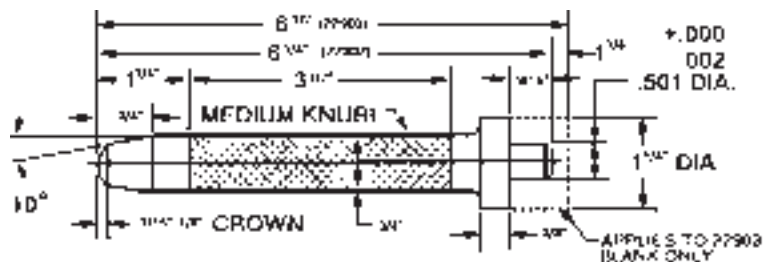
Part Number	-.0013 -.0026 A	B	C	Socket Head Screw D
19751	12	13	19	M5
19752	14	14	22	M6
19753	16	13	22	M6
19754	18	14	22	M6
19755	20	13	22	M6
19756	22	13	32	M6

Drift Handles



Part Number	Wt. (lbs)
22901	1.0

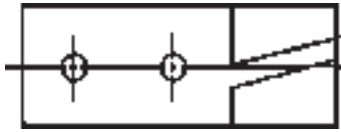
- Material: AISI-S7
- Finish: Black Oxide
- Heat Treat: Rc 44-48
- Available in FixturePro™ Design Software



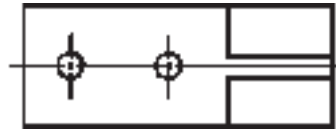
Part Number	Wt. (lbs)
22902	1.1
22903	1.2

Compare The Jergens Sine Fixture Key Method To The Standard Method

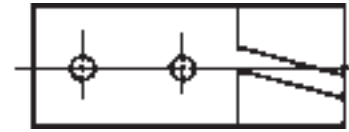
Construct a fixture to mill slots in castings A, B, and C. The locator pins to be common.



A



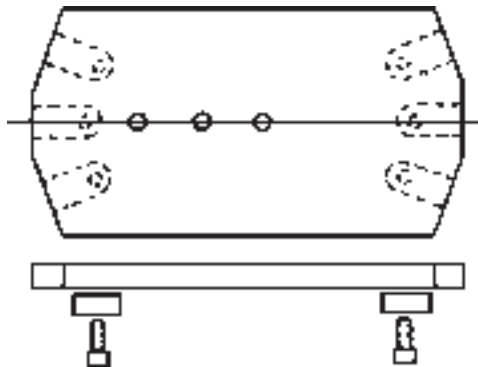
B



C

Present Method

A total of 11.2 hours was required to complete this fixture base with finished edge, milled fixture key slots, bored locator pin holes and drilled and tapped set screw holes.



PRESENT METHOD

TIME

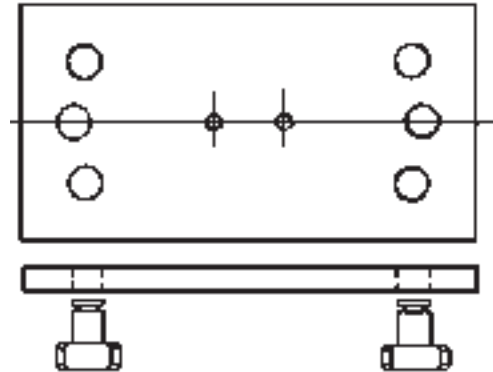
1. Finish one edge.	.5 hours
2. Locate on jig bore and bore locating point and two locator pin holes	1.75 hours
3. Relocate, position and mill two fixture key slots.	1.75 hours
4. Relocate and, by use of sine bar or other positioning device, establish and mill two fixture key slots.	2.35 hours
5. For opposite slots-same as above	2.35 hours
6. Drill and tap six holes for holding fixture keys in slots.	1.5 hours
7. Set up and perform inspection-if inaccurate, reroute for reworking.	1.0 hours

TOTAL TIME REQUIRED

11.2 hours

Jergens Method

It took only 5 1/2 hours to complete this fixture with bored sine fixture key holes and bored locator pin holes



JERGENS METHOD

TIME

1. Eliminated.	
2. One set-up serves for establishing locator holes and sine fixture keys.	4.5 hours
3. Eliminated.	
4. Eliminated	
5. Eliminated.	
6. Eliminated.	
7. Inspect on original set-up.	1.0 hours

TOTAL TIME REQUIRED

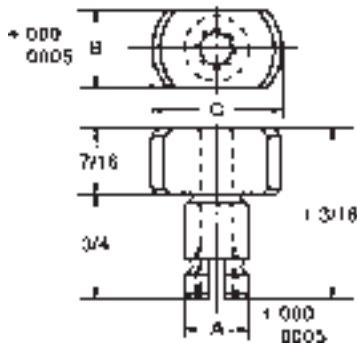
5.5 hours

ON THIS PARTICULAR FIXTURE - SAVE OVER 50% OF SET-UP TIME!

Sine Fixture Keys



- Material: 4140
- Heat Treat: 26-30
- Available in FixturePro™ Design Software
- Reduce fixture costs
- Cut extra set-up time
- Completely interchangeable
- Fits many table slot sizes



Jergens Feature:

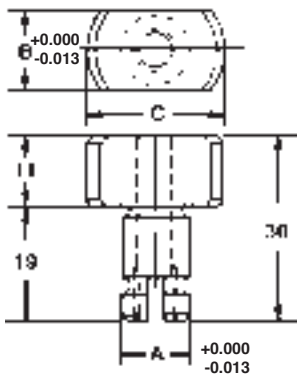
Full 360° contact for more accurate locating.

Sine Fixture Keys locate jigs and fixtures on machine tool tables and position the part in one operation. They eliminate the need to slot fixture bases, make step fixture keys, or drill and tap keys. Simply ream two holes, depending upon the shank size shown in the table below.

The unique expansion shaft allows the key to be locked in the fixture from either the top or the bottom using a standard hex wrench.

Part Number	Shank Size A	Slot Size B	C	Wt. (lbs)	Recommended Hole Diameter
39501	.625	.4995	1	.09	.625 Shank Size: 0.6255 ± 0.0005
39502	.625	.562	1	.11	
39503	.625	.6245	1	.11	
39504	.625	.687	1	.11	
39505	.625	.7495	1 1/8	.13	
39506	.625	.812	1 1/8	.14	
39507	.625	.8745	1 1/8	.15	.75 Shank Size: 0.7505 ± 0.0005
39509	.750	.9995	1 3/8	.22	
39510	.750	1.062	1 3/8	.23	

Metric Sine Fixture Keys



Part Number	Shank Size A	Slot Size B	C	Wt. (kg)	Recommended Hole Diameter
39551	16	12	25	.04	16mm Shank Size: 16.01 ± 0.01
39552	16	14	25	.05	
39553	16	16	25	.05	
39554	16	18	29	.05	
39555	16	20	29	.06	
39556	16	22	29	.06	
39557	20	24	35	.07	20mm Shank Size: 20.01 ± 0.01
39558	20	28	35	.10	
39559	20	32	40	.10	

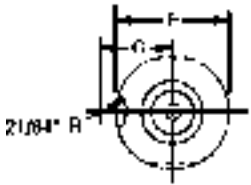
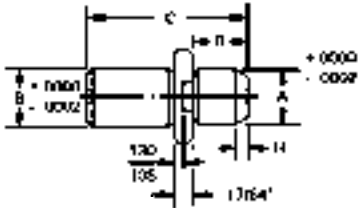
Metric Slot/Inch Shank

Used primarily for adapting existing fixtures with inch locating holes to metric table slots.

Part Number	Shank Size A	Slot Size (Mm) B	C	Wt. (lbs)	Recommended Hole Diameter
39561	.625	12	1	.09	0.6255 ± 0.0005
39562	.625	14	1	.09	
39563	.625	16	1	.11	
39564	.625	18	1 1/8	.11	
39565	.625	20	1 1/8	.14	
39566	.625	22	1 1/8	.15	

Locating Pins-Slip Fit

Round



- Material: Low Carbon Steel
- Heat Treat: Case Hardened
74-77 R30N
- Available in FixturePro™
Design Software

- Sizes range from 1/8" to 1" head diameters
- Concentricity in both diameters is held within .0002
- For special applications we will grind the "A" dimension to your specifications
- Quick turnaround on specials
- May be used in bushing applications or press fit with Lock Screws.

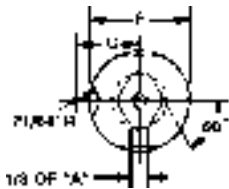
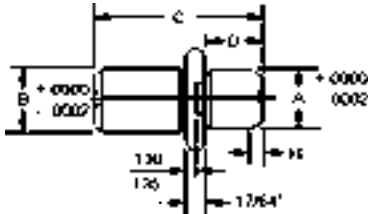
Part Number	A	B	C	D	F	G	H	Wt. (lbs) 10 Pcs.
Round								
29101*	.1245	5/16	1 3/16	7/16	5/8	33/64	1/32	.31
29102	.1401	5/16	1 3/16	7/16	5/8	33/64	1/32	.31
29103*	.1558	5/16	1 3/16	7/16	5/8	33/64	3/64	.31
29104	.1714	5/16	1 3/16	7/16	5/8	33/64	3/64	.31
29105*	.1870	5/16	1 3/16	7/16	5/8	33/64	1/16	.31
29106	.2026	5/16	1 3/16	7/16	5/8	33/64	1/16	.31
29107*	.2183	5/16	1 3/16	7/16	5/8	33/64	5/64	.31
29108	.2339	5/16	1 3/16	7/16	5/8	33/64	3/32	.31
29109*	.2495	5/16	1 3/16	7/16	5/8	33/64	3/32	.31
29110	.2651	5/16	1 3/16	7/16	5/8	33/64	3/32	.31
29111*	.2808	5/16	1 3/16	7/16	5/8	33/64	3/32	.36
29112	.2964	5/16	1 3/16	7/16	5/8	33/64	3/32	.36
29113*	.3120	5/16	1 3/16	7/16	5/8	33/64	3/32	.36
29114*	.3115	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29115	.3271	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29116*	.3428	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29117	.3584	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29118*	.3740	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29119	.3896	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29120*	.4053	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29121	.4209	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29122*	.4365	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29123	.4521	1/2	1 1/2	1/2	7/8	41/64	1/8	.95
29124*	.4678	1/2	1 1/2	1/2	7/8	41/64	1/8	.95
29125	.4834	1/2	1 1/2	1/2	7/8	41/64	1/8	1.00
29126*	.4990	1/2	1 1/2	1/2	7/8	41/64	1/8	1.00
29127*	.4980	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.0
29128*	.5293	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.0
29129*	.5605	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29130*	.5918	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29131*	.6230	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29132*	.6543	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29133*	.6855	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29134*	.7168	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29135*	.7480	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29136*	.7480	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29137*	.7793	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29138*	.8105	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29139*	.8418	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29140*	.8730	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29141*	.9043	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29142*	.9355	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29143*	.9668	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29144*	.9980	1	2 5/8	1	1 1/2	61/64	9/32	5.0

*Conforms to TCMA

See page 2.24 for Liners and Lock Screws.

Locating Pins-Slip Fit

Relieved



- Material: Low Carbon Steel
- Heat Treat: Case Hardened
74-77 R30N
- Available in FixturePro™
Design Software

- Sizes range from 1/8" to 1" head diameters
- Concentricity in both diameters is held within .0002
- For special applications we will grind the "A" dimension to your specifications
- Quick turnaround on specials
- May be used in bushing applications or press fit with Lock Screws.

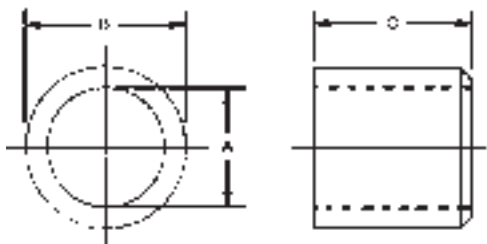
Part Number	A	B	C	D	F	G	H	Wt. (lbs) 10 Pcs.
Relieved								
29301*	.1245	5/16	1 3/16	7/16	5/8	33/64	1/32	.31
29302	.1401	5/16	1 3/16	7/16	5/8	33/64	1/32	.31
29303*	.1558	5/16	1 3/16	7/16	5/8	33/64	3/64	.31
29304	.1714	5/16	1 3/16	7/16	5/8	33/64	3/64	.31
29305*	.1870	5/16	1 3/16	7/16	5/8	33/64	1/16	.31
29306	.2026	5/16	1 3/16	7/16	5/8	33/64	1/16	.31
29307*	.2183	5/16	1 3/16	7/16	5/8	33/64	5/64	.31
29308	.2339	5/16	1 3/16	7/16	5/8	33/64	3/32	.31
29309*	.2495	5/16	1 3/16	7/16	5/8	33/64	3/32	.31
29310	.2651	5/16	1 3/16	7/16	5/8	33/64	3/32	.31
29311*	.2808	5/16	1 3/16	7/16	5/8	33/64	3/32	.36
29312	.2964	5/16	1 3/16	7/16	5/8	33/64	3/32	.36
29313*	.3120	5/16	1 3/16	7/16	5/8	33/64	3/32	.36
29314*	.3115	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29315	.3271	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29316*	.3428	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29317	.3584	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29318*	.3740	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29319	.3896	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29320*	.4053	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29321	.4209	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29322*	.4365	1/2	1 1/2	1/2	7/8	41/64	1/8	.90
29323	.4521	1/2	1 1/2	1/2	7/8	41/64	1/8	.95
29324*	.4678	1/2	1 1/2	1/2	7/8	41/64	1/8	.95
29325	.4834	1/2	1 1/2	1/2	7/8	41/64	1/8	1.00
29326*	.4990	1/2	1 1/2	1/2	7/8	41/64	1/8	1.00
29327*	.4980	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.0
29328*	.5293	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.0
29329*	.5605	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29330*	.5918	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29331*	.6230	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29332*	.6543	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29333*	.6855	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29334*	.7168	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29335*	.7480	3/4	1 15/16	11/16	1 1/8	49/64	3/16	2.5
29336*	.7480	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29337*	.7793	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29338*	.8105	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29339*	.8418	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29340*	.8730	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29341*	.9043	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29342*	.9355	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29343*	.9668	1	2 5/8	1	1 1/2	61/64	9/32	5.0
29344*	.9980	1	2 5/8	1	1 1/2	61/64	9/32	5.0

*Conforms to TCMA
See page 2.24 for Liners and Lock Screws.

Locating Pin Liners



- Material: 52100 Steel

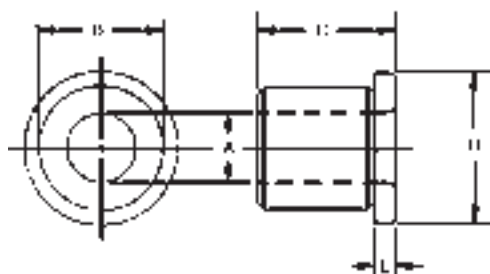


Part Number	A	B	C	Wt. (lbs) 10 Pcs.
28501	.3129	.5017	1/2	.16
	.3126	.5014		
28502	.5005	.7518	3/4	.47
	.5002	.7515		
28503	.7506	1.0018	1	.94
	.7503	1.0015		
28504	1.0007	1.3772	1 3/8	2.80
	1.0004	1.3768		

Locating Pin Shoulder Liners



- Material: 52100 Steel

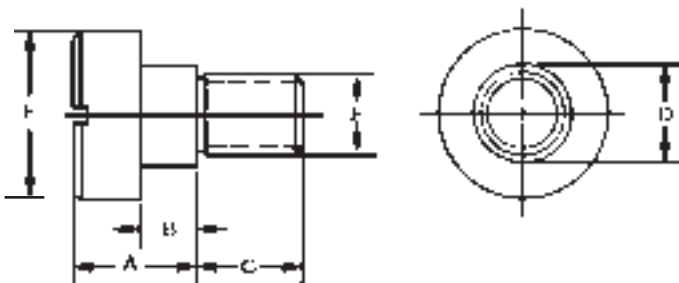


Part Number	A	B	C	D	E	Wt. (lbs) 10 Pcs.
40901	.3129	.5017	1/2	5/8	3/32	.16
	.3126	.5014				
40902	.5005	.7518	3/4	7/8	3/32	.47
	.5002	.7515				
40903	.7506	1.0018	1	1 1/8	1/8	.94
	.7503	1.0015				
40904	1.0007	1.3772	1 3/8	1 1/2	1/8	2.65
	1.0004	1.3768				

Locating Pin Lock Screws

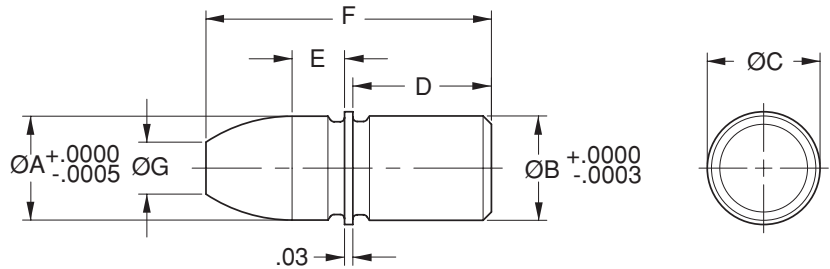


- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: 2A-UNC



Part Number	A	B	C	D	E	F	Wt. (lbs) 10 Pcs.
10101	1/4	.135	3/8	3/8	5/8	5/16-18	.16

Bullet Nose Dowels

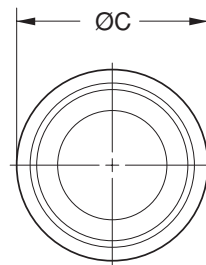
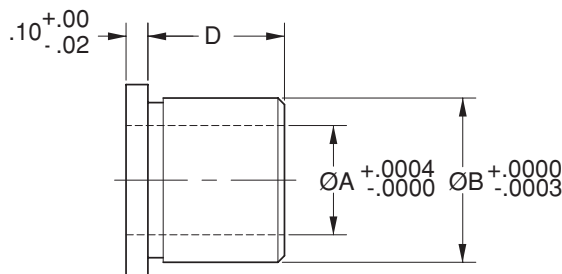


Bullet Nose Dowels are used for aligning two pieces of a fixture together.

- Pin and head centric within .0005 TIR
- Bushing ID and OD concentric within .0003 TIR
- Material: Low carbon steel
- Heat Treat: Case hardened 72-82 R30N
- Ground finish

Bullet-Nose Dowels

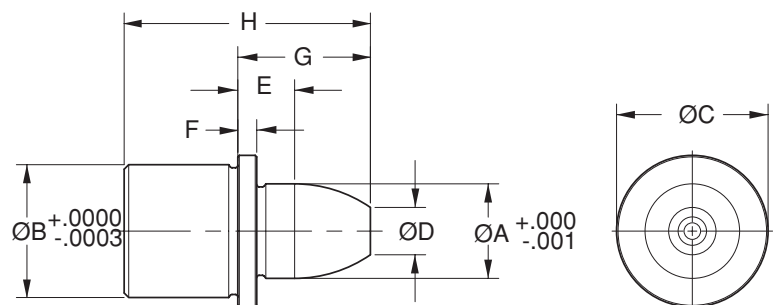
Part Number	A	B	C	D	E	F	G
29221	.2499	.2516	.280	1/2	.12	.90	1/8
29222	.3124	.3141	.344	1/2	.16	.94	5/32
29223	.3749	.3766	.407	1/2	.19	1.03	3/16
29224	.4999	.5017	.532	1/2	.19	1.09	1/4



Bullet-Nose Dowel Liners (Bushings)

Part Number	A	B	C	D
40921	.2501	.5017	5/8	3/8
40922	.3126	.5017	5/8	3/8
40923	.3751	.6267	3/4	1/2
40924	.5001	.7518	7/8	5/8

Pilot Locating Pins



- Material: Low carbon steel
- Heat Treat: Case hardened 72-82 R30N
- Ground finish

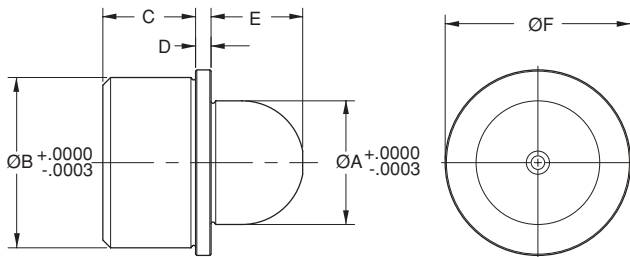
Pilot Locating Pins

Part Number	A	B	C	D	E	F	G	H
29231	.249	.4078	9/16	5/32	9/32	3/32	15/32	27/32
29232	.312	.5017	5/8	3/16	9/32	3/32	15/32	27/32
29233	.624	.8768	1	5/16	3/8	1/8	7/8	1 5/8

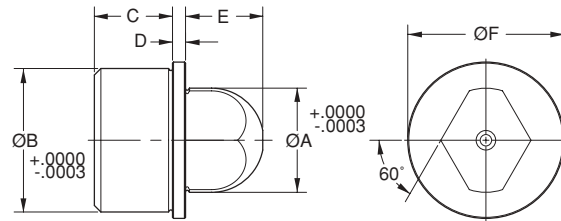
Bullet Nose Pins



**Bullet-Nose
Pins – Round**



**Bullet-Nose
Pins – Relieved**



Bullet-Nose Pins – Round

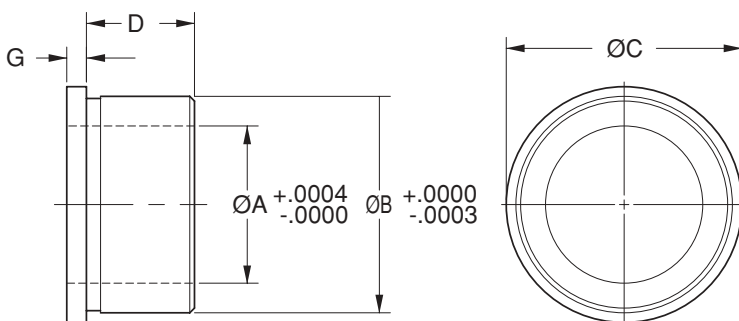
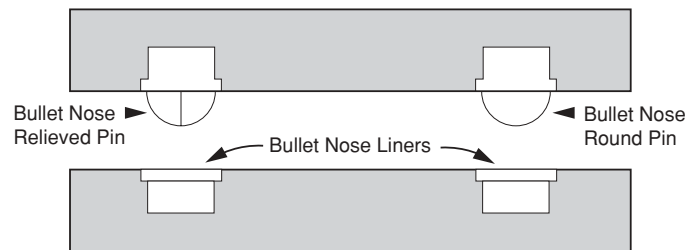
Part Number	A	B	C	D	E	F
29201	.2499	.4078	3/8	1/16	7/32	9/16
29202	.3124	.5017	3/8	1/16	9/32	5/8
29203	.3749	.6267	1/2	1/16	5/16	3/4
29204	.4998	.7518	1/2	1/16	13/32	7/8
29205	.7498	1.0018	3/4	1/8	9/16	1 1/8
29206	.9998	1.3771	3/4	1/8	3/4	1 1/2

Bullet-Nose Pins – Relieved

Part Number	A	B	C	D	E	F
29211	.2499	.4078	3/8	1/16	7/32	9/16
29212	.3124	.5017	3/8	1/16	9/32	5/8
29213	.3749	.6267	1/2	1/16	5/16	3/4
29214	.4998	.7518	1/2	1/16	13/32	7/8
29215	.7498	1.0018	3/4	1/8	9/16	1 1/8
29216	.9998	1.3771	3/4	1/8	3/4	1 1/2

Bullet Nose Pins are used for aligning two pieces of a fixture together. The round and relieved style are used in conjunction with a matching bushing to locate radially on the round pin. The flats on the relieved pin prevents binding, yet allows a high degree of accuracy to be maintained.

- Material: Low carbon steel
- Heat Treat: Case hardened 72-82 R30N
- Ground finish



Bullet Nose Pins Liners (Bushings)

Part Number	A	B	C	D	E
40911	.2501	.4078	9/16	7/16	1/16
40912	.3126	.5017	5/8	7/16	1/16
40913	.3751	.6267	3/4	7/16	1/16
40914	.5001	.7518	7/8	1/2	1/16
40915	.7502	1.0018	1 1/8	1/2	1/8
40916	1.0002	1.3771	1 1/2	1 11/16	1/8

Premium Short Shank Inspection Balls



- Material: 8620 Steel
- Case Hardened
- Used as reference points for inspection applications in conjunction with Coordinate Measuring Machines to accurately measure the workpiece.
- Concentricity of Ball to Shank - .0001 T.I.R.
- One-piece construction

Part Number	+0.0000/-0.0002 A	+0.0000/-0.0002 B	+/-0.0002 C	D	Thread E	Dia. F	Net Wt. (lbs) 10 Pcs.
29060	0.2500	0.1247	0.2000	0.58		1/4	.1
29061	0.3750	0.1872	0.3000	0.75		3/8	.1
29062	0.3750	0.3125	0.3000	0.74	8-32	1/2	.3
29063	0.5000	0.2497	0.3125	0.63	6-32	1/2	.3
29064	0.5000	0.2497	0.4000	0.93	6-32	1/2	.3
29065	0.5000	0.2497	0.5000	0.88	6-32	1/2	.3
29066	0.5000	0.3750	0.3750	1.31	10-24	5/8	.6
29067	0.6250	0.3122	0.4500	1.08	8-32	5/8	.6
29068	0.6250	0.3750	0.4500	1.42	10-24	5/8	.7
29069	0.6875	0.3750	0.5000	1.47	10-24	3/4	.9
29070	0.7500	0.3750	0.5625	1.53	10-24	3/4	1.3
29071	1.0000	0.5000	0.7000	1.64	10-24	1	2.5

Precision Slip Fit



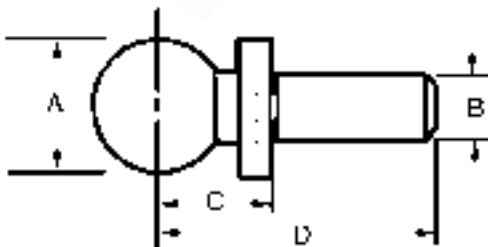
- Used as reference points for inspection applications in conjunction with Coordinate Measuring Machines to accurately measure the workpiece.
- Concentricity of Ball to Shank - .0002 T.I.R.
- Hardened and ground steel (440 Stainless)
- Two-piece construction

Part Number	+/-0.0005 A	+0.0000/-0.0002 B	+/-0.0002 C	D	Dia F	Net Wt. (lbs) 10 Pcs.
29075	0.25000	0.1247	0.2000	9/16	1/4	.1
29076	0.37500	0.1872	0.3000	3/4	3/8	.1
29077	0.50000	0.2497	0.4000	15/16	1/2	.3
29078	0.62500	0.3122	0.4500	1 1/16	5/8	.6
29079	0.75000	0.3747	0.5000	1 1/4	3/4	1.0
29080	0.87500	0.4372	0.6000	1 7/16	3/4	.7
29081	1.00000	0.4997	0.7000	1 5/8	1	2.4

Shoulder Press Fit



- One Piece Construction
- Close Tolerances—.0002 T.I.R.
- 8620 Steel Hardened Rc58-62
- Available in FixturePro™ Design Software



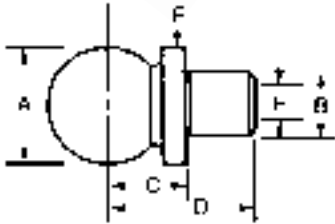
Slip Fit

Part Number	±.0002 A	+.0000 -.0004 B	±.0002 C	D	Wt. (lbs) 10 Pcs.
29041	.2500	.1250	.2000	9/16	.1
29042	.3750	.1875	.3000	3/4	.1
29043	.5000	.2500	.4000	15/16	.3
29044	.5000	.2500	.5000	1 3/8	.4
29045	.7500	.3750	.5000	1 1/4	1.0

Press Fit

Part Number	-.0002 Dia A	+.0003/ -.000 B	+.0002 C	D	Wt. (lbs) 10 Pcs.
29085	0.2500	.1253	.2000	9/16	.1
29086	0.3750	.1878	.3000	3/4	.1
29087	0.5000	.2503	.4000	15/16	.3
29088	0.5000	.2503	.5000	1 3/8	.4
29089	0.7500	.3753	.5000	1 1/4	1.0

Construction



- One Piece Construction
- Close Tolerances—.0002 T.I.R.
- 8620 Steel Hardened Rc58-62
- Available in FixturePro™ Design Software

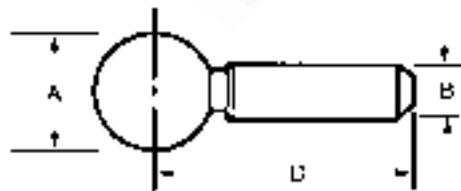
Inch

Part Number	± .0002 A	+ .0000 - .0004 B	± .0002 C	D	Dia. E	F	Net Wt. 10 Pcs
29051	.5000	.2500	.3125	5/8	.490	6-32 x 1/4	.3
29052	.5000	.2500	.3125	5/8	.490	Not Tapped	.3

Metric

Part Number	± .005mm A	+000/- .010mm B	± .005mm C	D	Dia. E	Net Wt. 10 Pcs
29090	6mm	3mm	6mm	16mm	6mm	.1
29091	10mm	5mm	10mm	20mm	10mm	.3
29092	12mm	6mm	12mm	22mm	12mm	.3

Tooling Balls Standard

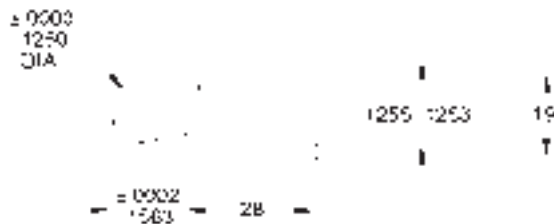


- One Piece Construction
- Close Tolerances—.0002 T.I.R.
- 8620 Steel Hardened Rc58-62
- Available in FixturePro™ Design Software

Part Number	± .0002 A	+ .0000 - .0004 B	D	Net Wt. 10 Pcs
29031	.2500	.1250	9/16	.1
29032	.3750	.1875	3/4	.1
29033	.5000	.2500	15/16	.3
29034	.5000	.2500	1 1/2	.3
29035	.5000	.3750	1 1/2	.8

Carbide

29099 See drawing for Dimensions



- Used as reference points for inspection applications in conjunction with Coordinate Measuring Machines to accurately measure the workpiece.
- Concentricity of Ball to Shank - .0002 T.I.R.
- Hardened and ground steel (440 Stainless)
- Material: Ball - Carbide
Shank - 440 Stainless
- Two-piece construction
- Weight per 100 pcs. is less than one pound.

Tooling Balls

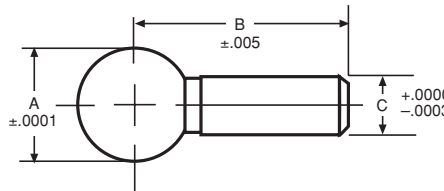


NOTE: The weld between the ball and the shank is made so that the ball will drop off if subjected to unusually heavy lateral forces. This prevents setup and inspection errors that might occur because of accidental bending of the shank.

Fixture Balls (plain shank)

These Tooling balls are assembled by a proprietary welding technique that retains the initial high precision and fine finish of the balls.

- Material: Type 440-C Stainless Steel hardened to Rc 58-62
- Eccentricity, ball to shank, 0.0002 T.I.R. maximum
- Available in FixturePro™ Design Software
- Two Piece Welded Construction



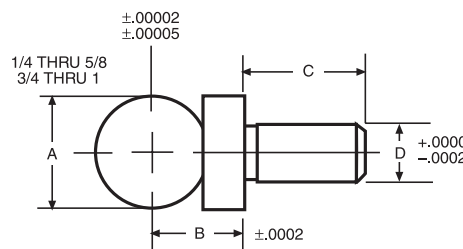
Part Number	A	B	C
29001	.250	.56	.1247
29002	.375	.75	.1872
29003	.500	.94	.2497
29004	.625	1.06	.3122
29005	.750	1.25	.3747
29006	.875	1.44	.4372
29007	1.000	1.62	.4997



Checking Balls (with reference shoulders)

Jergens Checking Balls are made to closer tolerances than Fixture Balls. They feature an accurately located shoulder that provides for positive positioning, re-positioning, or replacement.

- Material: Type 440-C Stainless Steel hardened to Rc 58-62
- Eccentricity, ball to shank, 0.0002 T.I.R. maximum
- Available in FixturePro™ Design Software
- Two Piece Welded Construction



Part Number	A	B	C	D
*29010	.125	.0938	.28	.1255
29011	.250	.200	.36	.1247
29012	.375	.300	.45	.1872
29013	.500	.400	.54	.2497
29014	.625	.450	.61	.3122
29015	.750	.500	.75	.3747
29016	.875	.600	.84	.4372
29017	1.000	.700	.92	.4997

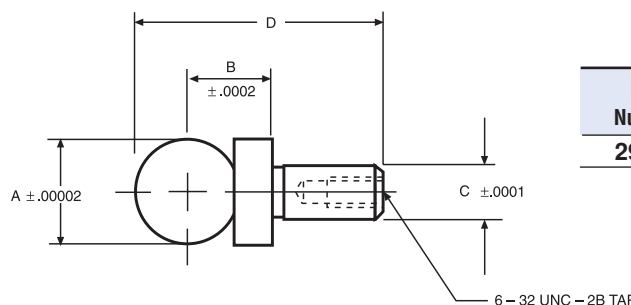
*29010 is supplied with tungsten carbide ball only, with Rockwell hardness 91.5 - 92.5



Checking Balls (with reference shoulder and tapped shank)

This Checking Ball can be pulled into a hole or bushing from below without applying pressure on the ball (accomplished by using a cap screw in the tapped hole in the shank).

- Material: Type 440-C Stainless Steel hardened to Rc 58-62
- Eccentricity, ball to shank, 0.0002 TIR max.
- Available in FixturePro™ Design Software
- Two Piece Welded Construction



Part Number	A	B	C	D
29021	.5000	.3125	.2499	.96

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Replaceable Grippers	3.2-3.3
Tapered Hardened Steel	3.2-3.3
Tapered Carbide Tipped	3.2

Replaceable Grippers

Tapered - Hardened Steel



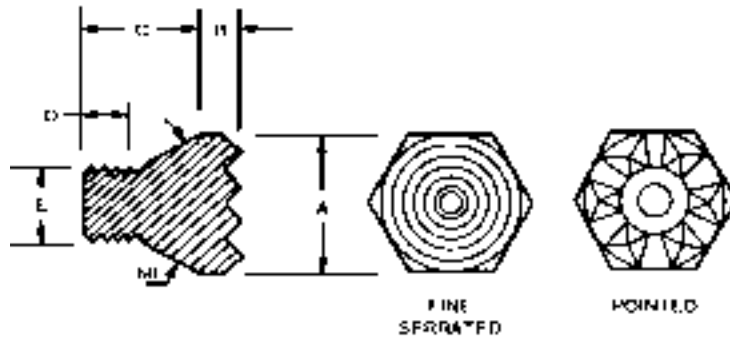
Pointed



Fine Serrated

- Material: 8620
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Available in FixturePro™ Design Software

Jergens introduces a new concept in replaceable grippers. It is now easier to modify soft top jaws, strap clamps, or fixtures to hold irregularly shaped material. The grippers can be installed from one side, using a combination center drill, a tap, and a box wrench. There is no need to drill through holes from difficult to reach locations. Simply drill, tap, and install.



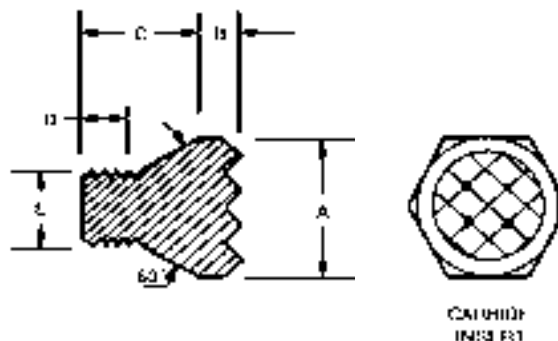
Hardened Steel Grippers

Part Number		Hex A	B	C	D	Thread E	Center Drill	Drill To Diameter
Serrated	Pointed							
23801	23811	5/16	.093	.32	.19	8-32	No. 4	.310
23802	23812	1/2	.125	.46	.25	1/4-28	No. 6	.498
23803	23813	3/4	.187	.70	.38	3/8-16	No. 8	.745

Tapered - Carbide Tipped



- Material: Body 8620
Insert, Carbide
- Finish: Zinc Plate
- Available in FixturePro™ Design Software



Carbide Tipped Grippers

Part Number	Hex A	B	C	D	Thread E	Center Drill	Drill To Diameter
23822	1/2	.125	.46	.25	1/4-28	No. 6	.498
23823	3/4	.187	.70	.38	3/8-16	No. 8	.745

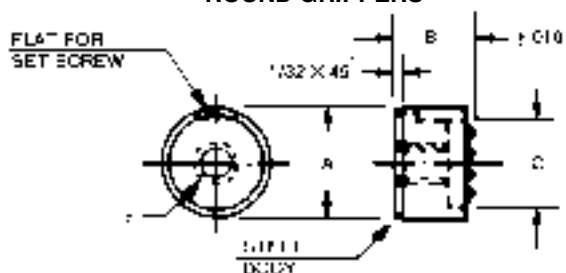
Replaceable Grippers



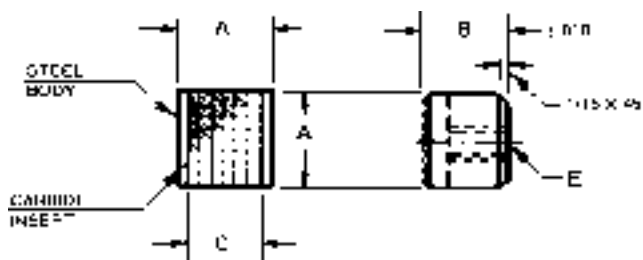
The Jergens Replaceable Grippers are available in Hardened High Speed Tool Steel or with Carbide Inserts. The points of the grippers embed themselves into the work piece giving greater holding power with less actual pressure. Jergens Grippers may be held in place using either a set screw on the flat of the gripper or the threaded hole in the back of the gripper.

Use Jergens Grippers to make hardened serrated jaws from Jergens soft top jaws or add the grippers to Jergens strap clamps for extra holding power. Use Jergens replaceable grippers anywhere that rough surfaces are being held in position for machining.

ROUND GRIPPERS



SQUARE GRIPPERS



- Material: Body, Low Carbon Steel
Insert, Carbide
- Finish: Zinc Plate
- Serrations: .09" x 90°
- Available in FixturePro™ Design Software

Carbide Tipped Grippers

Part Number	Style	A	B	C	E	Wt. (lbs) 10 Pcs.
23708	Round	3/8	3/8	5/16	10-32 x 7/32	.15
23707	Round	1/2	3/8	3/8	10-32 x 7/32	.20
23702	Round	1/2	1/2	3/8	10-32 x 11/32	.22
23703	Round	1/2	21/32	3/8	10-32 x 7/16	.30
23704	Round	5/8	3/8	1/2	1/4-28 x 7/32	.36
23705	Round	3/4	3/8	5/8	1/4-28 x 7/32	.44
23706	Square	1/2	3/8	13/32	10-32 x 1/4	.30

- Material: High Speed Tool Steel
- Finish: Black Oxide
- Heat Treat: Rc 60-62
- Serrations: .09" x 90°
- Available in FixturePro™ Design Software

Hardened Tool Steel Grippers

Part Number	Style	A	B	C	E	Wt. (lbs) 10 Pcs.
23710	Round	3/8	3/8	3/8	10-32 x 3/8	.15
23711	Round	1/2	3/8	1/2	10-32 x 3/8	.20
23712	Round	1/2	1/2	1/2	10-32 x 1/2	.22
23713	Round	1/2	21/32	1/2	10-32 x .651	.30
23714	Round	5/8	3/8	5/8	1/4-28 x 3/8	.36
23715	Round	3/4	3/8	3/4	1/4-28 x 3/8	.44
23716	Square	1/2	3/8	1/2	10-32 x 3/8	.30

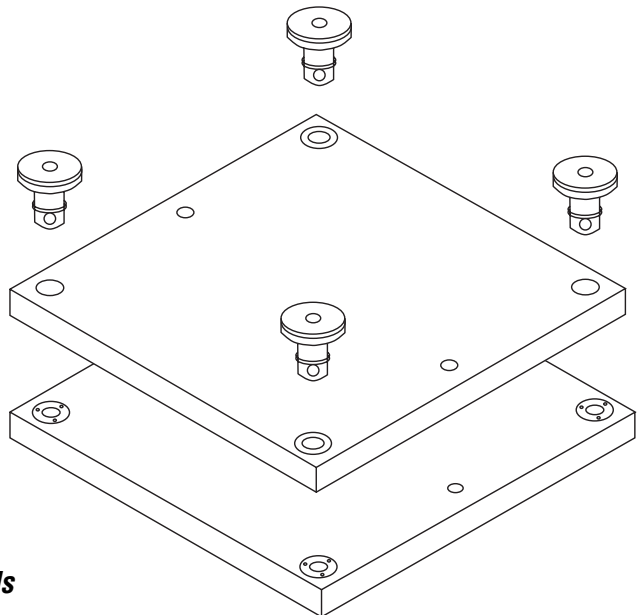
GOT A MINUTE? CHANGE A FIXTURE.

- **Reduces Downtime** • **.0005" Repeatability** • **Made in U.S.A.**

Jergens **Ball Lock**™ Quick Change Kit drastically reduces downtime without sacrificing accuracy. Fixture plate changeover can be completed in less than sixty seconds on all types of machine tools.

Complete kit includes:

- two fixture plates
- subplate
- *pre-installed Ball Lock*™ Mounting System



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Q-101 Rated Manufacturer

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Jergens Spring & Ball Plungers Last Longer

...And Here's Why!

Spring Plungers

Spring Plunger tips made by most manufacturers are case hardened. This means they have a protective shell, about .10" deep. Beneath this shallow veneer is mild, untreated steel. The Jergens plungers are fabricated from solid tool steel and hardened throughout.

Jergens Spring and Ball Plungers have accurate end forces, are easy to install, and are competitively priced. They are manufactured in the U.S.A. in a ISO 9001 certified quality system.

And if these aren't enough reasons to specify Jergens Spring and Ball Plungers, here are a few more:

Better Point of Contact

The Jergens plungers are turned and the tips generated in one smooth continuing process. This results in a constant radius tip, perfectly tangent to the point where the tip joins the shaft. Conventional two step, turn and grind operations, can leave ridges on the shaft at the tip junction and can also produce out-of-round tips.

These, in turn, can gouge or score finely finished parts or can cause detent cams to hang up or stick.

Extra Length Springs for Longer Life

The longer the spring, the longer its life. Jergens goes to extra lengths to minimize the thickness of the base flanges on all of its plungers. That allows us to use longer springs with less chance for fatigue and breakage.

Improved Plunger to Body Alignment

The long base flange allows for a larger bearing surface. This means improved plunger-to-body alignment, truer travel, and much improved side load characteristics.

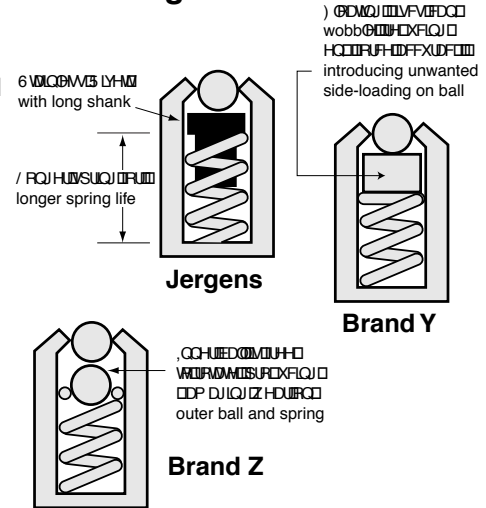
Tighter Fit Resists Contamination

Closer machining tolerances, minimum plunger-to-body clearance, and smoother plunger finish make Jergens plungers fit more snugly in the plunger bore. This improves plunger alignment and provides extra resistance to contaminant entry. The results: dirt and grit cannot get to the bearing surfaces to shorten the life of the plunger.

Better Plunger Adjustment

The Solid Drive® design assures that during removal or adjustment of the plunger, the whole plunger is moving, not just the set screw. This means no lost parts or springs falling out of the plunger.

Ball Plungers



Positive Control of Spring Pressure

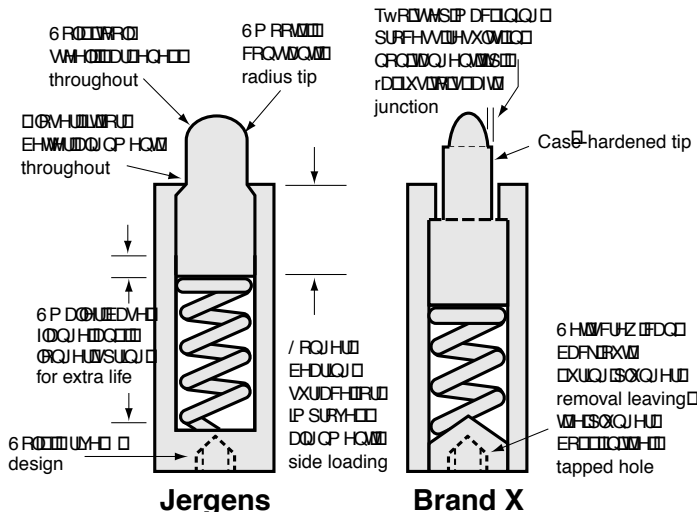
Accurate spring alignment is maintained by using a stainless rivet with a long shank on larger sizes of Jergens Ball Plungers. This precisely positions the spring for more accurate ball travel and provides positive control of spring pressure. Conventional floating discs are easily misaligned, while the rotation of the inner ball on dual-ball plungers results in less wearability on both the spring and the ball.

Longer Spring Life

By minimizing the lining pin head thickness, Jergens is able to use the longest possible springs. This, of course, means less fatigue and longer spring life.

Uniform Ball Projection

The distance by which the ball projects from the body of the plunger must be uniform from plunger to plunger. This uniformity is maintained by precisely controlling the crimping pressure applied to the neck of the plunger. Accurate machine controls plus rigid inspection procedures keep variances in ball projection to within $\pm .005$ ".



Quick Reference



- Spring Plungers 4.4
- Stainless Steel Spring Plungers ... 4.4
- Metric Spring Plungers 4.5



- Shortie Spring Plungers 4.6
- Stainless Steel Shortie Spring Plungers 4.6
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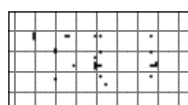
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Spring Plungers



- Single unit construction
- No set screw to separate from plunger body
- No need for “easy-out” tools
- Better reliability
- Steel tips are a hardened steel
- Close tolerance between tip and body

- Material: Body – Low Carbon Steel, or 303 Stainless Steel
- Tip – Delrin or Steel
- Finish: Black Oxide on Body
- Thread: 2A-UNC
- Available in FixturePro™ Design Software

Unlike conventional spring plungers, the Jergens SOLID DRIVE Plunger is one integral piece of steel: hex drive, plunger, and body. No set screw to separate from plunger body, no lost springs to retrieve, no need for “easy-out” tools. Best of all, when adjusting SOLID DRIVE, you can be sure the spring plunger is turning and not just a set screw.

Heavy Force With Locking Element

Thread Size A	Part Number		Stainless Steel Part Number		Force, Lbs.		Dimensions			
	Steel Tip	Delrin Tip	Stainless Tip	Delrin Tip	Initial	Final	B	C	D	E Hex Size
6-32	26921	30521	26936	30536	1.5	4.5	17/32	1/16	.046	3/64
8-32	26922	30522	26937	30537	2.7	7.3	5/8	3/32	.070	5/64
10-32	26923	30523	26938	30538	2.9	11.1	3/4	1/8	.093	3/32
1/4-20	26924	30524	26939	30539	3.0	13.0	1	3/16	.119	1/8
1/4-28	26925	30525	26940	30540	3.0	13.0	1	3/16	.119	1/8
5/16-18	26926	30526	26941	30541	3.0	15.0	1	3/16	.135	5/32
3/8-16	26927	30527	26942	30542	5.5	14.5	1 1/8	3/16	.186	3/16
1/2-13	26928	30528	26943	30543	6.6	17.4	1 1/4	1/4	.248	1/4
5/8-11	26929	30529	26944	30544	10.5	25.5	1 1/2	5/16	.310	5/16
3/4-10	26930	—	26945	30545	6.7	37.3	1 3/4	5/16	.374	3/8
1-8	26911*	—	—	—	16.0	68.0	2 13/32	1/2	.499	3/8

* Not available in SOLID DRIVE construction.

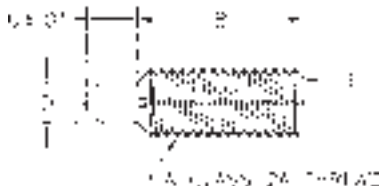
Light Force With Locking Element

Thread Size A	Part Number		Stainless Steel Part Number		Force, Lbs.		Dimensions			
	Steel Tip	Delrin Tip	Stainless Tip	Delrin Tip	Initial	Final	B	C	D	E Hex Size
6-32	27321	30921	27336	30936	.5	1.5	17/32	1/16	.046	3/64
8-32	27322	30922	27337	30937	.7	2.3	5/8	3/32	.070	5/64
10-32	27323	30923	27338	30938	1.3	2.7	3/4	1/8	.093	3/32
1/4-20	27324	30924	27339	30939	1.0	4.0	1	3/16	.119	1/8
1/4-28	27325	30925	27340	30940	1.0	4.0	1	3/16	.119	1/8
5/16-18	27326	30926	27341	30941	1.5	4.5	1	3/16	.135	5/32
3/8-16	27327	30927	27342	30942	2.8	7.2	1 1/8	3/16	.186	3/16
1/2-13	27328	30928	27343	30943	2.7	9.3	1 1/4	1/4	.248	1/4
5/8-11	27329	30929	27344	30944	3.5	10.5	1 1/2	5/16	.310	5/16
3/4-10	27330	—	27345	30945	5.5	14.5	1 3/4	5/16	.374	3/8
1-8	27311*	—	—	—	10.0	25.0	2 13/32	1/2	.499	3/8

All plungers conform dimensionally to TCMA Standards.

* Not available in SOLID DRIVE construction.

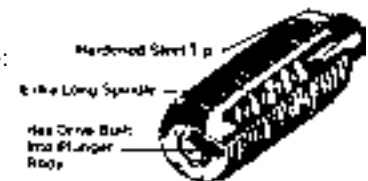
Specials available, see page 4.10 for Plunger Quote Request worksheet.



Hex drive in rear for spring plunger insertion.

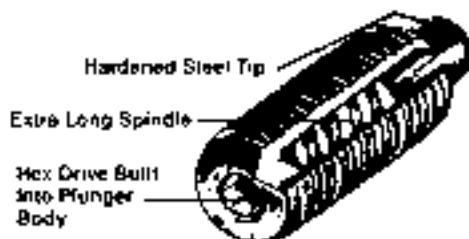
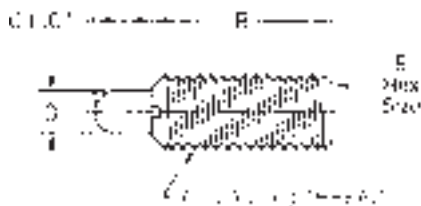
Plunger tips are color coded to indicate light or heavy force:

- Silver = Steel Tip, Light Force
- Black = Steel Tip, Heavy Force
- White = Delrin Tip, Light Force
- Blue = Delrin Tip, Heavy Force



IMPORTANT: When inserting Solid Drive Plungers with a locking element, the tapped hole should be countersunk at least .030 to .045 larger than the major diameter of the plunger. This will make insertion of the plunger easier.

Spring Plungers Metric



The hex drive in the rear of the spring plunger is for plunger insertion.

- Material: Body – Low Carbon Steel, or 303 Stainless Steel
Tip – Delrin or Steel
- Finish: Black Oxide on Body
- Thread: Class 6g
- Available in FixturePro™ Design Software

SOLID DRIVE®: Single Unit Construction for Better Reliability

Unlike conventional spring plungers, SOLID DRIVE is one integral piece of steel: hex drive, plunger, and body.

No set screw to separate from plunger body, no lost springs to retrieve, no need for "easy-out" tools. Best of all, when adjusting SOLID DRIVE you can be sure the spring plunger is turning and not just a set screw.

Specials available, see page 4.10 for Plunger Quote Request worksheet.

Heavy Force Metric Solid Drive Plungers

Thread Size A	Part Number		Force, Kg		B	C	D	E Hex Size
	Steel Tip	Delrin Tip	Initial	Final				
M4 x 0.7	26870	30470	1.22	3.29	16	2.5	1.78	2
M5 x 0.8	26871	30471	1.31	5.00	19	3.0	2.36	2.5
M6 x 1.0	26872	30472	1.35	5.85	25	5.0	3.02	3
M8 x 1.25	26873	30473	1.35	6.75	25	5.0	3.43	4
M10 x 1.5	26874	30474	2.48	6.53	29	5.0	4.72	5
M12 x 1.75	26875	30475	2.97	7.83	32	6.0	6.30	6
M16 x 2.0	26877	30477	4.73	11.48	38	8.0	7.87	8
M20 x 2.5	26878	30478	3.05	16.95	44	8.0	9.50	10

Light Force Metric Solid Drive Plungers

Thread Size A	Part Number		Force, Kg		B	C	D	E Hex Size
	Steel Tip	Delrin Tip	Initial	Final				
M4 x 0.7	27270	30870	.32	1.04	16	2.5	1.78	2
M5 x 0.8	27271	30871	.59	1.22	19	3.0	2.36	2.5
M6 x 1.0	27272	30872	.45	1.80	25	5.0	3.02	3
M8 x 1.25	27273	30873	.68	2.03	25	5.0	3.43	4
M10 x 1.5	27274	30874	1.26	3.26	29	5.0	4.72	5
M12 x 1.75	27275	30875	1.22	4.21	32	6.0	6.30	6
M16 x 2.0	27277	30877	1.58	4.76	38	8.0	7.87	8
M20 x 2.5	27278	30878	2.50	6.58	44	8.0	9.50	10

Plunger Tips are color-coded to indicate light or heavy force.

White = Light Force

Blue = Heavy Force

Shortie Spring Plungers



Jergens Feature:

Jergens Shortie Spring Plungers are made to the same quality standards as the Solid Drive®
 *Made with full standard spring plunger stroke in a short body.
 A screwdriver slot is substituted for the hex drive due to the smaller size.

*Carbon Steel body only

- Material:
Body – Low Carbon Steel, or 303 Stainless Steel
Tip – Delrin or Steel
- Finish: Black Oxide on Body
- Thread: 2A-UNC
- Available in metric sizes.
See next page.
- Available in FixturePro™ Design Software

Heavy Force With Locking Element

Thread Size A	Part Number		Force, Lbs.		B	C	D
	Steel Tip	Delrin Tip	Initial	Final			
6-32	26701	30301	.5	3.5	3/8	1/16	.046
8-32	26702	30302	.5	4.0	1/2	3/32	.070
10-32	26703	30303	.5	5.0	9/16	1/8	.093
1/4-20	26704	30304	.5	6.0	5/8	3/16	.119
5/16-18	26705	30305	.5	10.0	5/8	3/16	.135
3/8-16	26706	30306	1.0	12.0	11/16	3/16	.186
1/2-13	26707	30307	2.5	15.0	13/16	1/4	.248
5/8-11	26708	30308	3.5	26.0	1 1/8	5/16	.310

Without Locking Element

Part Number	
Steel Tip	Delrin Tip
26601	30201
26602	30202
26603	30203
26604	30204
26605	30205
26606	30206
26607	30207
26608	30208

Light Force With Locking Element

Thread Size A	Part Number		Force, Lbs.		B	C	D
	Steel Tip	Delrin Tip	Initial	Final			
6-32	27101	30701	.5	1.5	3/8	1/16	.046
8-32	27102	30702	.5	2.0	1/2	3/32	.070
10-32	27103	30703	.3	3.0	9/16	1/8	.093
1/4-20	27104	30704	.3	3.5	5/8	3/16	.119
5/16-18	27105	30705	.5	4.5	5/8	3/16	.135
3/8-16	27106	30706	1.5	7.5	11/16	3/16	.186
1/2-13	27107	30707	1.7	8.5	13/16	1/4	.248
5/8-11	27108	30708	2.0	10.5	1 1/8	5/16	.310

Without Locking Element

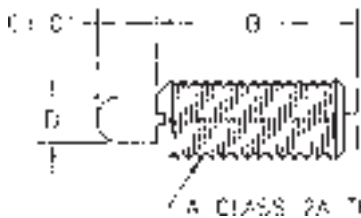
Part Number	
Steel Tip	Delrin Tip
27001	30601
27002	30602
27003	30603
27004	30604
27005	30605
27006	30606
27007	30607
27008	30608

Plunger tips are color coded to indicate light or heavy force:

Silver = Steel Tip, Light Force Black = Steel Tip, Heavy Force White = Delrin Tip, Light Force
 Blue = Delrin Tip, Heavy Force

Specials available, see page 4.10 for Plunger Quote Request worksheet.

Shortie Spring Plungers Stainless Steel (Short Travel)



The slot in the rear of the Shortie Spring Plunger is for insertion.

- Material:
Body, 303 Stainless
Spring, 303 Stainless
Nose, Stainless or Delrin
- Thread: 2A-UNC

Heavy Force Stainless Steel With Locking Element

Thread Size A	Part Number		Force, Lbs.		B	C	D
	Stainless Tip	Delrin Tip	Initial	Final			
8-32	27602	27622	1.5	4.75	7/16	.052	.070
8-36	27604	27624	1.5	4.75	7/16	.052	.070
10-32	27606	27626	1.75	6.25	15/32	.065	.093
1/4-20	27608	27628	3.0	10.5	17/32	.078	.119
5/16-18	27610	27630	3.75	15.5	9/16	.084	.135
3/8-16	27612	27632	4.5	18.5	5/8	.110	.186
1/2-13	27614	27634	5.0	28.0	3/4	.151	.248

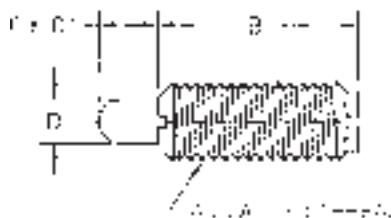
Light Force Stainless Steel With Locking Element

Thread Size A	Part Number		Force, Lbs.		B	C	D
	Stainless Tip	Delrin Tip	Initial	Final			
8-32	27601	27621	.5	1.5	7/16	.052	.070
8-36	27603	27623	.5	1.5	7/16	.052	.070
10-32	27605	27625	.75	2.5	15/32	.065	.093
1/4-20	27607	27627	1.0	3.5	17/32	.078	.119
5/16-18	27609	27629	1.0	4.0	9/16	.084	.135
3/8-16	27611	27631	1.5	5.0	5/8	.110	.186
1/2-13	27613	27633	1.75	5.5	3/4	.151	.248

Specials available, see page 4.10 for Plunger Quote Request worksheet.

Shortie Spring Plungers

Metric



Specials available,
see page 4.10
for Plunger Quote
Request worksheet.

- Material: Body – Low Carbon Steel,
or 303 Stainless Steel
Tip – Delrin or Steel
- Finish: Black Oxide on Body
- Thread: Class 6g
- Available in FixturePro™ Design Software

Plunger Tips are color coded to indicate light
or heavy force.

White = Light Force

Blue = Heavy Force

Jergens Feature:

Jergens Shortie Spring Plungers
are made to the same quality
standards as the Solid Drive®
*Made with full standard spring
plunger stroke in a short body.
A screwdriver slot is substituted
for the hex drive due to the
smaller size.

*Carbon Steel body only

Heavy Force

Thread Size A	Part Number		Force, Kg		B	C	D
	Steel Tip	Delrin Tip					
			Initial	Final			
M4 x 0.7	26770	30370	.23	1.81	13.0	2.5	1.78
M5 x 0.8	26771	30371	.23	2.27	14.5	3.0	2.36
M6 x 1.0	26772	30372	.23	2.72	16.0	4.0	3.02
M8 x 1.25	26773	30373	.23	4.54	16.0	5.0	3.43
M10 x 1.5	26774	30374	.46	5.44	17.5	5.5	4.72
M12 x 1.75	26775	30375	1.13	6.80	20.5	6.5	6.30
M16 x 2.0	26777	30377	1.59	11.79	28.5	8.0	7.87

Light Force

Thread Size A	Part Number		Force, Kg		B	C	D
	Steel Tip	Delrin Tip					
			Initial	Final			
M4 x 0.7	27170	30770	.23	.91	13.0	2.5	1.78
M5 x 0.8	27171	30771	.14	1.36	14.5	3.0	2.36
M6 x 1.0	27172	30772	.14	1.59	16.0	4.0	3.02
M8 x 1.25	27173	30773	.23	2.04	16.0	5.0	3.43
M10 x 1.5	27174	30774	.68	3.40	17.5	5.5	4.72
M12 x 1.75	27175	30775	.77	3.86	20.5	6.5	6.30
M16 x 2.0	27177	30777	.91	4.76	28.5	8.0	7.87

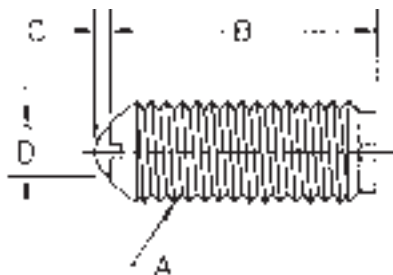
Plunger Wrenches



IMPORTANT: It is not recommended that a screwdriver
be used to insert ball or spring plungers from the ball or
plunger end. The tip of the screwdriver will force the ball
or tip of the plunger below the surface of the end of the
plunger. This may compress the spring to a solid,
causing possible damage to the spring plunger. It is
recommended that a Jergens Plunger Wrench be used
or that a slot be ground in the end of a screwdriver to
clear the height of the ball or tip for each size ball or
plunger used.

Part Number	Thread Size of Plungers	
	Inch	Metric
27501	6-32	—
27502	8-32	M4
27503	10-32	M5
27504	1/4-20	M6
27505	5/16-18	M8
27506	3/8-16	M10
27507	1/2-13	M12
27508	5/8-11	M16
27509	3/4-10	M20
27510	1-8	M25

Ball Plungers



- Body Material: Low Carbon Steel
- Ball Material: Stainless, 440
- Spring Material: Stainless, 17-7 PH
- Finish: Black Oxide on Body
- Thread: 2A-UNC
- Dimensionally conforms to TCMA standards
- Available in FixturePro™ Design Software

With Locking Element

Thread Size A	Part Number	Stainless Steel Part Number	Force, lbs.		B	C	D
			Min.	Max.			
4-48	10926	11101	.12	.50	3/16	.020	.062
5-40	10927	11102	.25	.75	1/4	.020	.062
6-40	10928	11103	.50	1.00	5/16	.023	.078
8-36	10929	11104	.50	1.25	11/32	.025	.093
10-32	10901	11105	.50	1.50	33/64	.025	.093
10-32	10902	11106	1.50	3.00	33/64	.025	.093
10-32	10903	11107	2.00	5.00	33/64	.025	.093
1/4-20	10904	11108	2.00	4.00	17/32	.035	.125
1/4-20	10905	11109	3.00	7.00	17/32	.035	.125
1/4-20	10906	11110	4.00	12.00	17/32	.035	.125
5/16-18	10907	11111	2.00	4.50	37/64	.040	.156
5/16-18	10908	11112	4.00	9.00	37/64	.040	.156
5/16-18	10909	11113	6.00	17.00	37/64	.040	.156
3/8-16	10910	11114	2.50	5.00	5/8	.048	.187
3/8-16	10911	11115	5.00	10.00	5/8	.048	.187
3/8-16	10912	11116	6.00	21.00	5/8	.048	.187
1/2-13	10913	11117	3.00	6.00	3/4	.072	.281
1/2-13	10914	11118	6.00	12.00	3/4	.072	.281
1/2-13	10915	11119	6.00	30.00	3/4	.072	.281
5/8-11	10916	11120	4.50	9.00	1	.096	.375
5/8-11	10917	11121	9.00	18.00	1	.096	.375
5/8-11	10918	11122	7.00	50.00	1	.096	.375

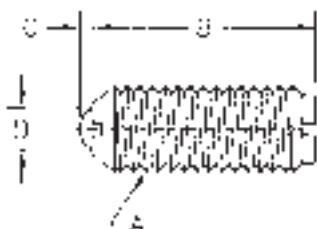
The slot in the rear of the Ball Plunger is for insertion.

Without Locking Element

Part Number	Stainless Steel Part Number
10826	11001
10827	11002
10828	11003
10829	11004
10801	11005
10802	11006
10803	11007
10804	11008
10805	11009
10806	11010
10807	11011
10808	11012
10809	11013
10810	11014
10811	11015
10812	11016
10813	11017
10814	11018
10815	11019
10816	11020
10817	11021
10818	11022

IMPORTANT: When inserting Ball Plungers with locking elements, the tapped hole should be countersunk at least .030 to .045 larger than the major diameter of the plunger. This will make insertion of the plunger easier.

Metric Ball Plungers



- Body Material: Low Carbon Steel
- Ball Material: Stainless, 440
- Spring Material: Stainless, 17-7 PH
- Finish: Black Oxide on Body
- Thread: Class 6g
- Available in FixturePro™ Design Software

IMPORTANT: When inserting Ball Plungers with nylon locking elements, the tapped hole should be countersunk at least .030 to .045 larger than the major diameter of the plunger. This will make insertion of the plunger easier.

Thread Size A	Part Number	Force, Kg		B	C	D
		Initial	Final			
M4 x 0.7	10971	0.23	0.56	9.0	0.6	2.38
M5 x 0.8	10972	0.23	0.68	13.0	0.6	2.38
M5 x 0.8	10973	0.68	1.35	13.0	0.6	2.38
M5 x 0.8	10974	0.90	2.25	13.0	0.6	2.38
M6 x 1.0	10975	0.90	1.80	13.5	0.9	3.18
M6 x 1.0	10976	1.35	3.15	13.5	0.9	3.18
M6 x 1.0	10977	1.80	5.40	13.5	0.9	3.18
M8 x 1.25	10978	0.90	2.03	15.0	1.0	3.97
M8 x 1.25	10979	1.80	4.05	15.0	1.0	3.97
M8 x 1.25	10980	2.70	7.65	15.0	1.0	3.97
M10 x 1.5	10981	1.13	2.25	16.0	1.2	4.76
M10 x 1.5	10982	2.25	4.50	16.0	1.2	4.76
M10 x 1.5	10983	2.70	9.45	16.0	1.2	4.76
M12 x 1.75	10984	1.35	2.70	19.0	2.0	7.14
M12 x 1.75	10985	2.70	5.40	19.0	2.0	7.14
M12 x 1.75	10986	2.70	13.50	19.0	2.0	7.14

Press Fit Plungers



- Body Material: Low Carbon Steel
- Ball Material: Stainless, 400
- Spring Material: 17-7 PH
- Finish: Black Oxide on Body

Heavy Force

Part Number	Stainless Steel Part Number	Force, Lbs.		A	B	Ball Dia. C	D	E	F
		Initial	Final						
10832	11032	2	5	.188	.405	.058	.156	.250	.035
10834	11034	3	7	.250	.481	.070	.187	.312	.044
10836	11036	5	14	.375	.785	.110	.312	.500	.078
10838	11038	8	18	.500	1.130	.161	.437	.688	.088

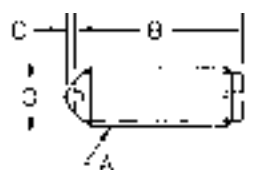
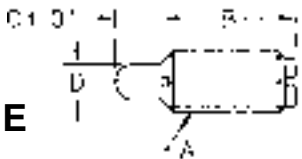
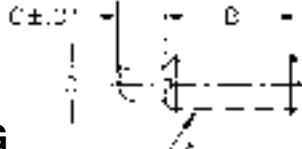
Light Force

Part Number	Stainless Steel Part Number	Force, Lbs.		A	B	Ball Dia. C	D	E	F
		Initial	Final						
10831	11031	1	2.5	.188	.405	.058	.156	.250	.035
10833	11033	1.5	3.5	.250	.481	.070	.187	.312	.044
10835	11035	2.5	7	.375	.785	.110	.312	.500	.078
10837	11037	4	9	.500	1.130	.161	.437	.688	.088

Special Spring and Ball Plungers

If you don't see the exact spring or ball plunger to meet your application requirements, photocopy the form below, indicate your requirements, and mail to your Jergens Distributor.

PLUNGER QUOTATION REQUEST WORKSHEET

BALL 	
SHORTIE 	
SPRING 	
A dim. (See note below) _____ B dim. _____ C dim. _____ D dim. _____	

Application (describe): _____

Type of Plunger: ☐ Solid Drive® ☐ Spring ☐ "Shortie" ☐ Ball ☐ Other (see sketch)

Thread or O.D. _____ (Class 2A Threads unless Otherwise Specified)

Length of Plunger Travel: _____

Initial Force Required: _____ Final Force Required: _____

Plastic Locking Patch: ☐ Required ☐ Not Required

Tip/Ball Material: _____

Tip/Ball Finish: _____ Body Material: _____

Body Finish: _____ Spring Material: _____

Temperature Range: _____

Type of Environment (describe—corrosives, chemicals, contaminants, etc.): _____

Other Specifications: _____

Quantity Needed: _____ Delivery By: _____

NAME: _____ TITLE: _____

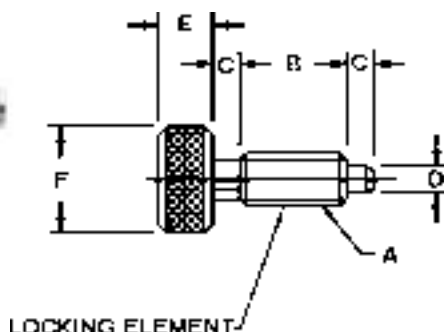
COMPANY: _____ ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

TELEPHONE: _____ FAX: _____

Retractable Plungers

Hand Retractable Locking Style



- Improved design allows plunger pin to be locked in fully retracted position
- Used in machining applications as positioners, loading pins or indexing devices
- Plunger pin has slight taper on end to assure easy alignment
- Zinc Plated Carbon Steel, 303 Stainless Steel
- Phenolic Nose Prevents Marring of Soft Material
- Supplied with locking element

Heavy Force Hand Retractable Locking Style Plungers

Steel Part Number	Steel Phenolic Nose Part Number	Stainless Steel Part Number	Stainless Steel Phenolic Nose Part Number	End Force Pounds		A	B	C	+.001 -.002 D	E	F	Net Wt. (lbs.) 10 Pcs.
				Start	Full							
27421	27515	27821	27519	1.0	5.0	1/4-20	1/2	1/8	.124	1/4	1/2	.3
27422	27516	27822	27520	1.5	6.0	5/16-18	5/8	3/16	.155	9/32	5/8	.5
27423	27517	27823	27521	1.5	8.0	3/8-16	3/4	7/32	.186	5/16	3/4	.7
27424	27518	27824	27522	2.5	10.0	1/2-13	7/8	1/4	.249	3/8	1"	1.3

Light Force Hand Retractable Locking Style Plungers

Steel Part Number	Steel Phenolic Nose Part Number	Stainless Steel Part Number	Stainless Steel Phenolic Nose Part Number	End Force Pounds		A	B	C	+.001 -.002 D	E	F	Net Wt. (lbs.) 10 Pcs.
				Start	Full							
27426	27523	27826	27527	0.5	2.5	1/4-20	1/2	1/8	.124	1/4	1/2	.3
27427	27524	27827	27528	0.75	3.0	5/16-18	5/8	3/16	.155	9/32	5/8	.5
27428	27525	27828	27529	0.75	4.0	3/8-16	3/4	7/32	.186	5/16	3/4	.7
27429	27526	27829	27530	1.25	5.0	1/2-13	7/8	1/4	.249	3/8	1"	1.3

Heavy Force Hand Retractable Locking Style Plungers Metric

Steel Part Number	End Force Kilograms		Class 6g ISO A	B	C	+.025 -.050 D	E	F	Net Wt. (Kg) 10 Pcs.
	Start	Full							
27551	0.45	2.27	M6x1.0	12.50	3.17	3	6.3	12.7	.16
27552	0.68	2.72	M8x1.25	16.00	4.75	4	7.0	15.8	.27
27553	0.68	3.63	M10x1.5	19.00	5.50	5	7.9	19.0	.38
27554	1.13	4.54	M12x1.75	22.00	6.35	6	9.4	25.4	.7

Light Force Hand Retractable Locking Style Plungers Metric

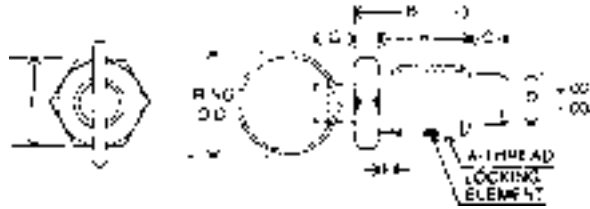
Steel Part Number	End Force Kilograms		Class 6g ISO A	B	C	+.025 -.050 D	E	F	Net Wt. (Kg) 10 Pcs.
	Start	Full							
27555	0.225	1.135	M6x1.0	12.50	3.17	3	6.3	12.7	.16
27556	0.34	1.36	M8x1.25	16.00	4.75	4	7.0	15.8	.27
27557	0.34	1.815	M10x1.5	19.00	5.50	5	7.9	19.0	.38
27558	0.565	2.27	M12x1.75	22.00	6.35	6	9.4	25.4	.7

Retractable Plungers

Pull Ring Style



- For use in application with limited space
- Slight taper on end of plunger for easy alignment

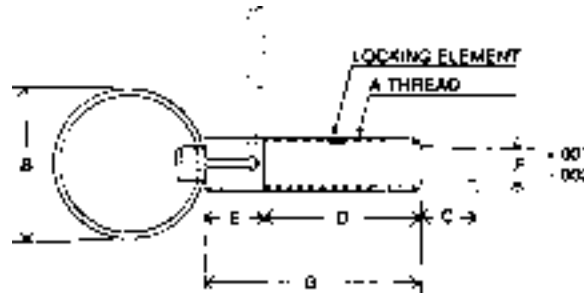


Pull Ring - Short - Non-Locking Plungers

Steel Part Number	Steel Phenolic Nose Part Number	Stainless Steel Part Number	Stainless Steel Phenolic Nose Part Number	Force, Lbs		A	B	C	+.001 -.002 D	E	F	G	H	O.D	Net Wt. (lbs.) 10 Pcs.
				Initial	Final										
27441	27804	27800	27808	0.50	2.0	1/4-20	7/16	3/16	.156	1/4	1/32	5/32	9/32	3/4	.1
27442	27805	27801	27809	0.75	3.0	3/8-16	5/8	9/32	.250	3/8	1/8	3/16	7/16	3/4	.2
27443	27806	27802	27810	1.00	4.0	1/2-13	13/16	3/8	.312	1/2	5/32	1/4	9/16	1	.43
27444	27807	27803	27811	1.25	5.0	5/8-11	1	7/16	.375	5/8	5/32	5/16	11/16	1	.8



- For use in application with limited space
- Slight taper on end of plunger for easy alignment



Pull Ring - Standard Length - Locking Plungers

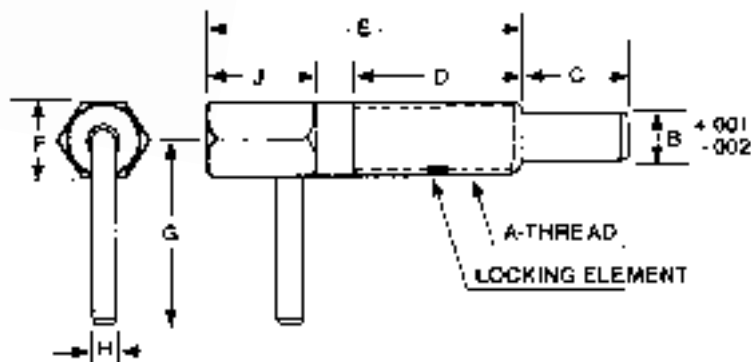
Steel Part Number	Steel Phenolic Nose Part Number	Stainless Steel Part Number	Stainless Steel Phenolic Nose Part Number	Force, Lbs		A	B	C	+.001 -.002 D	E	F	G	Net Wt. (lbs.) 10 Pcs.
				Initial	Final								
27446	27815	27812	27818	1.0	2.5	1/4-20	1	1/4	13/16	5/16	.156	1-1/8	.15
27447	27816	27813	27819	2.0	4.0	3/8-16	1-1/4	3/8	1-1/4	7/16	.233	1-11/16	.43
27448	27817	27814	27820	2.5	5.0	1/2-13	1-3/8	1/2	1-7/16	9/16	.312	2	.9

Retractable Plungers

L Handle Hand Retractable Locking Style



- Hand retractable for easy removal or insertion
- Turn handle to unlock and extend plunger
- Slight taper on end of plunger for easy alignment
- Locking element standard on all sizes



Locking Plungers - Long Reach - Standard Length

Steel Part Number	Steel Phenolic Nose Part Number	Stainless Steel Part Number	Stainless Steel Phenolic Nose Part Number	Force, Lbs		A	+.001 -.002 B	C	D	E	F	G	H	J	Net Wt. (Lbs.) 10 Pcs.
				Initial	Final										
27436	27851	27836	27855	.50	2.5	1/4-20	.156	3/8	5/8	1-1/4	1/4	5/8	3/32	1/2	.15
27437	27852	27837	27856	.75	3.75	3/8-16	.250	9/16	1-1/16	2	3/8	15/16	9/64	11/16	.53
27438	27853	27838	27857	1.0	5.0	1/2-13	.312	3/4	1-1/8	2-1/8	1/2	1-1/4	3/16	3/4	1.03
27439	27854	27839	27858	1.0	5.0	5/8-11	.375	1	1-3/4	3	5/8	1-5/16	3/16	1-1/16	2.23

Locking Plungers - Long Reach - Short Length

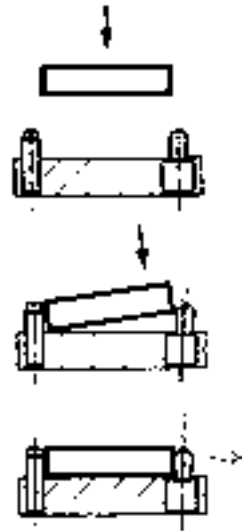
Steel Part Number	Steel Phenolic Nose Part Number	Stainless Steel Part Number	Stainless Steel Phenolic Nose Part Number	Force, Lbs		A	+.001 -.002 B	C	D	E	F	G	H	J	Net Wt. (Lbs.) 10 Pcs.
				Initial	Final										
27416	27859	27867	27863	.125	.50	1/4-20	.156	3/16	7/16	3/4	1/4	9/16	3/32	1/4	.1
27417	27860	27868	27864	.25	1.25	3/8-16	.250	5/16	5/8	1-1/8	3/8	3/4	9/64	3/8	.3
27418	27861	27869	27865	.50	2.0	1/2-13	.312	13/32	7/8	1-1/2	1/2	1	3/16	1/2	.7
27419	27862	27870	27866	.75	2.5	5/8-11	.375	1/2	1-1/8	1-7/8	5/8	1-3/16	3/16	5/8	1.35

Spring Locating Pins



The Jergens Spring Locating Pins are designed for fixturing small parts in tight or compact space. Ideal for positioning and chucking flat parts and round parts and for profile clamping.

- Material: Body, aluminum
Pin, steel, plastic, or stainless steel
- Finish: Steel Pin, case hardened, zinc coated
Plastic Pin, delrin
Spring, steel
- Economical
- Easy to handle and mount
- Ideal for positioning flat or round pieces
- Maintains constant pressure on parts
- Minimizes fixturing space



Note:

For applications involving any fluid or liquid, use the Spring Locating Pins with Seals. All other applications may use the Pins without Seals.

Spring Locating Pins with Seal

Part Number		Diameter A	B	C	D	+.001 -.000 E	Force P (lbs)	X	Installation Tool
Steel Pin	Plastic Pin								
36201	36221	.250	.118	.158	.276	.250	2.2	.035	36295
36202	36222	.250	.118	.158	.276	.250	4.5	.035	36295
36203	—	.250	.118	.158	.276	.250	9.0	.035	36295
36204	36223	.438	.197	.236	.472	.438	4.5	.063	36296
36205	36224	.438	.197	.236	.472	.438	11.2	.063	36296
36206	—	.438	.197	.236	.472	.438	21.5	.063	36296
36207	36225	.438	.236	.394	.472	.438	9.0	.071	36297
36208	36226	.438	.236	.394	.472	.438	17.0	.071	36297
36209	—	.438	.236	.394	.472	.438	34.0	.071	36297
36210	36227	.500	.315	.512	.551	.500	11.2	.102	36298
36211	36228	.500	.315	.512	.551	.500	22.5	.102	36298
36212	—	.500	.315	.512	.551	.500	45.0	.102	36298
36213	36229	.625	.394	.625	.709	.625	22.5	.126	36299
36214	36230	.625	.394	.625	.709	.625	45.0	.126	36299
36215	—	.625	.394	.625	.709	.625	67.5	.126	36299

Spring Locating Pins without Seal*

Part Number		Stainless Steel Pin	Diameter A	B	C	D	+.001 -.000 E	Force P (lbs)	X	Installation Tool
Steel Pin	Plastic Pin									
36231	36251	36271	.250	.118	.146	.295	.250	2.2	.039	36295
36232	36252	36272	.250	.118	.146	.295	.250	4.4	.039	36295
36233	36253	36273	.438	.197	.287	.354	.438	6.7	.063	36296
36234	36254	36274	.438	.197	.287	.354	.438	13.5	.063	36296
36235	36255	36275	.438	.197	.287	.354	.438	20.0	.063	36296
36236	36256	36276	.438	.236	.406	.354	.438	4.4	.075	36297
36237	36257	36277	.438	.236	.406	.354	.438	6.7	.075	36297
36238	36258	36278	.438	.236	.406	.354	.438	13.5	.075	36297
36239	—	36279	.438	.236	.406	.354	.438	20.0	.075	36297
36240	36259	36280	.500	.315	.520	.512	.500	11.1	.106	36298
36241	36260	36281	.500	.315	.520	.512	.500	22.2	.106	36298
36242	36261	36282	.625	.394	.654	.625	.625	17.5	.134	36299
36243	36262	36283	.625	.394	.654	.625	.625	35.0	.134	36299

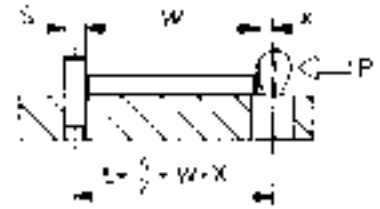
*Uses elastomere plastic spring

Spring Locating Pins Installation Data

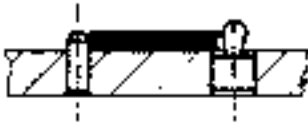
To determine mounting hole locations, use the following formula:

$$L = \frac{S}{2} + W + X$$

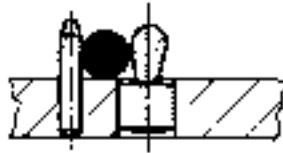
L = Location
S = Diameter of Locating Pin
W = Width of Workpiece
X = See Chart



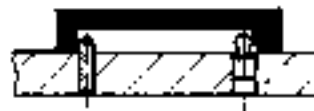
Application Ideas



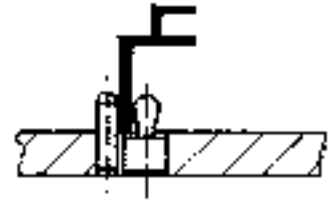
Position and hold flat parts.



Position and hold round parts.



Position and hold from the inside to the outside.



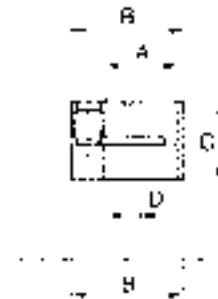
Position and hold various profiles of parts.

Eccentric Liners



Part Number	A	B	C	D
36291	.250	.500	.390	.079
36292	.438	.687	.469	.079
36293	.500	.750	.547	.079
36294	.625	1.000	.705	.118

Eccentric Liners allow for adjustment of spring pin tension due to part material variations, different tolerance requirements, or force adjustment.

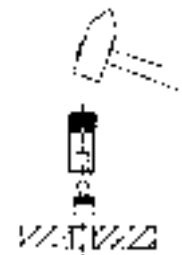


Installation Tools



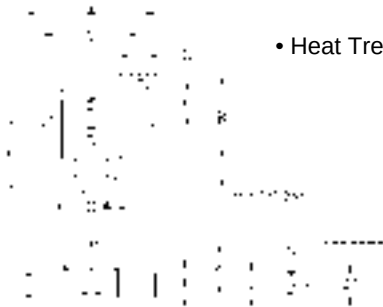
Locating Spring Pin Installation Tools are designed to make installation easier.

Refer to the charts on page 4.14 to determine which tool to use.



Spring Stops

Button Type



- Material: Body, Zinc Aluminum Alloy ZA-12
Plunger, Low Carbon Steel
- Heat Treat: Plunger Case Hardened
74-77 R30N

Jergens Features:

Set screw allows for adjustable plunger travel.

Angled mounting slot provides a more secure hold.

End Force (Half-Depressed)

36101, 36104, 36107 – 10 lbs./6.8 kg

36102, 36105, 36108 – 14 lbs./13.6 kg

36103, 36106, 36109 – 32 lbs./18.14 kg

Flat Button Type



Tang Type



Jergens Spring Stops Dimension Tables

	Part. No.	A	B	C	D	E	F	G	Stroke H	I	J	K	L	M	N	O	P	Wt. (lbs) 10 Pcs.
Button	36101	15/16	11/16	21/32	0.14	0.35	21/32	3/8	1/8	7/32	7/32	13/32	—	—	—	—	—	0.2
	36102	1 1/2	1	1 1/8	0.2	0.54	29/32	9/16	3/16	5/16	9/32	5/8	—	—	—	—	—	0.9
	36103	2	1 3/8	1 1/2	0.257	0.69	1 5/16	13/16	1/4	7/16	5/16	7/8	—	—	—	—	—	1.85
Tang	36104	15/16	11/16	21/32	0.14	0.35	21/32	5/8	1/8	7/32	7/32	13/32	3/16	7/8	1/4	7/16	15/64	0.2
	36105	1 1/2	1	1 1/8	0.2	0.54	29/32	7/8	3/16	5/16	9/32	5/8	1/4	1 1/8	3/8	9/16	17/64	0.9
	36106	2	1 3/8	1 1/2	0.257	0.69	1 5/16	1 1/4	1/4	7/16	5/16	7/8	3/8	1 1/2	1/2	3/4	21/64	1.85
Flat	36107	15/16	11/16	21/32	0.14	0.35	21/32	3/4	1/8	7/32	7/32	13/32	3/16	7/8	1/64	—	—	0.2
	36108	1 1/2	1	1 1/8	0.2	0.54	29/32	1 1/8	3/16	5/16	9/32	5/8	1/4	1 1/8	1/64	—	—	0.9
	36109	2	1 3/8	1 1/2	0.257	0.69	1 5/16	1 1/2	1/4	7/16	5/16	7/8	3/8	1 1/2	1/64	—	—	1.85

Metric Dimensions (mm)

	Part. No.	A	B	C	D	E	F	G	Stroke H	I	J	K	L	M	N	O	P	Wt. (kg.) 10 Pcs.
Button	36101	23.8	17.5	16.7	3.6	8.9	15.1	9.5	3.2	5.6	5.6	10.3	—	—	—	—	—	0.09
	36102	38.1	25.4	28.6	5.1	13.7	21.4	14.3	4.8	7.9	7.1	15.9	—	—	—	—	—	0.41
	36103	50.8	34.9	38.1	6.5	17.5	31	20.6	6.4	11.1	7.9	22.2	—	—	—	—	—	0.84
Tang	36104	23.8	17.5	16.7	3.6	8.9	15.1	15.9	3.2	5.6	5.6	10.3	4.8	22.2	6.4	11.1	6	0.09
	36105	38.1	25.4	28.6	5.1	13.7	21.4	22.2	4.8	7.9	7.1	15.9	6.4	28.6	9.5	14.3	6.7	0.41
	36106	50.8	34.9	38.1	6.5	17.5	31	31.8	6.4	11.1	7.9	22.2	9.5	38.1	12.7	19.1	8.3	0.84
Flat	36107	23.8	17.5	16.7	3.6	8.9	15.1	19.1	3.2	5.6	5.6	10.3	4.8	22.2	0.4	—	—	0.09
	36108	38.1	25.4	28.6	5.1	13.7	21.4	22.2	4.8	7.9	7.1	15.9	6.4	28.6	0.4	—	—	0.41
	36109	50.8	34.9	38.1	6.5	17.5	31	38.1	6.4	11.1	7.9	22.2	9.5	38.1	0.4	—	—	0.84



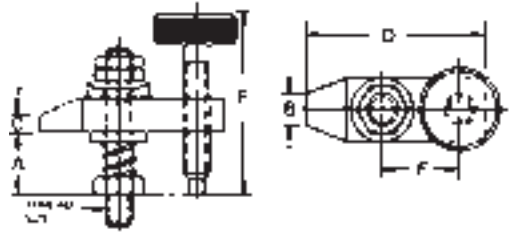
Adjustable Clamp Heels	5.42	Nuts, Spherical Flange	5.31
Adjustable Clamp Rests	5.41	Nuts, Stainless Steel	5.33
Adjustable Step Blocks	5.52	Nuts, T-Slot	5.35
Assemblies, Spherical Flange	5.30	Plastic Pad Covers	5.16
Bolts, Dovetail	5.28	Revolving Clamp Assemblies, Long Bushings Type	5.8
Bolts, Swing	5.11	Revolving Clamp Assemblies, Short Bushings Type	5.8
Bolts, T	5.28	Revolving Clamp Base	5.8
Bolts, T-Slot	5.27	Rod Ends	5.12
Bolts, T-Strap	5.21	Screw, Half Turn	5.13
Clamp Assemblies, Double Cam	5.4	Screws, Hand Knob	5.6
Clamp Assemblies, Flange Nut	5.3	Screws, Quarter Turn	5.13
Clamp Assembly, Heels	5.6	Screws, Socket Shoulder	5.10-5.11
Clamp Assembly, Heel Pad	5.2	Screws, Thumb	5.14
Clamp Assemblies, Hook	5.9	Set-Up Kits, Die	5.4
Clamp Assemblies, Knob	5.5	Set-Up Kits	5.53-5.54
Clamp Assemblies, Miniature Flat	5.2	Single Cams	5.7
Clamp Assemblies, Miniature Radius	5.2	Step Blocks	5.52
Clamp Assemblies, Radius End Flange Nut	5.3	Strap Pads	5.7
Clamp Assemblies, Radius Swing	5.3	Straps, Heel	5.51
Clamp Assemblies	5.2-5.5, 5.7-5.9	Straps, Miniature Flat	5.41
Clamp Rests	5.6	Straps, Miniature Radius	5.40
Clamping Kits	5.54	Straps, Padded	5.43
Clevis Pins	5.22	Straps, Plain	5.42
Collars, GripFast	5.23	Straps, Radius	5.45
Collars, Steel Shaft	5.22	Straps, Slotted Radius	5.45
Double Cams	5.7	Straps, Taper Nose Stainless Steel	5.41
Finger Handles	5.6	Straps, Taper Nose	5.47
Forged Adjustable Clamp	5.50	Straps, Tapped Radius	5.40
Forged Straps, U Clamp	5.49	Straps, Tapped	5.46
Forged Straps, Finger Clamp	5.49	Studs, Alloy Steel	5.24-5.25
Forged Straps, Gooseneck Clamp	5.48	Studs, Fixture	5.26
Forged Straps, Heel Clamp	5.48	Studs, Set-Up	5.26
Guide Blocks	5.6	Studs	5.24-5.26
I.D. Expansion Clamp	5.59	Tee Bolt Straps	5.21
Leveling Mounts	5.20	Toe Clamp, Kits	5.55-5.56
Leveling Pads	5.18-5.19	Toe Clamps, Large	5.56
Micro Clamps, Adjustable	5.58	Toe Clamps, Small	5.55
Micro Clamps, Edge	5.64	Toggle Pads	5.17
Micro Clamps, Expanding	5.61	Toggle Screws, Adjustable Torque	5.15
Micro Clamp, Knife Edge	5.60	Toggle Screws, Hand Knob	5.15
Micro Clamp, Low Profile	5.57	Toggle Screws, Socket Toggle	5.16
Micro Clamps, Machinable Expanding	5.62	Toggle Screws, Thumb	5.16
Micro Clamps	5.60	U-Straps, Long Slot	5.44
Micro Clamps, T-Slot	5.63	Washers, "C"	5.37
Micro Clamps, Toe	5.63	Washers, Equalizing "C"	5.37
Modular Mini Vise	5.65	Washers, Equalizing Swing "C" Assembly	5.38
Nuts, Acorn	5.33	Washers, Equalizing Swing "C"	5.37
Nuts, Check	5.32	Washers, Flat	5.36
Nuts, Coupling	5.32	Washers, Heavy Duty Flat	5.36
Nuts, Equalizing Hex Head	5.30	Washers, Heavy Duty Square	5.38
Nuts, Flange	5.29	Washers, Self Aligning	5.39
Nuts, Heavy Duty Hex	5.30	Yokes	5.21
Nuts, Knurled Equalizing	5.33		
Nuts, Knurled Lock	5.32		
Nuts, Kwik-Thread	5.34		

Clamp Assemblies

Miniature Flat



Fast-acting clamp for light-duty holding. Includes strap, knurled thumb screw, spherical washer, stud, plain flat washer, three hex jam nuts and spring. Features free swinging adjustments for positioning the assembly without interference.

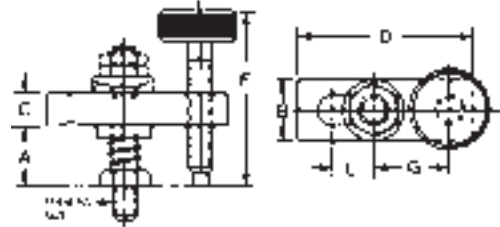


Part Number	A	B	C	D	E	F	Thread Size	Wt. (lbs)
12901	5/8	1/4	1/8	1 1/2	1 9/16	11/16	10-24	.19
12902	5/8	1/4	1/8	2	1 9/16	15/16	1/4-20	.22
12903	9/16	1/4	1/8	2 1/2	1 9/16	1 3/16	1/4-20	.25

Miniature Radius



A light-duty clamp assembly for clamping close to the edge. Complete with radius strap, double jam nuts with spherical washers, finger tip, quick-action knurled thumb screw, heel rest, stud, spring and washer. The latter allows free swinging and lateral adjustments for easier set-ups.

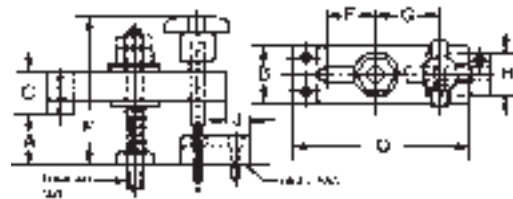


Part Number	A	B	C	D	E	F	G	Thread Size	Wt. (lbs)
13101	1/2	1/2	1/4	1 1/2	7/16	1 9/16	9/16	10-24	.20
13102	1/2	1/2	1/4	1 3/4	9/16	1 9/16	11/16	10-24	.22
13103	1/2	1/2	1/4	2	11/16	1 9/16	13/16	10-24	.24

Heel Pad

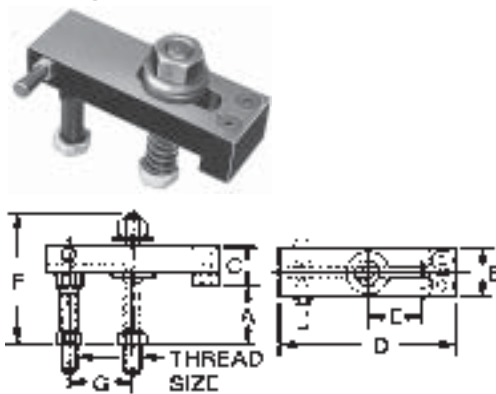


In one movement this clamp assembly can be moved into place and tightened; recommended where hand pressure clamping is suitable for the application.



Part Number	A	B	C	D	E	F	G	H	Heel Pad	J	Thread Size	Wt. (lbs)
13301	5/8	5/8	1/2	2	5/8	1 15/16	25/32	3/4	13701	1/2	1/4-20	.38
13312	9/16	7/8	11/16	2 1/2	3/4	2 9/16	15/16	1	13703	5/8	5/16-18	.69
13306	13/16	1 1/4	7/8	3 1/2	1	2 7/8	1 7/16	1	13703	1/2	3/8-16	1.38
13308	13/16	1 1/4	7/8	4 1/2	1 5/8	2 7/8	1 13/16	1	13703	1/2	3/8-16	1.68
13313	1 1/4	1 1/2	1	4 1/2	1 1/4	3 7/8	1 15/16	1 1/2	13705	1 1/8	1/2-13	2.20

Clamp Assemblies Flange Nut



Use where great clamping pressures are needed and vibration is a problem.

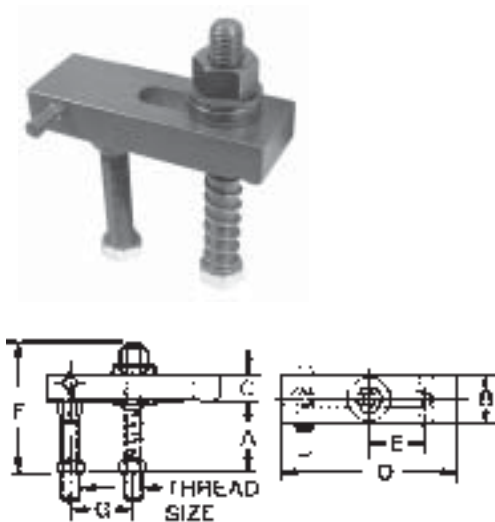
Heavy-duty clamping with spherical flange nut and spherical washer for greater flexibility. Extra long, true milled slot allows more clearance for placing and removing work. Brass and plastic pads are available, see page 5.7.

Part Number	A	B	C	D	E	F	G*	Thread Size	Wt. (lbs)
12701†	3/4	5/8	1/2	2	5/8	1 5/8	7/8	1/4-20	.27
12703	1 1/2	1 1/4	7/8	3 1/2	1 1/8	2 15/16	1 7/16	3/8-16	1.12
12705	1 1/2	1 1/4	7/8	4 1/2	1 5/8	2 15/16	1 15/16	3/8-16	1.38
12707	1 1/8	1 1/2	1 1/8	4 1/2	1 1/4	3	2 1/8	1/2-13	2.12
12710	1 1/8	1 1/2	1 1/8	6	2	3	2 7/8	1/2-13	2.62
12711	2 5/8	1 3/4	1 3/8	5	1 1/2	5 1/16	2 1/8	5/8-11	3.50
12713	2 5/8	1 3/4	1 3/8	7	2 1/2	5 1/16	3 1/8	5/8-11	4.12
12714	1 3/4	1 3/4	1 1/2	5	1 1/2	4 3/8	2 1/8	3/4-10	4.12
12716	1 3/4	1 3/4	1 1/2	7	2 1/2	4 3/8	3 1/8	3/4-10	4.87

*G dimension represents an optimum dimension.

† Does not include finger handle.

Radius End Flange Nut



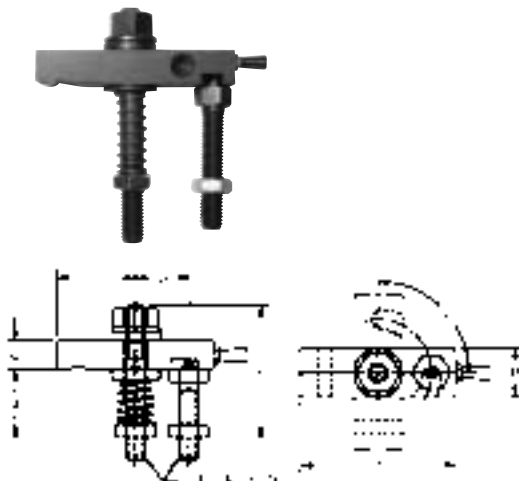
Heavy-duty clamping of plain surfaces with spherical flange nut and spherical washer for angular flexibility. Long, true milled slot allows greater clearance for placing and removing work. Spring-loaded stud for quick release.

Part Number	A	B	C	D	E	F	G*	Thread Size	Wt. (lbs)
14103†	7/8	5/8	3/8	2	5/8	1 5/8	7/8	1/4-20	.25
14104†	7/8	5/8	3/8	2 1/2	1	1 5/8	7/8	1/4-20	.28
14117†	1 1/8	7/8	1/2	2 1/2	3/4	2 1/4	15/16	5/16-18	.75
14118†	1 1/8	7/8	1/2	3 1/2	1 1/4	2 1/4	15/16	5/16-18	.85
14105	1 3/4	1 1/4	5/8	3 1/2	1 1/8	2 15/16	1 7/16	3/8-16	1.10
14119	1 3/4	1 1/4	5/8	4 1/2	1 5/8	2 15/16	1 7/16	3/8-16	1.20
14108	1 1/2	1 1/2	3/4	4 1/2	1 1/4	3	1 7/8	1/2-13	2.00
14110	1 1/2	1 1/2	3/4	6	1 1/2	3	1 7/8	1/2-13	2.44
14111	3 1/8	1 3/4	7/8	5	1 1/2	5 1/16	2	5/8-11	3.25
14113	3 1/8	1 3/4	7/8	7	2 1/2	5 1/16	2	5/8-11	3.88
14114	2 1/4	1 3/4	1	5	1 1/2	4 3/8	2 1/8	3/4-10	3.88
14116	2 1/4	1 3/4	1	7	2 1/2	4 3/8	2 1/8	3/4-10	4.85

*G dimension represents an optimum dimension.

† Does not include finger handle.

Radius Swing Clamp



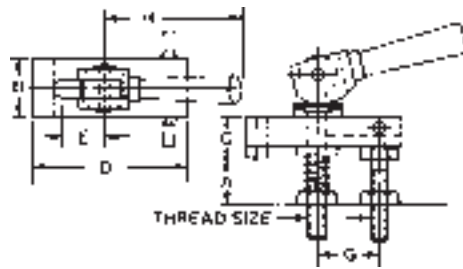
Features fast-action, light-duty holding of plain surface work where quick movements are required in a restricted space. Radial milled slots allows for 90° swing. Ideally suited for placing and removing workpiece.

Part Number	Thread Size	A	B	C	D	E	F	G	Wt. (lbs)
14123*	1/4-20	7/8	5/8	3/8	2	1	1 5/8	11/16	.25
14125	3/8-16	1 3/4	1 1/4	5/8	3 1/2	1 1/2	2 15/16	1 1/4	1.10
14128	1/2-13	1 1/2	1 1/2	3/4	4 1/2	1 13/16	3	1 15/16	2.00
14131	5/8-11	3 1/8	1 3/4	7/8	5	2 1/16	5 1/16	2 3/16	3.25
14134	3/4-10	2 1/4	1 3/4	1	5	2 1/16	4 3/8	2 3/16	3.88

*Does not include finger handle.

Clamp Assemblies

Double Cam



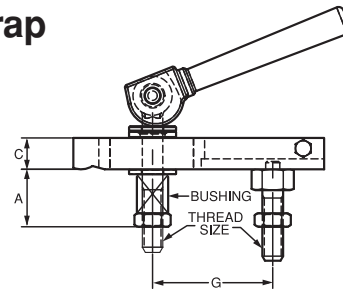
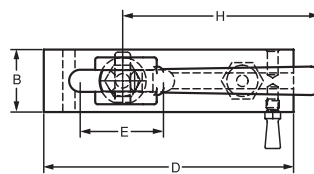
Features fast-action, light-duty holding of plain surface work where quick movements are required in a restricted space. Long end slot for lateral adjustment. Spring-loaded stud member under sturdy double-cam lever. Plastic and brass pads available for protecting workpiece, see page 5.7.

Part Number	A	B	C	D	E	G*	H	Thread Size	Wt. (lbs)
12501†	5/8	5/8	1/2	2	5/8	7/8	2 1/2	1/4-20	.40
12502	1 5/16	1 1/4	7/8	3 1/2	1 1/8	1 7/16	3 7/16	3/8-16	1.50
12503	1	1 1/2	1 1/8	4 1/2	1 1/4	1 7/8	5	1/2-13	3.00
12504	2 1/8	1 3/4	1 3/8	5	1 1/2	1 15/16	5 1/16	5/8-11	4.70

*G dimension represents an optimum dimension.

† Does not include finger handle.

Double Cam Clamp Assemblies W/Radius Nose Strap



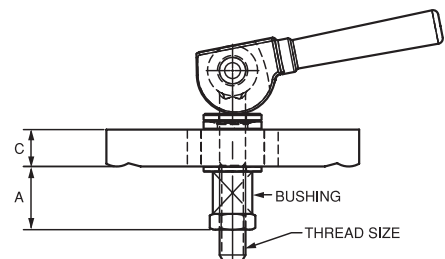
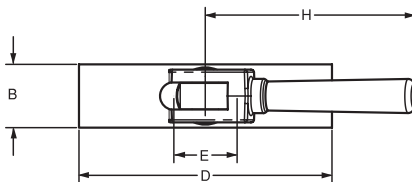
Same fast-action as Standard Double Cam Clamp but with a radius strap.

Part Number	A	B	C	D	E	G*	H	Thread Size	Wt. (lbs)
12511†	3/4	5/8	3/8	2	5/8	7/8	2 1/2	1/4-20	0.35
12512†	3/4	5/8	3/8	2 1/2	1	7/8	2 1/2	1/4-20	0.40
12513†	1 1/8	7/8	1/2	2 1/2	3/4	1 1/4	3 7/16	5/16-18	1.25
12514†	1 1/8	7/8	1/2	3 1/2	1 1/4	1 1/4	3 7/16	5/16-18	1.40
12515	1 1/2	1 1/4	5/8	3 1/2	1 1/8	1 7/16	3 7/16	3/8-16	1.50
12516	1 1/2	1 1/4	5/8	4 1/2	1 5/8	1 7/16	3 7/16	3/8-16	1.80
12517	1 3/8	1 1/2	3/4	4 1/2	1 1/4	1 7/8	5	1/2-13	3.00
12518	1 3/8	1 1/2	3/4	6	2	1 7/8	5	1/2-13	3.40
12519	1 5/8	1 3/4	7/8	5	1 1/2	1 15/16	5 1/16	5/8-11	4.70

*G dimension represents an optimum dimension.

† Does not include finger handle.

Double Cam Clamp Assemblies W/Double End Radius Nose Strap

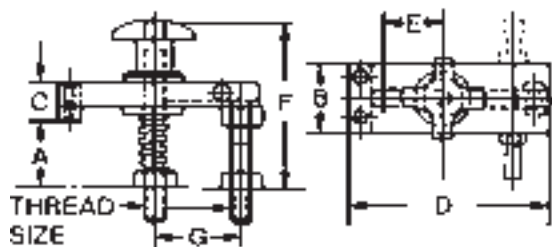


Double Cam Clamp featuring a radius at both ends of the strap.

Part Number	A	B	C	D	E	H	Thread Size	Wt. (lbs)
12523	1 3/8	1 1/2	3/4	4	1 1/4	5	1/2-13	2.50
12524	1 3/8	1 1/2	3/4	5	1 1/4	5	1/2-13	3.00
12526	1 5/8	1 5/8	7/8	6	1 1/2	5 1/16	5/8-11	5.30

Clamp Assemblies

Knob



Designed for light-duty clamping, the hand knob eliminates wrenching for faster work changes. Spherical washer allows for clamping irregular surfaces.

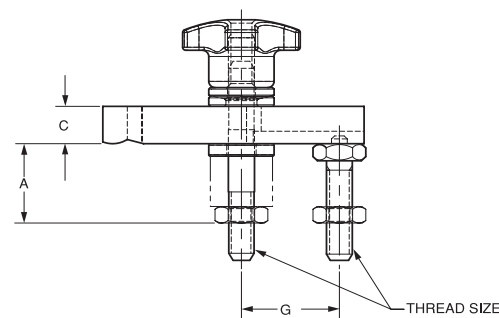
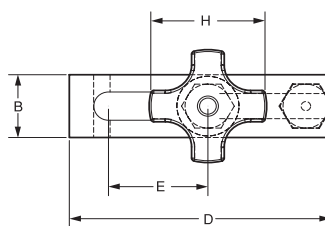
- Interchangeable pad option
- Steel pad standard, brass and plastic pads are available, see page 5.7
- Pads machineable to part configuration

Part Number	A	B	C	D	E	F	G*	Thread Size	Wt. (lbs)
13501†	3/4	5/8	1/2	2	5/8	2 5/16	1	1/4-20	.35
13503	1 1/2	1 1/4	7/8	3 1/2	1 1/8	3 19/32	1 7/16	3/8-16	1.22

*G dimension represents an optimum dimension.

† Does not include finger handle.

Knob Clamp Assemblies w/Radius Nose Strap



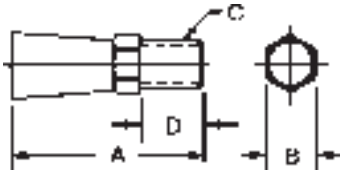
Part Number	A	B	C	D	E	G*	H	Thread Size	Wt. (lbs)
13512†	7/8	5/8	3/8	2 1/2	1	2 1/4	7/8	1/4-20	.32
13515	1 3/4	1 1/4	5/8	3 1/2	1 1/8	3 1/2	1 7/16	3/8-16	1.10
13516	1 3/4	1 1/4	5/8	4 1/2	1 5/8	3 1/2	1 7/16	3/8-16	1.30

*G dimension represents an optimum dimension.

† Does not include finger handle.

Clamp Assemblies Components

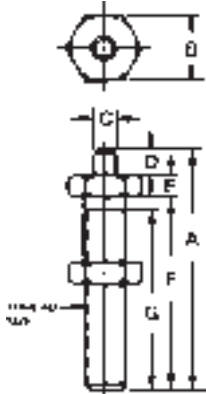
Finger Handles



Part Number	A	B	C	D	Wt. (lbs) 10 Pcs.
19501	3/4	1/4	10-32	1/4	.08
19502	1 3/16	3/8	5/16-18	5/16	.31

- Material: Low Carbon Steel
- Finish: Black Oxide

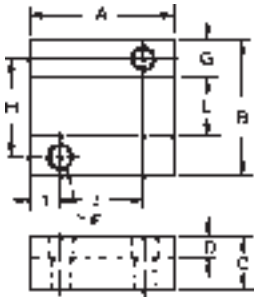
Clamp Rests



Part Number	A	B	C	D	E	F	G	Thread Size	Wt. (lbs) 10 Pcs.
21301	3/4	3/8	5/32	5/64	11/64	1/2	13/32	10-24	.19
21302	1 1/4	7/16	5/32	5/64	11/64	1	29/32	1/4-20	.22
21307	1 7/8	1/2	7/32	3/16	7/32	1 15/32	1 5/16	5/16-18	.60
21308	3 1/4	1/2	7/32	3/16	7/32	2 27/32	2 11/16	5/16-18	1.25
21303	2 1/2	9/16	11/32	5/32	11/32	2	1 13/16	3/8-16	.70
21313	3 7/8	9/16	11/32	5/32	11/32	3 3/8	3 3/16	3/8-16	2.80
21304	2 3/8	7/8	11/32	3/16	1/2	1 11/16	1 1/2	1/2-13	1.88
21314	3 7/8	7/8	11/32	3/16	1/2	3 3/16	3	1/2-13	3.50
21315	2 5/8	7/8	11/32	3/16	1/2	1 15/16	1 11/16	5/8-11	2.25
21305	3 27/32	7/8	11/32	3/16	1/2	3 5/32	2 15/16	5/8-11	3.60
21316	2 3/4	7/8	11/32	3/16	1/2	2 1/16	1 7/8	3/4-10	2.75
21306	3 1/2	7/8	11/32	3/16	1/2	2 13/16	2 3/8	3/4-10	4.70

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: 2A-UNC

Clamp Assembly Guide Blocks



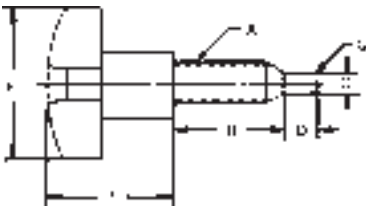
Part Number	A	B	C	D	E	Soc. Hd. Cap F	G	H	I	J	Wt. (lbs) 10 Pcs.
13701	7/8	3/4	5/16	1/8	7/32	5-40	1/8	1/2	3/16	1/2	.06
13703	1 1/8	1	1/2	3/16	9/32	8-32	3/16	5/8	1/4	5/8	.12
13705	1 5/8	1 1/2	5/8	1/4	13/32	1/4-20	1/4	1	3/8	7/8	.38

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened 74-77 R30N
- Mounting Screws Supplied with Heel.

Hand Knob Screws



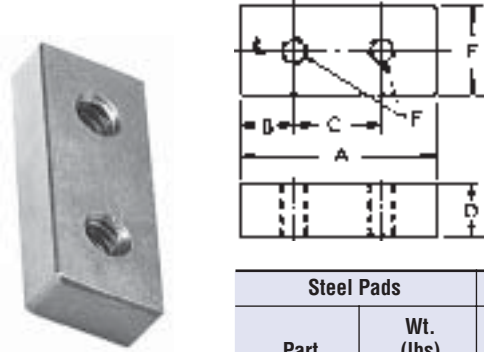
- Material: Stem, Stressproof® Head, Cast Iron
- Finish: Stem, Black Oxide Head, Zinc Plate
- Thread: 2A-UNC



Part Number	A	B	C	D	E	F	Radius G	Wt. (lbs) 10 Pcs.
13901	1/4-20	3/4	11/64	1/4	1 1/8	7/8	1/8	.78
13902	5/16-18	1 1/16	7/32	5/16	1 1/2	1	1/4	1.57
13903	3/8-16	1 3/16	1/4	5/16	2	1 1/8	1/4	1.87
13904	1/2-13	1 5/8	3/8	3/8	2 1/2	1 1/2	3/8	4.00
13905	5/8-11	1 3/4	15/32	3/8	3	2	3/8	12.50

Designed for applications where thumb screws are too light, and a heavier, larger unit is needed. Cast iron knob, dog point end.

Strap Pads-Steel, Plastic & Brass



- Material: Steel, Low Carbon Steel
Plastic, Paper Filled Bakelite
Brass
- Finish: Steel Pad Only, Black Oxide
- Heat Treat: Steel Pad Only,
Case Hardened 74-77 R30N

Plastic Pads

Resistant to oil and cutting fluids, allows high clamping pressures, yet protects the soft materials from being scratched or marred.

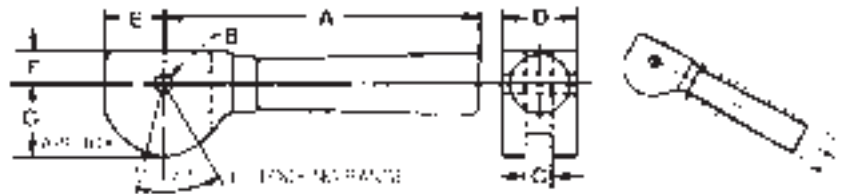
Steel Pads		Plastic Pads		Brass Pads		A	B	C	D	E	F
Part Number	Wt. (lbs) 10 Pcs.	Part Number	Wt. (lbs) 10 Pcs.	Part Number	Wt. (lbs) 10 Pcs.						
17101	.05	17102	.02	17103	.06	5/8	9/64	11/32	1/8	1/4	5-40
17104	.16	17105	.03	17106	.18	7/8	3/16	1/2	3/16	3/8	8-32
17107	.40	17108	.08	17109	.43	1 1/4	5/16	5/8	1/4	1/2	10-24
17110	.90	17111	.16	17112	.93	1 1/2	3/8	3/4	3/8	5/8	1/4-20
17113	1.50	—	—	—	—	1 3/4	1/2	3/4	1/2	3/4	1/4-20

Double Cams



Slip standard pipe over handle for more leverage. Snug fit at handle collar and end.

- Finish: Black Oxide
- Material: C1020
- Heat Treat: Case Hardened 74-77 R30N



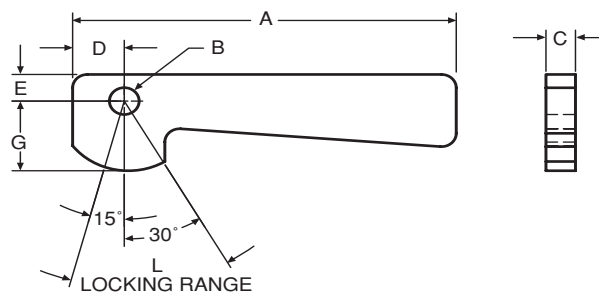
Forged, heat-treated for abrasion-resistance and longer life. Designed for quick change clamping which requires greater holding pressures than are available with single cams. Mean clamping point pressure angle is from 3 1/2° to 4°, which makes for stronger workholding.

Part Number	A	B	C	D	E	F	G	L	Wt. (lbs)
18101	2 1/2	3/16	17/64	5/8	3/8	1/4	.437	.015	.14
18102	3 7/16	5/16	25/64	7/8	19/32	23/64	.679	.019	.34
18103	5	3/8	33/64	1 1/8	5/8	15/32	.755	.031	.83
18104	5 1/16	5/8	41/64	1 1/4	7/8	5/8	1.040	.043	1.00

Single Cams



- Finish: Black Oxide
- Material: 1018
- Heat Treat: Case Hardened Rc 58-62



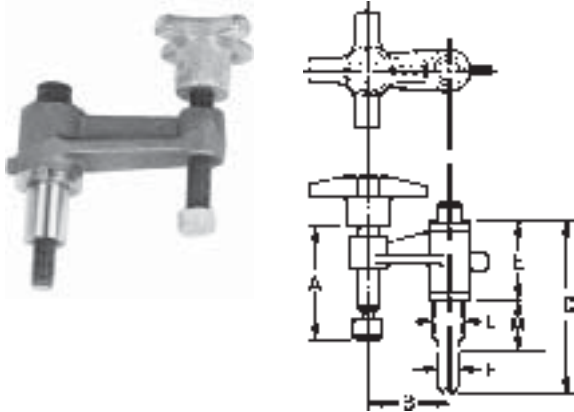
Part Number	A	B	C	D	E	G	L	Wt. (lbs)
12101	2 3/8	5/32	3/16	3/8	3/16	17/32	.015	0.62
12102	3 1/4	1/4	1/4	7/16	1/4	21/32	.022	1.40
12103	4 1/2	5/16	3/8	3/4	3/8	29/32	.031	4.00
12104	5	3/8	1/2	7/8	7/16	1 5/64	.031	6.90

Revolving Clamp Assemblies

Quick hold-down of workpiece with hand tightening, then loosen and revolve out of the way. Saves time for moderate-duty clamping.

Malleable cast iron body. Case-hardened swivel pad uses "tru-center" feature to maintain even, in-line pressure on workpiece.

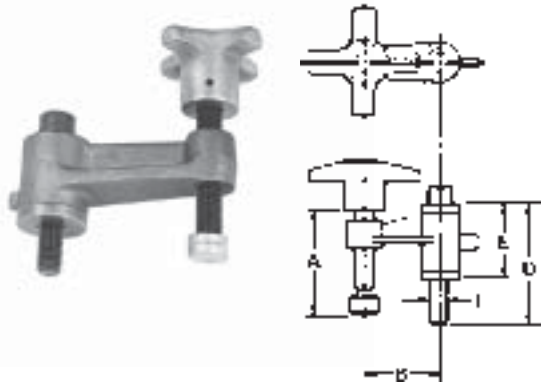
Long Bushing Type



- Body Material: Malleable ASTM A47, GR32510
- Finish: Black Oxide
- Bushings: Hardened & Ground Rc 56-60

Part Number	A	B	D	E	F	L	M	Wt. (lbs)
						.5610/		
35119	2	1 1/2	3	1 1/2	5/16-18	.5595	5/8	0.8
						.6235/		
35103	2	1 1/2	3 1/4	1 1/2	3/8-16	.6220	3/4	0.8
						.8735/		
35116	3 3/8	3	5	2 1/4	1/2-13	.8720	1 1/4	4.5
						1.1235/		
35106	3 3/4	3	5	2 1/4	5/8-11	1.1220	1 1/2	4.8
						1.1235/		
35109	3 3/4	4	5	2 1/4	5/8-11	1.1220	1 1/2	5.0

Short Bushing Type

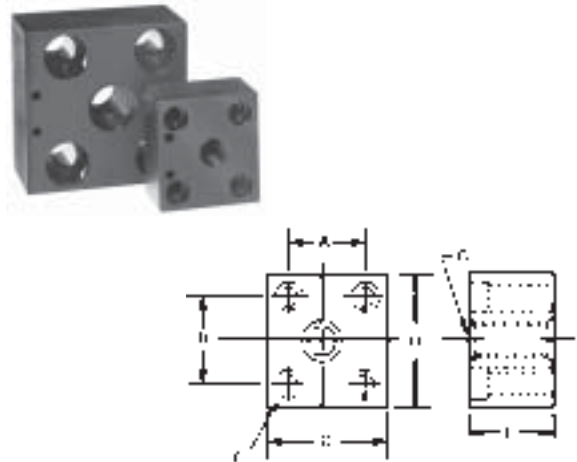


- Body Material: Malleable ASTM A47, GR32510
- Finish: Black Oxide
- Bushings: Hardened & Ground Rc 56-60

Part Number		A	B	D	E	F	Wt.	Base Part Number
Clamp Only	Clamp w/ Base							
35117	35118	2	1 1/2	2	1 1/2	5/16-18	0.7	35113
35101	35102	2	1 1/2	3 1/4	1 1/2	3/8-16	0.7	35110
35114	35115	3 3/8	3	5	2 1/4	1/2-13	4.3	35112
35104	35105	3 3/4	3	3	2 1/4	5/8-11	4.5	35111
35107	35108	3 3/4	4	5	2 1/4	5/8-11	4.8	35111

Revolving Clamp Base

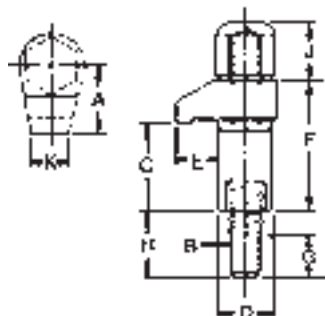
(for use with Short Bushing Type only)



- Stop pin supplied with each base.

Part Number	A	B	C	D	E	F	Mtg Bold Size G	Wt (lbs)
35113	3/4	1	1 7/16	1 1/2	1	#10	5/16-18	0.5
35110	7/8	1	1 7/16	1 1/2	1	#10	3/8-16	0.6
35112	1 1/8	1 3/8	2 1/4	2 1/4	1 1/4	1/4	1/2-13	1.2
35111	1 1/4	1 1/2	2 1/4	2 1/4	1 1/4	3/8	5/8-11	1.7

Hook Clamp Assemblies



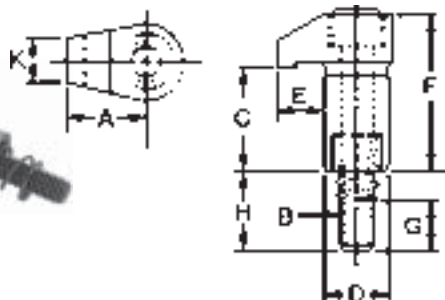
Moderate to heavy-duty holding power in close quarters. When released, the hook clamp swings quickly and easily out of the way for fast maneuvering of work. Spring-loaded shank for speedy clamp release.

- Material: Cast Steel Body, 4140
- Finish: Black Oxide
- Heat Treat: Rc 44-48
- Screw: Furnished

Part Number	A	Stud Size B	C	D	E	F	G	H	J	K	Wt. (lbs)	Max. Torque (Ft/lbs)
41901	11/16	5/16-18 x 2 1/2	7/8	.624/.625	3/8	1 3/8	5/16	3/4	5/8	3/8	.21	25
41908	1	3/8-16 x 4	1 5/8	.874/.875	9/16	2 1/4	3/4	1 1/4	3/4	5/8	.59	40
41902*	1	1/2-13 x 4	1 5/8	.874/.875	9/16	2 1/4	5/8	1 1/8	15/16	5/8	.64	100
41903	1 7/16	5/8-11 x 5	1 13/16	1.124/1.125	7/8	2 3/4	7/8	1 3/8	1 3/16	3/4	1.38	180

*Conforms to TCMA

Hook Clamp Assemblies



Alternative to the above assembly, features flush-mounted socket screw instead of acorn nut. Designed for limited space applications and moderate holding power.

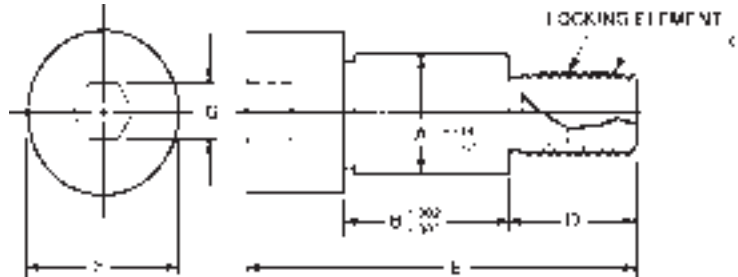
- Material: Cast Steel Body, 4140
- Finish: Black Oxide
- Heat Treat: Rc 44-48
- Screw: Furnished

Part Number	A	Cap Screw B	C	D	E	F	G	H	K	Wt. (lbs)	Max. Torque (Ft/lbs)
41904	11/16	5/16-18 x 1 3/4	7/8	.624/.625	3/8	1 3/8	1/4	5/8	3/8	.14	25
41905*	1	3/8-16 x 3	1 5/8	.874/.875	9/16	2 1/4	5/8	1 1/16	5/8	.44	40
41907	1	1/2-13 x 3	1 5/8	.874/.875	9/16	2 1/4	5/8	1 1/8	5/8	.47	100
41906	1 7/16	5/8-11 x 3 1/2	1 13/16	1.124/1.125	7/8	2 3/4	13/16	1 9/16	3/4	1.00	180

*Conforms to TCMA

Socket Shoulder Screws

Nylon Locking



Socket Shoulder Screws are held to much closer tolerances than on standard Stripper Bolts. The “B” dimension is always a plus to eliminate the binding on movable plates. The “A” dimension is held closer for bearing-type locating. You’ll get more positive holding power and greater turning leverage. Ideal for all sliding mechanisms. Nylon locking element is incorporated in all Jergens Shoulder Screws.

- Material: 4140
- Heat Treat: Rc 38-42
- Thread: 2A-UNC

Diameter A	B	Part Number	Thread Size C	D	E	F	Hex Size G	Wt. (lbs) 10 Pcs.
.249	1/4	41701*	10-24	3/8	13/16	3/8	1/8	.09
.249	3/8	41702*	10-24	3/8	15/16	3/8	1/8	.12
.249	1/2	41703*	10-24	3/8	1 1/16	3/8	1/8	.13
.249	5/8	41704*	10-24	3/8	1 3/16	3/8	1/8	.15
.249	3/4	41705*	10-24	3/8	1 5/16	3/8	1/8	.16
.249	7/8	41706*	10-24	3/8	1 7/16	3/8	1/8	.19
.374	1/4	41707*	5/16-18	1/2	1	9/16	3/16	.30
.374	3/8	41708*	5/16-18	1/2	1 1/8	9/16	3/16	.32
.374	1/2	41709*	5/16-18	1/2	1 1/4	9/16	3/16	.38
.374	5/8	41710*	5/16-18	1/2	1 3/8	9/16	3/16	.41
.374	3/4	41711*	5/16-18	1/2	1 1/2	9/16	3/16	.45
.374	7/8	41712*	5/16-18	1/2	1 5/8	9/16	3/16	.48
.499	3/8	41713*	3/8-16	5/8	1 5/16	3/4	1/4	.68
.499	1/2	41714*	3/8-16	5/8	1 7/16	3/4	1/4	.73
.499	5/8	41715*	3/8-16	5/8	1 9/16	3/4	1/4	.78
.499	3/4	41716*	3/8-16	5/8	1 11/16	3/4	1/4	.86
.499	7/8	41717*	3/8-16	5/8	1 13/16	3/4	1/4	.93
.624	1/2	41718*	1/2-13	3/4	1 5/8	7/8	5/16	1.22
.624	5/8	41719*	1/2-13	3/4	1 3/4	7/8	5/16	1.36
.624	3/4	41720*	1/2-13	3/4	1 7/8	7/8	5/16	1.41
.624	7/8	41721*	1/2-13	3/4	2	7/8	5/16	1.56
.624	1	41722*	1/2-13	3/4	2 1/8	7/8	5/16	1.85
.749	5/8	41723*	5/8-11	7/8	2	1	3/8	2.25
.749	3/4	41724*	5/8-11	7/8	2 1/8	1	3/8	2.47
.749	7/8	41725*	5/8-11	7/8	2 1/4	1	3/8	2.60
.749	1	41726*	5/8-11	7/8	2 3/8	1	3/8	2.75
.749	1 1/4	41727*	5/8-11	7/8	2 5/8	1	3/8	2.90
.999	1	41728	3/4-10	1	2 5/8	1 3/8	1/2	5.47
.999	1 1/2	41729	3/4-10	1	3 1/8	1 3/8	1/2	6.56
.999	2	41730	3/4-10	1	3 5/8	1 3/8	1/2	7.66

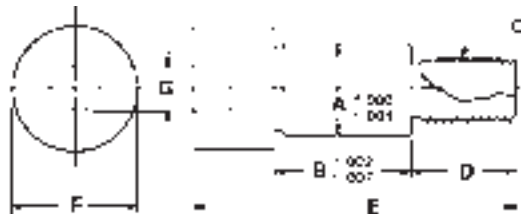
*Conforms to TCMA

Socket Head Shoulder Screws

Stainless Steel



- Material: 303 Stainless

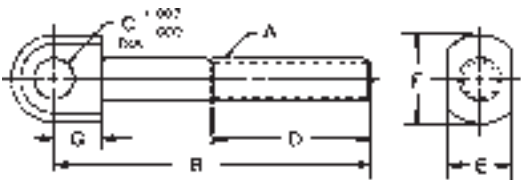


Part Number	Diam. A	B	C	D	E	F	Hex Size G	Wt. (lbs) 10 Pcs.
41801	1/4	1/4	10-24	3/8	13/16	3/8	1/8	.09
41802	1/4	3/8	10-24	3/8	15/16	3/8	1/8	.12
41803	1/4	1/2	10-24	3/8	1 1/16	3/8	1/8	.13
41804	1/4	5/8	10-24	3/8	1 3/16	3/8	1/8	.15
41805	1/4	3/4	10-24	3/8	1 5/16	3/8	1/8	.16
41806	1/4	1	10-24	3/8	1 9/16	3/8	1/8	.19
41807	3/8	1/4	5/16-18	1/2	1	9/16	3/16	.30
41808	3/8	3/8	5/16-18	1/2	1 1/8	9/16	3/16	.32
41809	3/8	1/2	5/16-18	1/2	1 1/4	9/16	3/16	.38
41810	3/8	5/8	5/16-18	1/2	1 3/8	9/16	3/16	.41
41811	3/8	3/4	5/16-18	1/2	1 1/2	9/16	3/16	.45
41812	3/8	1	5/16-18	1/2	1 3/4	9/16	3/16	.48
41813	1/2	3/8	3/8-16	5/8	1 5/16	3/4	1/4	.68
41814	1/2	1/2	3/8-16	5/8	1 7/16	3/4	1/4	.73
41815	1/2	5/8	3/8-16	5/8	1 9/16	3/4	1/4	.78
41816	1/2	3/4	3/8-16	5/8	1 11/16	3/4	1/4	.86
41817	1/2	1	3/8-16	5/8	1 15/16	3/4	1/4	.93
41818	5/8	1/2	1/2-13	3/4	1 5/8	7/8	5/16	1.22
41819	5/8	5/8	1/2-13	3/4	1 3/4	7/8	5/16	1.36
41820	5/8	3/4	1/2-13	3/4	1 7/8	7/8	5/16	1.41
41822	5/8	1	1/2-13	3/4	2 1/8	7/8	5/16	1.85

Swing Bolts (Latch Bolt)



- Material: 4140
- Finish: Black Oxide
- Heat Treat: Rc 36-40
- Thread: Class 2A-UNC



Part Number	Thread Size A	B	C	D	E	F	G	Wt. (lbs) 10 Pcs.
29501*	3/8-16	2 1/2	3/8	1 3/8	1/2	3/4	3/8	.93
29502	3/8-16	3 1/4	3/8	1 3/4	1/2	3/4	3/8	1.25
29513	1/2-13	2 5/8	3/8	1 1/2	5/8	1	7/16	1.95
29504*	1/2-13	3 1/8	1/2	1 3/4	5/8	1	7/16	2.04
29505	1/2-13	4 1/8	1/2	2 1/4	5/8	1	7/16	2.64
29516	5/8-11	3 3/4	1/2	2	3/4	1 1/8	1/2	3.64
29507	5/8-11	3 1/2	5/8	1 3/4	3/4	1 1/8	1/2	3.67
29508	5/8-11	4 3/4	5/8	2 1/2	3/4	1 1/8	1/2	4.75
29509	3/4-10	4 3/8	3/4	2 1/2	7/8	1 3/8	11/16	6.10
29510	3/4-10	6 1/2	3/4	3 1/4	7/8	1 3/8	11/16	8.85

*Conforms to TCMA.

Not to be used for lifting.

Swing Bolts (Latch Bolt)

Stainless Steel

- Material: 303 Stainless
- Thread: Class 2A-UNC

Part Number	Thread Size A	B	C	D	E	F	G
29601	3/8-16	2 1/2	3/8	1 3/8	1/2	3/4	1/2
29602	3/8-16	3 1/2	3/8	2	1/2	3/4	1/2
29603	1/2-13	3 1/8	1/2	1 5/8	5/8	1	5/8
29604	1/2-13	4-1/8	1/2	2 1/2	5/8	1	5/8
29605	5/8-11	3 1/2	5/8	1 5/8	3/4	1 1/4	3/4
29606	5/8-11	4 3/4	5/8	2 1/2	3/4	1 1/4	3/4

*B dimension indicates minimum length.

Not to be used for lifting.

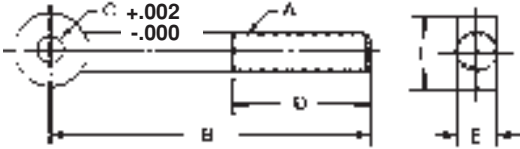
Rod Ends

Threaded



- Material: 4142
- Finish: Black Oxide
- Heat Treat: 32-36 Rc
- Thread: Class 2A-UNC

Rod Ends are forged and finished for applications not requiring flat contact with the head. All holes are reamed. Rod Ends can be used with spherical flange assemblies, flange nuts and clamp assemblies.



Part Number	Thread A	B	C	D Minimum	E	F	Wt. (lbs)
35301*	1/4-20	2	3/16	3/4	1/4	1/2	.04
35302	1/4-20	2	1/4	3/4	1/4	1/2	.03
35318*	5/16-18	3	1/4	1 1/2	5/16	5/8	.08
35319*	5/16-18	3	5/16	1 1/2	5/16	5/8	.08
35303*	3/8-16	3	5/16	1 1/2	3/8	3/4	.11
35320	3/8-16	4	5/16	1 3/4	3/8	3/4	.11
35304	3/8-16	2 3/16	3/8	1 1/4	3/8	3/4	.08
35305*	3/8-16	3	3/8	1 1/2	3/8	3/4	.11
35306*	3/8-16	5	3/8	2 1/2	3/8	3/4	.12
35307*	1/2-13	3 3/4	3/8	1 1/2	1/2	1	.25
35308	1/2-13	2 11/16	1/2	1 1/2	1/2	1	.19
35309	1/2-13	3 3/4	1/2	1 1/2	1/2	1	.24
35310	1/2-13	5	1/2	1 1/2	1/2	1	.31
35311	5/8-11	3 11/16	5/8	2	5/8	1 1/4	.40
35312*	5/8-11	4 1/2	5/8	2	5/8	1 1/4	.46
35314*	5/8-11	6	5/8	2 1/2	5/8	1 1/4	.60
35315*	3/4-10	4 1/2	3/4	2	3/4	1 1/2	.73
35321*	3/4-10	6	3/4	2 1/2	3/4	1 1/2	1.00
35317	1-8	8	1	3	1	2	2.25

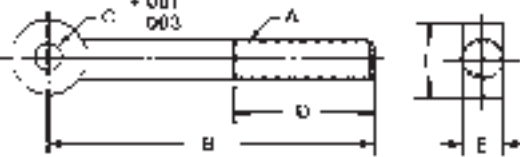
*Conforms to TCMA. **Not to be used for lifting.**

Rod Ends

Stainless Steel



- Material: 303 Stainless
- Thread Class 2A-UNC



Part Number	Ref. A	B	Ref. C	D	E	F
35721	1/4-20	2 1/8	3/16	7/8	1/4	1/2
35722	1/4-20	2 1/8	1/4	7/8	1/4	1/2
35723	5/16-18	3 1/2	1/4	1 1/2	5/16	5/8
35724	5/16-18	3 1/2	5/16	1 1/2	5/16	5/8
35725	3/8-16	3 1/2	3/8	1 1/2	3/8	3/4
35726	3/8-16	5	3/8	2 1/2	3/8	3/4
35727	1/2-13	3 3/4	1/2	1 1/2	1/2	1
35728	1/2-13	5	1/2	2	1/2	1
35729	5/8-11	4 1/2	5/8	2	5/8	1 1/4
35730	5/8-11	6	5/8	3	5/8	1 1/4
35731	3/4-10	4 1/2	3/4	2	3/4	1 1/2
35732	3/4-10	6	3/4	2 1/2	3/4	1 1/2

Not to be used for lifting.

Rod Ends

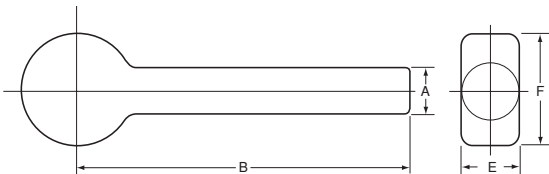
Blank Forging

- Material: Standard, 4142 Forging
Stainless, 18-8 Forging

Part Number		A	B*	E	Ref. F	Wt. (lbs)
Standard	Stainless Steel					
35511	35701	1/4	2	1/4	1/2	.04
35512	35702	3/8	5	3/8	3/4	.13
35513	35703	1/2	6	1/2	1	.44
35514	35704	5/8	6	5/8	1 1/4	.70
35515		3/4	6	3/4	1 1/2	1.8
35516		1	8	1	2	2.5

*B dimension indicates minimum length. **Not to be used for lifting.**

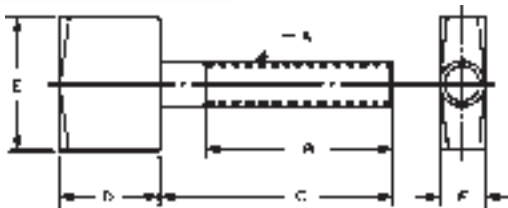
Blank Rod Ends can be machined to your specifications; please send prints for quotation.
Maximum thread length 1/2" from head.



Quarter Turn Screws



The diamond on all four corners of the Jergens Quarter Turn Screw, makes the opening and closing of jig lids easier. Ideally suited for clamping lids, covers and swing-away type bushing arms. Quarter Turn Screws may be machined for finishing requirements.



- Material: Stem, Low Carbon Steel
Head, Low Carbon Steel
- Finish: Black Oxide
- Thread: 2A-UNC (inch); Class 6g (Metric)

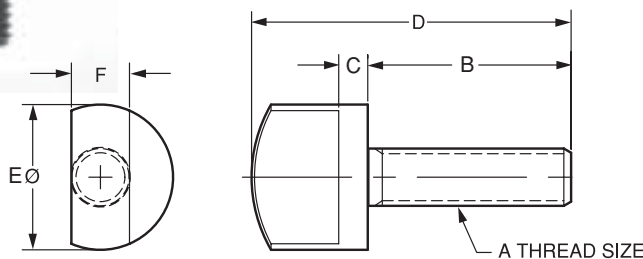
Part Number	A	B	C	D	E	F	Wt. (lbs) 10 Pcs.
34501*	10-32	7/8	1	1/2	1/2	3/16	.31
34502*	1/4-20	1	1 1/4	5/8	3/4	1/4	.47
34503	1/4-20	1 1/2	1 3/4	5/8	3/4	1/4	.48
34504*	5/16-18	1 1/4	1 1/2	3/4	1	5/16	.90
34505	5/16-18	1 3/4	2	3/4	1	5/16	1.10
34506*	3/8-16	1 1/4	1 1/2	1	1	3/8	1.25
34507	3/8-16	1 3/4	2	1	1	3/8	1.45
34508*	1/2-13	1 1/2	1 3/4	1	1 1/4	1/2	2.35
34509	1/2-13	2	2 1/4	1	1 1/4	1/2	2.65

*Conforms to TCMA

Metric

Part Number	A	B	C	D	E	F	Wt. (kg)
34571	M5 x 0.8	22	25	13	13	5	.14
34573	M6 x 1.0	25	32	16	19	6	.21
34575	M8 x 1.25	32	38	19	25	8	.41
34577	M10 x 1.5	32	38	25	25	10	.57
34579	M12 x 1.75	38	44	25	32	13	1.06

Half Turn Screws

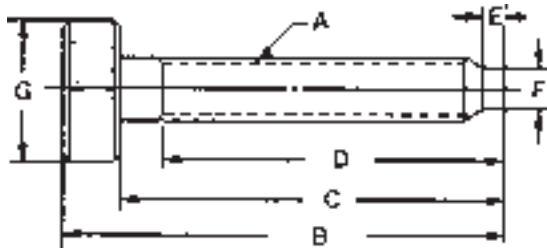


Jergens half turn screws are ideally suited for clamping lids and covers without machining a recess or slot

- Material: Low Carbon Steel
- Finish: Black Oxide
- Thread: 2A-UNF (10-32)
2A-UNC (other sizes)

Screws

Thumb Screws



- Material: 1215 Steel, 303 Stainless
- Finish: Black Oxide
- Thread: 2A-UNC

The half-dog point protects the threads in case of peening.

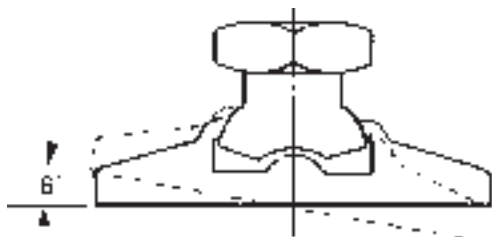
Part No. Steel	Part No. Stainless	A	B	C	D	E	F	G	Wt. (lbs)
43901	-	10-24	1 9/16	1 1/4	1 1/16	3/64	1/8	3/4	.44
43902	-	10-24	1 5/16	1 5/8	1 7/16	3/64	1/8	3/4	.47
43903*	-	10-24	2 5/16	2	1 13/16	3/64	1/8	3/4	.48
-	44001	10-32	1 3/16	1	3/4	7/32	3/16	3/4	.45
-	44002	10-32	1 7/16	1 1/4	3/4	7/32	3/16	3/4	.45
-	44004	1/4-20	1 5/16	1	25/32	3/32	11/64	1	.75
43904*	44005*	1/4-20	1 13/16	1 1/2	1 1/4	1/16	5/32	1	.78
43905*	44006	1/4-20	2 5/16	2	1 3/4	1/16	5/32	1	.86
43906*	-	1/4-20	2 13/16	2 1/2	2 1/4	1/16	5/32	1	.91
43907	44008	5/16-18	2 1/8	1 3/4	1 7/16	5/64	13/64	1 1/8	1.30
43908	44009	5/16-18	2 5/8	2 1/4	1 15/16	5/64	13/64	1 1/8	1.36
43909	44010	5/16-18	3 1/8	2 3/4	2 7/16	5/64	13/64	1 1/8	1.50
43910*	44011	3/8-16	2 7/16	2	1 5/8	3/32	1/4	1 1/4	1.93
43911*	44012*	3/8-16	2 15/16	2 1/2	2 1/8	3/32	1/4	1 1/4	2.00
43912*	44013*	3/8-16	3 7/16	3	2 5/8	3/32	1/4	1 1/4	2.20
43913	-	1/2-13	2 15/16	2 1/2	2 1/8	1/8	11/32	1 1/4	2.55
-	44014	1/2-13	3	2 1/2	2	1/4	3/8	1 1/4	2.55
43914*	-	1/2-13	3 7/16	3	2 5/8	1/8	11/32	1 1/4	2.80
-	44015	1/2-13	3 1/2	3	2 1/2	1/4	3/8	1 1/4	3.00
43915*	-	1/2-13	3 15/16	3 1/2	3 1/8	1/8	11/32	1 1/4	3.10
-	44016	1/2-13	4	3 1/2	3	1/4	3/8	1 1/4	3.10

* Conforms to TCMA

Metric

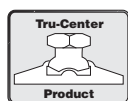
Part Number	A	B	C	D	E	F	G	Wt. (Kg)
43971	M5x0.8	30	25	20	1.2	3	20	0.20
43972	M5x0.8	45	40	35	1.2	3	20	0.21
43973	M5x0.8	55	50	45	1.2	3	20	0.22
43974	M6x1.0	50	40	40	1.5	4	25	0.35
43975	M6x1.0	60	50	50	1.5	4	25	0.39
43976	M6x1.0	75	65	65	1.5	4	25	0.41
43977	M8x1.25	50	40	40	2.4	5	30	0.59
43978	M8x1.25	60	50	50	2.4	5	30	0.62
43979	M8x1.25	75	65	65	2.4	5	30	0.68
43980	M10x1.5	60	50	50	2.4	6	30	0.88
43981	M10x1.5	75	65	65	2.4	6	30	0.91
43982	M10x1.5	85	75	75	2.4	6	30	1.00
43983	M12x1.75	90	75	80	3	11	30	1.27
43984	M12x1.75	105	90	95	3	11	30	1.41

Tru-Center™ Toggle Products



The Jergens patented "Tru-Center" products are the only pad type on the market to provide true center line clamping. The cut-away drawing illustrates how this works. The center line of the pad and the center line of the nut always intersect at the point of contact between the pad and the workpiece.

Adjustable Torque Toggle Screws



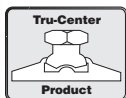
Perfect for delicate and fine clamping. Once the end holding force is reached, the head breaks free. Larger radius, straight knurled head for easy turning.

- Material: Stem, Stressproof®
Pad, 4140
- Finish: Stem, Black Oxide
Head, Chrome Plate
- Pad: Angular movement either side of center (total 16°)

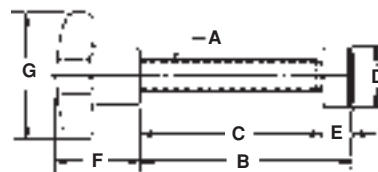


Part Number	A	B	C	D	E	F	End Force (lbs)
31101	10-24	1 1/4	1	23/32	.140	3/16	0-50
31102	1/4-20	1 1/2	1	23/32	.185	15/64	0-50
31103	1/4-20	2 1/2	1	23/32	.185	15/64	0-50
31104	5/16-18	1 3/4	1	23/32	.240	9/32	0-50
31105	5/16-18	2 3/4	1	23/32	.240	9/32	0-50
31106	3/8-16	2	1 1/4	25/32	.294	11/32	0-60
31107	1/2-13	3	1 1/4	25/32	.400	7/16	0-60

Hand Knob Toggle Screws



For clamping of irregular surfaces while the swivel shoe prevents marring of polished surfaces. Shoe is hardened for longer life. The cast iron hand knob is included for hand tightening. To remove pad for installation, pull and turn counter-clockwise.

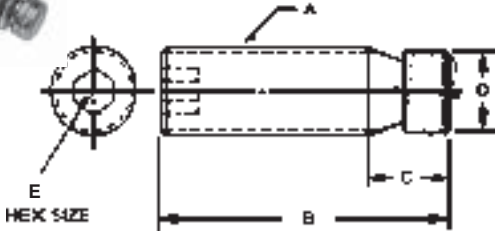
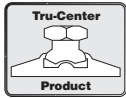


- Material: Stem, Stressproof®
Pad, 4140
Head, Cast Iron
- Finish: Stem, Black Oxide
Pad, Zinc Plate
Head, Cadmium Plate
- Thread: 2A-UNC
- Pad: Angular movement either side of center (total 16°)

Part Number	A	B	C	D	E	F	G	Wt. (lbs) 10 Pcs.
36301	3/8-16	2	1 21/32	11/16	3/8	1 1/8	2	.21
36302	3/8-16	2 3/4	2 13/32	11/16	3/8	1 1/8	2	.24
36303	3/8-16	3 5/8	3 9/32	11/16	3/8	1 1/8	2	.25
36304	1/2-13	2 1/8	1 21/32	13/16	15/32	1 1/2	2 1/2	.44
36305	1/2-13	2 3/4	2 9/32	13/16	15/32	1 1/2	2 1/2	.48
36306	1/2-13	3 3/8	2 29/32	13/16	15/32	1 1/2	2 1/2	.52
36307	1/2-13	4	3 17/32	13/16	15/32	1 1/2	2 1/2	.55
36308	5/8-11	3	2 17/32	15/16	1/2	2	3	1.38
36309	5/8-11	3 3/4	3 9/32	15/16	1/2	2	3	1.50
36310	3/4-10	4 7/8	4 11/32	1 1/8	19/32	2	3	1.56

Tru-Center™ Toggle Products

Socket Toggle Screws

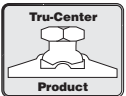


- Material: 4140
- Finish: Black Oxide
- Heat Treat: 38-42 Rc
- Screws may be inserted without removing pads.

Part Number	Thread Size A	B	C	D	E Hex Size	Wt. (lbs) 10 Pcs.
33301*	1/4-20	1/2	15/64	.185	1/8	.03
33302*	1/4-20	1	15/64	.185	1/8	.09
33303*	5/16-18	3/4	9/32	.240	5/32	.09
33304*	5/16-18	1 1/2	9/32	.240	5/32	.24
33305*	3/8-16	1	11/32	.294	3/16	.20
33306*	3/8-16	2	11/32	.294	3/16	.45
33307*	1/2-13	1	7/16	.400	1/4	.30
33308*	1/2-13	2	7/16	.400	1/4	.78
33310*	5/8-11	2	17/32	.507	5/16	1.25

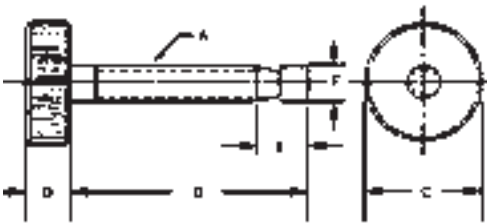
*Conforms to TCMA

Toggle Thumb Screws



Same as our standard Thumb Screw only with the addition of our patented swivel pad on the end.

- Material: Stem and Head 1215, Pad, 4140
- Finish: Black Oxide



Part Number	Thread Size A	B	C	D	E	F	Wt. (lbs) 10 Pcs.
33501	10-24	1	3/4	5/16	3/16	.140	.31
33502	10-24	1 1/2	3/4	5/16	3/16	.140	.47
33503*	1/4-20	1 1/2	1	5/16	15/64	.185	.78
33504*	1/4-20	2	1	5/16	15/64	.185	.94
33505*	5/16-18	1 1/2	1 1/8	3/8	9/32	.240	1.05
33506*	5/16-18	2	1 1/8	3/8	9/32	.240	1.25
33507*	5/16-18	2 1/2	1 1/8	3/8	9/32	.240	1.40
33508*	3/8-16	1 1/2	1 1/4	7/16	11/32	.294	1.70
33509*	3/8-16	2	1 1/4	7/16	11/32	.294	1.88
33510*	3/8-16	2 1/2	1 1/4	7/16	11/32	.294	2.04
33511*	3/8-16	3	1 1/4	7/16	11/32	.294	2.20

*Conforms to TCMA

Plastic Pad Covers



- Material: Nylon

Where soft material with fine finished surfaces must be clamped with relatively high pressures, we recommend the use of the Jergens Plastic Pad Covers. Resistant to oils and cutting compounds, they snap over the swivel end of our Hand KnobToggle Screws, Socket Toggle Screws, Toggle Thumb Screws, Toggle Pads and adjustable Torque Thumb Screws.

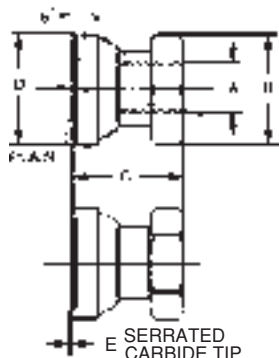
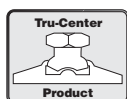
Part Number	To Fit Over O.D. of Pad	O.D. of Plastic Pad
32901	.140	.250
32902	.185	.250
32903	.240	.312
32904	.294	.375
32905	.400	.500

Part Number	To Fit Over O.D. of Pad	O.D. of Plastic Pad
32907	9/16	.625
32908	5/8	.750
32909	11/16	.812
32910	13/16	.937
32911	15/16	1.062

Plastic Pad Covers snap over outside diameter of Jergens swivel pads.

Tru-Center™ Toggle Products

Toggle Pads



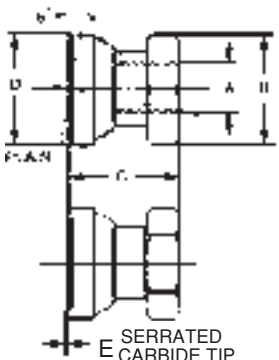
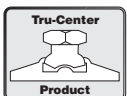
Carbide Tipped Toggle Pads provide multiple point contact to compensate for surfaces that are rough or out-of-round. Points will embed themselves in the workpiece, which assures positive gripping. It eliminates possible radial load on the workpiece.

- Material: 4140 or Carbide Insert Tip
- Finish: Black Oxide
- Heat Treat: Plain Pad Rc 36-40
- Thread: 2B-UNC

Part Number		Thread Size A	Across Flats B	Plain C	Serrated C	D	E	Wt. (lbs) 10 Pcs.
Plain	Serrated							
43502	43702	1/4-20	1/2	1/2	9/16	9/16	.055	.20
43503	43703	5/16-18	9/16	11/16	3/4	5/8	.055	.28
43504	43704	3/8-16	5/8	11/16	3/4	11/16	.055	.41
43505	43705	1/2-13	3/4	7/8	15/16	13/16	.055	.62
43506	43706	5/8-11	7/8	1	1 1/32	15/16	.086	.94
43507*	43707	3/4-10	1 1/16	1 5/32	1 1/4	1 1/8	.086	1.60

*Plastic Pad is not available for this item.

Toggle Pads Metric



- Material: 4140 or Carbide Insert Tip
- Finish: Black Oxide
- Heat Treat: Plain Pad Rc36-40
- Thread class: 6h

Part Number		Thread Size A	Across Flats B	Plain C	Serrated C	D	E	Wt. (kg) 10 Pcs.
Plain	Serrated							
43552	43752	M6 x 1.0	12	13	14.4	14	1.4	.09
43553	43753	M8 x 1.25	14	17	18.4	16	1.4	.13
43554	43754	M10 x 1.5	16	18	20.4	18	1.4	.19
43555	43755	M12 x 1.75	22	22	23.4	21	1.4	.28
43556	43756	M16 x 2.0	26	25	26.4	24	2.2	.43
43557	43757	M20 x 2.5	30	29	31.2	28	2.2	.73

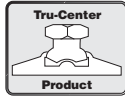
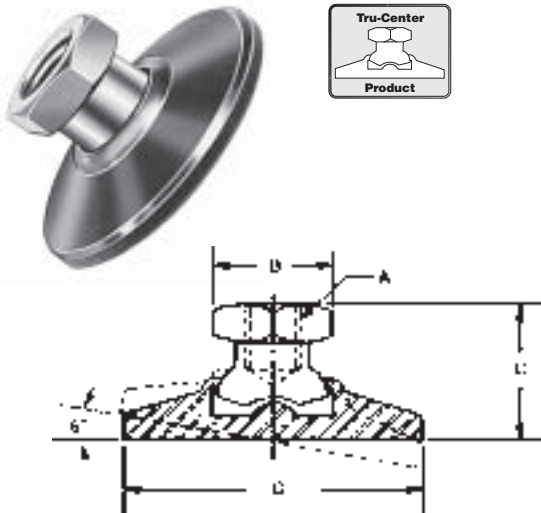
Note: Metric Toggle Pads have two flats instead of a hex configuration on the head.

Leveling Pads

Provides a greater surface area where heavy loads are to be applied or where heavy pressures must be exerted on

flexible or softer materials. Pad face swivels and aligns with no damage to the uneven surfaces.

Tapped

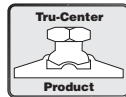
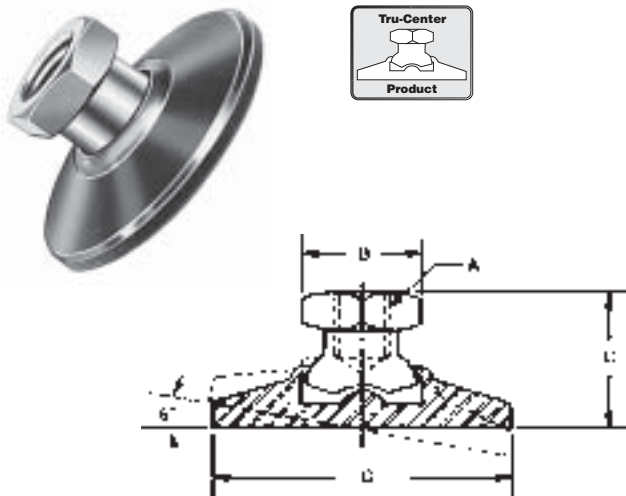


- Material: 4140
- Finish: Zinc Plated
- Heat Treat: Rc 36-40
- Thread: UNC-2B

Part Number	Thread Size A	Across Flats B	C	D	Load Capacity (lbs)	Wt. (lbs)
32501	3/8-16	5/8	3/4	1 1/4	2300	.10
32502	1/2-13	3/4	1	1 7/8	4200	.22
32503	5/8-11	7/8	1 1/8	2 1/4	6600	.42
32504	3/4-10	1 1/16	1 7/16	3	10,000	.84

SWIVELS 6° EACH SIDE OF CENTER

Metric Tapped



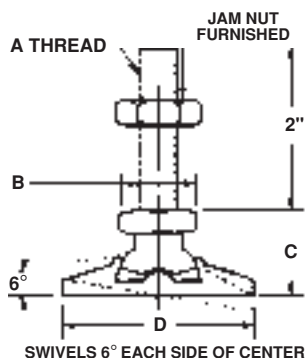
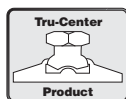
- Material: 4140
- Finish: Zinc Plated
- Heat Treat: Rc36-40
- Thread class: 6h

Part Number	Thread Size A	Across Flats B	C	D	Load Capacity (kg)	Wt. (kg)
32551	M10 x 1.5	16	21	32	1000	.05
32552	M12 x 1.75	22	27	48	1900	.10
32553	M16 x 2.0	26	31	57	2900	.19
32554	M20 x 2.5	30	39	76	4500	.38

Note: Metric Toggle Pads have two flats instead of a hex configuration on the head.

SWIVELS 6° EACH SIDE OF CENTER

Threaded

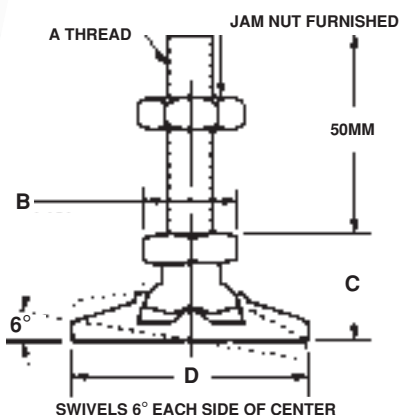
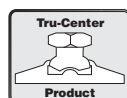


- Material: 4140
- Finish: Zinc Plated Pad
- Heat Treat: Rc 36-40
- Thread: UNC-2A

Part Number	Thread Size A	Across Flats B	C	D	Load Capacity (lbs)	Wt. (lbs)
32521	3/8-16	5/8	3/4	1 1/4	2300	.16
32522	1/2-13	3/4	1	1 7/8	4200	.37
32523	5/8-11	7/8	1 1/8	2 1/4	6600	.58
32524	3/4-10	1 1/16	1 7/16	3	10,000	1.22

Jam nut is furnished.

Metric Threaded



- Material: 4140
- Finish: Zinc Plated
- Heat Treat: Rc36-40
- Thread class: 6g

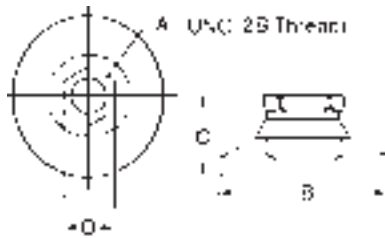
Part Number	Thread Size A	Across Flats B	C	D	Load Capacity (kg)	Wt. (kg)
32571	M10 x 1.5	16	21	32	1000	.07
32572	M12 x 1.75	22	27	48	1900	.17
32573	M16 x 2.0	26	31	57	2900	.26
32574	M20 x 2.5	30	39	76	4500	.55

Note: Metric Toggle Pads have two flats instead of a hex configuration on the head.

Leveling Mounts

- Material: 1214 Steel
- Non-Skid Material: Neoprene
- Case hardened, file hard
- Swivels 10° in all directions
- Available with non-skid on base
- Available in stainless steel, or with a delrin pad, and in larger sizes upon request.

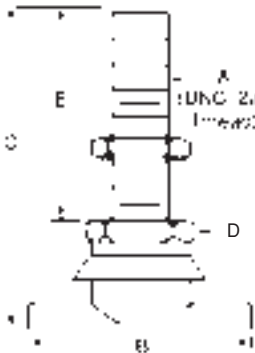
Tapped



Part Number		A	B	C*	Across Flats D	Maximum Load (lbs)	
Standard	Non-skid					Standard	Non-skid
32601	32651	10-32	3/4	17/32	3/8	700	550
32602	32652	1/4-20	1	45/64	1/2	1000	825
32606	32656	3/8-16	1 1/4	7/8	5/8	3750	2820
32608	32658	1/2-13	1 7/8	1 1/8	3/4	5000	3750
32610	32660	5/8-11	2 1/2	1 1/4	7/8	6000	5000
32612	32662	3/4-10	3	1 1/2	1 1/16	7400	6000
32616	32666	1-8	4	1 7/8	1 3/8	21000	16500

*Add 1/8" to C Dimension for non-skid style.

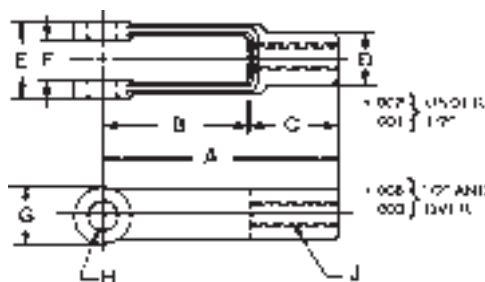
Threaded



Part Number		A	B	C*	Across Flats D	E	Maximum Load (lbs)	
Standard	Non-skid						Standard	Non-skid
32621	32671	10-32	3/4	1 17/32	3/8	1	700	550
32623	32673	1/4-20	1	1 61/64	1/2	1 1/4	1000	825
32626	32676	3/8-16	1 1/4	2 7/8	5/8	2	3750	2850
32629	32679	1/2-13	1 7/8	3 1/8	3/4	2	5000	3750
32632	32682	5/8-11	2 1/2	3 1/4	7/8	2	6000	4350
32635	32685	3/4-10	3	3 1/2	1 1/16	2	7400	5500
32640	32690	1-8	4	5 3/8	1 3/8	3 1/2	20000	16500

*Add 1/8" to C Dimension for non-skid style.

Yokes Tapped

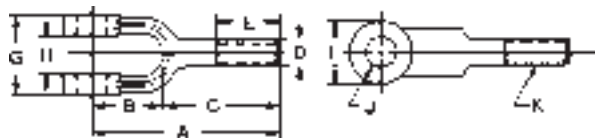


- Material: C-1021 Forging
- Finish: Black Oxide
- Thread: 2B

Jergens offers these yokes for attaching to threaded linkage at stem end. The forged holes are reamed and faced-off parallel inside and outside the yoke ends.

Part Number Coarse Pitch	J	Part Number Fine Pitch	J	A	B	C	D	E	F	G	H	Wt. (lbs) 10 Pcs.
		45501	10-32	1 9/16	1	9/16	5/16	7/16	3/16	3/8	3/16	.21
45302	1/4-20	45502	1/4-28	2	1 1/4	3/4	7/16	5/8	9/32	1/2	1/4	.62
45303	5/16-18	45503	5/16-24	2 1/4	1 7/16	13/16	1/2	3/4	11/32	19/32	5/16	.94
45304	3/8-16	45504	3/8-24	2 1/2	1 5/8	7/8	5/8	7/8	7/16	11/16	3/8	1.45
45305	7/16-14	45505	7/16-20	2 7/8	1 7/8	1	23/32	1	1/2	13/16	7/16	2.35
45306	1/2-13	45506	1/2-20	3	1 7/8	1 1/8	13/16	1 1/8	9/16	15/16	1/2	3.10
45307	1/2-13	45507	1/2-20	4 3/16	3 1/16	1 1/8	13/16	1 1/8	9/16	15/16	1/2	4.35
45308	5/8-11	45508	5/8-18	4 15/16	3 11/16	1 1/4	1 1/16	1 3/8	11/16	1 3/16	5/8	8.10
45309	3/4-10	45509	3/4-16	4	2 3/4	1 1/4	1 1/8	1 1/2	11/16	1 3/8	5/8	7.50
45310	3/4-10	—	—	6 1/16	4 9/16	1 1/2	1 1/4	1 5/8	13/16	1 7/16	3/4	15.00
45312	1-8	—	—	8	6	2	1 5/8	2 1/8	1 1/16	1 15/16	1	32.50

Threaded

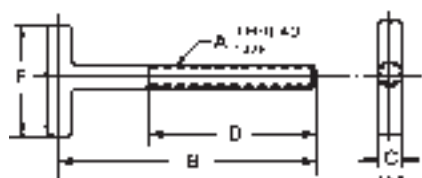


- Material: C-1021 Forging
- Finish: Black Oxide
- Thread: 2A-UNC

This style yoke is similar to the above except the stem is threaded for attaching to tapped linkage.

Part Number	K	A	B	C	D	E	F	G	H	J	Wt. (lbs) 10 Pcs.
45902	1/4-20	1 3/4	5/8	1 1/8	1/4	3/4	1/2	5/8	9/32	1/4	.47
45903	5/16-18	2	3/4	1 1/4	5/16	3/4	19/32	3/4	11/32	5/16	.85
45904	3/8-16	2 1/8	27/32	1 9/32	3/8	3/4	11/16	7/8	7/16	3/8	1.10
45906	1/2-13	2 1/2	1 1/8	1 3/8	1/2	3/4	15/16	1 1/8	9/16	1/2	2.35
45907	5/8-11	2 7/8	1 7/16	1 7/16	5/8	3/4	1 3/16	1 3/8	11/16	5/8	4.20
45908	3/4-10	3 5/8	1 11/16	1 15/16	3/4	1 1/4	1 7/16	1 5/8	13/16	3/4	7.35
45910	1-8	4 1/2	2 1/2	2	1	1 1/8	1 15/16	2 1/8	1 1/16	1	17.50

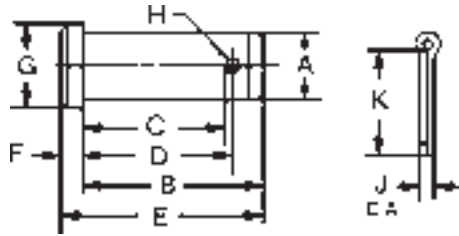
Tee Strap Bolts



- Material: C-1021 Forging
- Finish: Black Oxide
- Thread: 2A-UNC

Part Number	Thread Size A	B	C	D	E	Wt. (lbs)
43101	1/4-20	2 1/2	1/4	1 1/2	1 1/4	.09
43102	3/8-16	5	3/8	4	1 3/4	.19
43103	1/2-13	6	1/2	5	3	.44

Clevis Pins



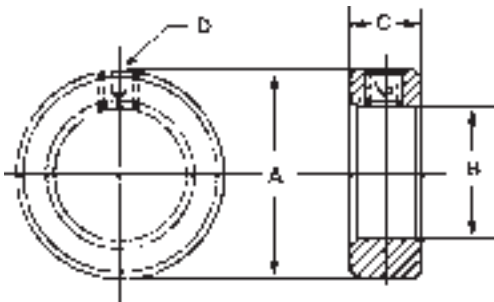
- Material: Low Carbon Steel
- All Clevis Pins supplied with cotter pins.

Part Number	A	B	C	D	E	F	G	H	J	K	Wt. (lbs) 10 Pcs.
32701	3/16	37/64	29/64	31/64	41/64	1/16	5/16	5/64	1/16	1/2	.08
32702	1/4	49/64	41/64	43/64	55/64	3/32	3/8	5/64	1/16	1/2	.15
32703	5/16	15/16	49/64	13/16	1 1/32	3/32	7/16	7/64	3/32	1/2	.30
32704	3/8	1 1/16	57/64	15/16	1 3/16	1/8	1/2	7/64	3/32	5/8	.45
32705	7/16	1 3/16	1 1/64	1 1/16	1 11/32	5/32	9/16	7/64	3/32	5/8	.60
32706	1/2	1 23/64	1 9/64	1 13/64	1 33/64	5/32	5/8	9/64	1/8	1	1.00
32707	5/8	1 39/64	1 25/64	1 29/64	1 13/16	13/64	13/16	9/64	1/8	1	1.18
32708	5/8	1 3/4	1 33/64	1 19/32	1 63/64	13/64	13/16	9/64	1/8	1	1.82
32709	3/4	1 29/32	1 41/64	1 23/32	2 5/32	1/4	15/16	11/64	5/32	1 1/2	3.00
32711	1	2 13/32	2 9/64	2 7/32	2 3/4	11/32	1 3/16	11/64	5/32	1 1/2	7.00

Steel Shaft Collars

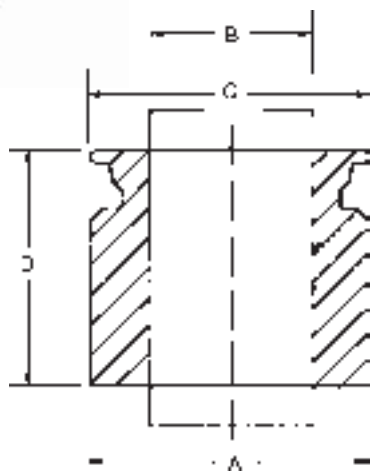


- Material: Low Carbon Steel
- Finish: Zinc Plate
- Set Screws Furnished
- Tolerances on I.D. +.005
-.000



Part Number	A	B	C	D	Wt. (lbs) 10 Pcs.
40101	5/8	1/4	3/8	10-32 x 1/8	.21
40102	5/8	5/16	3/8	10-32 x 1/8	.21
40103	3/4	3/8	7/16	1/4-28 x 3/16	.40
40104	7/8	1/2	1/2	1/4-28 x 1/4	.60
40105	1 1/8	5/8	1/2	1/4-28 x 1/4	.94
40106	1 1/4	3/4	1/2	5/16-18 x 1/4	1.00
40107	1 1/2	7/8	9/16	5/16-18 x 5/16	1.13
40108	1 3/4	1	9/16	5/16-18 x 5/16	1.50
40109	1 3/4	1 1/8	9/16	5/16-18 x 5/16	2.00
40110	2	1 1/4	11/16	3/8-16 x 3/8	3.50
40111	2 1/4	1 3/8	3/4	3/8-16 x 3/8	4.00
40112	2 1/4	1 1/2	3/4	3/8-16 x 3/8	4.30
40113	2 7/8	1 3/4	7/8	1/2-13 x 1/2	10.90
40114	3	2	7/8	1/2-13 x 1/2	9.50

GripFast™ Collar



Push GripFast™ onto shaft.



GripFast™ locks itself securely in place.



Release GripFast™ by pushing toward workpiece, squeezing outer ring, and pulling off the shaft.

Jergens Feature:

The Jergens GripFast™ Collar is a self-locking shaft collar that requires no installation tool. It's one hand operation allows an operator to slide the collar on or off in a matter of seconds.

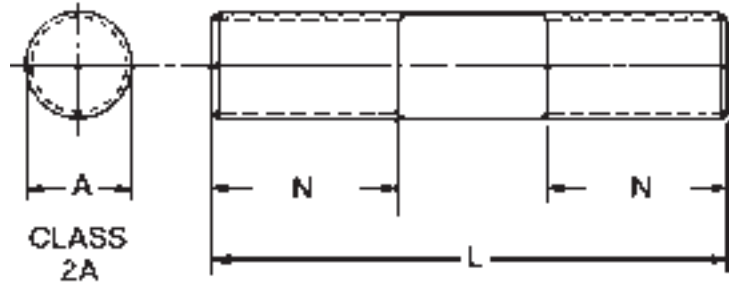
- Self-locking
- Automatic, quick release
- Easily adjustable
- No installation tool required
- Absorbs vibration and shock
- Available from stock up to 2"
- Metric and larger sizes available
- U.S. Patent #4893810

- Material: Inner Mechanism, chrome alloy, grade 25 balls
Retention Ring, 12L14 Steel, case hardened to Rc60
Spring, hand drawn
Housing, injection molded ABS
- Available in 304 Stainless Steel
- Color: Gray
- I.D. Tolerance: +/- .020"
- Holding power: 500 lbs. axial load (based on cold roll steel)

Part Number	Size	O.D. A	Shaft B	Cap O.D. C	Overall Height D
40201	1/8"	0.558	0.1250	0.608	0.940
40202	3/16"	0.558	0.1875	0.608	0.940
40203	1/4"	0.714	0.2500	0.784	1.000
40204	5/16"	0.714	0.3125	0.784	1.000
40205	3/8"	1.107	0.3750	1.150	1.055
40257	10mm	1.107	0.3937	1.150	1.055
40207	1/2"	1.107	0.5000	1.150	1.055
40260	13mm	1.107	0.5118	1.150	1.055
40208	9/16"	1.400	0.5625	1.420	1.460
40209	5/8"	1.400	0.6250	1.420	1.460
40263	16mm	1.400	0.6299	1.420	1.460
40211	3/4"	1.400	0.7500	1.420	1.460
40213	7/8"	1.860	0.8750	1.910	2.005
40215	1"	1.860	1.0000	1.910	2.005
40272	25mm	1.860	0.9843	1.910	2.005
40216	1 1/16"	1.860	1.0620	1.910	2.005
40275	28mm	1.860	1.1024	1.910	2.005
40217	1 1/8"	1.860	1.1250	1.910	2.005
40277	30mm	2.150	1.1812	2.150	1.825
40219	1 1/4"	2.150	1.2500	2.150	1.825
40221	1 3/8"	2.150	1.3750	2.150	1.825
40223	1 1/2"	2.150	1.5000	2.150	1.825
40225	1 5/8"	2.720	1.6250	2.955	2.085
40227	1 3/4"	2.720	1.7500	2.955	2.085
40231	2"	2.720	2.0000	2.955	2.085

GripFast™ is a trademark of Specialized Marketing Int'l Inc.

Alloy Steel Studs



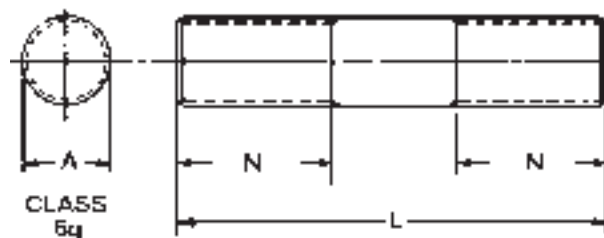
- Material: Stressproof® (125,000 psi Min.) Tensile (100,000 psi Min.) Yield
- Finish: Black Oxide
- Available in metric sizes. See the next page.

Longer or special studs are available upon request. Please send your print or sketch to our Customer Service Department.

Thread A	L	Part Number	N	Wt. (lbs) 10 Pcs
1/4-20	1 1/2	37720	7/16	.21
1/4-20	2	37721*	11/16	.28
1/4-20	2 1/2	37722*	15/16	.35
1/4-20	3	37723*	1	.42
1/4-20	3 1/2	37724*	1	.49
1/4-20	4	37725*	1	.56
5/16-18	1 1/2	37920	7/16	.33
5/16-18	2	37921*	11/16	.44
5/16-18	2 1/2	37922*	15/16	.55
5/16-18	3	37923*	1 1/8	.66
5/16-18	3 1/2	37924*	1 1/8	.77
5/16-18	4	37925*	1 1/8	.88
3/8-16	1 1/2	38120	3/8	.54
3/8-16	2	38121*	5/8	.62
3/8-16	2 1/2	38122*	7/8	.77
3/8-16	3	38123*	1 1/8	.93
3/8-16	3 1/2	38124*	1 1/4	1.10
3/8-16	4	38125*	1 1/4	1.24
3/8-16	4 1/2	38126*	1 1/4	1.39
3/8-16	5	38127*	1 1/4	1.55
3/8-16	5 1/2	38128*	1 1/4	1.71
3/8-16	6	38129*	1 1/4	1.86
3/8-16	7	38131	1 1/4	2.27
3/8-16	8	38133	1 1/4	2.48
1/2-13	2	38321*	5/8	1.10
1/2-13	2 1/2	38322*	7/8	1.37
1/2-13	3	38323*	1 1/8	1.65
1/2-13	3 1/2	38324*	1 3/8	1.92
1/2-13	4	38325*	1 1/2	2.20
1/2-13	4 1/2	38326*	1 1/2	2.47
1/2-13	5	38327*	1 1/2	2.75
1/2-13	5 1/2	38328*	1 1/2	3.02
1/2-13	6	38329*	1 1/2	3.30
1/2-13	7	38331	1 1/2	3.85
1/2-13	8	38333	1 1/2	4.40
1/2-13	9	38334	1 1/2	4.95
1/2-13	10	38335	1 1/2	5.50
1/2-13	12	38336	1 1/2	6.60

Thread A	L	Part Number	N	Wt. (lbs) 10 Pcs.
5/8-11	2 1/2	38520*	13/16	2.12
5/8-11	3	38521*	1 1/16	2.55
5/8-11	3 1/2	38522*	1 5/16	2.97
5/8-11	4	38523*	1 9/16	3.40
5/8-11	4 1/2	38524*	1 3/4	3.82
5/8-11	5	38525*	1 3/4	3.25
5/8-11	5 1/2	38526*	1 3/4	4.68
5/8-11	6	38527*	1 3/4	5.10
5/8-11	7	38529*	1 3/4	5.90
5/8-11	8	38531*	1 3/4	6.80
5/8-11	9	38532	1 3/4	7.60
5/8-11	10	38533	1 3/4	8.50
5/8-11	12	38534	1 3/4	10.20
3/4-10	3	38721*	15/16	3.75
3/4-10	3 1/2	38722*	1 3/16	4.35
3/4-10	4	38723*	1 7/16	5.00
3/4-10	4 1/2	38724*	1 11/16	5.60
3/4-10	5	38725*	1 15/16	6.20
3/4-10	5 1/2	38726*	2	6.90
3/4-10	6	38727*	2	7.50
3/4-10	7	38729*	2	8.75
3/4-10	8	38731*	2	10.00
3/4-10	10	38733	2	12.50
3/4-10	12	38734	2	15.00
7/8-9	4	38922	1 13/32	6.80
7/8-9	5	38923	1 29/32	8.50
7/8-9	6	38924	2 1/4	10.20
7/8-9	8	38925	2 1/4	13.60
7/8-9	10	38926	2 1/4	17.00
7/8-9	12	38927	2 1/4	20.40
1-8	4	39122	1 3/8	8.80
1-8	5	39123	1 7/8	11.00
1-8	6	39124	2 3/8	13.20
1-8	8	39125	2 1/2	17.60
1-8	10	39126	2 1/2	22.00
1-8	12	39127	2 1/2	26.40

Studs Metric



- Material: Stressproof®
862 Tensile (MPa)
689 Yield (MPa)
- Finish: Black Oxide
- Longer or special studs are available on request

Thread A	L	Part Number	N
M6 x 1.0	50	37771	18
M6 x 1.0	66	37772	25
M6 x 1.0	81	37773	28
M6 x 1.0	96	37774	28
M8 x 1.25	50	37971	18
M8 x 1.25	66	37972	25
M8 x 1.25	81	37973	32
M8 x 1.25	96	37974	32
M8 x 1.25	111	37975	32
M10 x 1.5	50	38171	16
M10 x 1.5	66	38172	23
M10 x 1.5	80	38173	30
M10 x 1.5	95	38174	35
M10 x 1.5	110	38175	35
M10 x 1.5	125	38176	39
M10 x 1.5	140	38177	39
M10 x 1.5	155	38178	39
M12 x 1.75	50	38371	16
M12 x 1.75	66	38372	23
M12 x 1.75	81	38373	31
M12 x 1.75	95	38374	40
M12 x 1.75	111	38375	40
M12 x 1.75	125	38376	40
M12 x 1.75	141	38377	40
M12 x 1.75	156	38378	40
M16 x 2.0	80	38571	29
M16 x 2.0	95	38572	36
M16 x 2.0	110	38573	44
M16 x 2.0	125	38574	47
M16 x 2.0	150	38575	47
M16 x 2.0	175	38576	47
M16 x 2.0	200	38577	47
M20 x 2.5	81	38771	30
M20 x 2.5	96	38772	37
M20 x 2.5	111	38773	45
M20 x 2.5	126	38774	52
M20 x 2.5	151	38775	48
M20 x 2.5	176	38776	56
M20 x 2.5	201	38777	56

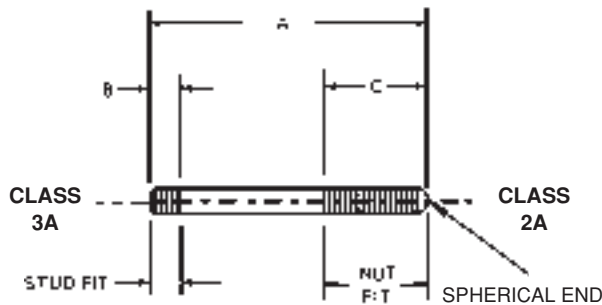
All Dimensions in Millimeters.

Fixture Studs

Stainless Steel



• Material: 303 Stainless



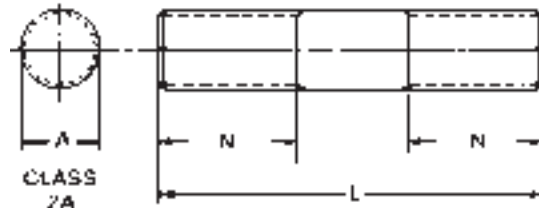
Part Number	A	Stud Fit B	Nut Fit C	Thread
37601	1	7/32	1/2	10-32
37602	1 1/2	7/32	3/4	10-32
37603	2	7/32	3/4	10-32
37802	1 1/2	9/32	5/8	1/4-20
37804	2	9/32	3/4	1/4-20
37806	2 1/2	9/32	3/4	1/4-20
37808	3	9/32	1	1/4-20
38002	1 1/2	11/32	5/8	5/16-18
38004	2	11/32	1	5/16-18
38006	2 1/2	11/32	1 1/4	5/16-18
38008	3	11/32	1 3/8	5/16-18
38009	3 1/2	11/32	1 1/2	5/16-18
38010	4	11/32	1 1/2	5/16-18
38201	1 5/8	11/32	3/4	3/8-16
38202	2	11/32	1	3/8-16
38204	2 1/2	11/32	1 1/4	3/8-16
38206	3	11/32	1 3/8	3/8-16
38207	3 1/2	11/32	1 1/2	3/8-16
38208	4	11/32	1 1/2	3/8-16

Set-Up Studs

Stainless Steel



• Material: 303 Stainless

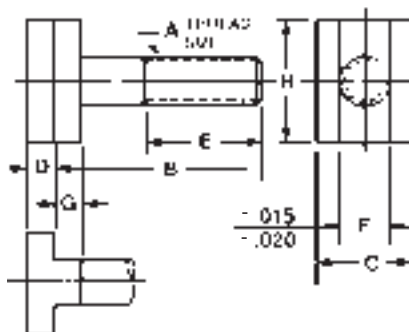


Part Number	Thread A	L	N
38421	1/2-13	2	3/4
38422	1/2-13	2 1/2	1 1/8
38423	1/2-13	3	1 3/8
38424	1/2-13	3 1/2	1 1/2
38425	1/2-13	4	1 1/2
38426	1/2-13	4 1/2	1 1/2
38427	1/2-13	5	1 1/2
38428	1/2-13	5 1/2	1 1/2
38429	1/2-13	6	1 1/2
38431	1/2-13	7	1 1/2
38433	1/2-13	8	1 1/2
38434	1/2-13	9	1 1/2
38435	1/2-13	10	1 1/2
38436	1/2-13	12	1 1/2

Part Number	Thread A	L	N
38620	5/8-11	2 1/2	1 1/8
38621	5/8-11	3	1 3/8
38622	5/8-11	3 1/2	1 3/4
38623	5/8-11	4	1 3/4
38624	5/8-11	4 1/2	1 3/4
38625	5/8-11	5	1 3/4
38626	5/8-11	5 1/2	1 3/4
38627	5/8-11	6	1 3/4
38629	5/8-11	7	1 3/4
38631	5/8-11	8	1 3/4
38632	5/8-11	9	1 3/4
38633	5/8-11	10	1 3/4
38634	5/8-11	12	1 3/4

Part Number	Thread A	L	N
38821	3/4-10	3	1 3/8
38822	3/4-10	3 1/2	1 1/2
38823	3/4-10	4	1 3/4
38824	3/4-10	4 1/2	2
38825	3/4-10	5	2
38826	3/4-10	5 1/2	2
38827	3/4-10	6	2
38829	3/4-10	7	2
38831	3/4-10	8	2
38833	3/4-10	10	2
38834	3/4-10	12	2

T-Slot Bolts



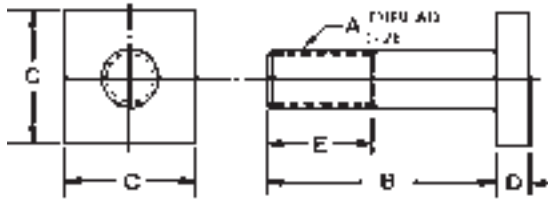
Jergens Feature:

Protect your expensive machine table slots with Jergens T-Slot Bolts. The completely finished machined head provides at least 50% more bearing surface under your table slot. T-Slot Bolts outlast T-Bolts in wearability in most applications.

- Material: 4140 Forging (150,000 psi) Tensile (Min)
- Finish: Black Oxide
- Heat Treat: Rc 34-38
- Thread: 2A-UNC
- Available in lengths up to 24"

Part Number	Thread Size A	B	C	D	E	F	G	H	Wt. (lbs)
44101	1/2-13	2	7/8	5/16	1	1/2	9/32	1 1/4	.22
44102	1/2-13	2 1/2	7/8	5/16	1 1/4	1/2	9/32	1 1/4	.25
44103	1/2-13	3	7/8	5/16	1 1/2	1/2	9/32	1 1/4	.27
44104	1/2-13	3 1/2	7/8	5/16	1 1/2	1/2	9/32	1 1/4	.30
44105	1/2-13	4	7/8	5/16	1 1/2	1/2	9/32	1 1/4	.33
44106	1/2-13	5	7/8	5/16	2	1/2	9/32	1 1/4	.37
44107	1/2-13	6	7/8	5/16	2	1/2	9/32	1 1/4	.44
44108	1/2-13	8	7/8	5/16	2	1/2	9/32	1 1/4	.53
44301	5/8-11	2	1 1/8	3/8	1 1/4	5/8	3/8	1 1/2	.39
44302	5/8-11	2 1/2	1 1/8	3/8	1 1/4	5/8	3/8	1 1/2	.41
44303	5/8-11	3	1 1/8	3/8	1 1/2	5/8	3/8	1 1/2	.44
44304	5/8-11	3 1/2	1 1/8	3/8	1 1/2	5/8	3/8	1 1/2	.50
44305	5/8-11	4	1 1/8	3/8	1 1/2	5/8	3/8	1 1/2	.55
44306	5/8-11	5	1 1/8	3/8	1 1/2	5/8	3/8	1 1/2	.62
44307	5/8-11	6	1 1/8	3/8	1 1/2	5/8	3/8	1 1/2	.72
44308	5/8-11	8	1 1/8	3/8	3	5/8	3/8	1 1/2	.85
44309	5/8-11	10	1 1/8	3/8	3	5/8	3/8	1 1/2	1.00
44310	5/8-11	12	1 1/8	3/8	3	5/8	3/8	1 1/2	1.25
44502	3/4-10	2 1/2	1 5/16	7/16	1 1/4	3/4	7/16	1 3/4	.64
44503	3/4-10	3	1 5/16	7/16	1 1/2	3/4	7/16	1 3/4	.70
44504	3/4-10	3 1/2	1 5/16	7/16	1 1/2	3/4	7/16	1 3/4	.77
44505	3/4-10	4	1 5/16	7/16	1 1/2	3/4	7/16	1 3/4	.85
44506	3/4-10	5	1 5/16	7/16	1 1/2	3/4	7/16	1 3/4	.95
44507	3/4-10	6	1 5/16	7/16	1 1/2	3/4	7/16	1 3/4	1.05
44508	3/4-10	8	1 5/16	7/16	3	3/4	7/16	1 3/4	1.25
44509	3/4-10	10	1 5/16	7/16	3	3/4	7/16	1 3/4	1.45
44510	3/4-10	12	1 5/16	7/16	3	3/4	7/16	1 3/4	1.75
44701	1-8	3 1/2	1 11/16	1/2	2	1	1/2	2 1/4	1.25
44702	1-8	4	1 11/16	1/2	2	1	1/2	2 1/4	1.50
44703	1-8	4 1/2	1 11/16	1/2	2 1/2	1	1/2	2 1/4	1.62
44704	1-8	5	1 11/16	1/2	2 1/2	1	1/2	2 1/4	1.75
44705	1-8	6	1 11/16	1/2	2 1/2	1	1/2	2 1/4	2.00
44706	1-8	8	1 11/16	1/2	3	1	1/2	2 1/4	2.40
44707	1-8	10	1 11/16	1/2	3	1	1/2	2 1/4	2.75
44708	1-8	12	1 11/16	1/2	3	1	1/2	2 1/4	3.10

T-Bolts



- Material: 4140 Forging (150,000 psi) Tensile (Min)
- Finish: Black Oxide
- Heat Treat: Rc 34-38
- Thread: 2A-UNC
- Available in lengths up to 24"

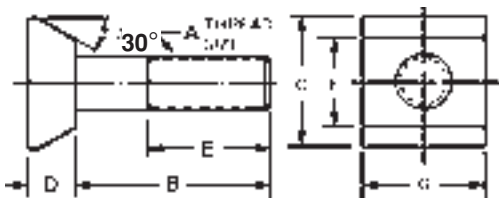
Part Number	Thread Size A	B	C	D	E	Wt. (lbs)
42101	3/8-16	1 1/2	11/16	1/4	3/4	.07
42102	3/8-16	2	11/16	1/4	1 1/4	.08
42103	3/8-16	2 1/2	11/16	1/4	1 1/4	.09
42104	3/8-16	3	11/16	1/4	1 1/2	.11
42105	3/8-16	3 1/2	11/16	1/4	1 1/2	.12
42106	3/8-16	4	11/16	1/4	1 1/2	.14
42301	1/2-13	1 1/2	7/8	1/4	3/4	.12
42302	1/2-13	2	7/8	1/4	1 1/4	.14
42303	1/2-13	2 1/2	7/8	1/4	1 1/4	.17
42304	1/2-13	3	7/8	1/4	1 1/2	.20
42305	1/2-13	3 1/2	7/8	1/4	1 1/2	.22
42306	1/2-13	4	7/8	1/4	2	.25
42307	1/2-13	4 1/2	7/8	1/4	2	.27
42308	1/2-13	5	7/8	1/4	2	.30
42309	1/2-13	5 1/2	7/8	1/4	2	.33
42310	1/2-13	6	7/8	1/4	2	.36
42502	5/8-11	2	1 1/8	3/8	1 1/4	.28
42503	5/8-11	2 1/2	1 1/8	3/8	1 1/4	.33
42504	5/8-11	3	1 1/8	3/8	1 1/2	.37
42505	5/8-11	3 1/2	1 1/8	3/8	1 1/2	.41
42506	5/8-11	4	1 1/8	3/8	1 1/2	.44
42507	5/8-11	5	1 1/8	3/8	1 1/2	.53
42508	5/8-11	6	1 1/8	3/8	1 1/2	.61
42509	5/8-11	8	1 1/8	3/8	3	.78
42510	5/8-11	10	1 1/8	3/8	3	.97
42511	5/8-11	12	1 1/8	3/8	3	1.13

Part Number	Thread Size A	B	C	D	E	Wt. (lbs)
42701	3/4-10	2 1/2	1 1/4	1/2	1 1/4	.48
42701	3/4-10	3	1 1/4	1/2	1 1/2	.55
42703	3/4-10	3 1/2	1 1/4	1/2	1 1/2	.61
42704	3/4-10	4	1 1/4	1/2	1 1/2	.66
42705	3/4-10	5	1 1/4	1/2	1 1/2	.78
42706	3/4-10	6	1 1/4	1/2	1 1/2	.90
42707	3/4-10	8	1 1/4	1/2	3	1.17
42708	3/4-10	10	1 1/4	1/2	3	1.38
42709	3/4-10	12	1 1/4	1/2	3	1.62
42901	1-8	4	1 11/16	11/16	2 1/2	1.25
42902	1-8	5	1 11/16	11/16	2 1/2	1.50
42903	1-8	6	1 11/16	11/16	2 1/2	1.75
42911	1-8	7	1 11/16	11/16	2 1/2	1.88
42904	1-8	8	1 11/16	11/16	3	2.00
42912	1-8	9	1 11/16	11/16	3	2.25
42905	1-8	10	1 11/16	11/16	3	2.50
42906	1-8	12	1 11/16	11/16	3	3.00
42907	1-8	14	1 11/16	11/16	3	3.50
43003	1 1/4-7	8	1 7/8	7/8	5	3.65
43004	1 1/4-7	9	1 7/8	7/8	5	4.00
43005	1 1/4-7	10	1 7/8	7/8	5	4.35
43006	1 1/4-7	12	1 7/8	7/8	5	5.05
43007	1 1/4-7	14	1 7/8	7/8	5	5.75
43008	1 1/4-7	16	1 7/8	7/8	5	6.45
43009	1 1/4-7	18	1 7/8	7/8	5	7.15
43011	1 1/4-7	22	1 7/8	7/8	5	8.20
43012	1 1/4-7	24	1 7/8	7/8	5	9.25

Dovetail Bolts



Dovetail Bolts can be used for clamping guide members on the front of press brakes.



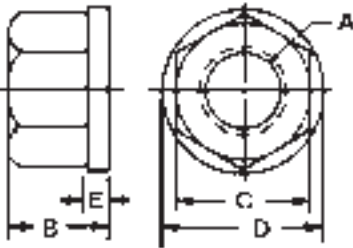
- Material: 4140 Forging (150,000 PSI) Tensile (Min)
- Finish: Black Oxide
- Heat Treat: Rc 34-38
- Thread: 2A-UNC

Part Number	Thread Size A	B	C	D	E	F	G	Wt. (lbs) 10 Pcs.
17901	5/8-11	1 1/4	1 1/16	3/8	3/4	3/4	1 1/8	2.00
17902	5/8-11	2	1 1/16	3/8	1 1/8	3/4	1 1/8	2.30
17903	5/8-11	2 3/4	1 1/16	3/8	1 1/2	3/4	1 1/8	3.10
17904	5/8-11	3 3/4	1 1/16	3/8	1 1/2	3/4	1 1/8	5.15
17905	5/8-11	4 1/2	1 1/16	3/8	3/4	3/4	1 1/8	6.10

Flange Nuts



- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: 2B-UNC



- Material: 303 Stainless Steel

Where heavy clamping pressures and vibrations could cause trouble, the wide face surface of the flange nut holds through with greater friction.

Carbon Steel

Coarse Pitch		Fine Pitch		B	C	D	E	Wt. (lbs) 10 Pcs.
Part Number	A	Part Number	A					
19901	10-24	—	—	5/16	3/8	1/2	1/16	.15
19902*	1/4-20	20101	1/4-28	5/16	1/2	5/8	1/16	.15
19903*	5/16-18	20102	5/16-24	3/8	9/16	3/4	1/16	.19
19904*	3/8-16	20103	3/8-24	1/2	11/16	7/8	1/8	.51
19905	7/16-14	20104	7/16-20	9/16	3/4	15/16	1/8	.62
19906*	1/2-13	20105	1/2-20	11/16	7/8	1 1/8	5/32	1.10
19907*	5/8-11	20106	5/8-18	13/16	1 1/16	1 3/8	3/16	1.75
19908*	3/4-10	20107	3/4-16	1	1 1/4	1 5/8	1/4	3.20
19909*	7/8-9	20108	7/8-14	1 1/8	1 7/16	1 3/4	1/4	4.20
19910*	1-8	20109	1-14	1 1/4	1 5/8	2	1/4	6.00
19911	1 1/8-7	20110	1 1/8-12	1 3/8	1 13/16	2 1/4	1/4	8.00
19912	1 1/4-7	20111	1 1/4-12	1 3/8	1 13/16	2 1/4	1/4	7.60
19913	1 1/2-6	20112	1 1/2-12	1 1/2	2 3/16	2 3/4	1/4	11.90

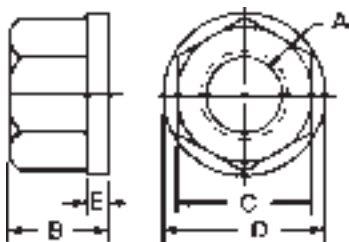
*Conforms to TCMA

Stainless Steel

Part Number	A	B	C	D	E	Wt. (lbs)
20002	1/4-20	5/16	1/2	5/8	3/32	.15
20003	5/16-18	3/8	9/16	3/4	3/32	.19
20004	3/8-16	1/2	11/16	7/8	1/8	.51
20006	1/2-13	11/16	7/8	1 1/8	5/32	1.10
20007	5/8-11	13/16	1 1/16	1 3/8	3/16	1.75
20008	3/4-10	1	1 1/4	1 5/8	1/4	3.20

Flange Nuts Metric

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: Class 6h

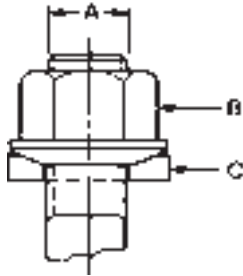


Part Number	Thread A	B	C	D	E	Wt. (kg) 10 pcs.
19952	M6 x 1.0	8	10	16	2	.07
19953	M8 x 1.25	10	13	19	2	.09
19954	M10 x 1.5	13	17	22	3	.23
19955	M12 x 1.75	17	19	25	5	.50
19957	M16 x 2.0	21	24	32	5	.79
19959	M20 x 2.5	25	30	38	6	1.45

Spherical Flange Assemblies



Same advantages as Spherical Washers but with the addition of a nut to replace the top section of the washers. Convex bottom of nut nests into the concave bottom section for full floating action.

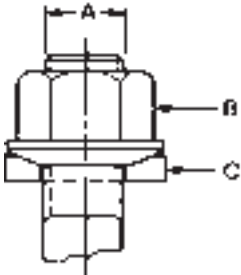


- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened

Part Number	A	Nut P/N B	Washer P/N C	Wt. (lbs) 10 Pcs.
39301	10-24	39701	41301	.12
39302	1/4-20	39702	41302	.16
39303	5/16-18	39703	41303	.31
39304	3/8-16	39704	41304	.65
39305	1/2-13	39705	41305	1.45
39306	5/8-11	39706	41306	2.44
39307	3/4-10	39707	41307	4.10
39308	7/8-9	39708	41308	6.00
39309	1-8	39709	41309	8.10
39311	1 1/4-7	39711	41311	13.40
39312	1 1/2-6	39712	41312	15.70

Spherical Flange Assemblies

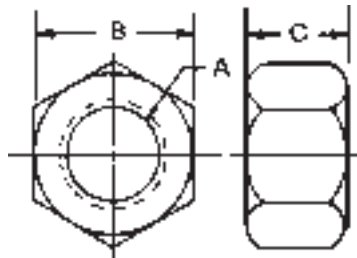
Metric



- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened

Part Number	A	Across Flats B	Washer P/N C	Wt. (kg) 10 pcs.
39352	M6 x 1.0	10	41302	.07
39353	M8 x 1.25	13	41303	.14
39354	M10 x 1.5	17	41304	.30
39355	M12 x 1.75	19	41305	.66
39356	M16 x 2.0	24	41306	1.10
39357	M20 x 2.5	30	41357	1.80

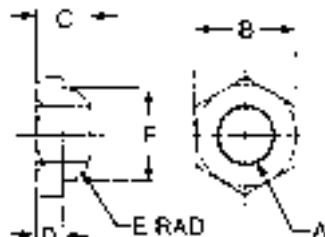
Heavy Duty Hex Nuts



- Finish: Black Oxide
- Grade 8

Part Number	A	B	C	Wt. (lbs) 100 Pcs.
20711	1/4-20	7/16	7/32	.74
20712	5/16-18	1/2	17/64	1.10
20713	3/8-16	9/16	21/64	1.60
20714	1/2-13	3/4	7/16	3.75
20716	5/8-11	15/16	35/64	7.33
20717	3/4-10	1 1/8	41/64	11.90
20718	7/8-9	1 5/16	3/4	19.00
20719	1-8	1 1/2	55/64	28.30

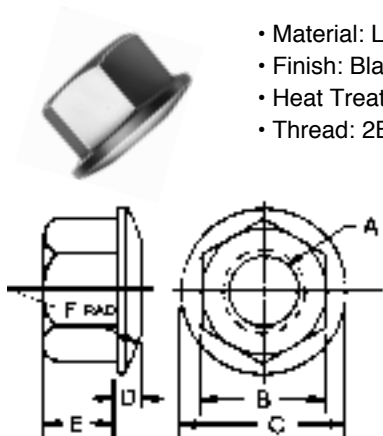
Stainless Steel Hex Head Equalizing Nuts



- Material: 303 Stainless

Part Number	A	B	C	D	E	F
12311	10-32	7/16	5/16	5/32	1/8	3/8
12312	1/4-20	1/2	5/16	5/32	1/8	7/16
12313	5/16-18	9/16	5/16	5/32	1/8	1/2
12314	3/8-16	11/16	3/8	3/16	3/16	5/8

Spherical Flange Nuts



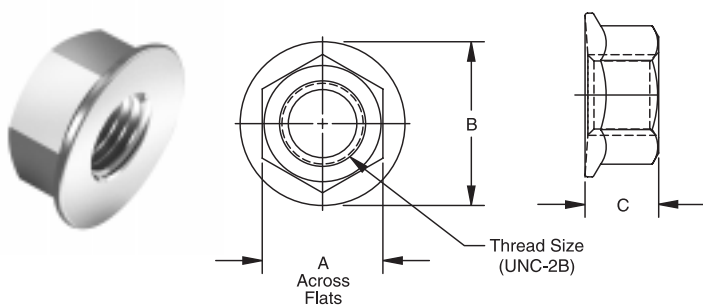
- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: 2B-UNC, Class 6h

Part Number	A	B	C	D	E	F	Wt. (lbs) 10 Pcs.
39701	10-24	3/8	1/2	3/32	1/4	3/4	.10
39702*	1/4-20	1/2	5/8	3/32	1/4	1	.12
39703*	5/16-18	9/16	3/4	1/8	9/32	1	.21
39704*	3/8-16	11/16	7/8	1/8	13/32	1 1/2	.50
39705*	1/2-13	7/8	1 1/8	3/16	1/2	2	1.00
39706*	5/8-11	1 1/16	1 3/8	7/32	5/8	2 1/4	1.82
39707*	3/4-10	1 1/4	1 5/8	1/4	3/4	2 1/2	3.10
39708*	7/8-9	1 7/16	1 3/4	1/4	7/8	2 1/2	4.35
39709*	1-8	1 5/8	2	1/4	1	3 1/2	5.90
39711	1 1/4-7	1 13/16	2 1/4	5/16	1 1/16	4	7.20
39712	1 1/2-6	2 3/16	2 3/4	5/16	1 3/16	4 1/2	11.60

*Conforms to TCMA.

Part Number	A	B	C	D	E	F	Wt. (kg) 10 pcs.
39752	M6 x 1.0	10	16	2	6	25	.05
39753	M8 x 1.25	13	19	3	7	25	.10
39754	M10 x 1.5	17	22	4	10	38	.23
39755	M12 x 1.75	19	25	5	13	51	.50
39756	M16 x 2.0	24	32	6	16	57	.83
39757	M20 x 2.5	30	38	6	19	64	1.41

Spinner-Grip™ Flange Lock Nuts

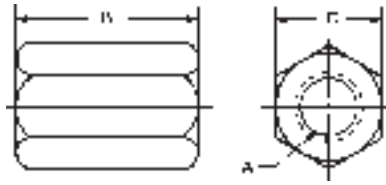


- Free spinning installation eliminates the need to wrench the nut down the fastener.
- Locks to the part, not to the threads.
- Grade 8 strength and quality, and will work with any grade fastener.
- Hardness of 28 - 38 HRC: more effective at maintaining clamp load under vibration.
- Greater temperature range than nylon insert locknuts, and will not be effected by humidity.
- Flat washers are not needed, unless in a slotted application.
- Spinner grips are not limited to 5 reuses, unlike most prevailing torque lock nuts.
- Jergens maintains inventory of Zinc plated product, as well as plain finished (un-plated) product so you can specify your plating of choice. (Please allow 2 - 3 weeks lead time for plating.)

Part Number		Thread Size	A	B	C
Plain Finish	Zinc Plated				
19800	19820	1/4-20	7/16	19/32	1/4
19801	19821	5/16-18	1/2	11/16	9/32
19802	19822	3/8-16	9/16	3/4	11/32
19803	19823	7/16-14	11/16	15/16	3/8
19804	19824	1/2-13	3/4	1	7/16
19805	19825	5/8-11	15/16	1 1/4	9/16
19806	19826	3/4-10	1 1/4	1 1/2	11/16
Metric					
19807	19827	M6-1.00	10	15.1	6.0
19808	19828	M8-1.25	13	19.0	8.8
19809	19829	M10-1.50	15	24.1	10.0
19810	19830	M12-1.75	19	25.5	11.6
19811	19831	M16-2.00	24	38.0	17.2

Note: Additional charges apply to plated product. Charges vary by plating type.

Coupling Nuts



- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: 2B-UNC

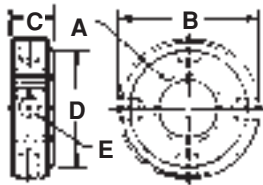
Part Number	A	B	C	Wt. (lbs) 10 Pcs.
18711*	3/8-16	1	1 1/16	.94
18712*	1/2-13	1 1/4	7/8	2.00
18713*	5/8-11	1 5/8	1 1/16	3.40
18714*	3/4-10	1 7/8	1 1/4	5.65
18715	7/8-9	2 1/4	1 7/16	8.60
18716	1-8	2 1/2	1 5/8	12.50

*Conforms to TCMA.

Metric

Part Number	A	B	C	Wt. (lbs) 10 Pcs.
18761	M10	25	16	0.01
18762	M12	32	19	0.18
18763	M16	41	24	0.34
18764	M20	51	27	0.57

Knurled Lock Nuts

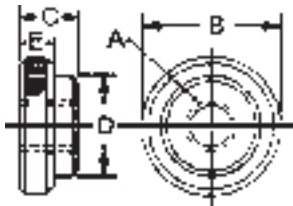


Most convenient for quick thread locking on your jig and fixture work. Straight knurled radius provides sure, non-slip finger grip in oily conditions. Faces are square with threads which assures a large locking surface.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: 2B-UNC

Part Number	A	B	C	D	E	Wt. (lbs) 10 Pcs.
28101	3/8-16	1	3/8	3/4	.188	.62
28102	1/2-13	1 1/4	7/16	1	.257	1.10
28103	5/8-11	1 3/8	7/16	1 1/8	.257	1.10
28104	3/4-10	1 3/4	9/16	1 1/2	.316	2.50
28105	1-8	2	9/16	1 3/4	.316	3.10

Check Nuts

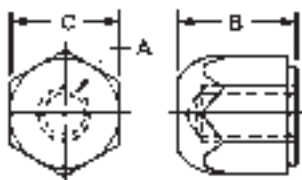


Multi-use Locknut for hand tightening applications

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: 2B-UNC

Part Number	A	B	C	D	E	Wt. (lbs) 10 Pcs.
16901	10-24	3/4	7/32	1/2	5/32	.15
16902	1/4-20	3/4	7/32	1/2	5/32	.15
16903	5/16-18	3/4	5/16	1/2	1/4	.21
16904	3/8-16	3/4	5/16	1/2	1/4	.21
16905	1/2-13	1	3/8	3/4	1/4	.47

Acorn Nuts

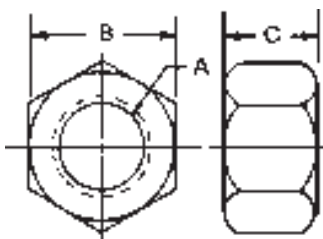


- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Thread: 2B-UNC

Acorn nuts are used to cover threaded ends to protect them from dirt, grit or damage to the thread.

Part Number	A	B	C	Wt. (lbs) 10 Pcs.
10501	5/16-18	5/8	5/8	.44
10502	3/8-16	3/4	3/4	.78
10503	1/2-13	15/16	7/8	1.25
10504	5/8-11	1 3/16	1 1/16	2.35

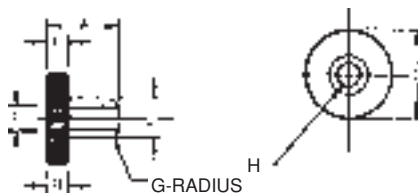
Stainless Steel Nuts



- Material: 300 Series Stainless Steel

Part Number	A	B	C
12321	10-32	3/8	1/8
12322	1/4-20	7/16	3/16
12323	5/16-18	1/2	9/32
12324	3/8-16	9/16	11/32

Stainless Steel Knurled Equalizing Nuts



For use with stainless steel equalizing "C" washer. See page 5.37

Part Number	A	B	C	D	E	F	G	H
12301	3/4	3/16	3/8	3/4	13/64	1/4	1/8	10-32
12302	13/16	1/4	7/16	1	17/64	1/4	1/8	1/4-20

Kwik-Thread™ Nut



The Jergens Kwik-Thread™ Nut is a true quick change tool. It has three floating female thread segments and fits onto any standard male thread. The floating I.D. allows the Kwik-Thread Nut to quickly slide onto bolts to the workpiece being bolted down. It can then be torqued down like a standard nut.

- Material: Carbon steel housing; cap, thread, SS302 springs, alloy steel locking pins.
- Finish: Housing-black oxide, other parts plain
- Proof loads: Equal to grade 5 nuts
- Ideal in difficult physical condition
- Slips quickly over damaged threads
- Available in three styles: Hex nut, flange nut, and threaded O.D. for use as a threaded insert
- Available in 1/2, 5/8, and 3/4 sizes
- Other sizes and materials available on special order, contact customer service

Hex Nuts

Part Number	Thread Size A	Height B	Across Flats C	Flange Dia. D	Flange Thk. E	External Thread F
20604	1/2-13	3/4	15/16	—	—	—
20605	5/8-11	1	1 1/4	—	—	—
20606	3/4-10	1 3/16	1 7/16	—	—	—



Flanged Nuts

20614	1/2-13	3/4	15/16	1 1/8	3/16	—
20615	5/8-11	1	1 1/4	1 1/2	3/16	—
20616	3/4-10	1 3/16	1 7/16	1 3/4	1/4	—

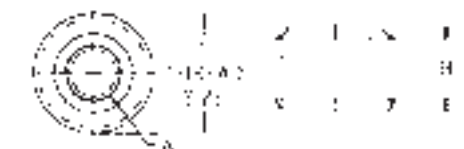


Metric Flange Nuts

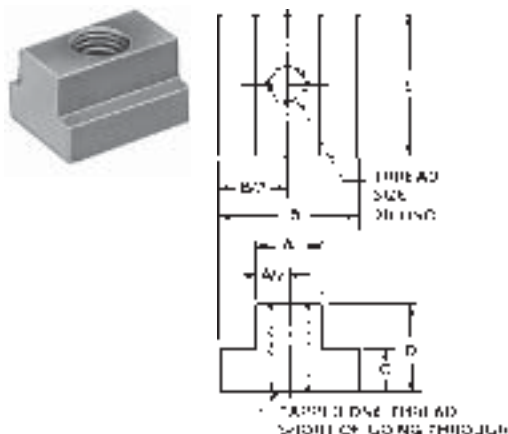
20664	M12-1.75	19mm	24mm	28.5mm	4.8mm	—
20665	M16-20	25mm	32mm	38mm	4.8mm	—

Insert Nuts

20624	1/2-13	3/4	—	—	—	1 1/8-12 UNF-2A
20625	5/8-11	1	—	—	—	1 3/8-12 UNF-2A
20626	3/4-10	1 3/16	—	—	—	1 5/8-12 UNF-2A



T-Slot Nuts



Jergens Feature:

Jergens Table-Saver design provides a safety-stop feature to prevent turning stud into tableways.

- Material: Low Carbon Steel, 303 Stainless
- Finish: Black Oxide
- Threads: 2B-UNC (Inch); Class 6h (Metric)
- Heat Treat: Case Hardened
- Available in metric sizes. See below.

Part Number	Thread	T-slot Width A	B	C	D	E	Wt. (lbs) 10 Pcs.
*43302**	3/8-16	7/16	11/16	7/32	1/2	7/8	0.50
*43303**	3/8-16	1/2	7/8	9/32	1/2	7/8	.070
43301	3/8-16	9/16	7/8	1/4	1/2	7/8	0.70
*43305**	1/2-13	9/16	7/8	11/32	5/8	1 1/8	1.20
*43306	1/2-13	5/8	1	11/32	5/8	1 1/8	1.50
*43304	1/2-13	11/16	1 1/8	7/16	3/4	1 1/4	2.10
*43308**	5/8-11	11/16	1 1/8	7/16	3/4	1 1/4	1.14
*43309	5/8-11	3/4	1 1/4	15/32	3/4	1 1/4	1.60
*43307	5/8-11	13/16	1 1/4	9/16	1	1 1/2	3.11
*43311**	3/4-10	13/16	1 1/4	9/16	1	1 1/2	3.60
43312	3/4-10	7/8	1 1/2	9/16	1	1 1/2	4.10
*43310	3/4-10	11/16	1 5/8	11/16	1 1/4	2	7.20
43313**	7/8-9	1	1 5/8	5/8	1 1/4	2	7.30
43314	7/8-9	11/16	1 3/4	5/8	1 1/4	2	8.00

*Conforms to TCMA.

**Not Hardened

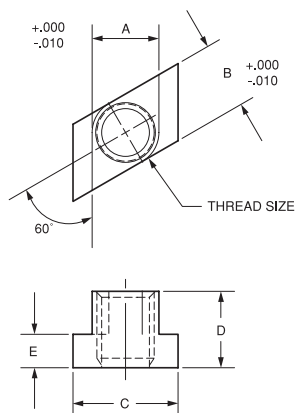
Metric

Part Number	Thread	T-slot Width A	B	C	D	E
43372	M10 x 1.5	12	19	7	13	25
43373	M10 x 1.5	14	22	9	16	29
43374	M10 x 1.5	16	25	9	16	29
43375	M12 x 1.75	14	22	9	16	29
43376	M12 x 1.75	16	25	9	16	29
43377	M12 x 1.75	18	29	11	19	32
43378	M16 x 2.0	18	29	11	19	32
43379	M16 x 2.0	20	32	14	25	38
43380	M16 x 2.0	22	35	14	25	38

Stainless Steel

Part Number	Thread	T-slot Width A	B	C	D	E
43402	3/8-16	7/16	3/4	7/32	1/2	1
43403	3/8-16	1/2	7/8	1/4	5/8	7/8
43405	1/2-13	9/16	7/8	5/16	3/4	1 1/4
43406	1/2-13	5/8	1	3/8	3/4	1 1/4
43408	5/8-11	11/16	1 1/4	15/32	1	1 1/2
43409	5/8-11	3/4	1 1/4	17/32	1 1/4	1 1/2
43411	3/4-10	13/16	1 1/2	9/16	1	1 3/4
43410	3/4-10	1 1/16	1 5/8	9/16	1	1 3/4

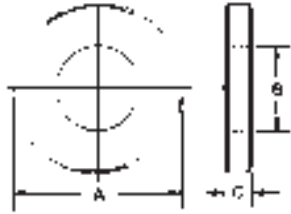
Kwik-Turn T-Slot Nuts



- 1/4 turn design allows the Kwik-Turn to be installed from the top of the T-Slot, in order to avoid uninstallation of set-ups when additional nuts and studs are required
- Material: Low Carbon Steel,
- Finish: Black Oxide
- Threads: 2B-UNC (Inch)
- Heat Treat: Case Hardened

Part Number	Thread	T-Slot A	B	C	D	Wt. (lbs) 10 pcs
43332	3/8-16	7/16	11/16	7/32	1/2	0.27
43333	3/8-16	1/2	7/8	9/32	1/2	0.45
43335	1/2-13	9/16	7/8	11/32	5/8	0.58
43336	1/2-13	5/8	1	11/32	5/8	0.79
43334	1/2-13	11/16	1-1/8	7/16	3/4	1.26
43338	5/8-11	11/16	1-1/8	7/16	3/4	1.08
43339	5/8-11	3/4	1-1/4	15/32	3/4	1.44
43342	3/4-10	7/8	1-1/2	9/16	1	2.50
43345	3/4-10	1	1-5/8	5/8	1	3.50

Flat Washers



- Material: Cold Rolled Low Carbon Steel, 303 Stainless
- Finish: Black Oxide
- Heat Treat: Carbon Nitride to 60
- Flat and parallel within .005

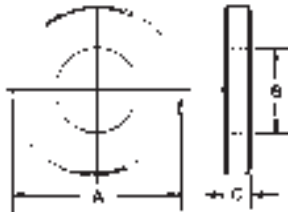
Stainless Steel

Part Number	A	B	C	Bolt Size	Wt. (lbs) 10 Pcs.
31901	1/2	13/64	3/32	3/16	.04
31902*	5/8	9/32	1/8	1/4	.05
31903*	3/4	11/32	1/8	5/16	.10
31904*	7/8	13/32	1/8	3/8	.21
31905*	1 1/8	17/32	1/8	1/2	.42
31906*	1 3/8	21/32	1/8	5/8	.63
31907*	1 5/8	25/32	5/32	3/4	1.10
31908*	1 3/4	29/32	5/32	7/8	1.20
31909*	2	1 1/32	3/16	1	1.70
31910	2 1/2	1 9/32	9/32	1 1/4	2.20

*Conforms to TCMA

Part Number	A	B	C	Bolt Size
32001	7/16	.196	5/64	3/16
32002	5/8	17/64	3/32	1/4
32003	11/16	11/32	1/8	5/16
32004	7/8	25/64	1/8	3/8
32005	1 1/8	17/32	1/8	1/2
32006	1 1/4	21/32	1/8	5/8
32007	1 1/2	25/32	5/32	3/4

Heavy Duty Flat Washers



- Material: High Carbon Steel
- Finish: Black Oxide
- Heat Treat: Rc 40-45 (Through Hardened)
- Flat & Parallel within .005 (.01mm)

Jergens Feature:

Made from high-carbon through-hardened steel which makes them up to 50% stronger than standard heavy duty washers. Also more fracture resistant under heavy loads.

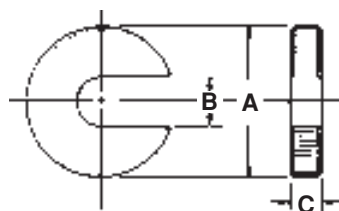
Metric Dimensions

Part Number	A	B	C	Bolt Size	Wt. (lbs) 10 Pcs.
31967	5/8	9/32	3/16	1/4	0.72
31968	3/4	11/32	3/16	5/16	0.79
31969	7/8	13/32	3/16	3/8	0.87
31960	1 1/2	17/32	7/32	1/2	1.00
31961	1 1/2	21/32	7/32	5/8	0.88
31962	1 7/8	25/32	1/4	3/4	1.61
31963	2 1/8	29/32	1/4	7/8	2.31
31964	2 1/2	1 1/16	1/4	1	3.56
31965	2 1/2	1 5/16	1/4	1 1/4	3.98
31966	2 3/4	1 9/16	1/4	1 1/2	4.20

Part Number	A	B	C	Bolt Size	Wt. (kg) 10 Pcs.
31961	38	17	5.5	16	0.40
31962	48	20	6.5	18	0.73
31963	54	23	6.5	20	1.05
31964	64	27	6.5	24	1.62

Washers

“C” Washers



The “C” Washers are ground parallel on both surfaces with a knurled O.D.

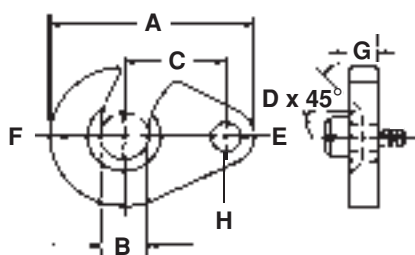
- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Faces: Ground Parallel

Part Number	A	B	C	Wt. (lbs)
17701*	3/4	9/32	1/4	.02
17702*	1	9/32	1/4	.04
17703*	1 1/4	9/32	1/4	.07
17704*	1 1/4	13/32	3/8	.09
17705*	1 1/2	13/32	3/8	.14
17706*	1 3/4	13/32	3/8	.20
17707*	1 7/8	17/32	3/8	.17
17708*	2 1/4	17/32	3/8	.35
17709*	2 1/8	21/32	3/8	.32
17710	2 1/2	21/32	3/8	.53
17711*	2 1/2	25/32	7/16	.55

*Conforms to TCMA

Equalizing Swing “C” Washer

Stainless Steel

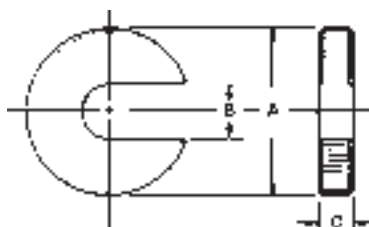


Part Number	A	B	C	D	Radius		+.0000 -.0015 G	+.0005 -.0000 H
					E	F		
12341	1 1/8	13/64	9/16	5/64	3/16	3/8	.1870	.1875
12342	1 1/4	17/64	5/8	3/32	3/16	7/16	.1870	.1875
12343	1 1/2	21/64	3/4	1/8	1/4	1/2	.2495	.250
12344	1 3/4	25/64	7/8	1/8	1/4	5/8	.2495	.250

- Material: 303 Stainless

Equalizing “C” Washers

Stainless Steel

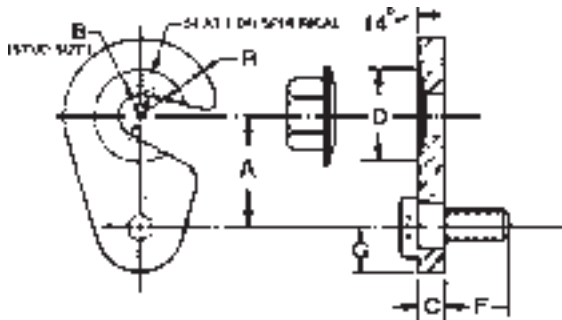


Part Number	A	B	C	Wt. lbs
12331	3/4	7/32	3/16	.02
12332	7/8	9/32	3/16	.04
12333	1	11/32	1/4	.04
12334	1 1/4	13/32	5/16	.04

- Material: 303 Stainless

Washers

Swing "C" Washer Assembly



The Swing "C" Washer has a concave center for self-locating around the stud, which prevents creeping while tightening, and allows acceptance of the mating spherical flange nuts. The Spherical Flange Nut assures that the washer cannot back out either during clamping or due to vibration during the operation. The shoulder screw has a nylon lock to prevent loosening of the screw during operation.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
- Flange Nut and Shoulder Screw Provided

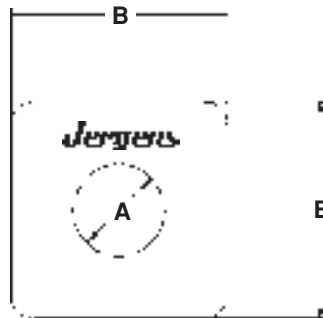
Part Number	A	Stud Size B	C	D	E	F	G	R	Part Number		Wt. (lbs)
									Shoulder Screw	Spherical Flange Nut	
37301*	1	3/8	1/4	13/16	5/16-18	1/2	3/8	3/4	41707	39704	.12
37302	1 1/4	1/2	3/8	1 1/8	5/16-18	1/2	1/2	1	41708	39705	.30
37303*	1 1/2	5/8	3/8	1 5/16	3/8-16	5/8	9/16	1 1/8	41713	39706	.39
37304*	1 3/4	3/4	1/2	1 9/16	3/8-16	5/8	5/8	1 1/4	41714	39707	.72

*Conforms to TCMA

Heavy Duty Square Washers



- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened



Part Number	A	B	Bolt Size	Thickness
31920	11/32	1 3/8	5/16	3/16
31921	13/32	1 3/8	3/8	3/16
31932	17/32	1 3/8	1/2	1/4
31933	17/32	2	1/2	1/4
31934	21/32	2	5/8	1/4
31935	13/16	2	3/4	1/4
31922	15/16	2	7/8	1/4
31936	13/16	2 1/2	3/4	1/4
31923	15/16	2 1/2	7/8	1/4
31937	1 1/16	2 1/2	1	1/4
31924	13/16	3	3/4	5/16
31925	15/16	3	7/8	5/16
31926	1 1/16	3	1	5/16
31927	1 1/16	3	1	3/8
31928	1 5/16	3	1 1/4	3/8
31929	1 9/16	3	1 1/2	3/8

Washers

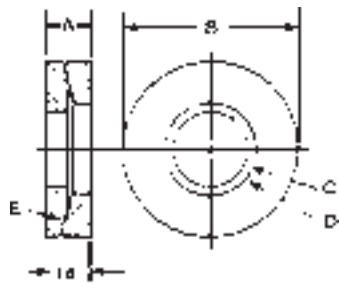
Self Aligning Washers (Two-Piece)

Upper



Lower

These washers are ideally suited for joining machine sections which are out of parallel. They adjust themselves for a positive, firm base. With radius "E" and the angular 14° combination, line contact is formed around the two mating washer surfaces, allowing the two washers the ability to seek misalignment in the companion clamping members. The heat treated I.D. of the bottom concave piece is larger than the I.D. of the top convex section for free action. It is precision ground and the sharp edges are removed.



Part Number	A	B	C	D	E	Bolt Size	Wt. (lbs)
41101	3/16	1/2	13/64	15/64	3/4	3/16	.01
41102	3/16	5/8	17/64	19/64	1	1/4	.01
41103	7/32	3/4	11/32	23/64	1	5/16	.01
41104	7/32	7/8	13/32	15/32	1 1/2	3/8	.03
41105	9/32	1 1/8	17/32	19/32	2	1/2	.08
41106	3/8	1 3/8	21/32	23/32	2 1/4	5/8	.13
41107	13/32	1 5/8	25/32	27/32	2 1/2	3/4	.20
41108	17/32	1 3/4	29/32	31/32	2 1/2	7/8	.33
41109	9/16	2	1 1/32	1 3/32	3 1/2	1	.41
41110	5/8	2 1/4	1 5/32	1 7/32	3 1/2	1 1/8	.77
41111	5/8	2 1/4	1 9/32	1 11/32	4	1 1/4	.62
41112	11/16	2 3/4	1 17/32	1 19/32	4 1/2	1 1/2	.85

Part Number	
Upper	Lower
41501	41301
41502	41302
41503	41303
41504	41304
41505	41305
41506	41306
41507	41307
41508	41308
41509	41309
41510	41310
41511	41311
41512	41312

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened

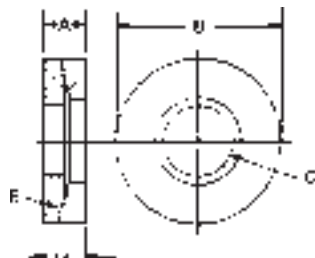
Metric Two Piece Assemblies

Part Number	A	B	C	D	E	Bolt Size	Wt. (kg)
41102	5	16	6.5	7.5	25	M6	.01
41103	5.5	19	8.5	9	25	M8	.01
41104	5.5	22	10.5	12	38	M10	.01
41105	7	28	13.5	15	51	M12	.03
41106	9.5	35	17	18	57	M16	.06
41157	10.5	41	21	21.5	63.5	M20	.09

Single Units

Part Number	
Upper	Lower
41502	41302
41503	41303
41504	41304
41505	41305
41506	41306
41557	41357

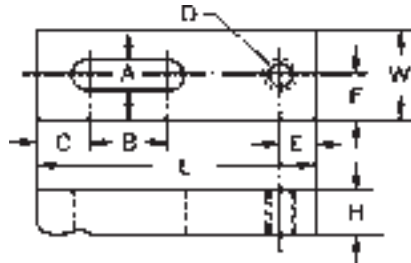
Self Aligning Washers (Two Piece) Stainless Steel



- Material: 303 Stainless

Part Number	A	B	C	E	Bolt Size	Wt. (lbs)
41202	3/16	5/8	9/32	3/4	1/4	.01
41203	1/4	3/4	11/32	1	5/16	.01
41204	1/4	7/8	13/32	1 1/4	3/8	.03
41205	5/16	1 1/8	17/32	1 1/2	1/2	.08
41206	5/16	1 3/8	21/32	1 3/4	5/8	.13
41207	3/8	1 5/8	25/32	2 1/4	3/4	.20

Miniature Straps - Radius

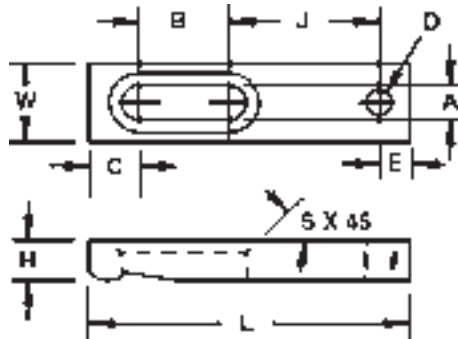


A light-duty strap with a specially designed radius end provides maximum pressure for extreme close-to-the-edge clamping. Features a tapped hole in the rear for knurled head thumb screw and a long slot for lateral adjustment.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
Rockwell 30N Scale 59-69

Part Number	Bolt Size	A	B	C	Thread Size D	E	F	W	H	L	Wt. (lbs) 10 Pcs.
29704	#10 or M5	7/32	7/16	5/16	10-24	3/16	1/4	1/2	1/4	1 1/2	.44
29705	#10 or M5	7/32	9/16	5/16	10-24	3/16	1/4	1/2	1/4	1 3/4	.44
29706	#10 or M5	7/32	11/16	5/16	10-24	3/16	1/4	1/2	1/4	2	.44

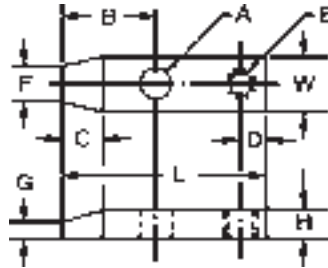
Tapped Radius Straps Stainless Steel



- Material: 303 Stainless

Part Number	Bolt Size	A	B	C	D	H	J	L	S	W
12211	#10 or M5	7/32	5/16	5/16	10-32	1/4	11/16	1 1/2	5/64	1/2
12212	#10 or M5	7/32	7/16	5/16	10-32	1/4	13/16	1 3/4	5/64	1/2
12213	1/4 or M6	9/32	1/2	3/8	1/4-20	5/16	7/8	2	3/32	5/8
12214	1/4 or M6	9/32	11/16	3/8	1/4-20	5/16	1 3/16	2 1/2	3/32	5/8
12215	5/16 or M8	11/32	1/2	7/16	5/16-18	3/8	1 3/16	2	1/8	3/4
12216	5/16 or M8	11/32	7/8	7/8	5/16-18	3/8	1 3/8	3	1/8	3/4
12217	3/8 or M10	13/32	3/4	9/16	3/8-16	1/2	1 5/16	3	1/8	7/8
12218	3/8 or M10	13/32	1 1/8	1/2	3/8-16	1/2	2	4	1/8	7/8

Miniature Straps - Flat

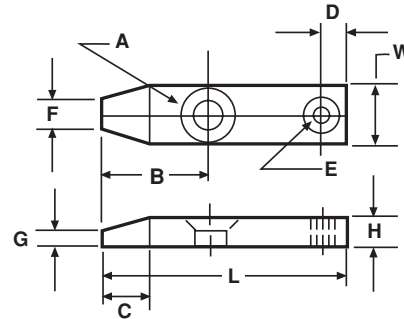


A "chisel nose", flat strap for light-duty holding where clamping is restricted. Features a tapped hole in back for heel rest and a drilled hole for stud clearance.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
Rockwell 30N Scale 59-69

Part Number	A	B	C	D	Thread Size E	F	G	W	H	L	Wt. (lbs) 10 Pcs.
29701	7/32	5/8	3/8	3/16	10-24	1/4	1/8	1/2	1/4	1 1/2	.47
29702	9/32	7/8	3/8	3/16	10-24	1/4	1/8	1/2	1/4	2	.62
29703	9/32	1 1/8	3/8	3/16	10-24	1/4	1/8	1/2	5/16	2 1/2	.94

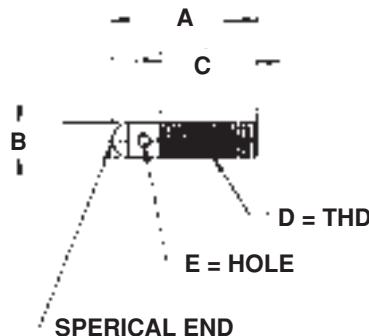
Taper Nose Straps Stainless Steel



- Material: 303 Stainless

Part Number	A	B	C	D	E	F	G	H	W	L
12201	7/32	5/8	3/8	13/64	10-32	1/4	1/8	1/4	1/2	1 1/2
12202	9/32	7/8	3/8	3/16	1/4-20	1/4	1/8	1/4	1/2	2
12203	9/32	1 1/8	3/8	9/32	1/4-20	1/4	1/8	5/16	1/2	2 1/2

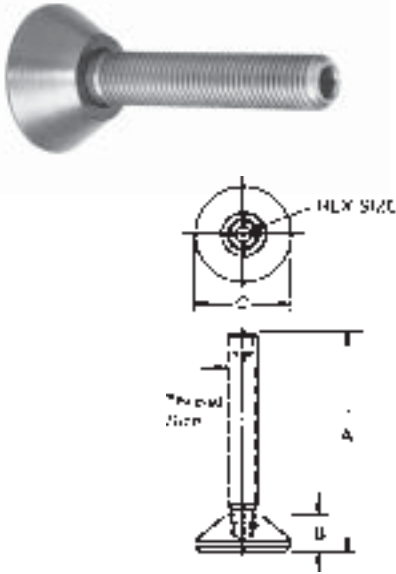
Adjustable Clamp Rests Stainless Steel



- Material: 303 Stainless

Part Number	A	B	C	D	E
12231	3/4	.190	1/2	10-32	1/16
12232	1 1/4	.190	1	10-32	1/16
12233	1	1/4	11/16	1/4-20	5/64
12234	1 1/2	1/4	1 3/16	1/4-20	5/64
12235	1 3/8	5/16	1 1/8	5/16-18	3/32
12236	1 7/8	5/16	1 5/8	5/16-18	3/32
12237	1 5/8	3/8	1 3/8	3/8-16	1/8
12238	2 1/8	3/8	1 7/8	3/8-16	1/8

Adjustable Clamp Heels



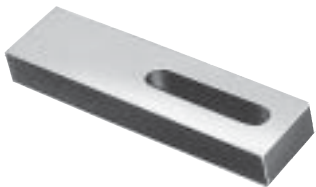
- Material: Stud, Stressproof®
Pad, Low Carbon Steel
- Finish: Black Oxide
- Thread: 2B-UNC (Inch); 6h (Metric)

Part Number	Thread Size	A	B	C	Hex Key Size	Wt. (lbs)
47213	3/8-16	2	5/8	1 1/4	3/16	.20
47214	3/8-16	3	5/8	1 1/4	3/16	.30
47215	3/8-16	4	5/8	1 1/4	3/16	.40
47201	1/2-13	3	5/8	1 1/2	1/4	.40
47202	1/2-13	4	5/8	1 1/2	1/4	.50
47203	1/2-13	5	5/8	1 1/2	1/4	.60
47204	5/8-11	4	3/4	1 3/4	5/16	.70
47205	5/8-11	5	3/4	1 3/4	5/16	.80
47206	5/8-11	6	3/4	1 3/4	5/16	.90
47207	3/4-10	5	7/8	2	3/8	1.20
47208	3/4-10	6	7/8	2	3/8	1.35
47209	3/4-10	7	7/8	2	3/8	1.50
47210	1-8	4	1	2 1/2	9/16	1.90
47211	1-8	6	1	2 1/2	9/16	2.30

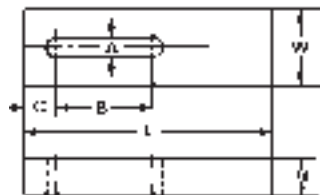
Metric

Part Number	Thread Size	A	B	C	Hex Size	Wt. (kg)
47263	M10 x 1.5	50	16	32	5	.09
47264	M10 x 1.5	75	16	32	5	.14
47265	M10 x 1.5	100	16	32	5	.18
47251	M12 x 1.75	75	16	38	6	.18
47252	M12 x 1.75	100	16	38	6	.23
47253	M12 x 1.75	125	16	38	6	.27
47254	M16 x 2.0	100	19	44	8	.32
47255	M16 x 2.0	125	19	44	8	.36
47256	M16 x 2.0	150	19	44	8	.41
47257	M20 x 2.5	125	22	50	10	.54
47258	M20 x 2.5	150	22	50	10	.61
47259	M20 x 2.5	175	22	50	10	.68
47260	M24 x 3.0	100	25	64	14	.86
47261	M24 x 3.0	150	25	64	14	1.04

Plain Straps

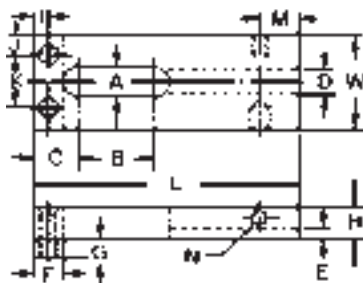


- Material: Low Carbon Steel, 2024 Aluminum



Part Number		Bolt Size	A	B	C	Width		H	L	Wt. (lbs)
Steel	Aluminum					Steel	Aluminum			
33111	33001	1/4 or M6	9/32	5/8	3/8	5/8	3/4	3/8	2	.09
33113	—	5/16 or M8	11/32	3/4	9/16	7/8	—	1/2	2 1/2	.18
33114	33004	5/16 or M8	11/32	1 1/4	9/16	7/8	1	1/2	3 1/2	.25
33115	—	3/8 or M10	13/32	1 1/8	11/16	1 1/4	—	5/8	3 1/2	.61
33116	33006	3/8 or M10	13/32	1 5/8	11/16	1 1/4	1 1/2	5/8	4 1/2	.90
33117	—	1/2 or M12	17/32	1 1/4	7/8	1 1/2	—	3/4	4 1/2	1.12
33118	33008	1/2 or M12	17/32	2	7/8	1 1/2	2	3/4	6	1.60
33119	—	5/8 or M16	21/32	1 1/2	1 1/16	1 3/4	—	7/8	5	1.75
33120	—	5/8 or M16	21/32	2 1/2	1 1/16	1 3/4	—	7/8	7	2.60
33121	—	3/4 or M19	25/32	1 1/2	1 1/8	1 3/4	—	1	5	2.00
33122	—	3/4 or M19	25/32	2 1/2	1 1/8	1 3/4	—	1	7	2.90

Padded Straps



Jergens Feature:

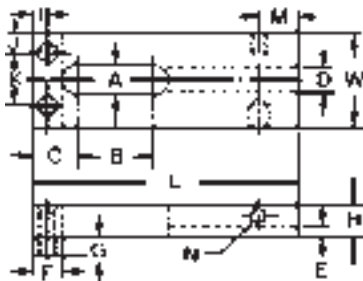
The elongated slot allows for greater clamping force on the part. A steel pad is standard. Plastic or brass pads may be ordered separately, see page 5.7.

- Material: Low Carbon Steel
- Finish: Low Carbon Steel
- Heat Treat: Case Hardened
Rockwell 30N Scale 59-69

Part Number	Bolt Size	A	B	C	D	E	F	G	I	J	K	M	N	W	H	L	Wt. (lbs)
37101	1/4 or M6	9/32	5/8	3/8	1/4	1/8	1/4	1/8	9/64	9/64	11/32	—	—	5/8	3/8	2	.09
37103	3/8 or M10	13/32	1 1/8	11/16	3/8	3/16	1/2	1/4	1/4	5/16	5/8	1/2	5/16-18	1 1/4	5/8	3 1/2	.65
37105	3/8 or M10	13/32	1 5/8	11/16	3/8	3/16	1/2	1/4	1/4	5/16	5/8	1/2	5/16-18	1 1/4	5/8	4 1/2	.83
37107*	1/2 or M12	17/32	1 1/4	7/8	3/8	1/4	5/8	3/8	5/16	3/8	3/4	1/2	5/16-18	1 1/2	3/4	4 1/2	1.24
37110*	1/2 or M12	17/32	2	7/8	3/8	1/4	5/8	3/8	5/16	3/8	3/4	1/2	5/16-18	1 1/2	3/4	6	1.63
37111*	5/8 or M16	21/32	1 1/2	1 1/16	3/8	1/4	3/4	1/2	3/8	1/2	3/4	3/4	5/16-18	1 3/4	7/8	5	1.88
37113*	5/8 or M16	21/32	2 1/2	1 1/16	3/8	1/4	3/4	1/2	3/8	1/2	3/4	3/4	5/16-18	1 3/4	7/8	7	2.63
37114*	3/4 or M20	25/32	1 1/2	1 1/8	3/8	1/4	3/4	1/2	3/8	1/2	3/4	3/4	5/16-18	1 3/4	1	5	2.12
37116*	3/4 or M20	25/32	2 1/2	1 1/8	3/8	1/4	3/4	1/2	3/8	1/2	3/4	3/4	5/16-18	1 3/4	1	7	2.88

*Carbide Gripper Kits are available, contact Technical Sales Department for details. Gripper Part #23704.

Padded Straps Metric

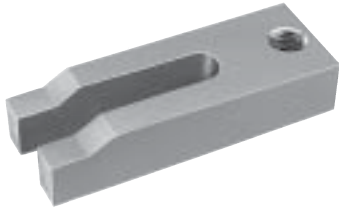


- Material: Low Carbon Steel
- Finish: Low Carbon Steel
- Heat Treat: Case Hardened
Rockwell 30N Scale 59-69

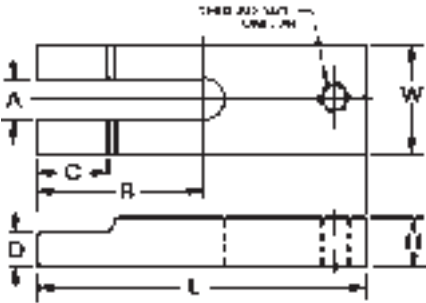
Metric

Part Number	Bolt Size	A	B	C	D	E	F	G	M	N	W	H	I	J	K	L	Wt (kg)
37151	M6	7	16	10	6	3	6	3	—	—	16	9	4	4	9	50	.04
37153	M8	10	28	17	10	5	13	6	13	M8	32	16	6	8	16	89	.29
37157	M10	13	32	22	10	6	16	10	13	M8	38	19	8	10	19	114	.38
37161	M16	17	38	27	10	6	19	13	19	M8	44	22	10	13	19	127	1.19
37164	M20	20	38	29	10	6	19	13	19	M8	44	25	10	13	19	127	1.31

Long Slot U-Straps

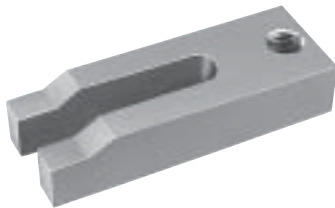


- Material: Low Carbon Steel
- Finish: Black Oxide
- Thread: UNC-2B (Inch); 6h (Metric)
- Heat Treat: Case Hardened Rockwell 30N Scale 59-69
- Designed to be used with Adjustable Clamp Heels, found on page 5.43, and Clamp Assembly Heels on page 5.6.

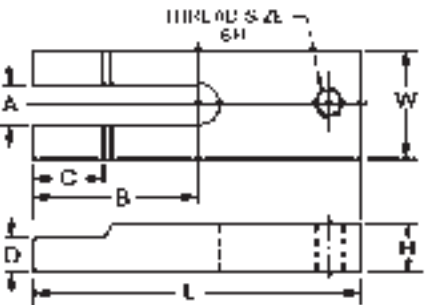


Part Number	Bolt Size	A	B	C	D	Thread Size	W	H	L	Wt. (lbs)
47021	1/2 or M12	17/32	2 1/2	—	—	1/2-13	1 1/2	3/4	4	1.18
47022	1/2 or M12	17/32	3 1/2	—	—	1/2-13	1 1/2	3/4	6	1.92
47023	5/8 or M16	21/32	2 7/16	5/8	3/4	5/8-11	1 3/4	7/8	4	1.52
47024	5/8 or M16	21/32	3 15/16	5/8	3/4	5/8-11	1 3/4	7/8	7	2.73
47025	3/4 or M20	25/32	3 1/2	5/8	3/4	3/4-10	2	1	6	2.96
47026	3/4 or M20	25/32	5	5/8	3/4	3/4-10	2	1 1/4	8	3.99
47027	1 or M24	1 1/16	5 1/2	5/8	3/4	1-8	2 1/2	1 1/2	10	8.12

Long Slot U-Straps Metric

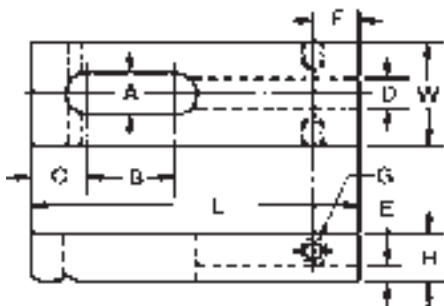


- Material: Low Carbon Steel
- Finish: Black Oxide
- Thread: UNC-2B (Inch); 6h (Metric)
- Heat Treat: Case Hardened Rockwell 30N Scale 59-69
- Designed to be used with Adjustable Clamp Heels, found on page 5.43, and Clamp Assembly Heels on page 5.6.



Part Number	Bolt Size	A	B	C	D	Thread Size	W	H	L	Wt (kg)
47071	M12	13	64	—	—	M12	38	19	100	.54
47072	M12	13	89	—	—	M12	38	19	150	.87
47073	M16	17	62	16	19	M16	44	22	100	.70
47074	M16	17	100	16	19	M16	44	22	175	1.24
47075	M20	20	89	16	19	M20	50	25	150	1.34
47076	M20	20	127	16	19	M20	50	32	200	1.81
47077	M24	27	140	16	19	M24	64	38	250	3.68

Radius Straps



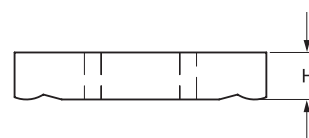
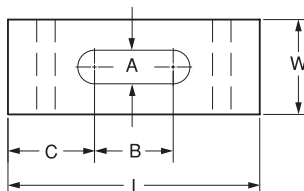
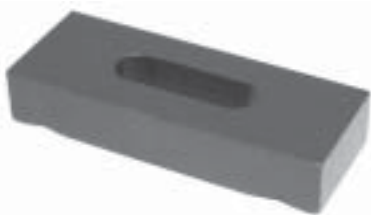
Jergens Feature:

The elongated slot allows for greater clamping force on the part.

- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
Rockwell 30N Scale 59-69

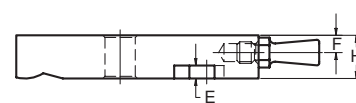
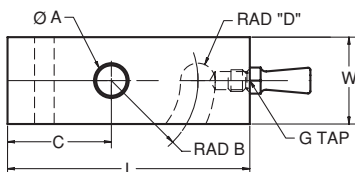
Part Number	Bolt Size	A	B	C	D	E	F	G	W	H	L	Wt. (lbs)
36703	1/4 or M6	9/32	5/8	3/8	1/4	1/8	-	-	5/8	3/8	2	0.09
36708	1/4 or M6	9/32	1	3/8	1/4	1/8	-	-	5/8	3/8	2-1/2	0.11
36717	5/16	11/32	3/4	9/16	1/4	1/4	-	-	7/8	1/2	2-1/2	0.20
36718	5/16	11/32	1-1/4	9/16	1/4	1/4	-	-	7/8	1/2	3-1/2	0.25
36704	3/8 or M10	13/32	1-1/8	11/16	3/8	3/16	1/2	5/16-18	1-1/4	5/8	3-1/2	0.61
36719	3/8 or M10	13/32	1-5/8	11/16	3/8	3/16	1/2	5/16-18	1-1/4	5/8	4-1/2	0.71
36705	1/2 or M12	17/32	1-1/4	7/8	3/8	1/4	1/2	5/16-18	1-1/2	3/4	4-1/2	1.12
36714	1/2 or M12	17/32	2	7/8	3/8	1/4	1/2	5/16-18	1-1/2	3/4	6	1.56
36706	5/8 or M16	21/32	1-1/2	1-1/16	3/8	1/4	3/4	5/16-18	1-3/4	7/8	5	1.75
36715	5/8 or M16	21/32	2-1/2	1-1/16	3/8	1/4	3/4	5/16-18	1-3/4	7/8	7	2.44
36707	3/4	25/32	1-1/2	1-1/8	3/8	1/4	3/4	5/16-18	1-3/4	1	5	2.00
36716	3/4	25/32	2-1/2	1-1/8	3/8	1/4	3/4	5/16-18	1-3/4	1	7	2.70

Double End Radius Strap



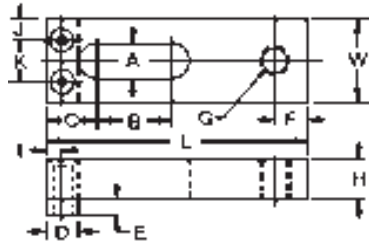
Part Number	Bolt Size	A	B	C	H	W	L	Wt. (lbs)
36728	1/2 or M12	17/32	1-1/4	1-3/8	3/4	1-1/2	4	0.80
36729	1/2 or M12	17/32	1-1/2	1-3/4	3/4	1-1/2	5	1.25
36730	5/8 or M16	21/32	1-1/2	2-1/4	7/8	1-3/4	6	2.20

Swing Style Radius Nose Straps



Part Number	Bolt Size	A	B	C	D	E	F	G	W	H	L	Wt. (lbs)
36723	1/4	5/16	11/16	1	1/8	1/8	n/a	n/a	5/8	3/8	2	0.09
36724	3/8	7/16	1-1/4	1-1/2	1/4	3/16	1/4	5/16-18	1-1/4	5/8	3-1/2	0.61
36725	1/2	9/16	1-7/8	1-3/16	1/4	1/4	1/4	5/16-18	1-1/2	3/4	4-1/2	1.12
36726	5/8	11/16	2-3/16	2-1/16	1/4	1/4	1/4	5/16-18	1-3/4	7/8	5	1.75
36727	3/4	13/16	2-3/16	2-1/16	1/4	1/4	1/4	5/16-18	1-3/4	1	5	2.00

Tapped Straps



Jergens Feature:

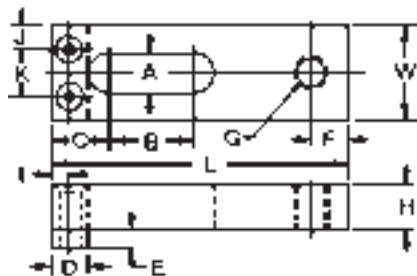
The elongated slot allows for greater clamping force on the part. A steel pad is standard. Plastic or brass pads may be ordered separately, see page 5.7.

- Material: Low Carbon
- Finish: Black Oxide
- Thread: 2B-UNC
- Heat Treat: Case Hardened
Rockwell 30N Scale 59-69
- Tapped for use with adjustable clamp heel found on page 5.42

Part Number	Bolt Size	A	B	C	D	E	F	Thread Size G	I	J	K	W	H	L	Wt. (lbs)
36911	1/4 or M6	9/32	5/8	3/8	1/4	1/8	7/32	1/4-20	9/64	9/64	11/32	5/8	3/8	2	.10
36913	5/16 or M8	11/32	3/4	9/16	3/8	3/16	1/4	5/16-18	3/16	3/16	1/2	7/8	1/2	2 1/2	.20
36914	5/16 or M8	11/32	1 1/4	9/16	3/8	3/16	1/4	5/16-18	3/16	3/16	1/2	7/8	1/2	3 1/2	.27
36915	3/8 or M10	13/32	1 1/8	11/16	1/2	1/4	3/8	3/8-16	1/4	5/16	5/8	1 1/4	5/8	3 1/2	.69
36916	3/8 or M10	13/32	1 5/8	11/16	1/2	1/4	3/8	3/8-16	1/4	5/16	5/8	1 1/4	5/8	4 1/2	.88
36917*	1/2 or M12	17/32	1 1/4	7/8	5/8	3/8	7/16	1/2-13	1/4	3/8	3/4	1 1/2	3/4	4 1/2	.70
36918*	1/2 or M12	17/32	2	7/8	5/8	3/8	7/16	1/2-13	1/4	3/8	3/4	1 1/2	3/4	6	.90

* Carbide Gripper Kits are available, contact Technical Sales Department for details. Gripper Part #23704.

Tapped Straps Metric

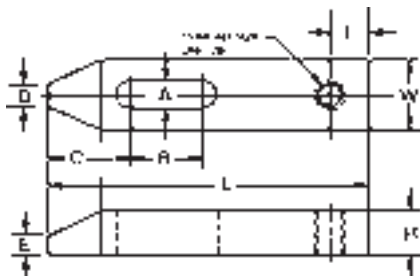


- Material: Low Carbon Steel
- Finish: Black Oxide
- Thread: 6h
- Heat Treat: Case Hardened
Rockwell 30N Scale 59-69
- Tapped for use with adjustable clamp heel found on page 5.42

Part Number	Bolt Size	A	B	C	D	E	F	Thread Size 6h G	I	J	K	W	H	L	Wt. (Kg)
36961	M6	7	16	9	6	3	5	M6	4	4	9	16	9	50	.05
36963	M8	9	19	14	9	5	6	M8	5	5	12	22	13	63	.11
36965	M10	10	28	17	13	6	9	M10	6	8	16	32	16	88	.37
36967	M12	13	31	22	16	9	11	M12	6	9	19	38	19	113	.47

* Carbide Gripper Kits are available, contact Technical Sales Department for details. Gripper Part #23704.

Taper Nose Straps



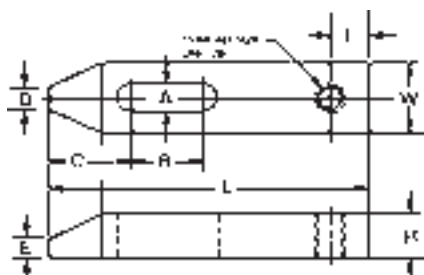
- Material: Low Carbon Steel
- Finish: Black Oxide
- Thread: UNC-2B
- Heat Treat: Case Hardened Rockwell 30N Scale 59-69
- Designed to be used with Adjustable Clamp Heels, found on page 5.42

Part Number	Bolt Size	A	B	C	D	E	F	Thread Size	W	H	L	Wt. (lbs)
47119	3/8 or M10	13/32	1/2	13/16	3/8	3/16	7/16	3/8-16	1	1/2	3	.55
47120	3/8 or M10	13/32	1	15/16	3/8	3/16	7/16	3/8-16	1 1/4	5/8	4	.75
47123	3/8 or M10	13/32	1 1/2	15/16	3/8	3/16	7/16	3/8-16	1 1/4	5/8	5	.90
47124	1/2 or M12	17/32	1/2	1 1/16	1/2	1/4	7/16	1/2-13	1 1/4	5/8	3 1/2	.80
47125	1/2 or M12	17/32	1 1/4	1 3/16	1/2	1/4	7/16	1/2-13	1 1/4	3/4	4 1/2	1.10
47126	1/2 or M12	17/32	2	1 5/16	1/2	1/4	7/16	1/2-13	1 1/4	7/8	6	1.60
47127	5/8 or M16	21/32	1/2	1 3/16	5/8	1/4	1/2	5/8-11	1 1/4	5/8	4	1.80
47128	5/8 or M16	21/32	1 1/4	1 3/16	5/8	3/8	1/2	5/8-11	1 1/2	3/4	5	2.20
47129	5/8 or M16	21/32	2	1 5/16	5/8	3/8	1/2	5/8-11	1 1/2	7/8	7	3.10
47130	3/4 or M20	25/32	3/4	1 5/16	5/8	3/8	9/16	3/4-10	1 1/2	3/4	5	2.85
47131	3/4 or M20	25/32	1 1/2	1 1/2	5/8	3/8	9/16	3/4-10	1 1/2	1	6	3.40
47132	3/4 or M20	25/32	2 1/4	1 5/8	5/8	3/8	9/16	3/4-10	1 3/4	1 1/8	8	4.70
47134	1 or M24	1 1/16	2	2 5/8	7/8	5/8	11/16	1-8	2	1 1/2	10	9.55

Metric Taper Nose Straps



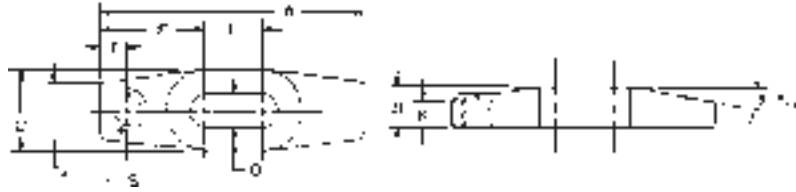
- Material: Low Carbon Steel
- Finish: Black Oxide
- Thread: 6h
- Heat Treat: Case Hardened Rockwell 30N Scale 59-69
- Designed to be used with Adjustable Clamp Heels, found on page 5.42



Part Number	Bolt Size	A	B	C	D	E	F	Thread Size	W	H	L	Wt. (Kg)
47169	M10	11	13	21	10	5	11	M10 x 1.5	25	13	75	.30
47175	M12	13	33	30	13	10	11	M12 x 1.75	32	19	114	.60
47179	M16	17	50	33	16	10	13	M16 x 2.0	38	22	175	1.70
47182	M20	21	57	41	16	10	14	M20 x 2.5	44	29	200	2.53
47184	M24	26	50	67	22	16	17	M24 x 3.0	50	38	250	5.15

Forged Strap Clamps

Heel Clamp



• Material: C-1030 or C-1035

Standard & Tapped Heel Clamps

Part Number		Bolt Size	A	B	C	D	E	F	J	K	S*	T	Wt. (Kg)
Standard	Tapped												
37201	37202	5/8 or M16	4	3/4	1 5/8	11/16	11/16	1 21/32	1 3/16	1/2	1/2-13	1/2	1.00
37203	37204	5/8 or M16	6	7/8	1 3/4	11/16	1 3/8	2 5/16	1 1/4	9/16	5/8-11	5/8	1.75
37205	37206	3/4 or M20	8	1 1/8	2 1/8	13/16	2	3	1 1/2	3/4	3/4-10	3/4	3.75
37207	37208	7/8 or M20	10	1 3/8	2 1/2	15/16	2 3/4	3 5/8	1 3/4	15/16	7/8-9	7/8	7.00

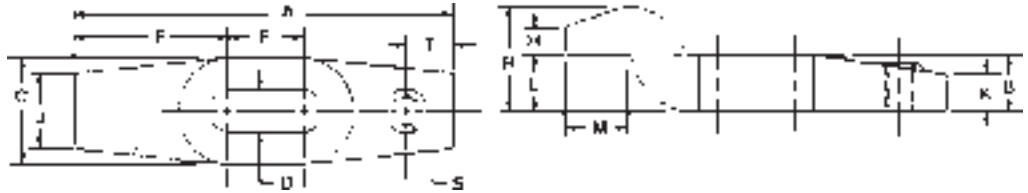
*Applicable to Tapped Clamp Only

Metric Standard & Tapped Heel Clamps

Part Number		Bolt Size	A	B	C	D	E	F	J	K	S*	T	Wt. (Kg)
Standard	Tapped												
37201	37252	M16	100	19	41	17	17	42	30	13	M12 x 1.75	13	.53
37203	37254	M16	150	22	44	17	35	59	32	14	M16 x 2.0	16	.94
37205	37256	M20	200	29	54	21	50	75	38	19	M20 x 2.5	19	2.0
37207	37258	M20	250	35	63	24	70	92	44	24	M24 x 3.0	22	3.8

*Applicable to Tapped Clamp Only

Gooseneck Clamp



• Material: C-1030 or C-1035

Standard & Tapped Gooseneck Clamps

Part Number		Bolt Size	A	B	C	D	E	F	H	J	K	L	M	R	S*	T	Wt. (lbs)
Standard	Tapped																
37211	37212	5/8 or M16	4	3/4	1 5/8	11/16	1/4	1 7/8	3/8	1 3/16	1/2	13/16	3/4	1 7/16	5/8-11	1/2	1.00
37213	37214	5/8 or M16	6	7/8	1 3/4	11/16	1	2 1/2	7/16	1 1/4	9/16	15/16	1 1/8	1 9/16	5/8-11	5/8	2.00
37215	37216	3/4 or M20	8	1 1/8	2 1/8	13/16	1 5/8	3 3/16	9/16	1 1/2	3/4	1 1/8	1 1/4	2 1/16	5/8-11	1	4.25

*Applicable to Tapped Clamp Only

Part Number		Bolt Size	A	B	C	D	E	F	H	J	K	L	M	R	S*	T	Wt. (lbs)
Standard	Tapped																
37211	37262	M16	100	19	41	17	6	48	10	30	13	20	19	37	M16 x 2.013		.53
37213	37264	M16	150	22	44	17	25	63	11	32	14	24	28	40	M16 x 2.016		1.4
37215	37266	M20	200	29	54	21	41	81	14	38	19	28	32	52	M16 x 2.025		2.3

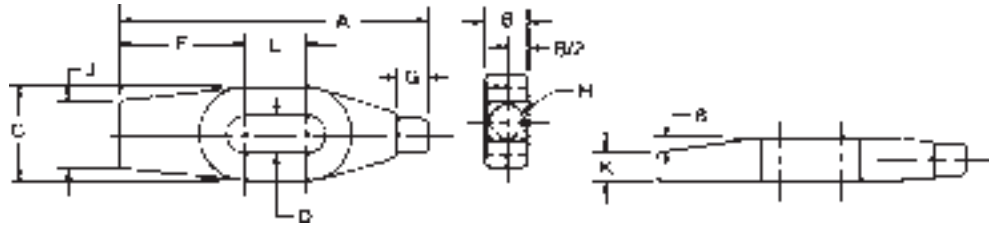
*Applicable to Tapped Clamp Only

Forged Strap Clamps

Finger Clamp



• Material: C-1030 or C-1035



Part Number	Bolt Size	A	B	C	D	E	F	G	H	J	K	Wt. (lbs)
37221	5/8 or M16	4	3/4	1 5/8	11/16	11/16	1 21/32	1/2	1/2	1 3/16	7/16	.75
37223	5/8 or M16	6	7/8	1 3/4	11/16	1 1/4	2 3/8	5/8	5/8	1 1/4	1/2	1.50
37225	3/4 or M20	8	1 1/8	2 1/8	13/16	1 3/4	3 1/8	3/4	3/4	1 1/2	5/8	3.00

Metric

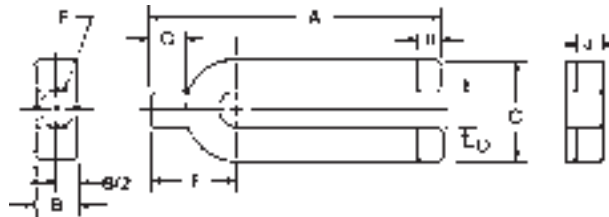
Part Number	Bolt Size	A	B	C	D	E	F	G	H	J	K	Wt. (Kg)
37221	M16	100	19	41	17	17	42	13	13	30	11	.40
37223	M16	150	22	44	17	32	59	16	16	32	13	.81
37225	M20	200	29	54	21	44	79	19	19	38	16	1.6

Forged Strap Clamps

“U” Clamp



• Material: C-1030 or C-1035



Part Number	Bolt Size	A	B	C	D	E	F	G	H	J	Wt. (lbs)
37231	5/8 or M16	4	3/4	1 3/4	11/16	9/16	1 7/16	9/16	1/2	1/2	1.00
37232	5/8 or M16	6	7/8	2	11/16	11/16	1 11/16	11/16	5/8	9/16	2.00
37233	3/4 or M20	8	1 1/8	2 3/8	13/16	13/16	2	13/16	3/4	11/16	4.00
37234	7/8 or M24	10	1 1/4	2 3/4	15/16	15/16	2 5/16	15/16	7/8	3/4	6.50
37235	1 or M24	12	1 3/8	3 1/4	1 1/16	1 1/16	2 11/16	1 1/16	1	13/16	9.00

Metric

Part Number	Bolt Size	A	B	C	D	E	F	G	H	J	Wt. (Kg)
37231	M16	100	19	44	17	14	37	14	13	13	.53
37232	M16	150	22	50	17	17	43	17	16	14	1.1
37233	M20	200	29	59	21	21	50	21	19	17	2.2
37234	M24	250	32	70	24	24	59	24	22	19	3.5
37235	M24	300	35	83	27	27	68	27	25	21	4.9

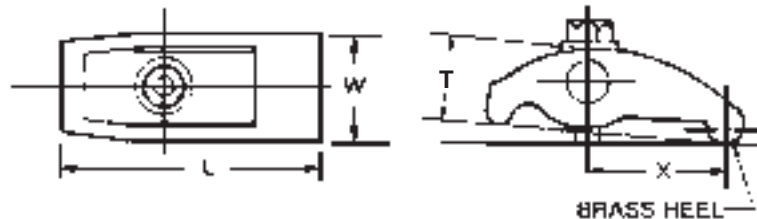
Forged Adjustable Clamps



Forged Adjustable Clamps automatically compensate for clamping height changes within their clamping ranges (see chart for ranges). The swivel bushing is permanently mounted in the clamp which alleviates lost or missing parts. The standard brass heel plate protects the machine table.

- Material: 1137 Forged Steel, Heat Treated
- Finish: Black Oxide
- One Piece Construction
- Versatile Clamping Height
- Made in U.S.A.

Features high quality forging providing superior clamping strength.



Part Number	Bolt Size	Clamping Range	W	T	L	X	Wt. (lbs)
19101	1/2	0-2	1 3/4	1 1/2	4 1/4	2 1/2	1.1
19102	5/8	0-2 3/8	2	1 5/8	5	3	1.7
19103	3/4	0-2 3/4	2 1/2	1 3/4	6 1/4	3 3/4	3.0
19104	7/8-1	0-3 1/2	3	2 3/8	7	4 1/4	5.3

See page 5.27 for T-slot bolts.

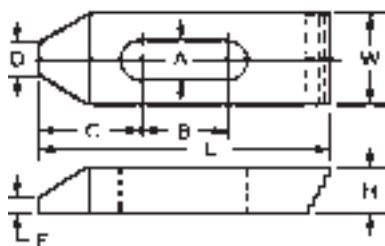
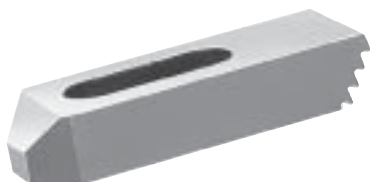
Metric

Part Number	Bolt Size	Clamping Range	W	T	L	X	Wt. (Kg)
19101	M12	0-50	44	38	108	63	.60
19102	M16	0-60	50	41	125	75	.92
19103	M20	0-70	63	44	159	95	1.6
19104	M24	0-89	75	60	175	108	2.9



Forged Adjustable Clamp holding one side of a hydraulic vise on a milling machine table.

Steel Heel Straps Coarse Pitch

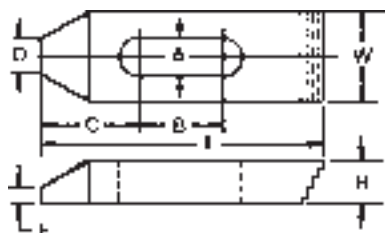
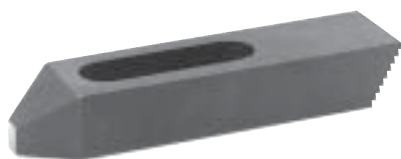


- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
Rockwell 30N 50-54

The step teeth of the Coarse Pitch Steel Heel Straps match the Jergens Aluminum Step Blocks. These straps facilitate easier height adjustments on set-ups.

Part Number	Bolt Size	A	B	C	D	E	H	L	W	Wt. (lbs)
46814	1/2 or M12	17/32	1/2	1 1/16	1/2	1/4	5/8	2 1/2	1 1/4	.46
46815	1/2 or M12	17/32	1 1/4	1 3/16	1/2	1/4	3/4	4	1 1/4	.65
46816	1/2 or M12	17/32	2	1 5/16	1/2	1/4	7/8	6	1 1/4	.95
46817	5/8 or M16	21/32	1/2	1 3/16	5/8	1/4	5/8	3	1 1/4	.66
46818	5/8 or M16	21/32	1 1/4	1 3/16	5/8	3/8	3/4	5	1 1/2	.93
46819	5/8 or M16	21/32	2	1 5/16	5/8	3/8	7/8	7	1 1/2	1.36
46820	3/4 or M20	25/32	3/4	1 5/16	5/8	3/8	3/4	4	1 1/2	1.39
46821	3/4 or M20	25/32	1 1/2	1 1/2	5/8	3/8	1	6	1 1/2	1.94
46822	3/4 or M20	25/32	2 1/4	1 5/8	5/8	3/8	1 1/8	8	1 3/4	2.48

Fine Pitch



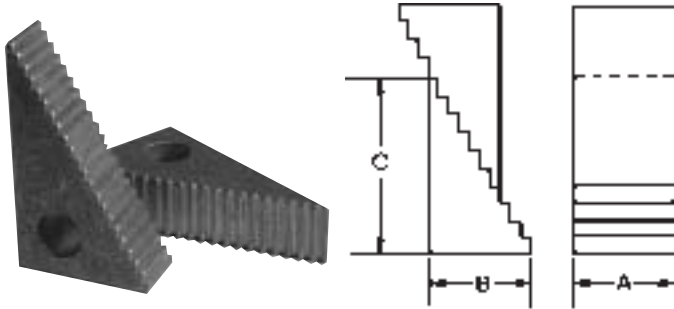
- Material: Low Carbon Steel
- Finish: Black Oxide
- Heat Treat: Case Hardened
Rockwell 30N 50-54

The step teeth of the Fine Pitch Steel Heel Straps match the Jergens Steel Step Blocks. These straps facilitate easier height adjustment on set-ups.

Part Number	Bolt Size	A	B	C	D	E	H	L	W	Wt. (lbs)
46834	1/2 or M12	9/16	1/2	1 1/16	1/2	1/4	1/2	2 1/2	1 1/8	.46
46835	1/2 or M12	9/16	1 1/4	1 3/16	1/2	1/4	3/4	4	1 1/4	.65
46836	1/2 or M12	9/16	2	1 5/16	1/2	1/4	7/8	6	1 1/4	.95
46837	5/8 or M16	11/16	1/2	1 3/16	5/8	1/4	5/8	2 1/2	1 1/4	.66
46838	5/8 or M16	11/16	1 1/4	1 3/16	5/8	3/8	3/4	4	1 1/2	.93
46839	5/8 or M16	11/16	2	1 5/16	5/8	3/8	7/8	6	1 1/2	1.36
46840	3/4 or M20	13/16	3/4	1 5/16	5/8	3/8	3/4	4	1 1/2	1.39
46841	3/4 or M20	13/16	1 1/2	1 1/2	5/8	3/8	1	6	1 5/8	1.94
46842	3/4 or M20	13/16	2 1/4	1 5/8	5/8	3/8	1 1/8	8	1 3/4	2.48

Adjustable Step Blocks

Aluminum — Coarse Pitch



1" & 2" Wide Adjustable Step Block Kits

Step blocks are made of aluminum to prevent damage to machine table surfaces.

Tooth design has no sharp edges which helps to prevent burrs and chip build-up in the steps. Blocks are completely interchangeable with each other, and with the Jergens Coarse Pitch Step Straps.

Standard (1" Width) Kit

21701

Included in Kit:

Qty Per Kit	Part Number (Blocks Only)	A	B	C	Step Elevation	Wt. (lbs)
8	21705	1	5/8	1 1/16	11/64	.03
8	21702	1	1	1 3/4	11/64	.09
4	21703	1	2 3/16	3 3/4	11/64	.39
16	21706	Protective Pad			11/64	.02

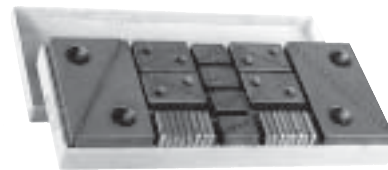
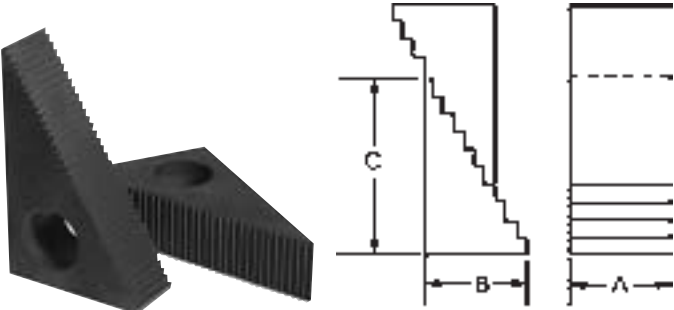
Heavy Duty (2" Width) Kit

21711

Included in Kit:

Qty Per Kit	Part Number (Blocks Only)	A	B	C	Step Elevation	Wt. (lbs)
8	21712	2	5/8	1 1/16	11/64	.06
8	21713	2	1	1 3/4	11/64	.18
4	21714	2	2 3/16	3 3/4	11/64	.78
16	21715	Protective Pad			11/64	.04

Steel — Fine Pitch



Adjustable Step Block Kit

21821

Included in Kit:

Qty Per Kit	Part Number (Blocks Only)	A	B	C	Step Elevation	Wt. (oz)
8	21831	1	5/8	1 1/8	3/32	2
8	21832	1	1 1/16	1 3/4	3/32	4
4	21833	1	2 3/8	3 7/8	3/32	14
16	21706	Protective Aluminum Pad				

Step Blocks sold individually.

Adjustable Step Block Kit

Blocks are completely interchangeable with each other, and with the Jergens Fine Pitch Step Straps.

60-Piece Set-Up Kits Aluminum Step Blocks



Kit with Metal Holder



Kit with Wood Holder

Each 60-Piece Set-Up Kit is supplied with either a non-marring wooden base or a heavy duty steel holder. Tooth design has no sharp edges, which helps to prevent burrs and chips from building up on the steps. The aluminum blocks will not mar precision machine tables.

Each Set-Up-Kit Includes:

- Six Table Saver T-Nuts
- Six Flange Nuts
- Six Step Heel Straps
- Four Coupling Nuts
- Twenty-four Studs:
Four each of 3", 4", 5", 6" 7", 8" lengths
- Twelve Course Pitch Aluminum Step Blocks
- One T-Slot Cleaner
- One Wood or Metal Holder

Part Number		Stud T-Slot Width	Thread Size	Strap Lengths	Wt. (lbs)
Metal Holder	Wood Holder				
45105	45125	9/16	1/2-13	2 1/2, 4, 6	20
45106	45126	5/8	1/2-13	2 1/2, 4, 6	20
45104	45124	11/16	1/2-13	2 1/2, 4, 6	20
45108	45128	11/16	5/8-11	3, 5, 7	30
45109	45129	3/4	5/8-11	3, 5, 7	30
45107	45127	13/16	5/8-11	3, 5, 7	30
—	45131	13/16	3/4-10	4, 6, 8	40
—	45132	7/8	3/4-10	4, 6, 8	40
—	45130	1 1/16	3/4-10	4, 6, 8	40

Metal kit holders are also sold separately.

Same holder used for both kits.

1/2" Metal Holder
45116

5/8" Metal Holder
45117

60-Piece Set-Up Kits Steel Step Blocks

Each 60-Piece Set-Up Kit is supplied with either a non-marring wooden base or a heavy duty steel holder. The fine pitch steel blocks are compatible with other standard step blocks and straps.

NOTE: The fine pitch blocks are not compatible with the Jergens course pitch aluminum blocks.

Each Set-Up Kit Includes:

- Six Table Saver T-Nuts
- Six Flange Nuts
- Six Step Heel Straps
- Four Coupling Nuts
- Twenty-four Studs:
Four each 3", 4", 5", 6", 7", 8" lengths
- Twelve Fine Pitch Steel Step Blocks
- One Wood or Metal Holder

Part Number		Stud T-Slot Width	Thread Size	Strap Lengths	Wt. (lbs)
Metal Holder	Wood Holder				
45205	45225	9/16	1/2-13	2 1/2, 4, 6	20
45206	45226	5/8	1/2-13	2 1/2, 4, 6	20
45204	45224	11/16	1/2-13	2 1/2, 4, 6	20
45208	45228	11/16	5/8-11	2 1/2, 4, 6	30
45209	45229	3/4	5/8-11	2 1/2, 4, 6	30
45207	45227	13/16	5/8-11	2 1/2, 4, 6	30

40-Piece Clamping Kit



Contains the same quality components as the larger kits but without the step blocks and step heel straps. This Clamping Kit includes taper nose straps, T-nuts, coupling nuts, flange nuts, clamping heels and studs.

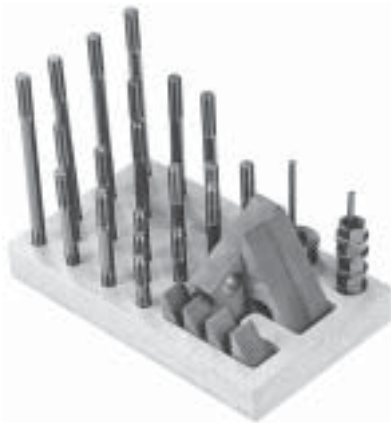
Each Clamping Kit Includes:

- Four Table Saver T-Nuts
- Twenty Studs:
Four Each 4", 5", 6", 7", 8" lengths
- Four Adjustable Clamp Heels
- Four Flange Nuts
- Four Coupling Nuts
- Four Taper Nose Straps
- One T-Slot Cleaner
- One Wooden Holder

Part Number	T-Slot Width	Stud Thread Size	Strap Clamp	Adjustable Clamp Heel	Wt. (lbs)
45022	7/16*	3/8-16	5/8 x 1 1/4 x 5	3/8-16 x 3	12
45023	1/2	3/8-16	5/8 x 1 1/4 x 5	3/8-16 x 3	12
45021	9/16	3/8-16	5/8 x 1 1/4 x 5	3/8-16 x 3	12
45025	9/16*	1/2-13	7/8 x 1 1/4 x 6	1/2-13 x 4	20
45026	5/8	1/2-13	7/8 x 1 1/4 x 6	1/2-13 x 4	20
45024	11/16	1/2-13	7/8 x 1 1/4 x 6	1/2-13 x 4	20
45028	11/16*	5/8-11	7/8 x 1 1/2 x 7	5/8-11 x 5	30
45029	3/4	5/8-11	7/8 x 1 1/2 x 7	5/8-11 x 5	30
45027	13/16	5/8-11	7/8 x 1 1/2 x 7	5/8-11 x 5	30
45031	13/16*	3/4-10	1 x 1 1/2 x 6	3/4-10 x 6	40
45032	7/8	3/4-10	1 x 1 1/2 x 6	3/4-10 x 6	40
45030	1 1/16	3/4-10	1 x 1 1/2 x 6	3/4-10 x 6	40

*T-Nuts not hardened due to thin wall

Die Set-Up Kits



These Die Set-Up Kits can be used with any of the Jergens heavy duty straps; however, the kits are best suited **for use with forged strap clamps** found on page 5.49 thru 5.51.

Each Kit includes:

- Four Flange Nuts
- Four Heavy Duty Washers
- Twelve Steel Step Blocks
- Twenty Studs
- One Wooden Holder

Thread Size	Part Number	Stud Lengths
1/2-13	44921	3, 4, 5, 6, 8
5/8-11	44922	3, 4, 5, 6, 8
3/4-10	44923	4, 5, 6, 8, 10

Toe Clamps Small

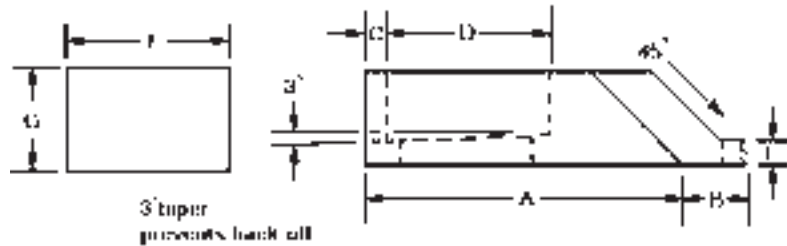


- Steel or brass toe and special washer are included with each clamp
- Slotted for 5/16 or M8 Cap Screws
- Case hardened for maximum wear
- Black Oxide finish

Jergens Feature:

3° Taper Prevents Back-off

Toe Clamps are powerful, low profile clamps that grip on the side of the workpiece leaving the top surface open. This minimizes interference with cutting tools or measuring instruments. Ideal for use on mills, planers, jig borers, drill presses, and faceplates.



Part Number	Toe Material	Toe Style	A	B	C	D	E	F	G	Wt. (lbs)	Toe Only
46921	STEEL	STANDARD	1 1/2	1/2	1/16	3/4	1/8	1	5/8	.24	46952
46961	BRASS	STANDARD	1 1/2	1/2	1/16	3/4	1/8	1	5/8	.24	46946
46971	STEEL	HIGH GRIP	1 1/2	1/2	1/16	3/4	5/8	1	5/8	.26	46948
46981	BRASS	HIGH GRIP	1 1/2	1/2	1/16	3/4	5/8	1	5/8	.26	46950
46922	STEEL	STANDARD	2	1/2	1/16	1 1/4	1/8	1	5/8	.30	46952
46962	BRASS	STANDARD	2	1/2	1/16	1 1/4	1/8	1	5/8	.30	46946
46972	STEEL	HIGH GRIP	2	1/2	1/16	1 1/4	5/8	1	5/8	.32	46948
46982	BRASS	HIGH GRIP	2	1/2	1/16	1 1/4	5/8	1	5/8	.32	46950
46923	STEEL	STANDARD	2 1/2	1/2	1/16	1 3/4	1/8	1	5/8	.35	46952
46963	BRASS	STANDARD	2 1/2	1/2	1/16	1 3/4	1/8	1	5/8	.35	46946
46973	STEEL	HIGH GRIP	2 1/2	1/2	1/16	1 3/4	5/8	1	5/8	.37	46948
46983	BRASS	HIGH GRIP	2 1/2	1/2	1/16	1 3/4	5/8	1	5/8	.37	46950

* Replacement Parts available, contact customer service.

Small Toe Clamp Kits



Each Clamp Kit Includes:

- Six Toe Clamps: Two of each length (1 1/2", 2", 2 1/2")
- Six Low Grip Steel Toes
- Six Toe Clamp Nuts
- Six Protective Washers
- One T-Wrench
- One Wooden Holder

Part Number	Table Slot	Toe Clamps	Toe Clamp Nuts	Washers	lbs Per Kit
44901	3/8	46921, 46922, 46923	46931	46942	3
44902	7/16	46921, 46922, 46923	46932	46942	3
44903	1/2	46921, 46922, 46923	46933	46942	3
44904	9/16	46921, 46922, 46923	46934	46942	3
44905	5/8	46921, 46922, 46923	46935	46942	3

Slotted for 5/16" or M8 Socket Head Cap Screws

* Replacement Parts available, contact customer service.

Toe Clamps

Large

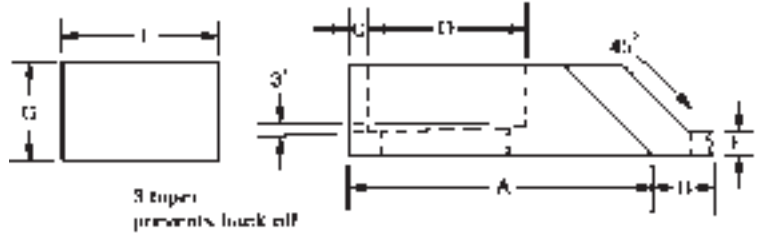


Jergens Feature:

3° Taper Prevents Back-off

Toe Clamps are powerful, low profile clamps that grip on the side of the workpiece leaving the top surface open. This minimizes interference with cutting tools or measuring instruments. Ideal for use on mills, planers, jig borers, drill presses, and faceplates.

- Steel or brass toe and special washer are included with each clamp.
- Slotted for 1/2" or M12 Cap Screws
- Low Carbon Steel hardened for maximum wear
- Black Oxide finish



Part Number	Toe Material	Toe Style	A	B	C	D	E	F	G	Wt. (lbs)	Toe Only
46926	STEEL	STANDARD	3 1/4	13/16	1/8	2	1/4	1 1/2	7/8	1.0	46953
46966	BRASS	STANDARD	3 1/4	13/16	1/8	2	1/4	1 1/2	7/8	1.0	46947
46976	STEEL	HIGH GRIP	3 1/4	13/16	1/8	2	7/8	1 1/2	7/8	1.3	46949
46986	BRASS	HIGH GRIP	3 1/4	13/16	1/8	2	7/8	1 1/2	7/8	1.3	46951
46927	STEEL	STANDARD	4 11/16	13/16	1/2	2 3/4	1/4	1 1/2	7/8	1.4	46953
46967	BRASS	STANDARD	4 11/16	13/16	1/2	2 3/4	1/4	1 1/2	7/8	1.4	46947
46977	STEEL	HIGH GRIP	4 11/16	13/16	1/2	2 3/4	7/8	1 1/2	7/8	1.7	46949
46987	BRASS	HIGH GRIP	4 11/16	13/16	1/2	2 3/4	7/8	1 1/2	7/8	1.7	46951
46928	STEEL	STANDARD	6 5/8	13/16	1	3 3/4	1/4	1 1/2	7/8	2.0	46953
46968	BRASS	STANDARD	6 5/8	13/16	1	3 3/4	1/4	1 1/2	7/8	2.0	46947
46978	STEEL	HIGH GRIP	6 5/8	13/16	1	3 3/4	7/8	1 1/2	7/8	2.3	46949
46988	BRASS	HIGH GRIP	6 5/8	13/16	1	3 3/4	7/8	1 1/2	7/8	2.3	46951

* 5/8 or M16 Cap Screw Slot and replacement parts available, contact customer service.

Large Toe Clamp Kits

Each Clamp Kit Contains:

- Six Toe Clamps: Two of each length (3 1/4", 4 11/16", 6 5/8")
- Four Low Grip Steel Toes
- Six Toe Clamp Nuts
- Six Protective Washers
- One T-Wrench
- One Wooden Holder



Part Number	Table Slot	Toe Clamps	Toe Clamp Nuts	Washers	lbs Per Kit
44906	9/16	46926, 46927, 46928	46936	46943	11
44907	5/8	46926, 46927, 46928	46937	46943	12
44909	11/16	46926, 46927, 46928	46938	46943	12
44910	13/16	46926, 46927, 46928	46939	46943	13
44911	7/8	46926, 46927, 46928	46940	46943	14
44912	1	46926, 46927, 46928	46941	46943	15

Slotted for 1/2" or M12 Socket Head Cap Screws

* 5/8 or M16 Cap Screw Slotted Kits and replacement parts available, contact customer service.

Lo-Profile Micro™ Clamps



Problem: You require a clamping device which can grip low on a work piece, has exceptional horizontal *and* vertical holding force, and can be mounted below the fixture plate surface.

Solution: Jergens new Lo-Profile Micro clamps are the answer!

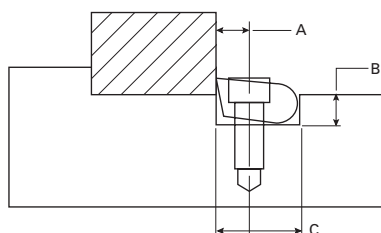
Material:

- Available in tool steel or brass
- Extraordinary horizontal and vertical force
- Extremely low profile
- Very small foot print
- High resistance to pull-out
- Choose among three sizes with inch or metric screws
- Knife and blunt edge styles

Lo-Profile Micro™ Clamps

Part Number	Type	A	B	C	Screw Size	Max.* Holding Force (lbs)	Travel (in)	Torque (in lbs)	Clamps Per Package
13201	Tool Steel, Knife Edge	.150	.140	.375	4-40	650	.0075	16	8
13202	Tool Steel, Blunt Edge	.150	.140	.375	4-40	650	.0075	16	8
13203	Brass, Blunt Edge	.150	.140	.375	4-40	200	.0075	5	8
13211	Tool Steel, Knife Edge	.200	.187	.500	8-32	1500	.016	50	8
13212	Tool Steel, Blunt Edge	.200	.187	.500	8-32	1500	.016	50	8
13213	Brass, Blunt Edge	.200	.187	.500	8-32	400	.016	25	8
13221	Tool Steel, Knife Edge	.300	.280	.750	1/4-20	3600	.024	200	6
13222	Tool Steel, Blunt Edge	.300	.280	.750	1/4-20	3600	.024	200	6
13223	Brass, Blunt Edge	.300	.280	.750	1/4-20	950	.024	50	6

* Combination horizontal and vertical force.



Metric Lo-Profile Micro™ Clamps

Part Number	Type	A	B	C	Screw Size	Max.* Holding Force (N)	Travel (mm)	Torque (N•m)	Clamps Per Packages
13251	Tool Steel, Knife Edge	3.81	3.55	9.52	M2.5 x .45	2,800	.190	1.8	8
13252	Tool Steel, Blunt Edge	3.81	3.55	9.52	M2.5 x .45	2,800	.190	1.8	8
13253	Brass, Blunt Edge	3.81	3.55	9.52	M2.5 x .45	875	.190	5.6	8
13261	Tool Steel, Knife Edge	5.08	4.75	12.70	M4 x .70	6,600	.406	5.6	8
13262	Tool Steel, Blunt Edge	5.08	4.75	12.70	M4 x .70	6,600	.406	5.6	8
13263	Brass, Blunt Edge	5.08	4.75	12.70	M4 x .70	1,750	.406	2.8	8
13271	Tool Steel, Knife Edge	7.62	7.11	19.05	M6 x 1.0	16,000	.610	22.5	6
13272	Tool Steel, Blunt Edge	7.62	7.11	19.05	M6 x 1.0	16,000	.610	22.5	6
13273	Brass, Blunt Edge	7.62	7.11	19.05	M6 x 1.0	4,200	.610	5.6	6

* Combination horizontal and vertical force.

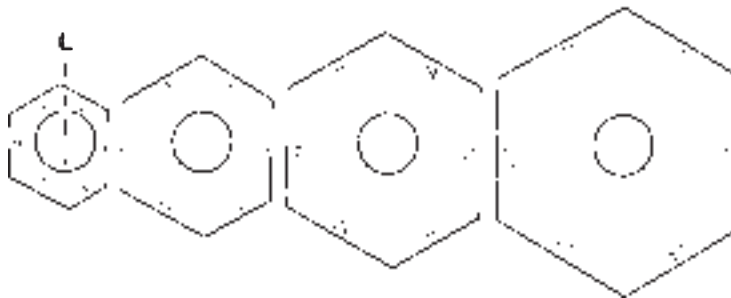
Adjustable Micro™ Clamps



Measured from the centerline, each face of these low profile clamps increases 1mm (.0394) from the smallest to the largest face.

Adjustable Micro Clamps decrease design and set-up times for modular fixtures, work cubes, and standard fixtures. Without changing hole locations, clamping range from 12mm to 35mm can be achieved.

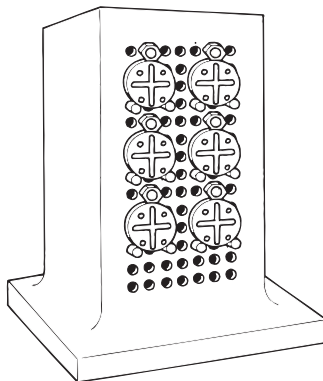
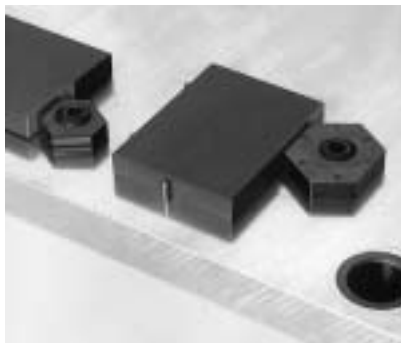
The clamps are available with either smooth or serrated faces which make them ideal for clamping machined parts, castings, and rough cut stock. The clamps work with a cam action, always following the contour of the workpiece for maximum surface contact.



- Cam action
- Low profile
- Available in four sizes
- Heat treated and plated
- Serrated or smooth edges
- Adjustable clamps and stops
- Includes Cam Screw

Face #	Distance From Center Line	Face #	Distance From Center Line	Face #	Distance From Center Line	Face #	Distance From Center Line
1	12mm(.4724)	7	18mm(.7086)	13	24mm(.9449)	19	30mm(1.1811)
2	13mm(.5118)	8	19mm(.7480)	14	25mm(.9842)	20	31mm(1.2205)
3	14mm(.5512)	9	20mm(.7874)	15	26mm(1.0236)	21	32mm(1.2598)
4	15mm(.5906)	10	21mm(.8268)	16	27mm(1.0630)	22	33mm(1.2992)
5	16mm(.6299)	11	22mm(.8661)	17	28mm(1.1024)	23	34mm(1.3386)
6	17mm(.6693)	12	23mm(.9055)	18	29mm(1.1417)	24	35mm(1.3780)

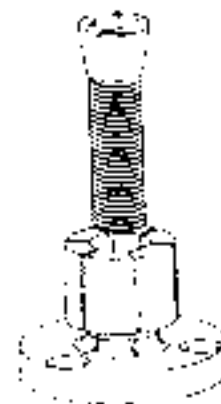
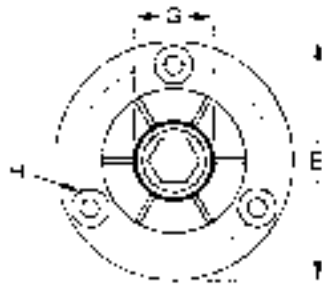
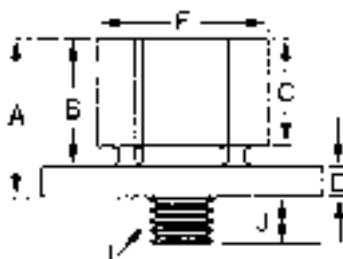
Locking Screw is 1/2-13 for inch sizes and 12M for metric sizes; total distance of movement is .100".



Inch Part Number	Metric Part Number	Description
68601	68651	1-6 smooth
68602	68652	7-12 smooth
68603	68653	13-18 smooth
68604	68654	19-24 smooth
68611	68661	1-6 serrated
68612	68662	7-12 serrated
68613	68663	13-18 serrated
68614	68664	19-24 serrated

All clamps include a cam screw.
Clamps are 10mm (.394) thick.

ID Expansion Clamp

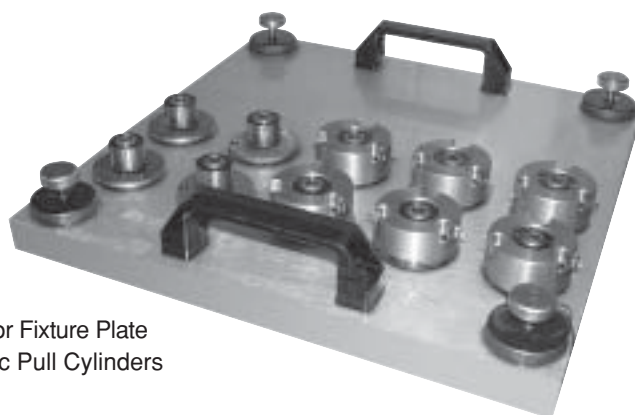


The ID expansion clamp is the ideal way to hold parts on an inside diameter for multiple machining on a vertical or horizontal machining center.

The larger diameter of the clamp is held to a close tolerance for precision locating in a machined pocket on work cubes and fixture plates.

The customer machines the mild steel clamp to match the bore of the part ensuring proper fit. Often times the clamps can be remachined for different size jobs.

- Body Material: Mild Steel
- Low Profile
- Ideal for Secondary Operations on Lathe Parts
- Easily Machined to Size on Lathe or Mill
- Excellent for Palletized Setups
- Allows More Parts Per Workcube or Fixture Plate
- Tighten with Hex Key or Hydraulic Pull Cylinders (Drill clearance hole for longer bolt into hydraulic cylinder)
- Instructions included with each clamp



Part Number	A	B	C	D	+ .000 - .002 E	F	G*	H*	I	J
68401	.42	.30	.24	.12	.787	.29	.16	2-56 on .540 BHC	2-56	.16
68402	.86	.63	.59	.23	1.170	.49	.28	6-32 on .825 BHC	8-32	.30
68403	.98	.75	.59	.23	1.240	.56	.48	6-32 on .910 BHC	1/4-20	.50
68404	.98	.75	.59	.23	1.476	.79	.53	6-32 on 1.140 BHC	5/16-18	.56
68405	1.13	.88	.69	.25	1.968	1.06	.71	8-32 on 1.550 BHC	3/8-16	.71
68406	1.25	1.0	.81	.25	2.205	1.39	.90	8-32 on 1.790 BHC	1/2-13	.71
68407	1.56	1.25	1.06	.31	2.736	1.65	1.15	10-32 on 2.200 BHC	5/8-11	.79
68408	1.56	1.25	1.06	.31	2.972	2.03	1.15	10-32 on 2.515 BHC	5/8-11	.79
68409	1.79	1.48	1.27	.31	4.232	3.06	1.15	1/4-20 on 3.646 BHC	5/8-11	.79
68410	1.79	1.48	1.27	.31	5.232	4.06	1.15	1/4-20 on 4.648 BHC	5/8-11	.79

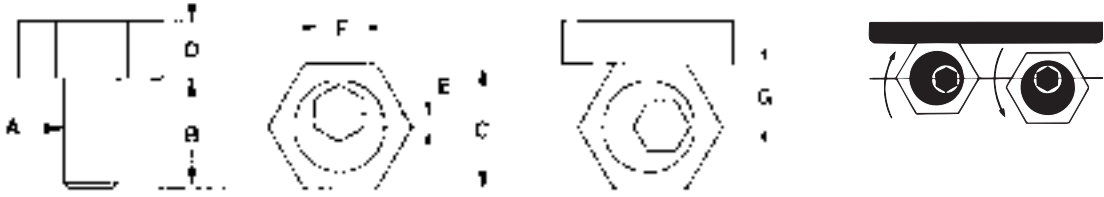
Metric

Part Number	A	B	C	D	+ .000 - .002 E	F	G*	H*	I	J
68830	21.8	16.0	15.0	5.9	29.72	12.4	8.0	M3 on 20.95 BHC	M4	7.2
68831	24.9	19.0	15.0	5.9	31.5	14.2	12.2	M3 on 23.1 BHC	M6	11.2
68832	24.9	19.0	15.0	5.9	37.5	20.0	13.5	M3 on 29.0 BHC	M8	13.2
68833	28.6	22.2	17.5	6.4	50.0	27.0	18.0	M4 on 39.4 BHC	M10	16.3
68834	31.8	25.4	20.6	6.4	56.0	35.3	23.0	M4 on 45.5 BHC	M12	20.3
68835	39.6	31.8	27.0	7.9	69.5	42.0	29.3	M5 on 55.9 BHC	M16	21.4
68836	39.6	31.8	27.0	7.9	75.5	51.5	29.3	M5 on 63.9 BHC	M16	21.4
68837	45.5	37.6	32.3	7.9	107.5	77.7	29.3	M6 on 92.6 BHC	M16	19.3

* (3) Mounting Screws Included

* Minimum diameter the "F" dimension can be machined too.

Micro™ Clamps



Jergens Micro Clamps feature both high hold down forces and low profiles, which makes them ideal for building fixtures on Ball Lock fixturing plates. Two simple components make them work: a hardened steel socket cap screw with an offset head and a hexagonal washer. A half turn tightens or loosens the workpiece.

- Low profile makes computer programming easier
- Cam action provides fast, strong clamping
- Small size allows more parts per load
- Requires only a tapped hole in your fixture
- Available in stainless steel
- Note clockwise rotation recommended workpiece stop should be on the right of the Clamp.

Part Number Steel	Part Number Stainless	A	B	C	D	Total Distance of Measurement E	Key Size F	G*	Maximum Holding Force (lbs)
68501	—	8-32	.350	.312	.110	.030	5/64	.150	205
68502	—	10-32	.340	.500	.160	.040	3/32	.250	350
68503	68513	1/4-20	.470	.625	.190	.040	1/8	.308	800
68505	—	5/16-24	.460	.812	.190	.040	3/16	.400	750
68506	68515	5/16-18	.460	.812	.190	.040	3/16	.400	750
68507	—	3/8-16	.710	.812	.250	.050	3/16	.400	2,000
68509	—	1/2-13	.900	1.000	.375	.100	5/16	.500	4,000
68511	—	5/8-11	1.125	1.187	.500	.100	3/8	.590	6,000

* This measurement is the correct location to drill and tap the hole from the edge of the work piece.

Metric

Part Number Steel	Part Number Stainless	A	B	C	D	Total Distance of Measurement E	Key Size F	G*	Maximum Holding Force (N)
68571	—	M4x0.7	9.6	7.93	2.8	.76	3	3.8	910
68572	68551	M6x1.0	11.2	15.86	4.75	1.01	4	7.8	3,558
68573	68553	M8x1.25	15.0	20.61	4.75	1.01	5	10.15	3,355
68574	—	M10x1.5	19.0	20.61	6.35	1.52	7	10.15	8,895
68575	—	M12x1.75	22.8	25.38	9.52	2.03	8	12.7	17,790
68576	—	M16x2.0	28.5	30.13	12.69	2.54	12	15.0	26,680

* This measurement is the correct location to drill and tap the hole from the edge of the work piece.

Replacement Screws available, contact customer service for more information.

Knife Edge Clamps



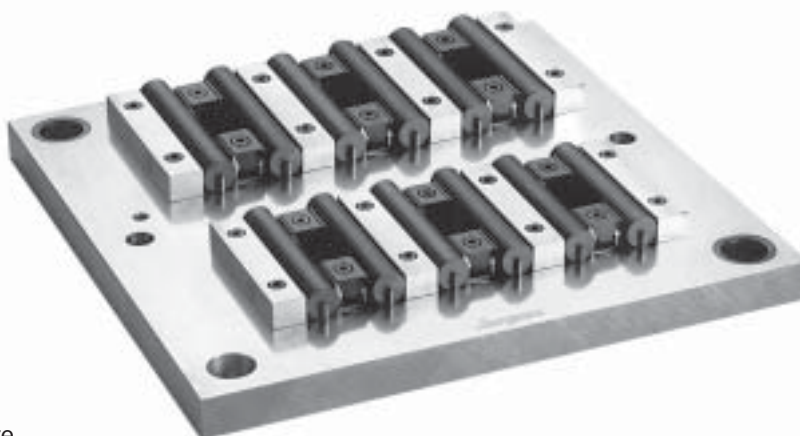
Knife edge clamps can be used for clamping rough cut stock, castings, or any material that requires a hardened clamping element. Hardened steel, brass-plated.

Replacement Screws available, contact customer service for more information.

Part Number	A	B	C	D	E	F	G*	Maximum Holding Force (lbs)
68547	3/8-16	0.710	0.812	0.250	0.050	3/16	0.400	2,000
68548	1/2-13	0.900	1.000	0.375	0.100	5/16	0.500	4,000
68549	5/8-11	1.125	1.187	0.500	0.100	3/8	0.590	6,000
Metric (N)								
68840	M10	7M	1.52	20.60	6.35	19.0	10.15	8,895
68841	M12	8M	2.03	25.40	9.52	22.8	12.70	17,790
68842	M16	12M	2.54	30.15	12.70	28.5	15.00	26,680

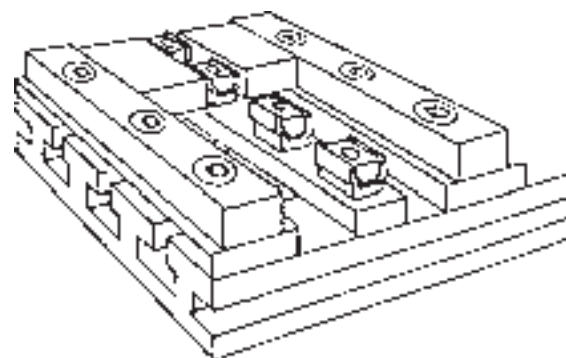
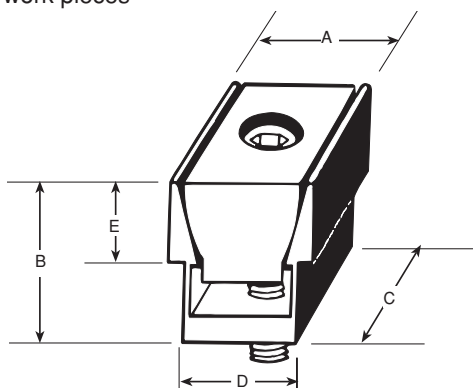
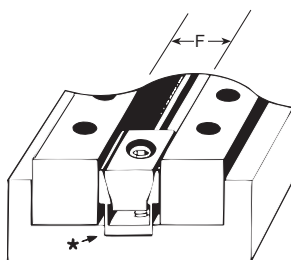
* This measurement is the correct location to drill and tap the hole from the edge of the work piece.

Expanding Micro™ Clamps



Jergens Expanding Micro Clamps allow you to fixture more parts on your fixture plates. The unique expanding design can hold two parts at once when used with a positive stop.

- Minimizes tool changes
- Holds two parts with equilateral clamping action
- Ideal for clamping flat or round work pieces
- Reduces wasted space



*A shallow slot, a little wider than D dimension, will insure clamp remains in line with workpiece.

Part Number	A	B	C	D*	E	F†	Thread Size	Maximum Spread	Maximum Holding Force (lbs)	Key Size
68706	.240	.250	.320	.210	.125	.250	2-56	.265	200	5/64
68707	.360	.380	.470	.310	.200	.375	4-40	.395	310	3/32
68701	.485	.500	.625	.410	.220	.500	8-32	.565	500	9/64
68702	.735	.750	.940	.632	.375	.750	1/4-20	.830	1500	3/16
68703	.980	1.00	1.250	.820	.500	1.000	5/16-18	1.120	2000	1/4
68704	1.470	1.50	1.875	1.215	.750	1.500	1/2-13	1.650	3500	3/8
68705	1.960	2.00	2.500	1.625	1.000	2.000	5/8-11	2.175	6000	1/2

Metric

Part Number	A	B	C	D*	E	F†	Thread Size	Maximum Spread	Maximum Holding Force (N)	Key Size
68716	6.1	6.9	8.1	5.3	3.6	6.4	M2	6.7	880	1.5
68717	9.1	9.7	11.9	7.9	4.7	9.5	M2.5	10	1,350	2
68711	12.3	14.5	15.9	10.4	5.6	12.7	M4	13.2	2,224	3
68712	18.6	19.0	23.8	16.1	9.5	19.0	M6	20.3	6,670	5
68713	24.8	25.9	31.7	20.8	12.7	25.4	M8	26.9	8,895	6
68714	37.3	38.6	47.6	30.8	19.0	38.1	M12	39.9	15,565	10
68715	49.7	51.5	63.5	41.2	25.4	50.8	M16	53.0	26,690	14

†F is the distance needed between workpieces for clamp clearance. Drill and tap mounting hole on the center of F dimension.

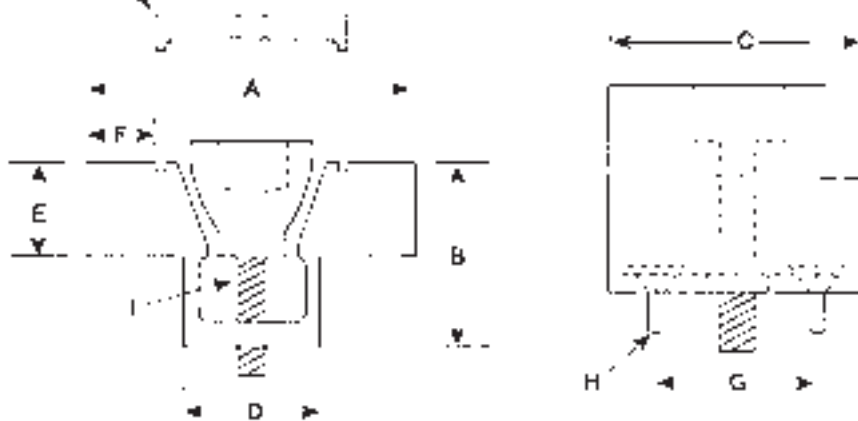
Machinable Expanding Micro™ Clamp



The compact Machinable Expanding Micro™ Clamp is available with extra material on the clamping jaw so it can be machined to conform to the shape of your workpiece - enabling you to fixture unusual applications easily. The specially designed steel wedge spreads the clamping force uniformly on both sides of the aluminum channel. Clamps may be ordered with a unique locking plate to make the clamp rigid while machining the jaw to your specifications, without vibration.

- Material: Channel 7075-76 Aluminium
- Mounting Screws Included
- Compact Design
- Allows more parts to be mounted on Fixture

NOTE: Locking plate is used only to machine jaws. Remove to clamp workpiece.



Part No. With Locking Plate	Part No. Without Locking Plate	A*	B	C	D	E	F†	G	Mounting Screw **H	I
68770	68771	1.125	0.50	0.62	0.420	0.18	0.18	0.400	2-56	8-32
68772	68773	1.500	0.75	0.94	0.632	0.37	0.26	0.624	6-32	1/4-20
68774	68775	2.000	1.00	1.25	0.820	0.50	0.39	0.812	6-32	5/16-18
68776	68777	3.000	1.50	1.87	1.215	0.75	0.62	1.200	10-32	1/2-13
68778	68779	4.000	2.00	2.50	1.625	1.00	0.80	1.625	1/4-20	5/8-11

* The distance needed between workpieces for clamp clearance, drill and tap mounting holes on the center of "A" dimension.

† The amount of machinable stock on jaws.

** Mounting Screws Included

Metric

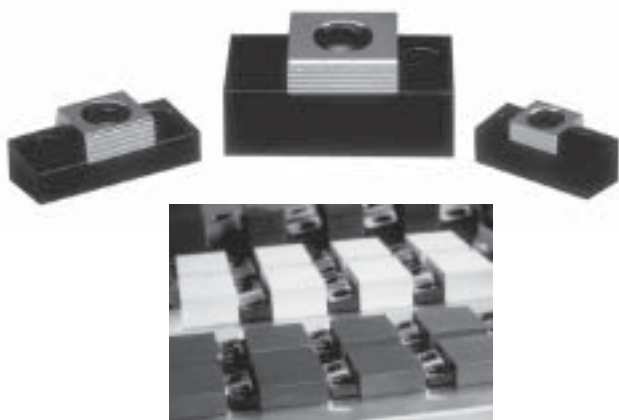
Part No. With Locking Plate	Part No. Without Locking Plate	A*	B	C	D	E	F†	G	Mounting Screw **H	I
68870	68871	28.6	12.7	15.7	10.67	6.3	4.6	10.16	M2	M4
68872	68873	38.1	19.1	23.9	16.05	9.4	6.6	15.87	M4	M6
68874	68875	50.8	25.4	31.8	20.83	12.7	9.9	20.62	M4	M8
68876	68877	76.2	38.1	47.5	30.86	19.1	15.7	30.48	M5	M12
68878	68879	101.6	50.8	63.5	41.28	25.4	20.3	41.28	M6	M16

* The distance needed between workpieces for clamp clearance, drill and tap mounting holes on the center of "A" dimension.

† The amount of machinable stock on jaws.

** Mounting Screws Included

Micro™ Toe Clamps



This cam action fixture clamp provides positive down force while using very little space on the fixture. Workpieces can be clamped in series by using the back surface of a clamp to locate the next workpiece. The hardened steel clamping element has both a smooth surface for machined workpieces and a serrated clamping surface for rougher work. The height of the clamp can be adjusted by milling the slot deeper in the fixture plate.



Part Number	A	B	C	D	E†	F	G	Cam Screw	Distance of Movement	Mounting Screws
68731	1.70	.75	.50	1.00	.090	.75	.25	68527	.050	5/16 - 18 x 3/4 LH
68732	2.12	1.00	.45	1.32	.110	1.00	.38	68529	.100	3/8 - 16 x 3/4 LH
68733	2.95	1.50	.99	2.00	.130	1.50	.50	68531	.100	1/2 - 13 x 1 1/4 SHCS

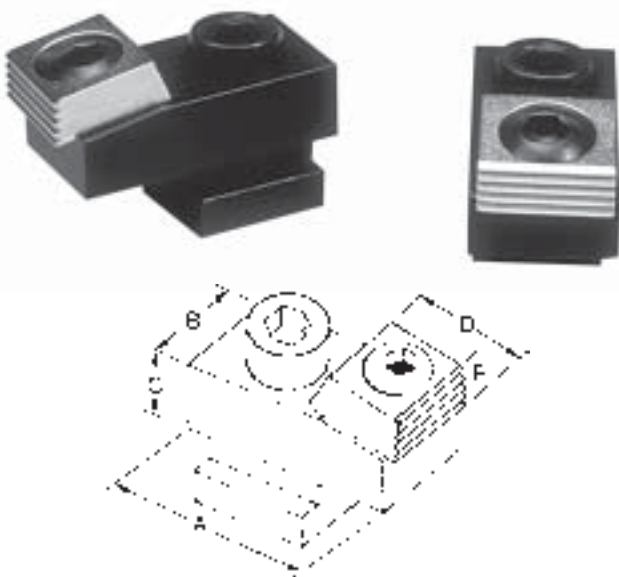
† "E" is the distance needed between the front of the clamp base and the workpiece.

Metric

Part Number	A	B	C	D	E†	F	G	Cam Screw	Distance of Movement	Mounting Screws
68781	43.2	19.0	12.7	25.4	2.3	19.0	6.4	M10	1.6	M8
68782	54.0	25.4	11.4	33.5	2.8	25.4	9.7	M12	2.0	M10
68783	75.0	38.1	25.2	50.8	3.3	38.1	12.7	M16	2.5	M12

† "E" is the distance needed between the front of the clamp base and the workpiece.

Micro™ T-Slot Toe Clamps



This clamp is like the Micro Toe Clamp, only it is designed to be used in the T-slots of machine tables. It provides positive down force while maintaining a low profile. The hardened steel clamping element has both a smooth surface for machined work pieces and a serrated clamping surface for rougher work.

A	B	C	D	E
1.94	1.12	.62	1.00	.38

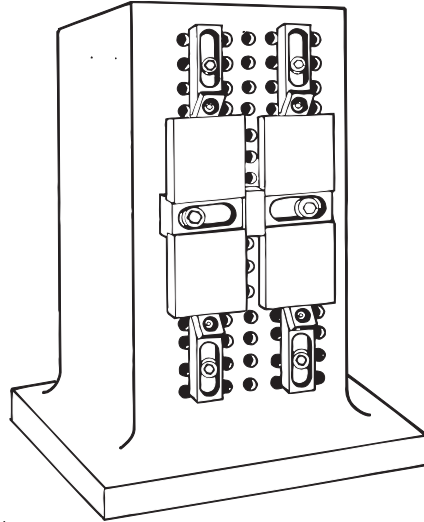
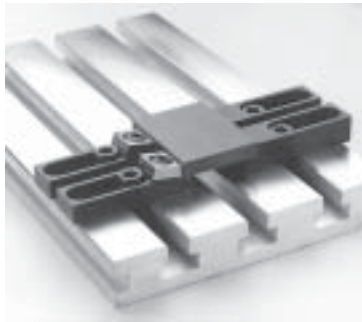
Metric

A	B	C	D	E
50	28.5	15.7	25.4	9.6

Metric

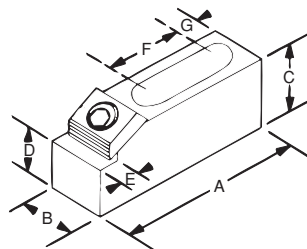
Part Number	T-Slot Size	Part Number	T-Slot Size
68741	9/16	68791	14
68742	5/8	68792	16
68743	11/16	68793	18
68744	3/4	68794	No T-Nut

Micro™ Edge Clamps

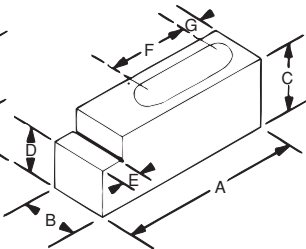


The Micro Edge Clamp offers increased versatility through its unique elevated clamping abilities.

- Workpiece is elevated for through milling and drilling
- Cam action provides positive holddown force
- Provides flexible set-ups for hard to hold parts
- Works in plates, both with tapped hole layouts or T-slot configurations
- Can be mounted vertically or horizontally
- Built-in stops locate workpiece for repeat positioning
- Larger sizes are ideal for mold shop applications
- Tapered mounting slot prevents movement when clamping pressure is applied



Closed slot style



Open slot style

Part Number	Item	A	B	C	+ .0000 - .0005 D	E	F	G	Cam Screw Part Number	Mounting Screw	Slot
68721	Clamp	2.50	.75	.62	.4600	.31	.83	.53	68527	5/16	Closed
68722	Stop	2.50	.75	.75	.4600	.31	1.11	.53	N/A	5/16	Closed
68723	Clamp	3.75	1.12	.62	.4800	.37	1.68	.50	68529	1/2	Closed
68724	Stop	3.75	1.12	.87	.4800	.37	1.68	.50	N/A	1/2	Closed
68725	Clamp	4.21	1.50	1.62	1.3780	.37	1.82	N/A	68535	5/8	Open
68726	Stop	4.21	1.50	2.00	1.3780	.37	1.82	N/A	N/A	5/8	Open

Metric

Part Number	Item	A	B	C	+ .0000 - .0130 D	E	F	G	Cam Screw Part Number	Mounting Screw	Slot
68821	Clamp	63.5	19.1	15.8	11.68	8.0	21.1	13.5	68532	M8	Closed
68822	Stop	63.5	19.1	19.1	11.68	8.0	28.2	13.5	NA	M8	Closed
68823	Clamp	95.3	28.5	15.8	12.19	9.4	42.7	12.7	68534	M12	Closed
68824	Stop	95.3	28.5	22.1	12.19	9.4	42.7	12.7	NA	M12	Closed
68825	Clamp	107.0	38.1	41.2	35.00	9.4	46.2	NA	68535	M16	Open
68826	Stop	107.0	38.1	50.8	35.00	9.4	46.2	NA	NA	M16	Open

Modular Mini Vise



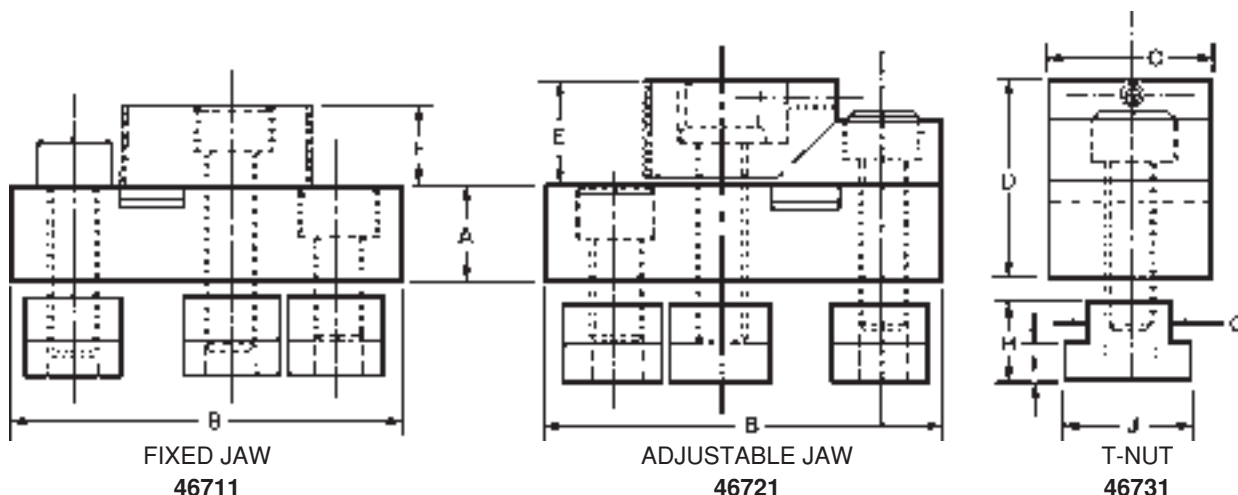
- Material: C-1018
- Finish: Black Oxide
Case Hardened 58-62 Rc

Description	Part Number
Fixed Jaw Clamp	46711
Adj. Jaw Clamp	46721
T-Slot Nut	46731

The Jergens Modular Mini Vise provides accurate location and positive holding. The bases are hardened and ground to the same height as Jergens Rest Pads for accurate location. The jaws are serrated and hardened to provide positive holding. These versatile clamps may be used as shown, or the jaws may be reversed to allow the workpiece to rest on the machine table or fixture base. The clamps can be made part of a dedicated fixture by removing the T-nuts and fastening the 3/8-16" cap screws directly to the fixture.

To use the Jergens Modular Mini Vise: position the fixed jaw clamp and tighten all three cap screws to secure the clamp. Position the adjustable clamp and tighten the outside capscrews. Insert the workpiece and tighten the center cap screw. The adjustable jaw will force the workpiece down against the base and over against the fixed jaw clamp.

The 46711 clamp has a fixed jaw for locating. The 46721 clamp has an adjustable jaw for clamping. Each clamp is supplied with three 3/8-16" cap screws and three 46731 T-nuts.



+.0000 -.0005 A	B	C	Maximum Height D	E	F	Table Slot G	H	I	J
.7205	3	1 1/4	1-9/16	3/4	5/8	5/8	5/8	11/32	1

How High Are Your Standards?



Theirs

– *Counterbored*



Ours

– **No Counterbore**

*Full bearing surface supports the tool for the entire length of bushing. You'll drill more **precise** holes plus your Acme bushing will last **longer**.*

– **Thru-Hardened**

62-64 R_C means less machine downtime to change worn bushings.

Acme maintains the highest standards for just about every kind of bushing you'd ever need, including tap holder and tool holder bushings, boring bar sleeves, gun drill bushings, liners, and more.



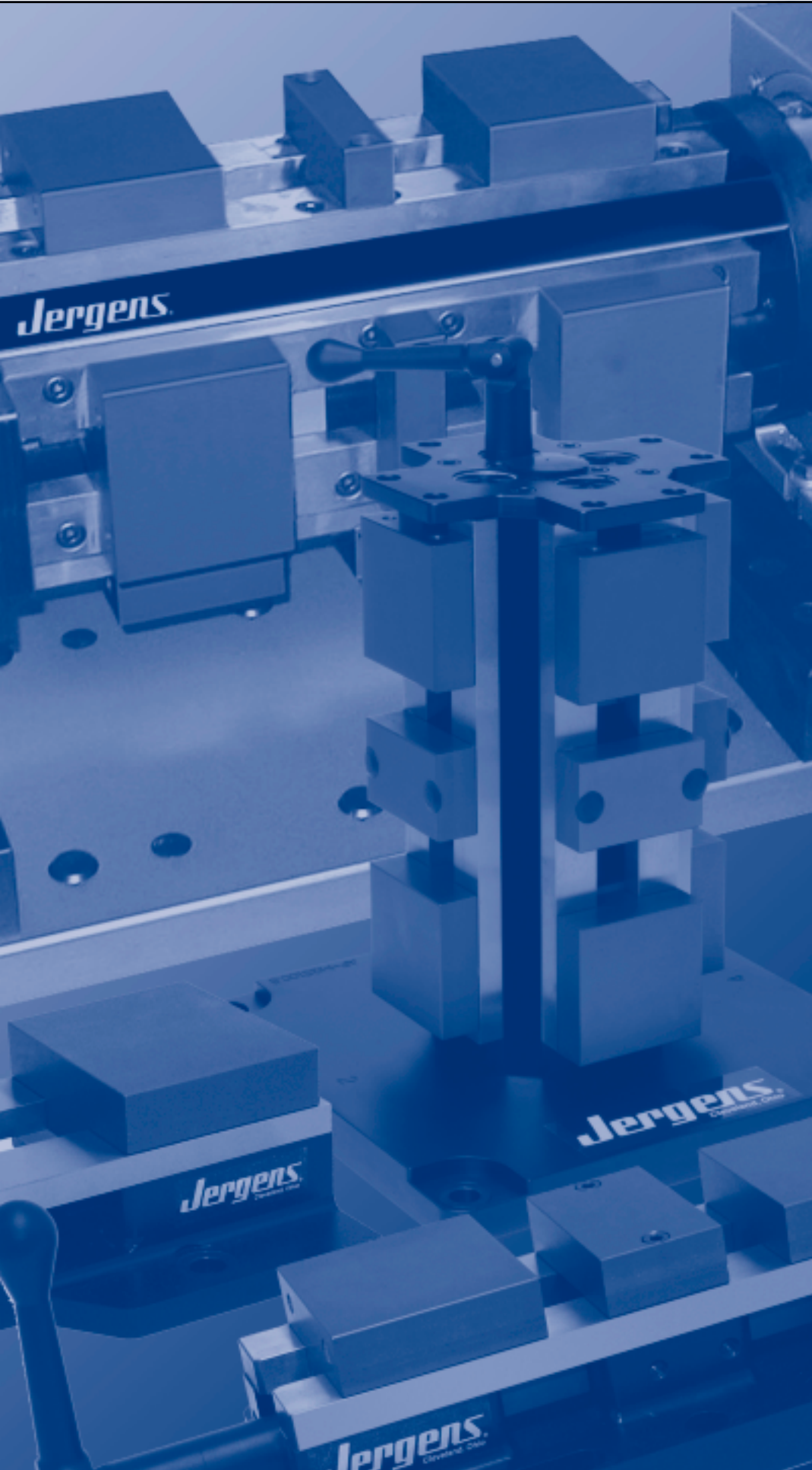
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Ball Lock Fixture Mounting System	6.8-6.9
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Jergens Production Vise System

What is a production vise?

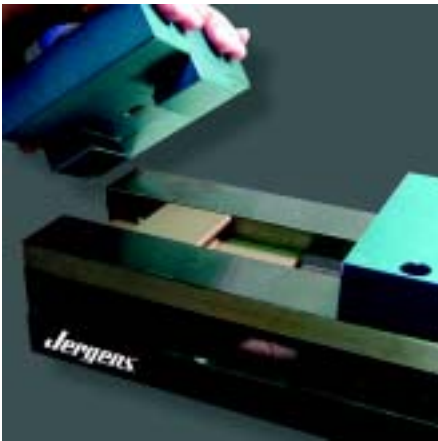
- A Quick Change Fixturing System for VMC's & HMC's.
- A vise that acts like a fixture.
- A replacement for dedicated fixtures.

What does the system do?

- It clamps and locates in one step.
- It holds from 1 to 16 workpieces.
- It provides single minute changeover times.
- It saves you time & money.

How does the system work? (It's as easy as 1-2-3)

1. Snap on a set of machinable soft jaws.



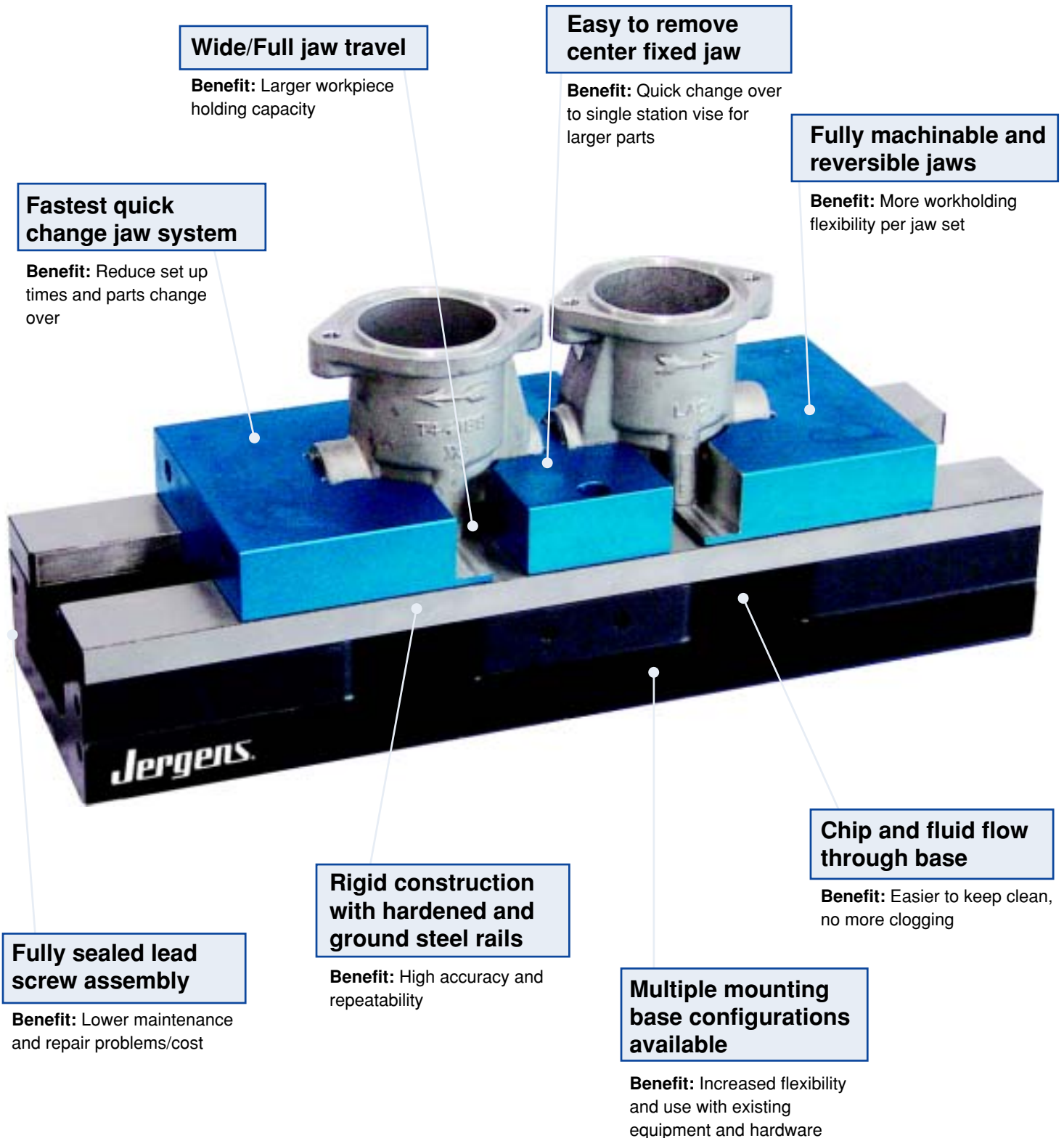
2. Machine "Pockets" into the vise jaws, in the shape of your workpiece.



3. Load your workpieces into the vise and machine as required.



Jergens Production Vise Features and Benefits:



VMC Solutions



Narrow Production Vises Pages 6.11 & 6.13

The small footprint allows maximum density of vises on your fixture or table. Best choice for applications where parts are held in multiple vises.



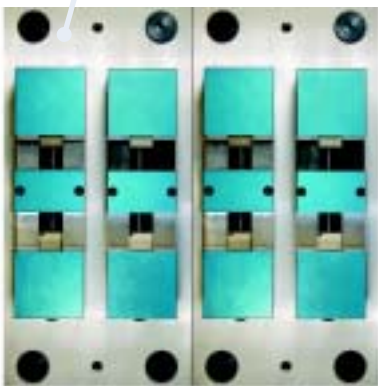
Ball Lock™ Production Vises Pages 6.10 & 6.12

The mounting flange is cut into a jigsaw pattern to allow vises to nest closely together. Designed for use with Jergens Ball Lock™ Mounting System.



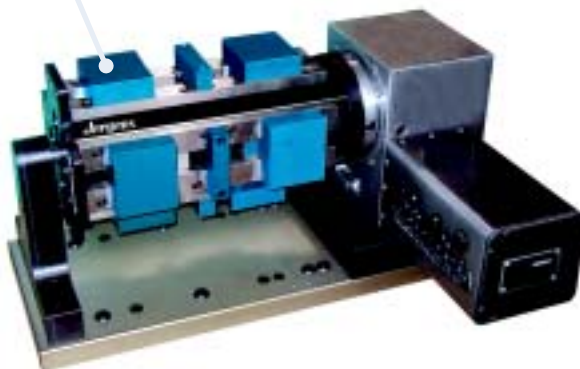
Universal Production Vises Pages 6.11 & 6.13

The mounting flange has slotted holes to allow mounting on any machine table.



Multi-Vise Fixtures Pages 6.11, 6.13 & 6.22

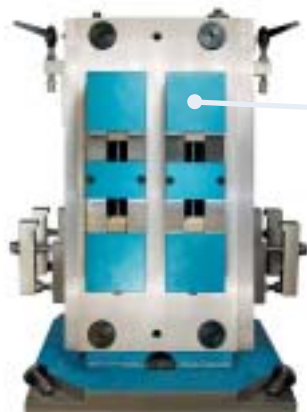
Mount multiple narrow body vises onto a single fixture plate. Then mount the plate onto your machine table. Maximize your productivity by using the Jergens Ball Lock™ Mounting System.



Indexer Systems Pages 6.15 & 6.17

Indexer solutions can be customized to your requirements. Choose either three or four sided columns.

HMC Solutions



Multi-Vise Fixtures

Pages 6.11, 6.13 & 6.22

Mount multiple narrow body vises onto a single fixture plate. Then mount the plate onto your tombstone. Maximize your productivity by using the Jergens Ball Lock™ Mounting System.



3-Sided Production Vise Columns

Pages 6.15 & 6.17

The perfect solution for machining 3 plus sides of small parts on your HMC. Even large spindle noses won't prevent getting close to the work. **Allows for up to 240° workpiece accessibility.**



6-Sided Production Vise Columns

Page 6.18

Maximize the number of parts per load, while maintaining a small footprint. Available with bases to fit directly onto your machine table or to a Ball Lock™ sub-plate.



4-Sided Production Vise Columns

Pages 6.14 & 6.16

These are the workhorses of the line. Available with bases to fit directly onto your machine table or to a Ball Lock™ sub-plate.



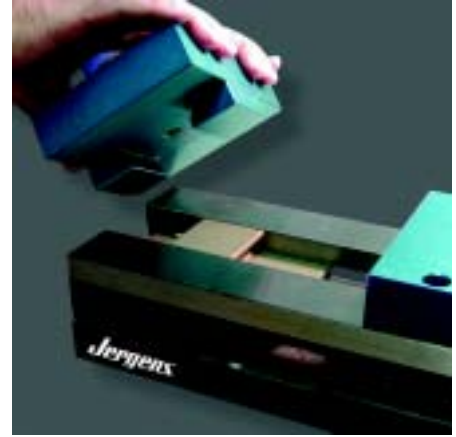
4-Sided Production Vise Multi-Columns

Page 6.19

Multiple columns mounted on a single base provide 12 or 16 workstations. Available with bases to fit directly onto your machine table or to a Ball Lock™ sub-plate.

Jergens Production Vise Systems

Fastest Quick Change Jaw System



Production Vise Columns

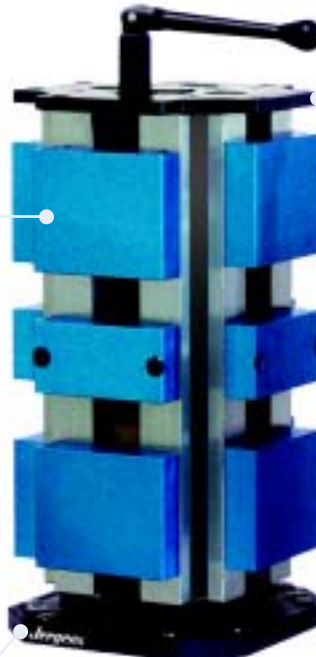
2, 4, 6, 8, 12 and 16 station models available.

Maximum Jaw Machinability

Low profile clamping mechanism allows for maximum jaw machining area.



Quick
change
reverseable
soft jaws



6" MonoQuad

Single station
adapter plate included



4" MonoQuad

Maximum Holding Power

Machined jaws contoured to hold your workpiece.

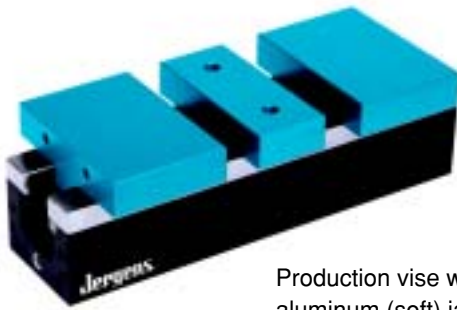
Multiple base designs
to meet any requirement

Jergens Production Vise System

Flexible Clamping - Flexible Production

Variable batch sizes? Many different types of workpieces? Frequent set-ups?

The Jergens Production Vise System is the answer for these production flexibility issues!



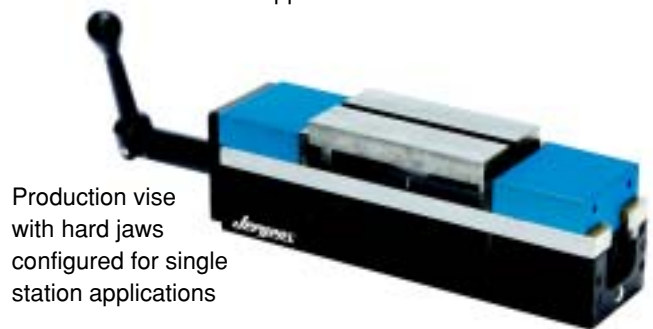
Production vise with extra wide aluminum (soft) jaws configured for dual station applications



Production vise with hard jaws configured for dual station applications



Production vise with full faced vise plate installed



Production vise with hard jaws configured for single station applications

Aluminum jaws suitable for milling:

- Milling of stop, supporting and clamping surfaces
- Quick set-up for formed parts and workpieces having complex clamping contours
- Significant reduction in expenditure on fixtures

Hard coated base made from high-strength aluminum and therefore a low dead weight. Screw-on guideway made from hardened steel.



Jaws change in a few seconds:

- Rapid changeover from one workpiece to the next
- Machine downtimes are reduced to a minimum



The clamping system consists of only a few components, which means quick dismantling and minimum maintenance.

High visibility:

- The clamping element can be made available for simple and complex clamping applications in a very short time

Aluminum jaws can be completely milled, therefore a high degree of adaptability to the workpiece shape. For clamping, stop, and supporting surfaces.



Completely sealed lead screw assembly for trouble-free operation, power transmission through inserted steel nut, large slide stroke.

Ball Lock™ Fixture Mounting System for Jergens Production Vises



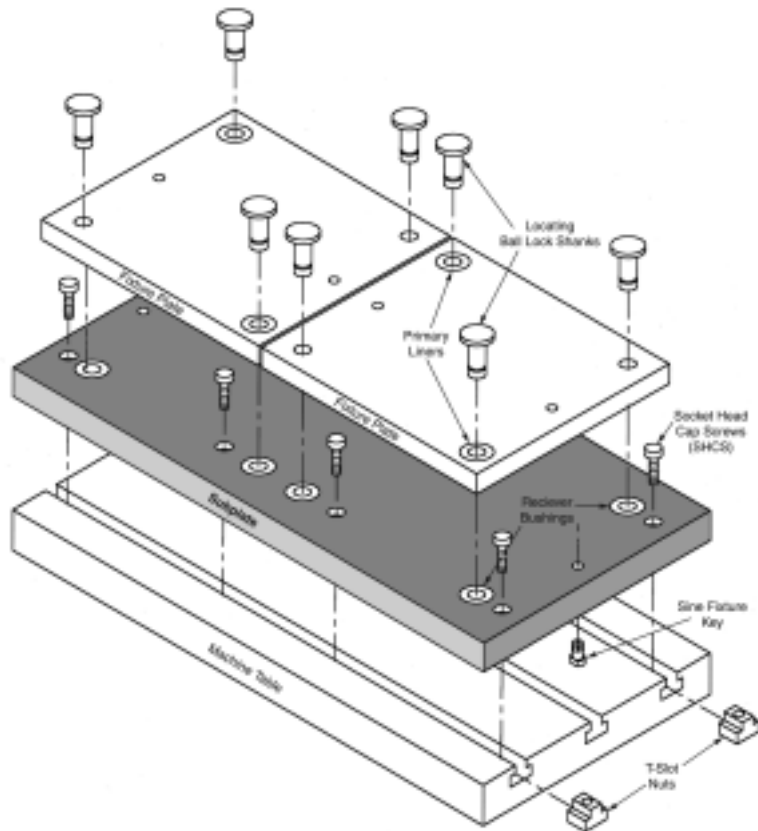
Locates

The Ball Lock System accurately positions your workpiece...to within $\pm .0005"$ repeatability, minimizing the need to indicate your fixture.



Locks

The Ball Lock System securely holds fixture plates to subplates with up to 20,000 lbs. of hold-down force per shank.



The Ball Lock Mounting System provides a method of quickly and accurately locating fixtures onto machine tables. The Ball Lock Mounting System has done for machining centers what the Japanese SMED concept did for presses. Instead of single minute exchange of dies, Ball Lock provides single minute exchange of fixtures. Fixtures can often be exchanged in less than a minute and with position repeatability of $.0005"$. Fixtures can even be exchanged between different machines when both are using the Jergens Ball Lock Mounting System.

Commonly Asked Questions

Q. What is the Ball Lock Mounting System?

A. A means of locating and locking two flat surfaces together. These are usually a fixture plate and a sub-plate.

Q. How does it locate?

A. It locates in the same manner as locating pins. Two shanks (pins) pass through two precision bushings on the fixture plate and into two precision bushings on the sub plate.

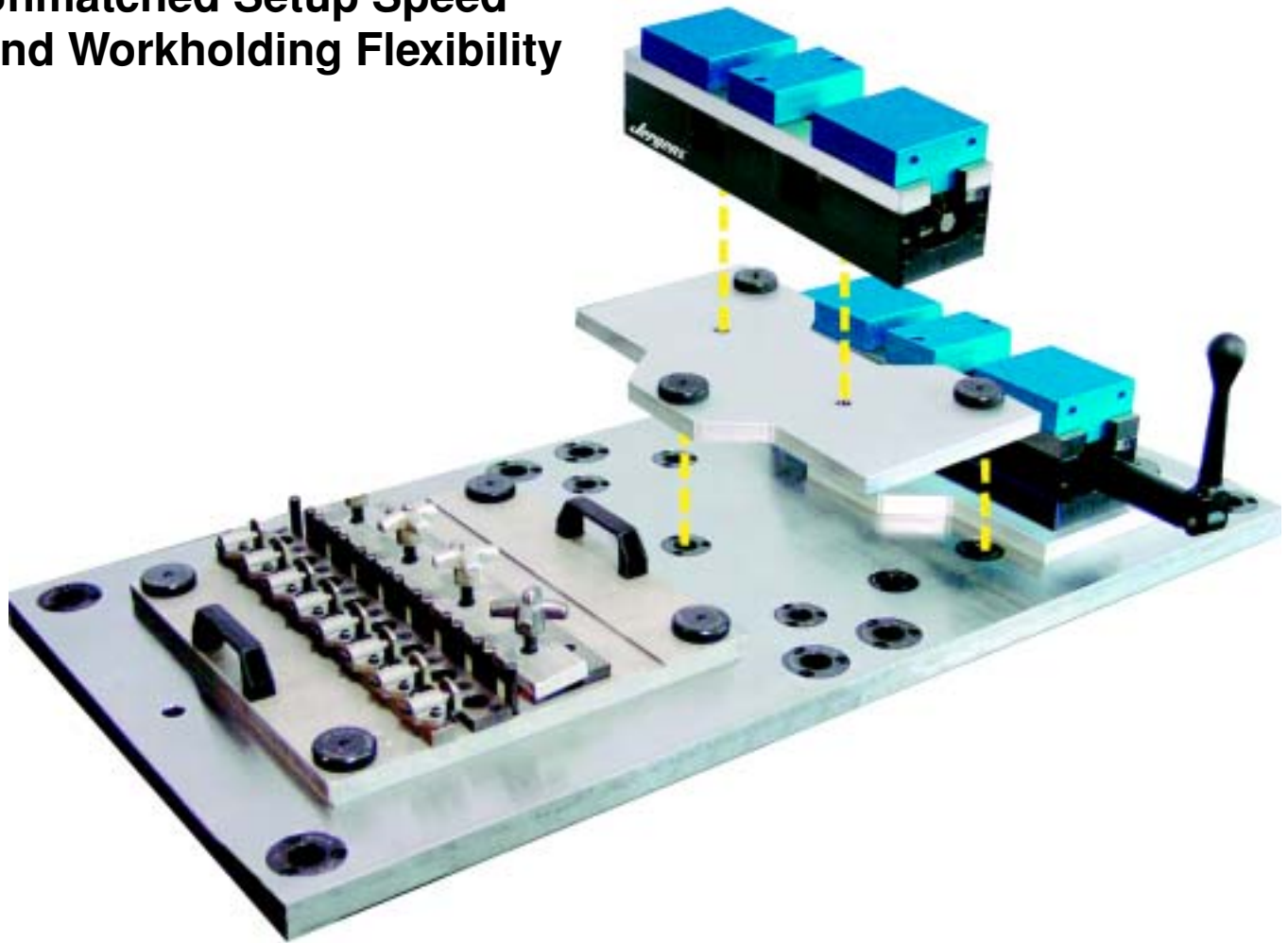
Q. How does it lock?

A. Inside the shank are three balls that expand into a tapered groove in the receiver bushing. This action draws the plates together. The balls are activated by turning a setscrew in the head of the shank.

Q. How many shanks are required to locate and lock each fixture?

A. Only two shanks, passing through bushings in the fixture plates, are required for location. However, additional shanks passing through clearance holes in the fixture plate will assure the plate is held tightly.

Unmatched Setup Speed and Workholding Flexibility



Q. Is there a preferable location for the liner bushing?

A. The location of the liner bushing is not critical, but in order to be consistent, we recommend that wherever possible, locate the liner bushings at top left and bottom right.

Q. What are the advantages of using the Ball Lock System over the conventional method of dowel pins and cap screws?

A. Both locating and locking are accomplished in the same motion. Two and one half turns are the maximum needed to lock (whereas a 1/2–13 cap screw with one and a half diameters of thread engagement

would need ten turns to lock). On CNC machines, the repeatability of fixture locations makes indicating of the fixture unnecessary.

Q. If I need to recess the fixture plate in order to have a clear surface, what do I have to do?

A. Counterbore the fixture plate to a diameter large enough to allow easy removal of the shank. Note: The thickness of the plate section under the head of the shank is critical! It must conform to plate thickness recommended in the catalog.

Q. What if my plate is thinner than the recommended thickness?

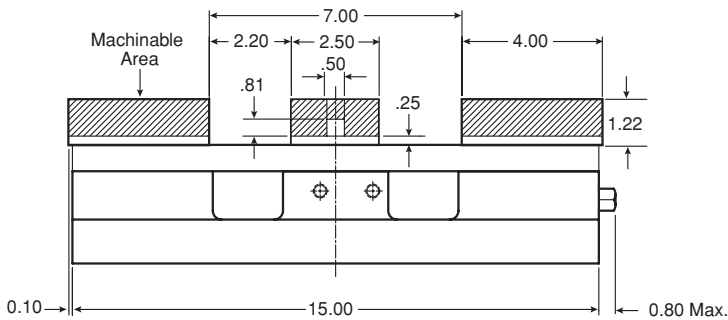
A. It is possible that by adjusting the depth of the counterbore for the receiver bushing, you can still use the Ball Lock System. If there are any questions on this type of application, please call 1-800-JERGENS.

Q. Can I use the shanks in a heated environment?

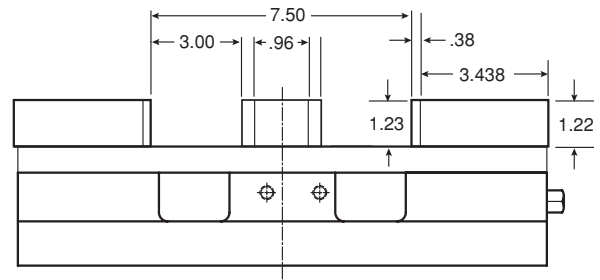
A. The shank is made of alloy steel, heat treated to 40-45Rc and should stand temperatures up to 400°F. However, the “O” Ring that retains the balls could disintegrate.

Note: Be aware that thermal expansion of your plate could affect the center distance tolerance and repeatability.

4" Production Vises



Vise With Soft Jaws



Vise With Hard Jaws

Jergens 4" Vise Clamping Forces

Torque (lbs. ft.)	Clamping Force (approximate)
20	3,600
30	4,500
40	5,300
50	6,200
60	7,200*
*Recommended Max	

Accessories:

See pages 6.20 through 6.22 for details

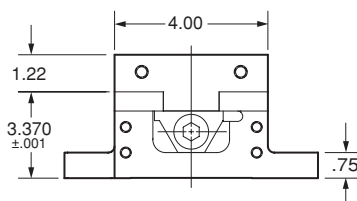
- Dual Work Stop – Use with any vise to locate work pieces accurately
- Conversion Kit – Convert any vise from dual to single station operation
- Vise Jaws – Complete selection of soft and hard jaws.

Ball Lock™ Base

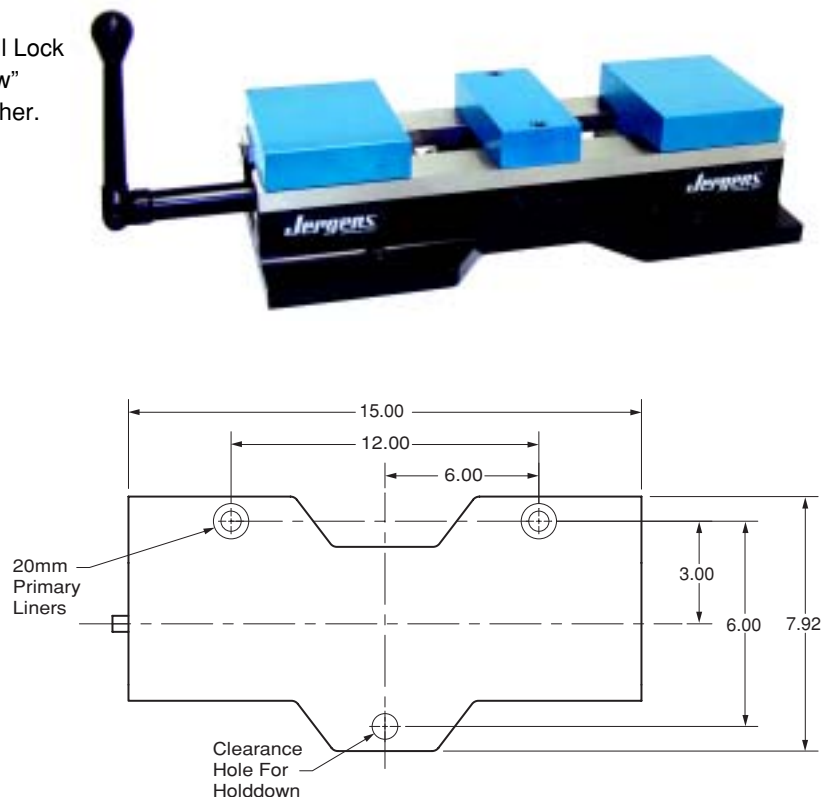
The **Ball Lock Base Vise** is for use with the Jergens Ball Lock Quick Change Mounting System. The base has a "jig saw" pattern to allow the vises to be mounted close to each other. For more information about Ball Lock, see page 6.8

- Use with the Jergens Ball Lock™ Mounting System
- Fastest quick-change jaw system
- Full jaw travel
- Hardened and ground steel wear rails
- Fully sealed lead screw assembly
- Openings allow chips to flow out of the vise
- Supplied with machinable soft jaws
- Available with hard jaws
- Hydraulic operation available

Part No.	Wt.
49405	31 lbs.



Mounting Dimensions

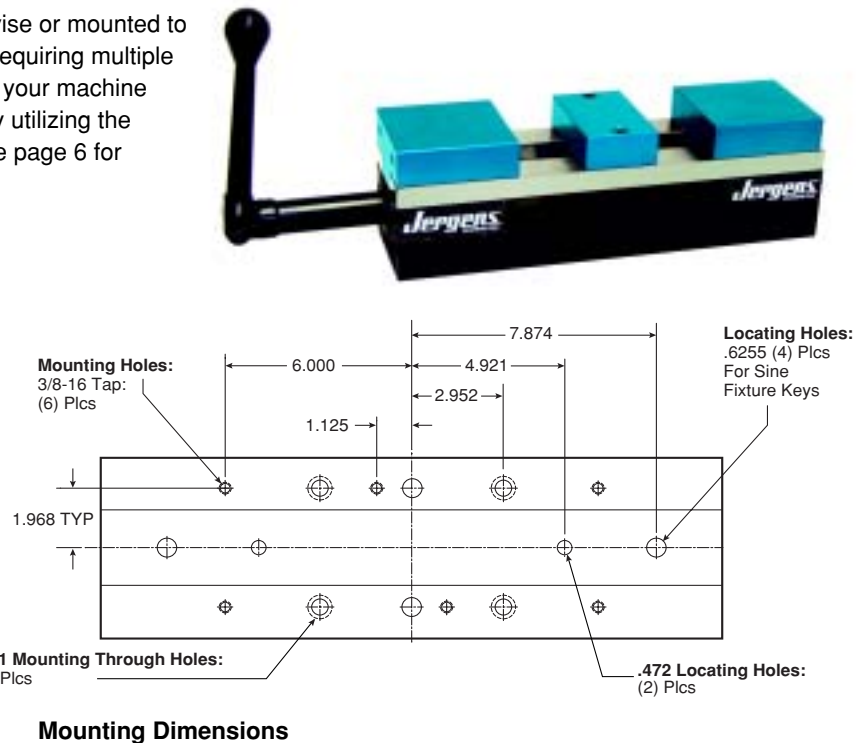
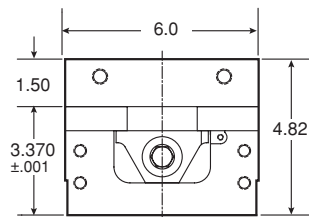


6" Production Vises Narrow Base

The **Narrow Base Vise** can be used as a stand-alone vise or mounted to a fixture plate. This style is best suited for applications requiring multiple vises. The slim design allows a high density of vises on your machine table, tombstone, or column. Maximize your flexibility by utilizing the Jergens Ball Lock Quick Change Mounting System. See page 6 for more information about Ball Lock.

- Easy to mount to Ball Lock or other fixture plates
- Fastest quick-change jaw system
- Full jaw travel
- Hardened and ground steel wear rails
- Fully sealed lead screw assembly
- Openings allow chips to flow out of the vise
- Supplied with machinable soft jaws
- Available with hard jaws
- Hydraulic operation available

Part No.	Wt.
49402	66 lbs.

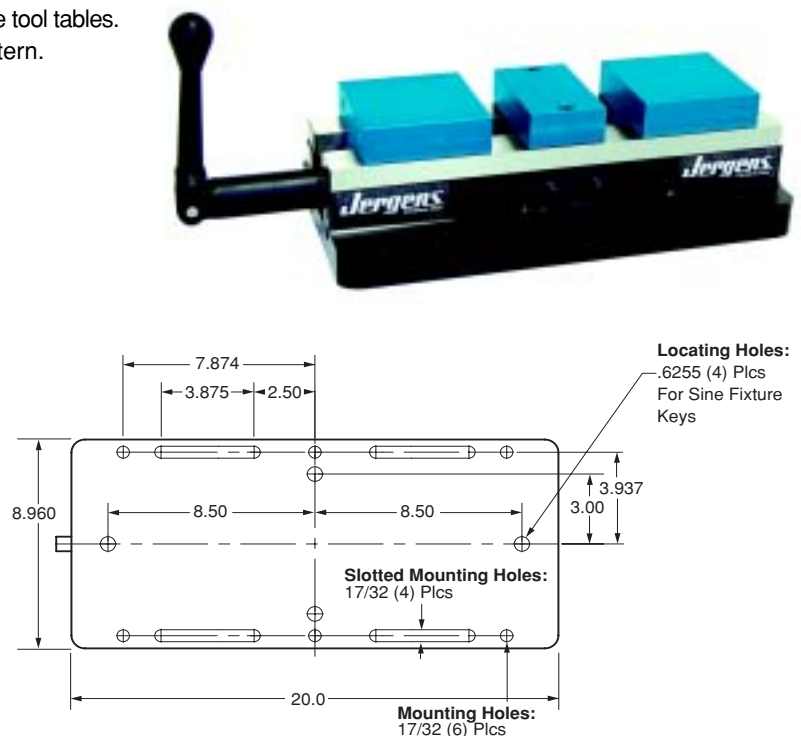
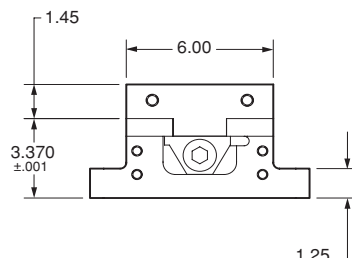


Universal Base

The **Universal Base Vise** is easily mounted directly to machine tool tables. Slotted mounting holes will match almost any table slot pattern. Location holes are provided for Jergens Sine Fixture Keys, to provide easy and accurate alignment with table slots.

- Easy to mount directly to machine tables
- Fastest quick-change jaw system
- Full jaw travel
- Hardened and ground steel wear rails
- Fully sealed lead screw assembly
- Openings allow chips to flow out of the vise
- Supplied with machinable soft jaws
- Available with hard jaws
- Hydraulic operation available

Part No.	Wt.
49472	68 lbs.



6" Production Vises

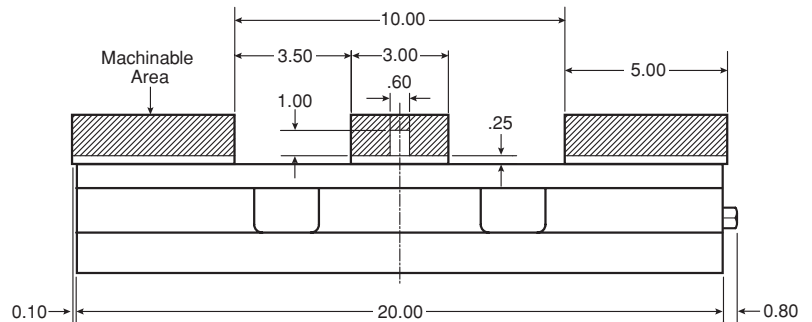
Accessories:

See pages 6.20 through 6.22 for details

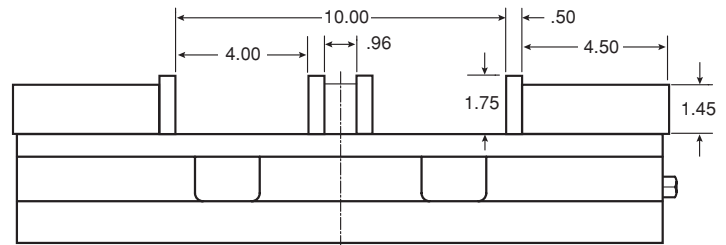
- Dual Work Stop – Use with any vise to locate work pieces accurately
- Conversion Kit – Convert any vise from dual to single station operation
- Vise Jaws – Complete selection of soft and hard jaws.

Jergens 6" Vise Clamping Force

Torque (lbs. ft.)	Clamping Force (approximate)
20	3,600
30	4,500
40	5,300
50	6,200
60	7,200
70	8,400
80	9,200
90	10,100*
*Recommended Max	



Vise With Soft Jaws



Vise With Hard Jaws

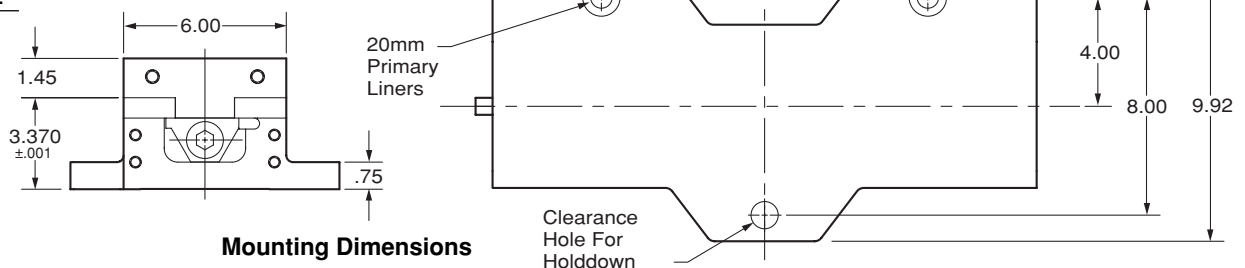
Ball Lock™ Base

The **Ball Lock Base Vise** is for use with the Jergens Ball Lock Quick Change Mounting System. The base has a "jigsaw" pattern to allow the vises to be mounted close to each other. For more information about Ball Lock, see page 6.8

- Use with the Jergens Ball Lock™ Mounting System
- Fastest quick-change jaw system
- Full jaw travel
- Hardened and ground steel wear rails
- Fully sealed lead screw assembly
- Openings allow chips to flow out of the vise
- Supplied with machinable soft jaws
- Available with hard jaws
- Hydraulic operation available



Part No.	Wt.
49406	68 lbs.



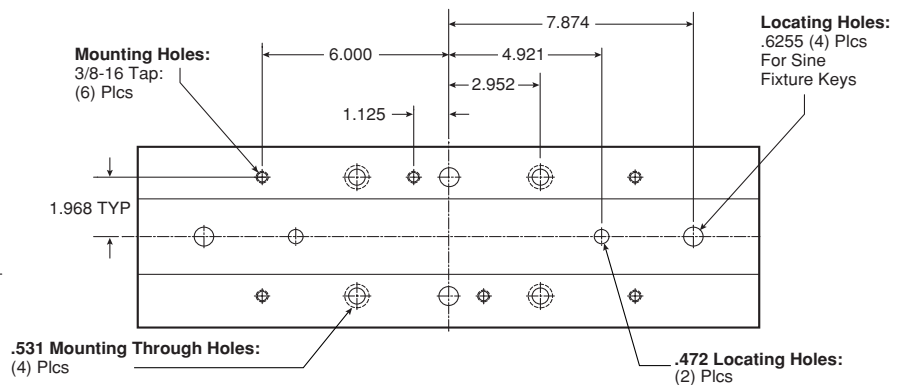
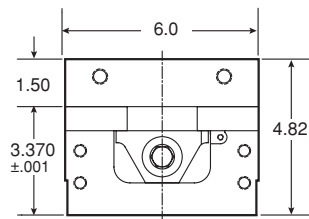
Mounting Dimensions

6" Production Vises Narrow Base

The **Narrow Base Vise** can be used as a stand-alone vise or mounted to a fixture plate. This style is best suited for applications requiring multiple vises. The slim design allows a high density of vises on your machine table, tombstone, or column. Maximize your flexibility by utilizing the Jergens Ball Lock Quick Change Mounting System. See page 6.8 for more information about Ball Lock.

- Easy to mount to Ball Lock or other fixture plates
- Fastest quick-change jaw system
- Full jaw travel
- Hardened and ground steel wear rails
- Fully sealed lead screw assembly
- Openings allow chips to flow out of the vise
- Supplied with machinable soft jaws
- Available with hard jaws
- Hydraulic operation available

Part No.	Wt.
49402	66 lbs.



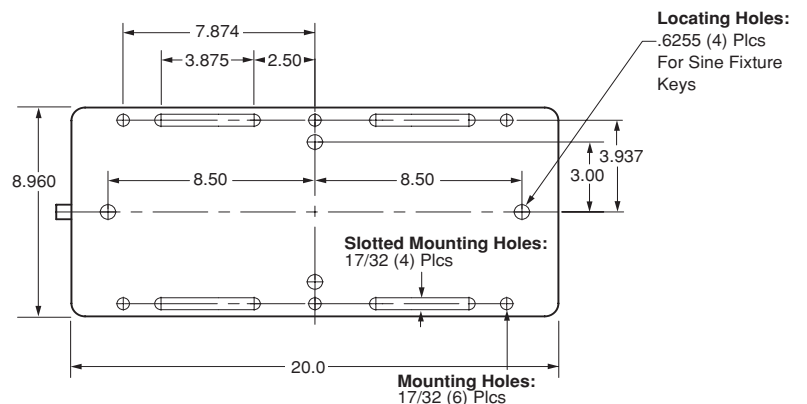
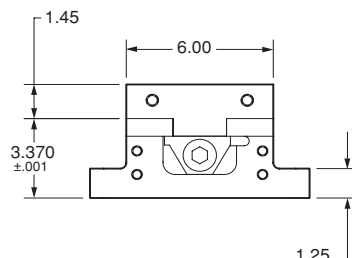
Mounting Dimensions

Universal Base

The **Universal Base Vise** is easily mounted directly to machine tool tables. Slotted mounting holes will match almost any table slot pattern. Location holes are provided for Jergens Sine Fixture Keys, to provide easy and accurate alignment with table slots.

- Easy to mount directly to machine tables
- Fastest quick-change jaw system
- Full jaw travel
- Hardened and ground steel wear rails
- Fully sealed lead screw assembly
- Openings allow chips to flow out of the vise
- Supplied with machinable soft jaws
- Available with hard jaws
- Hydraulic operation available

Part No.	Wt.
49472	68 lbs.



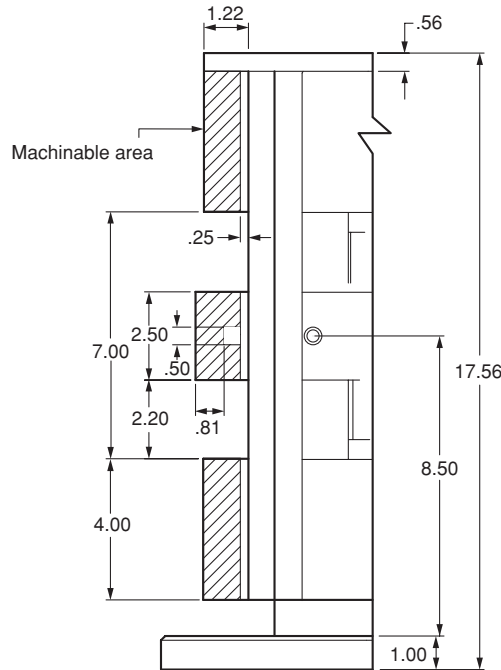
Mounting Dimensions

4" Production Vise Columns

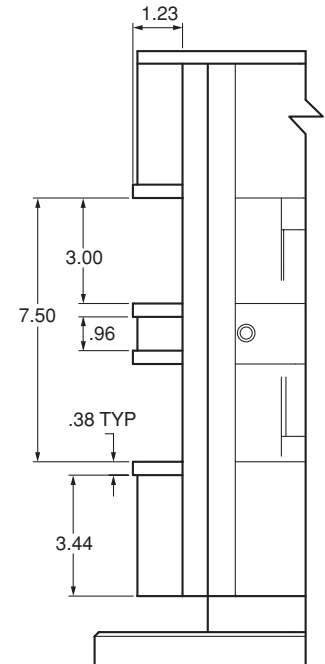
- 3 or 4-Sided Columns
- Multiple mounting systems
- Fastest quick-change jaw system
- Full jaw travel
- Hardened and ground steel wear rails
- Fully sealed lead screw assembly
- Supplied with machinable soft jaws
- Available with hard jaws

Jergens 4" Vise Column Clamping Forces

Torque (lbs. ft.)	Clamping Force (approximate)
20	3,600
30	4,500
40	5,300
50	6,200
60	7,200*
*Recommended Max	



Column With Soft Jaws

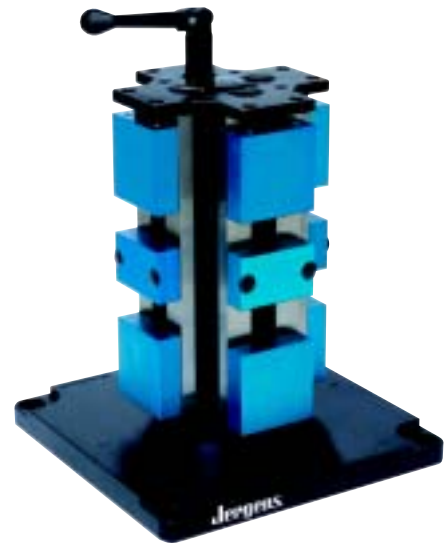
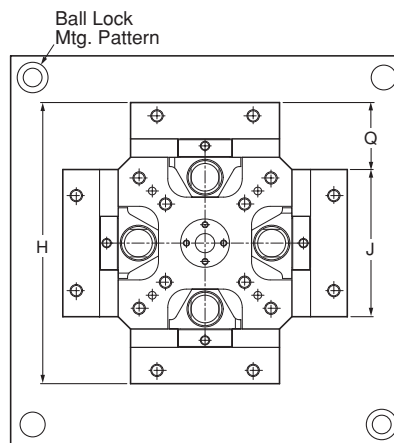


Column With Hard Jaws

4" Production Vise Columns

4-Sided

The 4-Sided Columns are the workhorses of the Jergens Production Vise Columns. They have eight stations for holding your parts. Two standard bases are available. The universal base will mount directly to most HMC tables, using the provided mounting holes on 80MM or 100MM centers. Increase your productivity even more by adding the Jergens Ball Lock™ Mounting System to your HMC. Exchange your vise columns and any other fixture in less than a minute. Location of all fixtures will repeat within .0005" every time. Custom mounting patterns and base dimensions are available. Please contact Jergens Customer Service for more information.



4-Sided 4" Vise Columns

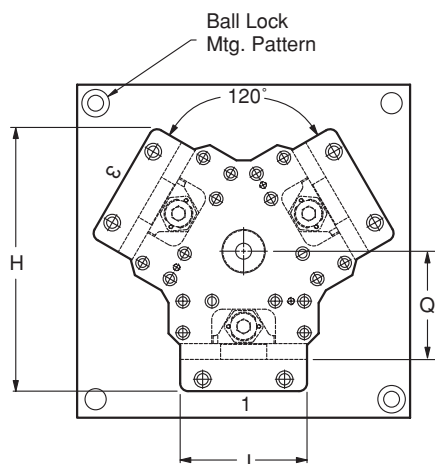
Mounting	Part No.	H	J	Q	Base Width	Base Length	Ball Lock Mtg Pattern	Mounting Pattern 1*	Mounting Pattern 2*	Wt. (lbs)
Ball Lock	49403	9.56	4.00	2.80	15.75	15.75	14 x 14	n/a	n/a	132
Universal	49475	9.56	4.00	2.80	11.81	11.81	n/a	80MM	100MM	122

* Bases on Universal Columns are provided with two sets of mounting holes, to fit grids or T-Slots on 80MM and 100MM centers. Custom mounting patterns and base sizes are available upon request. Contact Jergens Technical Service for more information.

4" Production Vise Columns

3-Sided

The 3-Sided Columns have only six workstations, but provide much greater access to three or more sides of your work pieces. This design is especially beneficial on machining centers with large spindle noses. No need to sacrifice tool rigidity for access, by having tools extended too far from the tool holders. The universal base will mount directly to most HMC tables, using the provided mounting holes on 80MM or 100MM centers. Increase your productivity even more by adding the Jergens Ball Lock™ Mounting System to your HMC. Exchange your vise columns and all other fixtures in less than a minute. Location of all fixtures will repeat within .0005" every time. Custom mounting patterns and base dimensions are available. Please contact Jergens Customer Service for more information. **Allows for up to 240° workpiece accessibility.**



3-Sided 4" Vise Columns

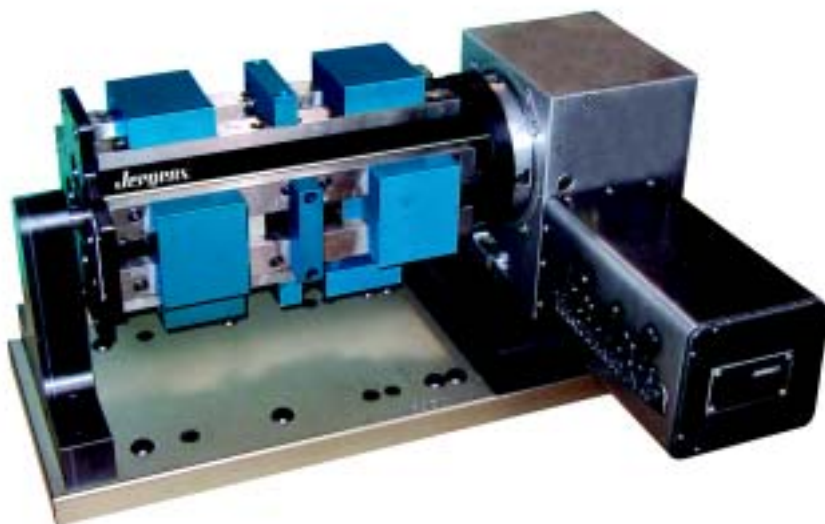
Mounting	Part No.	H	J	Q	Base Width	Base Length	Ball Lock Mtg Pattern	Mounting Pattern 1*	Mounting Pattern 2*	Wt. (lbs)
Ball Lock	49409	9.55	4.00	4.22	15.75	15.75	14 x 14	n/a	n/a	125
Universal	49473	9.55	4.00	4.22	11.81	11.81	n/a	80MM	100MM	115

* Bases on Universal Columns are provided with two sets of mounting holes, to fit grids or T-Slots on 80MM and 100MM centers. Custom mounting patterns and base sizes are available upon request. Contact Jergens Technical Service for more information.

Indexer Systems

Maximize the productivity of your Vertical Machining Center. Jergens Production Columns can be mounted onto your existing indexer or Jergens can supply an indexer for you. Columns can be attached directly to an indexer or become part of a quick-change system by adding the Jergens Ball Lock™ Mounting System. **Contact Jergens Technical Service for help designing a system for your application.**

- Add capacity to your VMC
- Reduce set-ups
- Mount to any rotary table/indexer
- Hold 4, 6, or 8 parts in each load.
- Use standard jaws and accessories

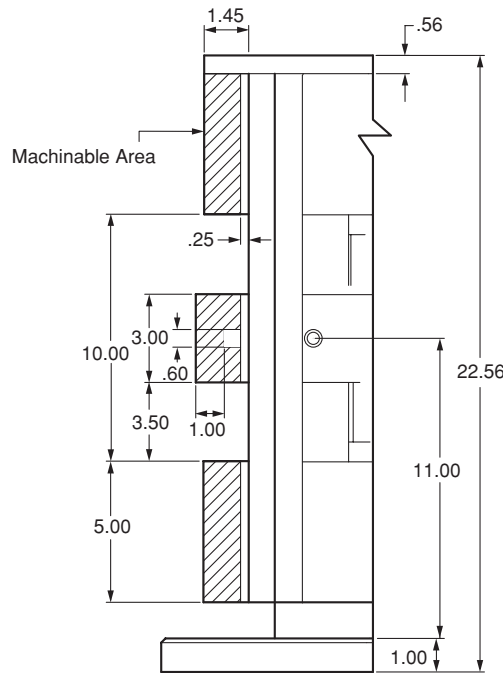


6" Production Vise Columns

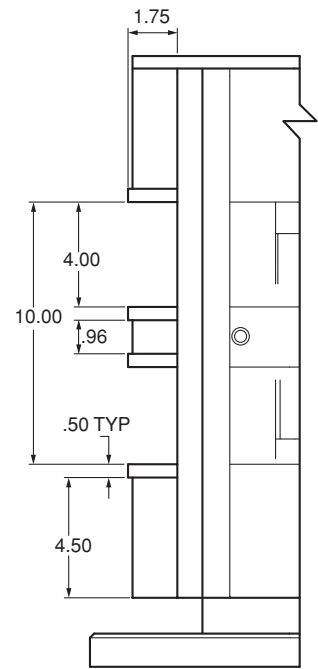
- 3 or 4-Sided Columns
- Multiple mounting systems
- Fastest quick-change jaw system
- Full jaw travel
- Hardened and ground steel wear rails
- Fully sealed lead screw assembly
- Supplied with machinable soft jaws
- Available with hard jaws

Jergens 6" Vise Column Clamping Force

Torque (lbs. ft.)	Clamping Force (approximate)
20	3,600
30	4,500
40	5,300
50	6,200
60	7,200
70	8,400
80	9,200
90	10,100*
*Recommended Max	



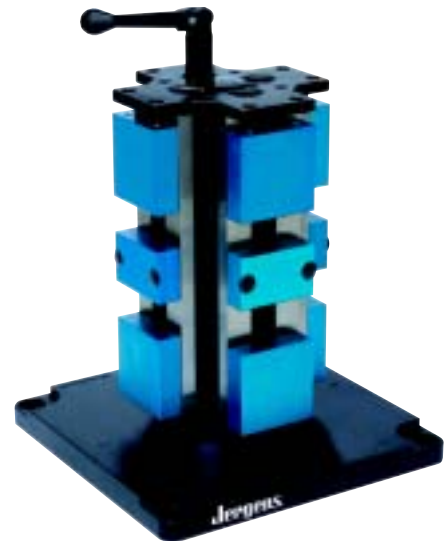
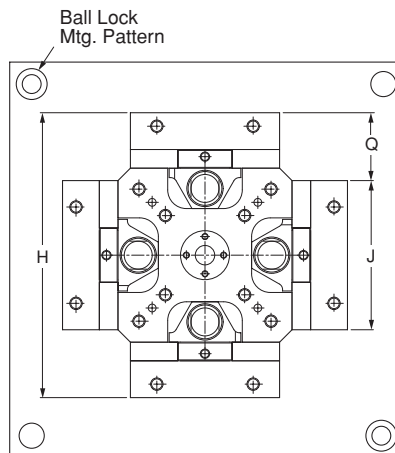
Column With Soft Jaws



Column With Hard Jaws

6" Production Vise Columns 4-sided

The 4-Sided Columns are the workhorses of the Jergens Production Vise Columns. They have eight stations for holding your parts. Two standard bases are available. The universal base will mount directly to most HMC tables, using the provided mounting holes on 80MM or 100MM centers. Increase your productivity even more by adding the Jergens Ball Lock™ Mounting System to your HMC. Exchange your vise columns and any other fixture in less than a minute. Location of all fixtures will repeat within .0005" every time. Custom mounting patterns and base dimensions are available. Please contact Jergens Customer Service for more information.



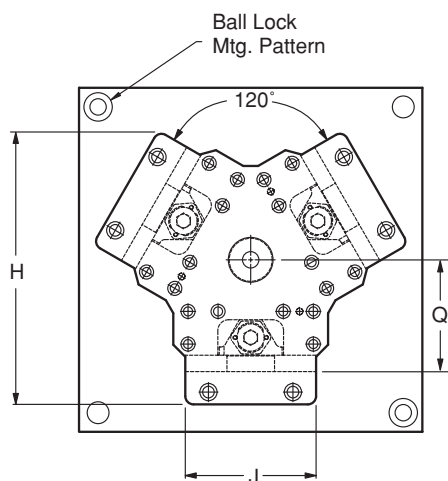
4-Sided 6" Vise Columns

Mounting	Part No.	H	J	Q	Base Width	Base Length	Ball Lock Mtg Pattern	Mounting Pattern 1*	Mounting Pattern 2*	Wt. (lbs)
Ball Lock	49412	11.50	6.00	2.75	15.75	15.75	14 x 14	n/a	n/a	244
Ball Lock	49404	11.50	6.00	2.75	19.68	19.68	17 x 17	n/a	n/a	258
Universal	49476	11.50	6.00	2.75	11.81	11.81	n/a	80MM	100MM	235

* Bases on Universal Columns are provided with two sets of mounting holes, to fit grids or T-Slots on 80MM and 100MM centers. Custom mounting patterns and base sizes are available upon request. Contact Jergens Technical Service for more information

6" Production Vise Columns 3-Sided

The 3-Sided Columns have only six workstations, but provide much greater access to three or more sides of your work pieces. This design is especially beneficial on machining centers with large spindle noses. No need to sacrifice tool rigidity for access, by having tools extended too far from the tool holders. The universal base will mount directly to most HMC tables, using the provided mounting holes on 80MM or 100MM centers. Increase your productivity even more by adding the Jergens Ball Lock™ Mounting system to your HMC. Exchange your vise columns and all other fixtures in less than a minute. Location of all fixtures will repeat within .0005" every time. Custom mounting patterns and base dimensions are available. Please contact Jergens Customer Service for more information. **Allows for up to 240° workpiece accessibility.**



3-Sided 6" Vise Columns

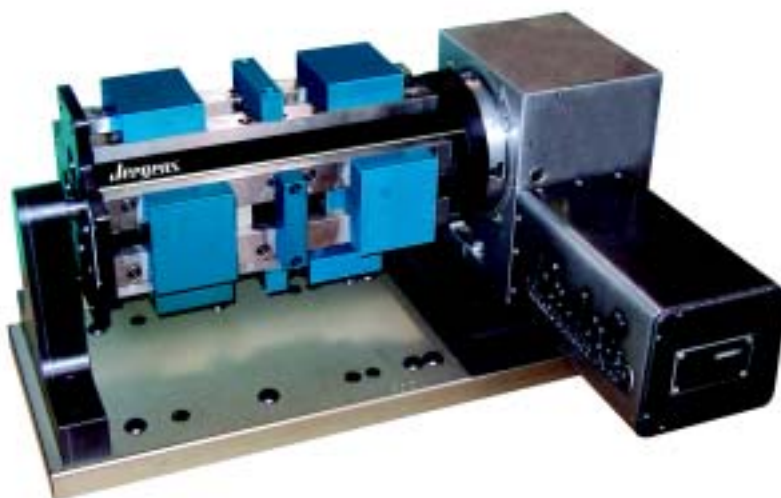
Mounting	Part No.	H	J	Q	Base Width	Base Length	Ball Lock Mtg Pattern	Mounting Pattern 1*	Mounting Pattern 2*	Wt. (lbs)
Ball Lock	49408	12.57	6.00	5.12	15.75	15.75	14 x 14	n/a	n/a	252
Ball Lock	49410	12.57	6.00	5.12	19.68	19.68	17 x 17	n/a	n/a	266
Universal	49474	12.57	6.00	5.12	15.75	15.75	n/a	80MM	100MM	240

* Bases on Universal Columns are provided with two sets of mounting holes, to fit grids or T-Slots on 80MM and 100MM centers. Custom mounting patterns and base sizes are available upon request. Contact Jergens Technical Service for more information.

Indexer Systems

Maximize the productivity of your Vertical Machining Center. Jergens Production Columns can be mounted onto your existing indexer or Jergens can supply an indexer for you. Columns can be attached directly to an indexer or become part of a quick-change system by adding the Jergens Ball Lock™ Mounting System. **Contact Jergens Technical Service for help designing a system for your application.**

- Add capacity to your VMC
- Reduce set-ups
- Mount to any rotary table/indexer
- Hold 4, 6, or 8 parts in each load.
- Use standard jaws and accessories

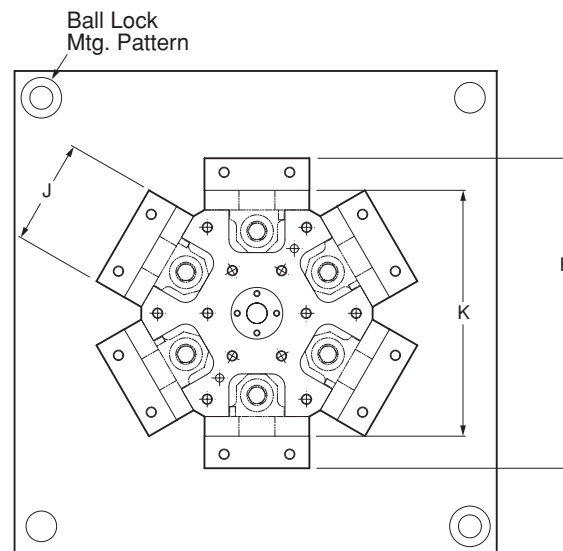
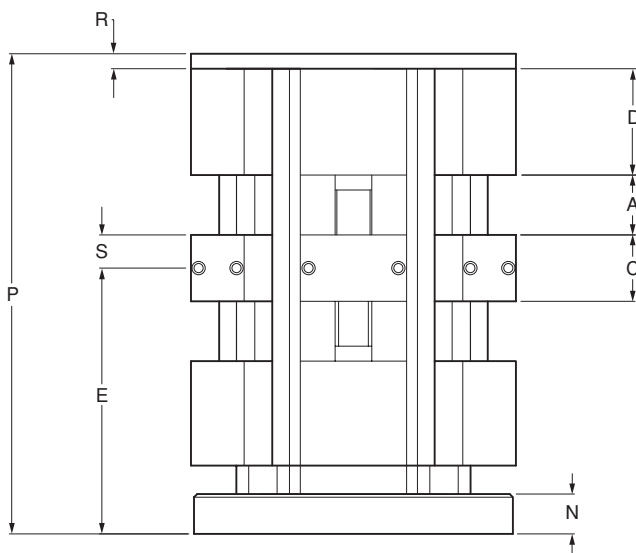


Production Vise Columns

12 Station Hex

Jergens Hex Production Vise Columns provide 12 stations to maximize the number of parts per load. Available with bases to fit directly onto your machine table, or to a Ball Lock™ sub-plate.

- Reduce part processing costs by machining 3 sides of 12 parts
- Increase unattended machine time
- Improve part throughput
- One piece column with hardened steel guide ways
- Full jaw travel permits clamping a larger variety of parts



Hex Production Vise Columns

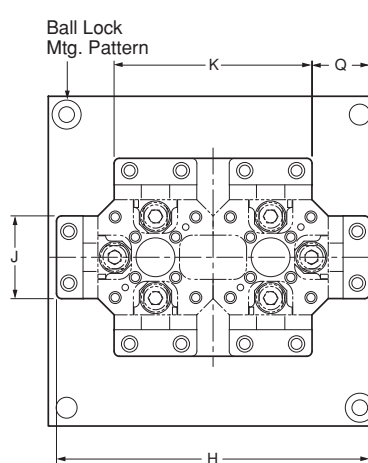
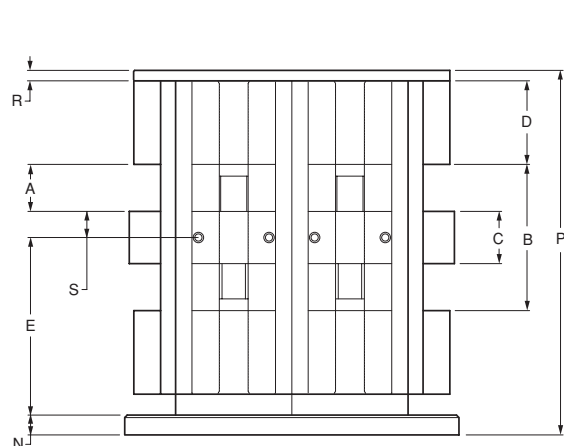
Dimensions		Ball Lock Base		Universal Base	
		49413	49414	49477	49478
Vise Size		4"	6"	4"	6"
A	Max Jaw Opening	2.25	3.50	2.25	3.50
C	Fixed Jaw Width	2.50	3.00	2.50	3.00
D	Moveable Jaw Length	4.00	5.00	4.00	5.00
E	Base to Center of Fixed Jaw	8.50	11.00	8.50	11.00
H	Overall Width	11.81	16.91	11.81	16.91
J	Jaw Width	4.00	6.00	4.00	6.00
K	Outside Rail to Rail	9.37	14.01	9.37	14.01
N	Base Plate Thickness	1.00	1.00	1.00	1.00
P	Overall Height	17.56	22.56	17.56	22.56
R	Top Plate Thickness	0.56	0.56	0.56	0.56
S	Center to Face	1.25	1.50	1.25	1.50
	Base Length & Width	15.75	19.68	15.75	19.68
	Ball Lock Mounting Pattern	14x14	17x17	n/a	n/a
	Mounting Pattern 1*	n/a	n/a	80MM	80MM
	Mounting Pattern 2*	n/a	n/a	100MM	100MM
	Weight (lbs)	206	355	206	355

* Bases on Universal Columns are provided with two sets of mounting holes, to fit grids or T-Slots on 80MM and 100MM centers. Custom mounting patterns and base sizes are available upon request. Contact Jergens Technical Service for more information.

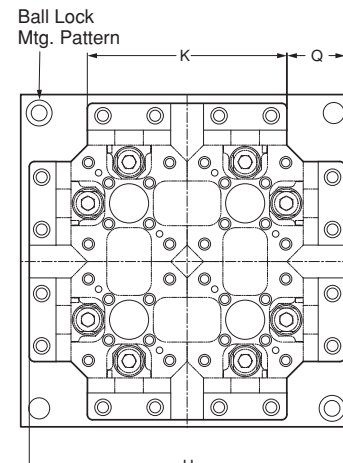
Production Vise Columns 12 & 16 Station Multi-Quads

Jergens Multi-Quad Production Vise Columns provide 12 or 16 stations to maximize the number of parts per load. Available with bases to fit directly onto your machine table, or to a Ball Lock™ sub-plate.

- Machine more parts per set-up
- Reduce changeover time
- Hold larger parts
- Reduce cost per part
- Run longer without operator involvement



12 Station



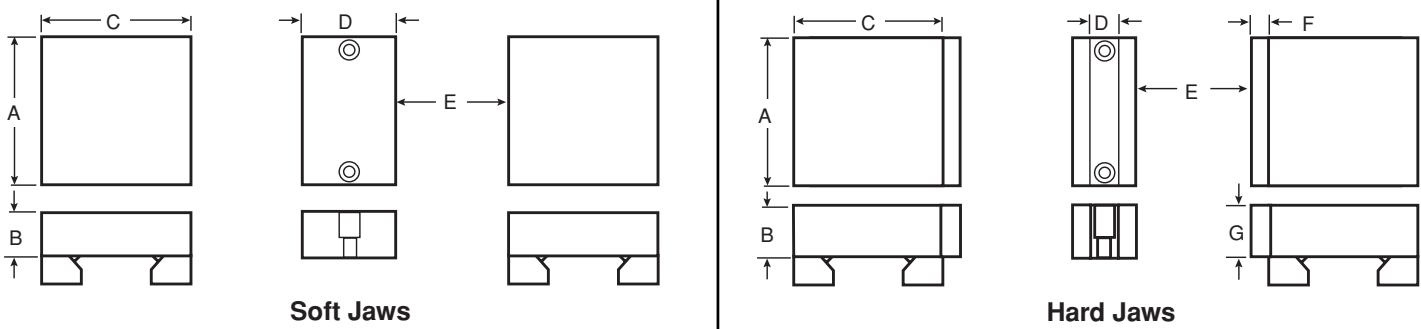
16 Station

Multi-Quad Production Vise Columns

Dimensions		12 Station				16 Station			
		Ball Lock Base		Universal Base		Ball Lock Base		Universal Base	
		49415	49416	49479	49480	49417	49418	49481	49482
	Vise Size	4"	6"	4"	6"	4"	6"	4"	6"
A	Max Jaw Opening (2 station)	2.25	3.50	2.25	3.50	2.25	3.50	2.25	3.50
B	Max Jaw Opening (1 station)	7.00	10.00	7.00	10.00	7.00	10.00	7.00	10.00
C	Fixed Jaw Width	2.50	3.00	2.50	3.00	2.50	3.00	2.50	3.00
D	Moveable Jaw Length	4.00	5.00	4.00	5.00	4.00	5.00	4.00	5.00
E	Base to Center of Fixed Jaw	8.50	11.00	8.50	11.00	8.50	11.00	8.50	11.00
H	Overall Width	11.81	16.91	11.81	16.91	11.81	16.91	11.81	16.91
J	Jaw Width	4.00	6.00	4.00	6.00	4.00	6.00	4.00	6.00
K	Outside Rail to Rail	9.37	14.01	9.37	14.01	9.37	14.01	9.37	14.01
N	Base Plate Thickness	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P	Overall Height	17.56	22.56	17.56	22.56	17.56	22.56	17.56	22.56
Q	Clearance	2.80	2.75	2.80	2.75	2.80	2.75	2.80	2.75
R	Top Plate Thickness	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
S	Center to Face	1.25	1.50	1.25	1.50	1.25	1.50	1.25	1.50
	Base Length & Width	15.75	19.68	15.75	19.68	15.75	19.68	15.75	19.68
	Ball Lock Mounting Pattern	14x14	17x17	n/a	n/a	14x14	17x17	n/a	n/a
	Mounting Pattern 1*	n/a	n/a	80MM	80MM	n/a	n/a	80MM	80MM
	Mounting Pattern 2*	n/a	n/a	100MM	100MM	n/a	n/a	100MM	100MM
	Weight (lbs)	190	380	190	380	360	720	360	720

* Bases on Universal Columns are provided with two sets of mounting holes, to fit grids or T-Slots on 80MM and 100MM centers. Custom mounting patterns and base sizes are available upon request. Contact Jergens Technical Service for more information.

Production Vise Jaws



Jaws for 4" Production Vises

Part No.	Description	A	B	C	D	E ⁽¹⁾	F	G
49420	Standard Machinable Soft Jaw Set (3pcs.)	3.95	1.22	4.00	2.50	2.20		
49421	Pair of Std Moveable Jaws Only (2pcs.)	3.95	1.22	4.00				
49422	Std Fixed Jaw Only (1pc.)	3.95	1.22		2.50			
49423	Extra Wide Machinable Soft Jaw Set (3pcs.)	5.95	1.22	4.00	2.50	2.20		
49424	Pair of Wide Moveable Jaws Only (2pcs.)	5.95	1.22	4.00				
49425	Wide Fixed Jaw Only (1pc.)	5.95	1.22		2.50			
49450	Extra Tall Machinable Soft Jaw Set (3pcs.)	3.95	2.00	5.00	2.50	1.70		
49451	Pair of Tall Moveable Jaws Only (2pcs.)	3.95	2.00	5.00				
49452	Tall Fixed Jaw Only (1pc.)	3.95	2.00		2.50			
49426	Hard Jaw Carrier Set ⁽²⁾ (3pcs.)	3.95	1.22	3.44	.96	2.88		
49428	Pair of Moveable Hard Jaws Only (2pcs.)	3.95	1.22	3.44				
49427	Fixed Hard Jaw Only (1pc.)	3.95	1.22		.96			
49429	Hardened Steel Jaw Insert ⁽³⁾ (4pcs.)	4.00					.35	1.23

⁽²⁾ Steel Inserts NOT included

⁽¹⁾ Mounted Dimensions

⁽³⁾ Steel inserts have black-oxide finish, and are hardened to R_C 54/58.

Jaws for 6" Production Vises

Part No.	Description	A	B	C	D	E ⁽¹⁾	F	G
49430	Standard Machinable Soft Jaw Set (3pcs.)	5.95	1.45	5.00	3.00	3.50		
49431	Pair of Std Moveable Jaws Only (2pcs.)	5.95	1.45	5.00				
49432	Std Fixed Jaw Only (1pc.)	5.95	1.45		3.00			
49433	Extra Wide Machinable Soft Jaw Set (3pcs.)	7.95	1.45	5.00	3.00	3.50		
49434	Pair of Wide Moveable Jaws Only (2pcs.)	7.95	1.45	5.00				
49435	Wide Fixed Jaw Only (1pc.)	7.95	1.45		3.00			
49455	Extra Tall Machinable Soft Jaw Set (3pcs.)	5.95	2.50	6.00	3.00	3.00		
49453	Pair of Tall Moveable Jaws Only (2pcs.)	5.95	2.50	6.00				
49454	Tall Fixed Jaw Only (1pc.)	5.95	2.50		3.00			
49436	Hard Jaw Carrier Set ⁽²⁾ (3pcs.)	5.95	1.48	4.50	.96	4.00		
49438	Pair of Moveable Hard Jaws Only (2pcs.)	5.95	1.48	4.50				
49437	Fixed Hard Jaw Only (1pc.)	5.95	1.48		.96			
49439	Hardened Steel Jaw Insert Set ⁽³⁾ (4pcs.)	6.00					.48	1.75

⁽²⁾ Steel Inserts NOT included

⁽¹⁾ Mounted Dimensions

⁽³⁾ Steel inserts have black-oxide finish, and are hardened to R_C 54/58.

Production Vise Accessories

Jaws & Fixture Plates

Jaws

- **Standard** fully machinable soft jaws, as supplied on the Production Vises and Columns
- **Extra Wide** fully machinable soft jaws.
- **Extra High** fully machinable soft jaws.
- **Hard Jaw Carriers** are hard anodized aluminum jaws; drilled and tapped to accept hard jaw inserts.
- **Hard Jaw Inserts** are hardened steel plates that bolt onto the hard jaw carriers.

Jaws are offered three ways:

- **Jaw Sets** include two moveable jaws and one fixed jaw.
- **Moveable Jaws** are sold in pairs
- **Fixed Jaws** are sold each.

Jergens offers a variety workholding options for our Production Vises.

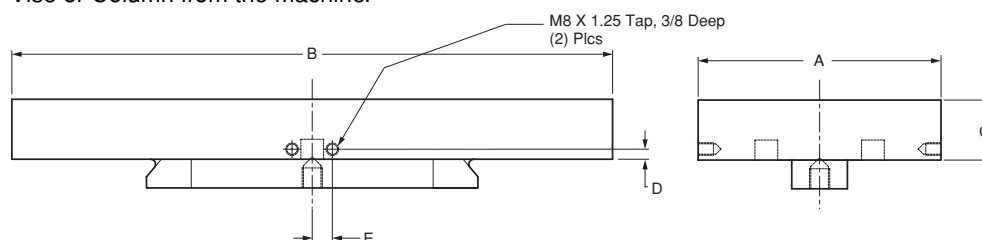


Machineable Soft Jaws (Standard)

Hard Jaw Carriers With Steel Inserts*

Full Face Vise Plates

Vise plates provide an alternative to holding parts in the jaws of Jergens Production Vises. Build dedicated fixtures on the plates, and then just snap them onto a Vise or Column. Use a combination of vise plates and jaws to machine related parts in the same set-up. Switch between fixtures and jaws, without removing the Vise or Column from the machine.



Full Face Vise Plate

Full Face Vise Plates for 4" Production Vises

Part No.	Description	A	B	C	D	E
49446	Standard Vise Plate	4	14.90	1.475	.25	.50
49448	Wide Vise Plate	6	14.90	1.475	.25	.50



Conversion Plate

Full Face Vise Plates for 6" Production Vises

Part No.	Description	A	B	C	D	E
49447	Standard Vise Plate	6	19.90	1.475	.25	.688
49449	Wide Vise Plate	8	19.90	1.475	.25	.688



Work Stop

Vise Conversion Plates

Part No.	Vise Size
49440	4"
49441	6"

NOTE: Conversion plates include mounting screws.

- Allows for easy conversion from twin station to single station vise
- Hard coat anodized aluminum

Vise Handles

Part No.	Vise Size
49442	4"
49443	6"

- Ergonomic Design
- Machined Aluminum
- 5/8" Hex Size

Vise Work Stop

Part No.
49444

- Easily mounts to side of twin vise
- Allows for precise part location



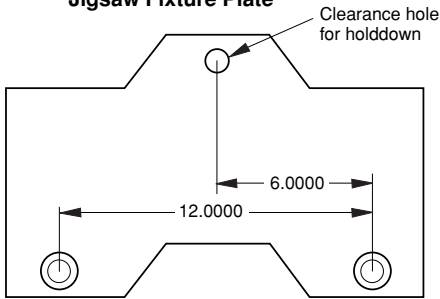
Handle

*Steel Inserts Ordered Separately

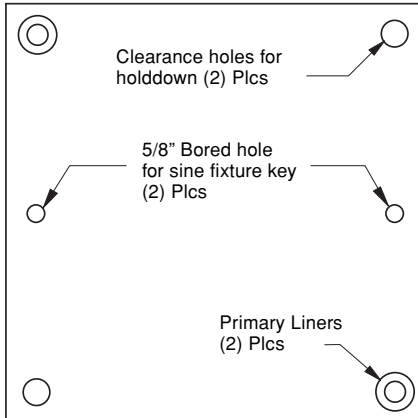
Ball Lock™ Accessories for Jergens Production Vises



Jigsaw Fixture Plate



Multiple Vise Fixture Plate



Ball Lock Shanks

Shank Diameter	Fixture/Base Thickness	Standard Shank	Shank with Thumbscrew
20	3/4	49601	49601-S
20	1"	49602	49602-S
25	3/4	49611	49611-S
25	1"	49612	49612-S



Standard Shank

Thumb Screw

Jigsaw Interlocking Fixture Plates

Plate Part No.	Jig Saw Pattern	Plate Thickness	Outer Dimensions	Use With Vise No.	Wt. (lbs)
28705	6 x 12	3/4	8 x 15	49401	9
28706	8 x 12	3/4	10 x 16	49402	9

Ball Lock Fixture Plates for Multiple Production Vises

Jergens manufactures standard Ball Lock Fixture Plates for various applications. A small sample is listed below. These fixture plates will accept multiple Jergens Production Vises. However, the Jergens Ball Lock Mounting System can provide the greatest benefits, when designed for your specific applications and your machine tools. Please contact Jergens Technical Service to select the proper fixture and sub-plate for your applications.

Plate Part No.	Ball Lock Pattern	Shank Diameter	Plate Thickness	Outer Dimensions	Vises/Plate	Use With Vise No.	Wt. (lbs)
28713	12 x 12	20MM	3/4	14 x 14	2	49401	14
28715	12 x 12	20MM	3/4	16 x 16	2	49401	18
28727	17 x 17	25MM	1"	20 x 20	3	49401	38
28727	17 x 17	25MM	1"	20 x 20	2	49402	38
*28742	8 x 22	25MM	1"	12 x 25	2	49401	28

*Fits Jergens Tooling Column 69011

Ball Lock Sub-Plates for Ball Lock Vises, Columns, and Fixture Plates

Jergens manufactures standard sub-plates for popular machine tools. Three standard plates are shown. These sub-plates will accept Jergens Ball Lock Vises, Columns and Fixture Plates. Some of the sub-plates have multiple mounting patterns that will allow multiple sizes and styles of fixture

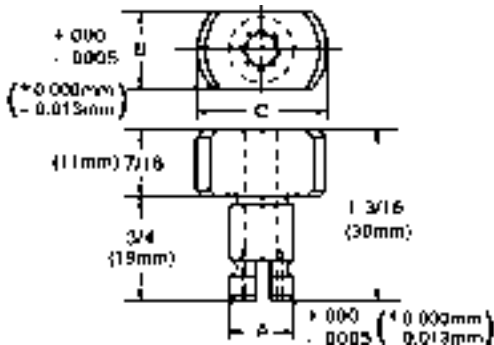
plates and vises to be used on the same machine. However, the Jergens Ball Lock Mounting System can provide the greatest benefits, when designed for your specific applications and your machine tools. Please contact Jergens Technical Service to select the proper sub-plate for your machine.

Plate Part No.	Machine Type	Table Size	Ball Lock Pattern	Applications
49102	HMC	400MM	14x14	Vise Columns, Tooling Columns, Other
49103-C	HMC	500MM	17x17&14x14	Vise Columns, Tooling Columns, Other
49112	VMC	20x40	Multiple Patterns	Jigsaw Vises & Plates, Multiple Vise Fixtures, Other

Sine Fixture Keys



Locate subplates or fixture plates to slotted machine tables without having to slot the plate. Available in inch sizes from 1/2" to 7/8" slots, and in metric sizes from 12mm to 22mm slots.



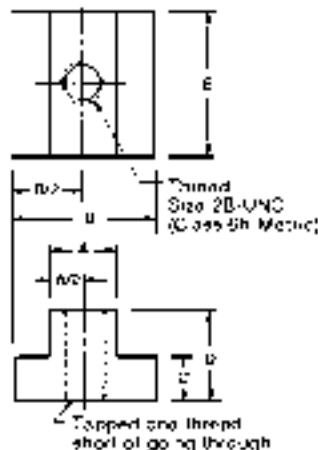
Inch

Part Number	Shank Size A	Table Slot Size B	C	Wt. (lbs)
39501	.625	.4995	1	.09
39502	.625	.562	1	.11
39503	.625	.6245	1	.11
39504	.625	.687	1	.11
39505	.625	.7495	1 1/8	.13
39506	.625	.812	1 1/8	.14
39507	.625	.8745	1 1/8	.15

Metric

Part Number	Shank Size A	Table Slot Size (mm) B	C	Wt. (kg)
39561	.625	12	1	.09
39562	.625	14	1	.09
39563	.625	16	1	.11
39564	.625	18	1 1/8	.11
39565	.625	20	1 1/8	.14
39566	.625	22	1 1/8	.15

T-Slot Nuts



Inch

Part Number	Thread	T-Slot Width A	B	C	D	E	Wt. (lbs) 10 Pcs.
*43302**	3/8-16	7/16	11/16	7/32	1/2	7/8	0.50
*43303**	3/8-16	1/2	7/8	9/32	1/2	7/8	0.70
43301	3/8-16	9/16	7/8	1/4	1/2	7/8	0.70
*43305**	1/2-13	9/16	7/8	11/32	5/8	1 1/8	1.20
*43306	1/2-13	5/8	1	11/32	5/8	1 1/8	1.50
*43304	1/2-13	11/16	1 1/8	7/16	3/4	1 1/4	2.10
*43308**	5/8-11	11/16	1 1/8	7/16	3/4	1 1/4	1.14
*43309	5/8-11	3/4	1 1/4	15/32	3/4	1 1/4	1.60
*43307	5/8-11	13/16	1 1/4	9/16	1	1 1/2	3.11

*Conforms to TCMA. **Not Hardened

Metric

Part Number	Thread	T-Slot Width A	B	C	D	E	Wt. (kg) 10 pcs.
43372	M10 x 1.5	12	19	7	13	25	0.25
43373	M10 x 1.5	14	22	9	16	29	0.35
43374	M10 x 1.5	16	25	9	16	29	0.35
43375	M12 x 1.75	14	22	9	16	29	0.60
43376	M12 x 1.75	16	25	9	16	29	0.75
43377	M12 x 1.75	18	29	11	19	32	1.1
43378	M16 x 2.0	18	29	11	19	32	0.57
43379	M16 x 2.0	20	32	14	25	38	0.80
43380	M16 x 2.0	22	35	14	25	38	1.56

Start Your Lean Manufacturing Initiative with Jergens...

Jergens Production Vises



**Jergens Ball Lock™
Mounting System**



**Productivity
Improvements**



Production Vises for VMC Applications



Production Vise Columns
for HMC Applications

The Standard Components with the Highest Standards

Jergens

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E-mail: info@jergensinc.com



Quality System Certified

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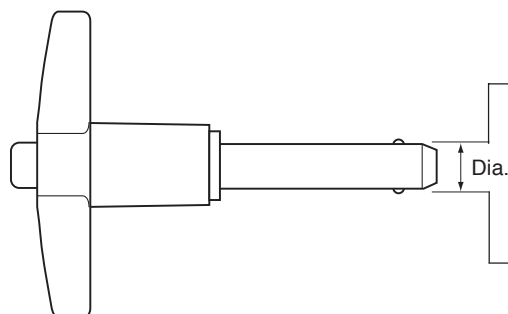


Button Handle Kwik-Lok Pin	7.10-7.11
Double Acting Kwik-Lok Pins	7.16-7.17
Heavy Duty Button Handle Kwik-Lok Pin	7.12-7.13
Heavy Duty Detent Kwik-Lok Pins	7.20-7.21
Heavy Duty T&L Handle Kwik-Lok Pins	7.8-7.9
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Ring-Handle Kwik-Lok Pin	7.14-7.15
Specifications & Materials	7.22
T-Handle Kwik-Lok Pin	7.4-7.5

Kwik-Lok™ Pins

Ordering Information:

1. Select Desired Pin Diameter



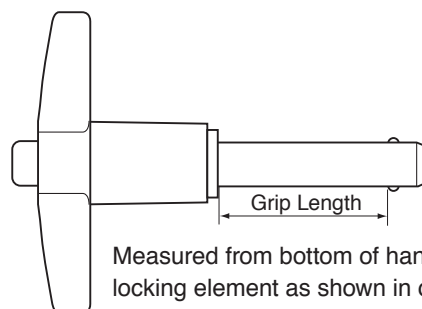
Standard Inch Sizes

3/16	9/16
1/4	5/8
5/16	3/4
3/8	7/8
7/16	1
1/2	

Standard Metric Sizes

5	12
6	16
8	20
10	25

2. Select Desired Grip Length (Pin Length)



Measured from bottom of handle collar, to top of locking element as shown in drawing.

3. Select Handle Style

T, L, Button, Ring, Recessed Button (stainless steel only)

Heavy Duty T&L, High Tension, Double Acting, Heavy Duty Detent handles.

Locate specific part number from part number charts. Special sizes and configurations readily available. Please contact customer service at: **1-800-Jergens (537-4367)**

4. Specify accessories such as lanyards and tabs.

Standard inch lengths range from 1/2" - 6".

Standard metric lengths range from 10mm - 100mm
 (See part number tables for standard lengths, other lengths available on special request.)

Kwik-Lok Pin Application Information



Specialty Application Pins

Manufacturing:

Jigs and Fixturing
Packaging Machinery
Paper Mills/Machinery
Tank Doors and Lids
(Various process industries)
Conveyor Systems
Material Handling Equipment
Textile Machinery
Forming and Fabricating Equipment
Plastic Injection Molding

Aviation/Aerospace:

Landing Gear
Drop Tanks
Ordinance
Cargo Nets
Aircraft Seating
Aerial Spraying Equipment
Gliders

Medical Equipment:

Hospital Beds and Cots
Medical Equipment
Portable X-Ray Equipment
Wheelchairs

General Industrial:

Scaffolding Equipment
Mining Equipment
Drilling Equipment
Lifting Equipment
(Hoists, Slings, Cables, etc.)
Trailer Beds

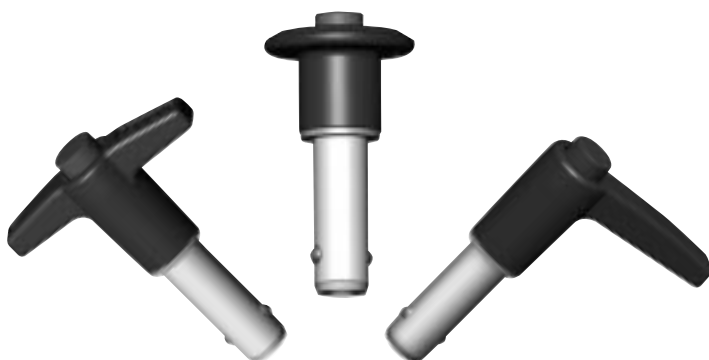
Recreational Industry:

Recreational Vehicles
Racing Cars
(hoods, transmissions, steering wheels)
Weight Machines
Hot Air Balloons

Jet Skis
Hang Gliders
Mountain Climbing Equipment

Marine Industry (Recreation/Commercial):

Anchors
Bimini Covers
Outriggers
Boat Trailers
Rudder/Tiller Attachments
Sailboat Rigging
Commercial Boat Rigging



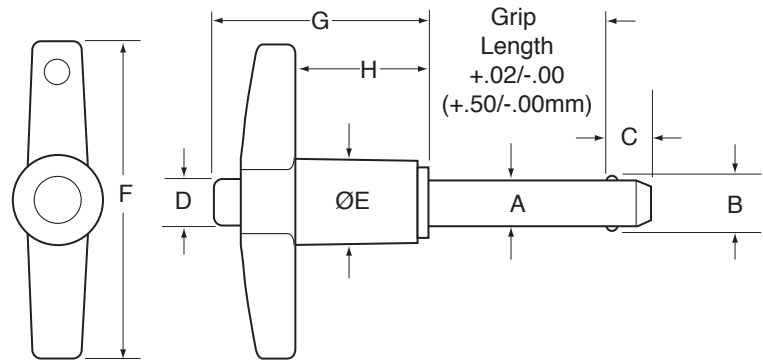
Need a Special Size or Configuration?

Contact Jergens for more information.

3D solid models available in SolidWorks® (.SLDPRT) and other formats, downloadable from www.jergensinc.com.

SolidWorks® is a registered trademark of SolidWorks Corporation.

T-Handle Kwik-Lok Pin



T-Handle Specifications - Inch

Nom Pin Dia	ØA		+/- .005 B	+.000/ -.040 C	D	E	F	G	H
	Min	Max							
3/16 (#10)	.1870	.1885	.220	.260	1/4	1/2	1 13/16	1 1/4	3/4
1/4	.2470	.2485	.289	.290	1/4	1/2	1 13/16	1 1/4	3/4
5/16	.3095	.3110	.375	.330	1/4	1/2	1 13/16	1 1/4	3/4
3/8	.3720	.3735	.440	.365	5/16	19/32	2	1 7/16	15/16
7/16	.4345	.4360	.509	.380	5/16	19/32	2	1 7/16	15/16
1/2	.4970	.4985	.594	.460	15/32	3/4	2	1 5/8	1
9/16	.5595	.5610	.666	.510	15/32	3/4	2 3/8	1 5/8	1
5/8	.6220	.6235	.750	.580	9/16	15/16	3 1/8	1 31/32	1 3/16
3/4	.7470	.7485	.887	.670	5/8	15/16	3 1/8	1 31/32	1 3/16
7/8	.8720	.8735	1.046	.760	3/4	1 1/4	3 1/2	2 1/4	1 11/32
1	.9970	.9985	1.209	.890	3/4	1 1/4	3 1/2	2 1/4	1 11/32

- The T-Handle Kwik-Lok Pin provides a firm, even grip for smooth comfortable operation.
- Handle is black cast aluminum and the button is blue anodized aluminum.
- Available in steel and stainless steel body.
- Includes hole and ring for easy attachment of optional lanyard.

T-Handle Specifications - Metric

Nom Pin Dia	ØA		+/-0.25 B	+/-1.0 C	D	E	F	G	H
	Min	Max							
5	4.92	4.96	5.54	6	6.5	13.1	46.1	31.3	19.7
6	5.92	5.96	6.99	7	6.5	13.1	46.1	31.3	19.7
8	7.92	7.96	9.42	8	6.5	13.1	46.1	31.3	19.7
10	9.92	9.96	11.86	9	7.7	15.0	51.1	36.1	24.0
12	11.92	11.96	14.45	10	11.1	19.1	59.7	41.9	25.8
16	15.92	15.96	19.00	14	14.5	23.9	78.7	49.8	30.1
20	19.92	19.96	24.08	17	26.2	23.9	78.7	49.8	30.1
25	24.92	24.96	30.94	22	26.2	32.0	88.9	55.9	33.9

Dimensions in millimeters

T-Handle - Inch

Pin Dia		Grip Length (inches)												
		0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	4	5	6	
PART NUMBERS	Stainless Steel													
	3/16	801000	801001	801002	801003	801004	801005	801006	801008	801009	801011	801013	801015	
	1/4	801016	801017	801018	801019	801020	801021	801022	801024	801025	801027	801029	801031	
	5/16	801032	801033	801034	801035	801036	801037	801038	801040	801041	801043	801045	801047	
	3/8	801048	801049	801050	801051	801052	801053	801054	801056	801057	801059	801061	801063	
	7/16	801064	801065	801066	801067	801068	801069	801070	801072	801073	801075	801077	801079	
	1/2	801080	801081	801082	801083	801084	801085	801086	801088	801089	801091	801093	801095	
	9/16	801096	801097	801098	801099	801100	801101	801102	801104	801105	801107	801109	801111	
	5/8	801112	801113	801114	801115	801116	801117	801118	801120	801121	801123	801125	801127	
	3/4	801128	801129	801130	801131	801132	801133	801134	801136	801137	801139	801141	801143	
	7/8	801144	801145	801146	801147	801148	801149	801150	801152	801153	801155	801157	801159	
	1	801160	801161	801162	801163	801164	801165	801166	801168	801169	801171	801173	801175	
	Alloy Steel													
	3/16	800800	800801	800802	800803	800804	800805	800806	800808	800809	800811	800813	800815	
	1/4	800816	800817	800818	800819	800820	800821	800822	800824	800825	800827	800829	800831	
	5/16	800832	800833	800834	800835	800836	800837	800838	800840	800841	800843	800845	800847	
	3/8	800848	800849	800850	800851	800852	800853	800854	800856	800857	800859	800861	800863	
	7/16	800864	800865	800866	800867	800868	800869	800870	800872	800873	800875	800877	800879	
	1/2	800880	800881	800882	800883	800884	800885	800886	800888	800889	800891	800893	800895	
	9/16	800896	800897	800898	800899	800900	800901	800902	800904	800905	800907	800909	800911	
	5/8	800912	800913	800914	800915	800916	800917	800918	800920	800921	800923	800925	800927	
	3/4	800928	800929	800930	800931	800932	800933	800934	800936	800937	800939	800941	800943	
	7/8	800944	800945	800946	800947	800948	800949	800950	800952	800953	800955	800957	800959	
	1	800960	800961	800962	800963	800964	800965	800966	800968	800969	800971	800973	800975	

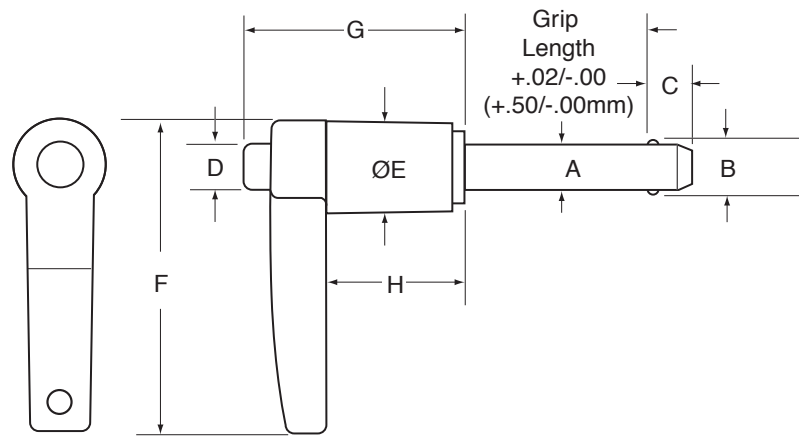
Contact customer service for other sizes. Includes attachment ring.

T-Handle - Metric

	Pin Dia	Grip Length (mm)											
		10	15	20	25	30	40	50	60	70	80	90	100
PART NUMBERS	Stainless Steel												
	5	851000	851001	851002	851003	851004	851005	851006	851007	851008	851009	851010	851011
	6	851012	851013	851014	851015	851016	851017	851018	851019	851020	851021	851022	851023
	8	851024	851025	851026	851027	851028	851029	851030	851031	851032	851033	851034	851035
	10	851036	851037	851038	851039	851040	851041	851042	851043	851044	851045	851046	851047
	12	851048	851049	851050	851051	851052	851053	851054	851055	851056	851057	851058	851059
	16	851060	851061	851062	851063	851064	851065	851066	851067	851068	851069	851070	851071
	20	851072	851073	851074	851075	851076	851077	851078	851079	851080	851081	851082	851083
	25	851084	851085	851086	851087	851088	851089	851090	851091	851092	851093	851094	851095
	Alloy Steel												
	5	850800	850801	850802	850803	850804	850805	850806	850807	850808	850809	850810	850811
	6	850812	850813	850814	850815	850816	850817	850818	850819	850820	850821	850822	850823
	8	850824	850825	850826	850827	850828	850829	850830	850831	850832	850833	850834	850835
	10	850836	850837	850838	850839	850840	850841	850842	850843	850844	850845	850846	850847
	12	850848	850849	850850	850851	850852	850853	850854	850855	850856	850857	850858	850859
	16	850860	850861	850862	850863	850864	850865	850866	850867	850868	850869	850870	850871
	20	850872	850873	850874	850875	850876	850877	850878	850879	850880	850881	850882	850883
	25	850884	850885	850886	850887	850888	850889	850890	850891	850892	850893	850894	850895

Contact customer service for other metric sizes. Includes attachment ring.

L-Handle Kwik-Lok Pin



L-Handle Specifications - Inch

Nom Pin Dia	ØA		±.005 B	+.000/ -.040 C	D	E	F	G	H
	Min	Max							
3/16 (#10)	.1870	.1885	.220	.260	1/4	1/2	1 3/4	1 1/4	3/4
1/4	.2470	.2485	.289	.290	1/4	1/2	1 3/4	1 1/4	3/4
5/16	.3095	.3110	.375	.330	1/4	1/2	1 3/4	1 1/4	3/4
3/8	.3720	.3735	.440	.365	5/16	19/32	2	1 7/16	15/16
7/16	.4345	.4360	.509	.380	5/16	19/32	2	1 7/16	15/16
1/2	.4970	.4985	.594	.460	15/32	3/4	2 1/4	1 5/8	1
9/16	.5595	.5610	.666	.510	15/32	3/4	2 1/4	1 5/8	1
5/8	.6220	.6235	.750	.580	9/16	15/16	2 1/2	1 31/32	1 3/16
3/4	.7470	.7485	.887	.670	5/8	15/16	2 1/2	1 31/32	1 3/16
7/8	.8720	.8735	1.046	.760	3/4	1 1/4	3 1/4	2 1/4	1 11/32
1	.9970	.9985	1.209	.890	3/4	1 1/4	3 1/4	2 1/4	1 11/32

L-Handle Specifications - Metric

Nom Pin Dia	ØA		±0.25 B	±1.0 C	D	E	F	G	H
	Min	Max							
5	4.92	4.96	5.54	6	6.5	13.1	44.9	31.3	19.7
6	5.92	5.96	6.99	7	6.5	13.1	44.9	31.3	19.7
8	7.92	7.96	9.42	8	6.5	13.1	44.9	31.3	19.7
10	9.92	9.96	11.86	9	7.7	15.1	50.8	36.1	24.0
12	11.92	11.96	14.45	10	11.1	19.1	57.2	41.9	25.8
16	15.92	15.96	19.00	14	14.5	23.9	63.0	49.8	30.1
20	19.92	19.96	24.08	17	26.2	23.9	63.0	49.8	30.1
25	24.92	24.96	30.94	22	26.2	32.4	82.6	55.9	33.9

Dimensions in millimeters

- The L-Handle Kwik-Lok Pin provides a firm grip for applications where a T-Handle will not fit.
- Handle is black cast aluminum and the button is blue anodized aluminum.
- Available in steel and stainless steel body.
- Includes hole and ring for easy attachment of optional lanyard.

L-Handle - Inch

	Pin Dia	Grip Length (inches)											
		0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	4	5	6
P A R T S	Stainless Steel												
	3/16	801400	801401	801402	801403	801404	801405	801406	801408	801409	801411	801413	801415
	1/4	801416	801417	801418	801419	801420	801421	801422	801424	801425	801427	801429	801431
	5/16	801432	801433	801434	801435	801436	801437	801438	801440	801441	801443	801445	801447
	3/8	801448	801449	801450	801451	801452	801453	801454	801456	801457	801459	801461	801463
	7/16	801464	801465	801466	801467	801468	801469	801470	801472	801473	801475	801477	801479
	1/2	801480	801481	801482	801483	801484	801485	801486	801488	801489	801491	801493	801495
	9/16	801496	801497	801498	801499	801500	801501	801502	801504	801505	801507	801509	801511
	5/8	801512	801513	801514	801515	801516	801517	801518	801520	801521	801523	801525	801527
	3/4	801528	801529	801530	801531	801532	801533	801534	801536	801537	801539	801541	801543
	7/8	801544	801545	801546	801547	801548	801549	801550	801552	801553	801555	801557	801559
	1	801560	801561	801562	801563	801564	801565	801566	801568	801569	801571	801573	801575
	Alloy Steel												
	3/16	801200	801201	801202	801203	801204	801205	801206	801208	801209	801211	801213	801215
	1/4	801216	801217	801218	801219	801220	801221	801222	801224	801225	801227	801229	801231
	5/16	801232	801233	801234	801235	801236	801237	801238	801240	801241	801243	801245	801247
	3/8	801248	801249	801250	801251	801252	801253	801254	801256	801257	801259	801261	801263
	7/16	801264	801265	801266	801267	801268	801269	801270	801272	801273	801275	801277	801279
	1/2	801280	801281	801282	801283	801284	801285	801286	801288	801289	801291	801293	801295
	9/16	801296	801297	801298	801299	801300	801301	801302	801304	801305	801307	801309	801311
	5/8	801312	801313	801314	801315	801316	801317	801318	801320	801321	801323	801325	801327
	3/4	801328	801329	801330	801331	801332	801333	801334	801336	801337	801339	801341	801343
	7/8	801344	801345	801346	801347	801348	801349	801350	801352	801353	801355	801357	801359
	1	801360	801361	801362	801363	801364	801365	801366	801368	801369	801371	801373	801375

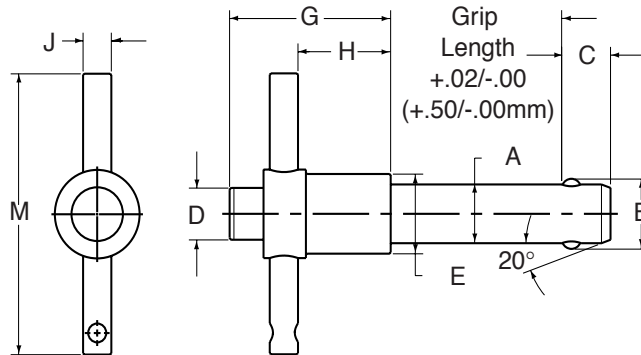
Contact customer service for other sizes. Includes attachment ring.

L-Handle - Metric

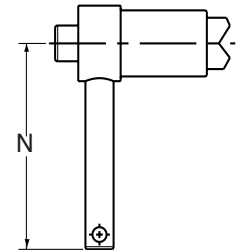
	Pin Dia	Grip Length (mm)											
		10	15	20	25	30	40	50	60	70	80	90	100
P A R T S	Stainless Steel												
	5	851400	851401	851402	851403	851404	851405	851406	851407	851408	851409	851410	851411
	6	851412	851413	851414	851415	851416	851417	851418	851419	851420	851421	851422	851423
	8	851424	851425	851426	851427	851428	851429	851430	851431	851432	851433	851434	851435
	10	851436	851437	851438	851439	851440	851441	851442	851443	851444	851445	851446	851447
	12	851448	851449	851450	851451	851452	851453	851454	851455	851456	851457	851458	851459
	16	851460	851461	851462	851463	851464	851465	851466	851467	851468	851469	851470	851471
	20	851472	851473	851474	851475	851476	851477	851478	851479	851480	851481	851482	851483
	25	851484	851485	851486	851487	851488	851489	851490	851491	851492	851493	851494	851495
	Alloy Steel												
	5	851200	851201	851202	851203	851204	851205	851206	851207	851208	851209	851210	851211
	6	851212	851213	851214	851215	851216	851217	851218	851219	851220	851221	851222	851223
	8	851224	851225	851226	851227	851228	851229	851230	851231	851232	851233	851234	851235
	10	851236	851237	851238	851239	851240	851241	851242	851243	851244	851245	851246	851247
	12	851248	851249	851250	851251	851252	851253	851254	851255	851256	851257	851258	851259
	16	851260	851261	851262	851263	851264	851265	851266	851267	851268	851269	851270	851271
	20	851272	851273	851274	851275	851276	851277	851278	851279	851280	851281	851282	851283
	25	851284	851285	851286	851287	851288	851289	851290	851291	851292	851293	851294	851295

Contact customer service for other metric sizes. Includes attachment ring.

Heavy Duty T&L Handle Pins



T-Handle Style



L-Handle Style

- Also known as Ground Handling Pins
- Heavy Duty welded handle provides additional impact resistance
- Includes ring for easy attachment of optional lanyard
- All stainless steel handle and button provide additional corrosion resistance
- Meets or exceeds NASM 23460 specifications

Heavy Duty T&L Handle Specifications - Inch

Nom Pin Dia	Pin Dia A		+/-0.005 B	+.000/ -.040 C	D	E	G	H	J	M	N
	Min	Max									
3/16 (#10)	.1870	.1885	.220	.260	1/4	7/16	1 1/4	13/16	3/16	1 15/16	1 3/4
1/4	.2470	.2485	.289	.290	1/4	7/16	1 1/4	13/16	3/16	1 15/16	1 3/4
5/16	.3095	.3110	.375	.330	1/4	7/16	1 1/4	13/16	3/16	1 15/16	1 3/4
3/8	.3720	.3735	.440	.365	1/4	9/16	1 11/32	13/16	1/4	1 15/16	1 3/4
7/16	.4345	.4360	.509	.380	5/16	9/16	1 11/32	13/16	1/4	2 1/8	1 3/4
1/2	.4970	.4985	.594	.460	7/16	11/16	1 7/16	13/16	1/4	2 3/8	1 31/32
9/16	.5595	.5610	.666	.510	7/16	11/16	1 7/16	13/16	1/4	2 3/8	1 31/32
5/8	.6220	.6235	.750	.580	37/64	15/16	1 11/16	31/32	5/16	2 7/8	2 15/32
3/4	.7470	.7485	.887	.670	37/64	15/16	1 13/16	31/32	5/16	2 7/8	2 15/32
7/8	.8720	.8735	1.046	.760	3/4	1 3/16	2 1/8	1 1/4	3/8	3 1/4	2 13/16
1	.9970	.9985	1.219	.890	3/4	1 3/16	2 1/8	1 1/4	3/8	3 1/4	2 13/16

Heavy Duty T&L Handle Specifications - Metric

Nom Pin Dia	Pin Dia A		+/- 0.25 B	+/- 1.0 C	D	E	G	H	J	M	N
	Min	Max									
5	4.92	4.96	5.54	6	6.35	11.11	31.75	20.64	4.76	49.21	44.45
6	5.92	5.96	6.99	7	6.35	11.11	31.75	20.64	4.76	49.21	44.45
8	7.92	7.96	9.42	8	6.35	11.11	31.75	20.64	4.76	49.21	44.45
10	9.92	9.96	11.86	9	6.35	14.29	34.13	20.64	6.35	49.21	44.45
12	11.92	11.96	14.45	10	11.11	17.46	36.51	20.64	6.35	60.33	50.01
16	15.92	15.96	19.00	14	14.68	23.81	42.86	24.61	7.94	73.03	62.71
20	19.92	19.96	24.08	17	14.68	23.81	46.04	24.61	7.94	73.03	62.71
25	24.92	24.96	30.94	22	19.05	30.16	53.98	31.75	9.53	82.55	71.44

Dimensions in millimeters

Heavy Duty T-Handle - Inch

	Pin Dia	Grip Length (inches)											
		0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	4	5	6
P A R T	3/16	802600	802601	802602	802603	802604	802605	802606	802608	802609	802611	802613	802615
	1/4	802616	802617	802618	802619	802620	802621	802622	802624	802625	802627	802629	802631
	5/16	802632	802633	802634	802635	802636	802637	802638	802640	802641	802643	802645	802647
	3/8	802648	802649	802650	802651	802652	802653	802654	802656	802657	802659	802661	802663
	7/16	802664	802665	802666	802667	802668	802669	802670	802672	802673	802675	802677	802679
	1/2	802680	802681	802682	802683	802684	802685	802686	802688	802689	802691	802693	802695
	9/16	802696	802697	802698	802699	802700	802701	802702	802704	802705	802707	802709	802711
	5/8	802712	802713	802714	802715	802716	802717	802718	802720	802721	802723	802725	802727
	3/4	802728	802729	802730	802731	802732	802733	802734	802736	802737	802739	802741	802743
	7/8	802744	802745	802746	802747	802748	802749	802750	802752	802753	802755	802757	802759
	1	802760	802761	802762	802763	802764	802765	802766	802768	802769	802771	802773	802775

Heavy Duty L-Handle - Inch

N U M B E R S	3/16	805600	805601	805602	805603	805604	805605	805606	805608	805609	805611	805613	805615
	1/4	805616	805617	805618	805619	805620	805621	805622	805624	805625	805627	805629	805631
	5/16	805632	805633	805634	805635	805636	805637	805638	805640	805641	805643	805645	805647
	3/8	805648	805649	805650	805651	805652	805653	805654	805656	805657	805659	805661	805663
	7/16	805664	805665	805666	805667	805668	805669	805670	805672	805673	805675	805677	805679
	1/2	805680	805681	805682	805683	805684	805685	805686	805688	805689	805691	805693	805695
	9/16	805696	805697	805698	805699	805700	805701	805702	805704	805705	805707	805709	805711
	5/8	805712	805713	805714	805715	805716	805717	805718	805720	805721	805723	805725	805727
	3/4	805728	805729	805730	805731	805732	805733	805734	805736	805737	805739	805741	805743
	7/8	805744	805745	805746	805747	805748	805749	805750	805752	805753	805755	805757	805759
	1	805760	805761	805762	805763	805764	805765	805766	805768	805769	805771	805773	805775

Contact customer service for other sizes. Includes attachment ring.

Heavy Duty T-Handle - Metric

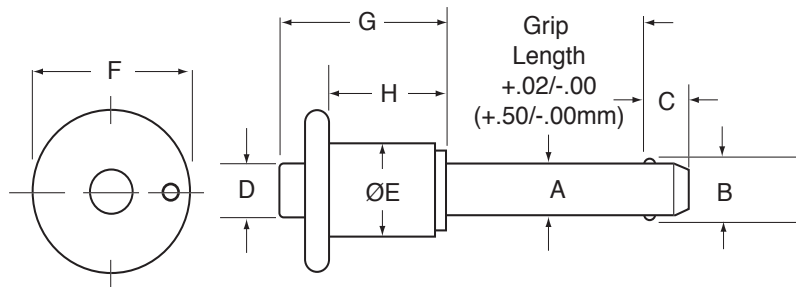
	Pin Dia	Grip Length (mm)											
		10	15	20	25	30	40	50	60	70	80	90	100
P A R T	5	852600	852601	852602	852603	852604	852605	852606	852607	852608	852609	852610	852611
	6	852612	852613	852614	852615	852616	852617	852618	852619	852620	852621	852622	852623
	8	852624	852625	852626	852627	852628	852629	852630	852631	852632	852633	852634	852635
	10	852636	852637	852638	852639	852640	852641	852642	852643	852644	852645	852646	852647
	12	852648	852649	852650	852651	852652	852653	852654	852655	852656	852657	852658	852659
	16	852660	852661	852662	852663	852664	852665	852666	852667	852668	852669	852670	852671
	20	852672	852673	852674	852675	852676	852677	852678	852679	852680	852681	852682	852683
	25	852684	852685	852686	852687	852688	852689	852690	852691	852692	852693	852694	852695

Heavy Duty L-Handle - Metric

N U M B E R S	5	854200	854201	854202	854203	854204	854205	854206	854207	854208	854209	854210	854211
	6	854212	854213	854214	854215	854216	854217	854218	854219	854220	854221	854222	854223
	8	854224	854225	854226	854227	854228	854229	854230	854231	854232	854233	854234	854235
	10	854236	854237	854238	854239	854240	854241	854242	854243	854244	854245	854246	854247
	12	854248	854249	854250	854251	854252	854253	854254	854255	854256	854257	854258	854259
	16	854260	854261	854262	854263	854264	854265	854266	854267	854268	854269	854270	854271
	20	854272	854273	854274	854275	854276	854277	854278	854279	854280	854281	854282	854283
	25	854284	854285	854286	854287	854288	854289	854290	854291	854292	854293	854294	854295

Contact customer service for other metric sizes. Includes attachment ring.

Button Handle Kwik-Lok Pin



Button Handle Specifications - Inch

Nom Pin Dia	ØA		+/- .005 B	+.000/ -.040 C	D	E	F	G	H
	Min	Max							
3/16 (#10)	.1870	.1885	.220	.260	1/4	1/2	13/16	7/8	5/8
1/4	.2470	.2485	.289	.290	1/4	1/2	13/16	7/8	5/8
5/16	.3095	.3110	.375	.330	1/4	1/2	13/16	29/32	5/8
3/8	.3720	.3735	.440	.365	5/16	9/16	1 1/8	1 3/16	13/16
7/16	.4345	.4360	.509	.380	5/16	9/16	1 1/8	1 3/16	13/16
1/2	.4970	.4985	.594	.460	7/16	3/4	1 3/8	1 13/32	1
9/16	.5595	.5610	.666	.510	7/16	3/4	1 3/8	1 1/2	1
5/8	.6220	.6235	.750	.580	37/64	15/16	1 3/4	1 5/8	1 1/16
3/4	.7470	.7485	.887	.670	37/64	15/16	1 3/4	1 19/32	1 1/16
7/8	.8720	.8735	1.046	.760	3/4	1 1/4	2 1/8	2 1/8	1 15/32
1	.9970	.9985	1.209	.890	3/4	1 1/4	2 1/8	2 1/8	1 15/32

- The Button Handle Kwik-Lok Pin is ideal for applications that have limited space around the handle.
- Light weight black anodized aluminum handle with blue anodized aluminum button.
- Available in steel and stainless steel body.
- Includes hole and ring for easy attachment of optional lanyard.

Button Handle Specifications - Metric

Nom Pin Dia	ØA		+/-0.25 B	+/-1.0 C	D	E	F	G	H
	Min	Max							
5	4.92	4.96	5.54	6	6.5	11.8	20.3	22.1	16.3
6	5.92	5.96	6.99	7	6.5	11.8	20.3	22.1	16.3
8	7.92	7.96	9.42	8	6.5	11.8	20.3	22.9	16.3
10	9.92	9.96	11.86	9	7.7	14.2	28.5	30.0	20.7
12	11.92	11.96	14.45	10	11.2	19.0	34.8	35.9	25.8
16	15.92	15.96	19.00	14	14.5	23.8	44.3	41.5	27.0
20	19.92	19.96	24.08	17	14.5	23.8	44.3	41.5	27.0
25	24.92	24.96	30.94	22	19.2	31.8	53.9	54.4	37.2

Dimensions in millimeters

Button Handle - Inch

	Pin Dia	Grip Length (inches)											
		0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	4	5	6
P A R T N U M B E R S	Stainless Steel												
	3/16	800600	800601	800602	800603	800604	800605	800606	800608	800609	800611	800613	800615
	1/4	800616	800617	800618	800619	800620	800621	800622	800624	800625	800627	800629	800631
	5/16	800632	800633	800634	800635	800636	800637	800638	800640	800641	800643	800645	800647
	3/8	800648	800649	800650	800651	800652	800653	800654	800656	800657	800659	800661	800663
	7/16	800664	800665	800666	800667	800668	800669	800670	800672	800673	800675	800677	800679
	1/2	800680	800681	800682	800683	800684	800685	800686	800688	800689	800691	800693	800695
	9/16	800696	800697	800698	800699	800700	800701	800702	800704	800705	800707	800709	800711
	5/8	800712	800713	800714	800715	800716	800717	800718	800720	800721	800723	800725	800727
	3/4	800728	800729	800730	800731	800732	800733	800734	800736	800737	800739	800741	800743
	7/8	800744	800745	800746	800747	800748	800749	800750	800752	800753	800755	800757	800759
	1	800760	800761	800762	800763	800764	800765	800766	800768	800769	800771	800773	800775
	Alloy Steel												
	3/16	800400	800401	800402	800403	800404	800405	800406	800408	800409	800411	800413	800415
	1/4	800416	800417	800418	800419	800420	800421	800422	800424	800425	800427	800429	800431
	5/16	800432	800433	800434	800435	800436	800437	800438	800440	800441	800443	800445	800447
	3/8	800448	800449	800450	800451	800452	800453	800454	800456	800457	800459	800461	800463
	7/16	800464	800465	800466	800467	800468	800469	800470	800472	800473	800475	800477	800479
	1/2	800480	800481	800482	800483	800484	800485	800486	800488	800489	800491	800493	800495
	9/16	800496	800497	800498	800499	800500	800501	800502	800504	800505	800507	800509	800511
	5/8	800512	800513	800514	800515	800516	800517	800518	800520	800521	800523	800525	800527
	3/4	800528	800529	800530	800531	800532	800533	800534	800536	800537	800539	800541	800543
	7/8	800544	800545	800546	800547	800548	800549	800550	800552	800553	800555	800557	800559
	1	800560	800561	800562	800563	800564	800565	800566	800568	800569	800571	800573	800575

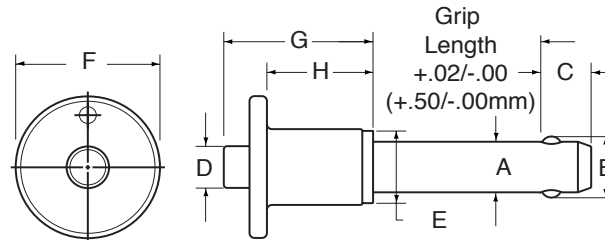
Contact customer service for other sizes. Includes attachment ring.

Button Handle - Metric

	Pin Dia	Grip Length (mm)											
		10	15	20	25	30	40	50	60	70	80	90	100
PART NUMBERS	Stainless Steel												
	5	850600	850601	850602	850603	850604	850605	850606	850607	850608	850609	850610	850611
	6	850612	850613	850614	850615	850616	850617	850618	850619	850620	850621	850622	850623
	8	850624	850625	850626	850627	850628	850629	850630	850631	850632	850633	850634	850635
	10	850636	850637	850638	850639	850640	850641	850642	850643	850644	850645	850646	850647
	12	850648	850649	850650	850651	850652	850653	850654	850655	850656	850657	850658	850659
	16	850660	850661	850662	850663	850664	850665	850666	850667	850668	850669	850670	850671
	20	850672	850673	850674	850675	850676	850677	850678	850679	850680	850681	850682	850683
	25	850684	850685	850686	850687	850688	850689	850690	850691	850692	850693	850694	850695
	Alloy Steel												
	5	850400	850401	850402	850403	850404	850405	850406	850407	850408	850409	850410	850411
	6	850412	850413	850414	850415	850416	850417	850418	850419	850420	850421	850422	850423
	8	850424	850425	850426	850427	850428	850429	850430	850431	850432	850433	850434	850435
	10	850436	850437	850438	850439	850440	850441	850442	850443	850444	850445	850446	850447
	12	850448	850449	850450	850451	850452	850453	850454	850455	850456	850457	850458	850459
	16	850460	850461	850462	850463	850464	850465	850466	850467	850468	850469	850470	850471
	20	850472	850473	850474	850475	850476	850477	850478	850479	850480	850481	850482	850483
	25	850484	850485	850486	850487	850488	850489	850490	850491	850492	850493	850494	850495

Contact customer service for other metric sizes. Includes attachment ring.

Heavy Duty Button Handle Pin



Heavy Duty Button Handle

- Heavy Duty solid handle provides additional impact resistance
- Includes ring for easy attachment of optional lanyard
- All stainless steel construction provides additional corrosion resistance
- Meets or exceeds NASM 23460 specifications

Heavy Duty Button Handle Specifications - Inch

Nom Pin Dia	Pin Dia A		+/-0.005 B	+.000/ -.040 C	D	E	F	G	H
	Min	Max							
3/16 (#10)	.1870	.1885	.220	.260	1/4	7/16	13/16	13/16	5/8
1/4	.2470	.2485	.289	.290	1/4	7/16	13/16	13/16	5/8
5/16	.3095	.3110	.375	.330	1/4	7/16	7/8	29/32	5/8
3/8	.3720	.3735	.440	.365	5/16	9/16	1 1/8	1 1/32	3/4
7/16	.4345	.4360	.509	.380	5/16	9/16	1 1/8	1 3/32	3/4
1/2	.4970	.4985	.594	.460	7/16	23/32	1 3/8	1 3/16	13/16
9/16	.5595	.5610	.666	.510	7/16	23/32	1 3/8	1 3/8	1
5/8	.6220	.6235	.750	.580	37/64	27/32	1 5/8	1 1/2	1 1/16
3/4	.7470	.7485	.887	.670	37/64	15/16	1 7/8	1 21/32	1 5/32
7/8	.8720	.8735	1.046	.760	3/4	1 1/8	2 3/16	1 31/32	1 1/2
1	.9970	.9985	1.219	.890	3/4	1 3/16	2 3/16	2 1/8	1 1/2

Heavy Duty Button Handle Specifications - Metric

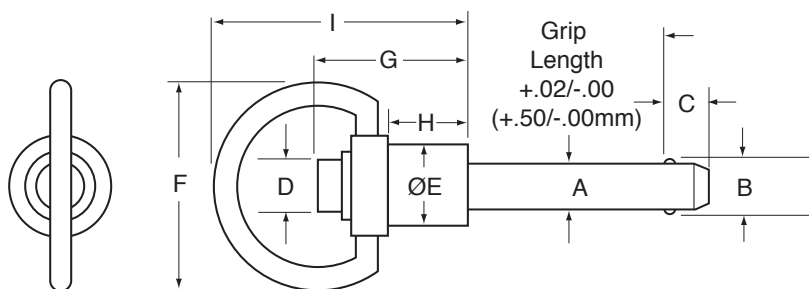
Nom Pin Dia	Pin Dia A		+/- 0.25 B	+/- 1.0 C	D	E	F	G	H
	Min	Max							
5	4.92	4.96	5.54	6	6.4	11.1	20.6	20.6	15.9
6	5.92	5.96	6.99	7	6.4	11.1	20.6	20.6	15.9
8	7.92	7.96	9.42	8	6.4	11.1	22.2	23.0	15.9
10	9.92	9.96	11.86	9	7.9	14.3	28.6	27.8	19.1
12	11.92	11.96	14.45	10	11.1	18.3	34.9	34.9	25.4
16	15.92	15.96	19.00	14	14.7	21.4	41.3	38.1	27.0
20	19.92	19.96	24.08	17	14.7	23.8	47.6	42.1	29.4
25	24.92	24.96	30.94	22	19.1	30.2	55.6	54.0	38.1

Dimensions in millimeters

	Pin Dia	Grip Length (inches)											
		0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	4	5	6
P A R T S	Heavy Duty Button Handle - Inch												
	3/16	806400	806401	806402	806403	806404	806405	806406	806408	806409	806411	806413	806415
	1/4	806416	806417	806418	806419	806420	806421	806422	806424	806425	806427	806429	806431
	5/16	806432	806433	806434	806435	806436	806437	806438	806440	806441	806443	806445	806447
	3/8	806448	806449	806450	806451	806452	806453	806454	806456	806457	806459	806461	806463
	7/16	806464	806465	806466	806467	806468	806469	806470	806472	806473	806475	806477	806479
	1/2	806480	806481	806482	806483	806484	806485	806486	806488	806489	806491	806493	806495
	9/16	806496	806497	806498	806499	806500	806501	806502	806504	806505	806507	806509	806511
	5/8	806512	806513	806514	806515	806516	806517	806518	806520	806521	806523	806525	806527
	3/4	806528	806529	806530	806531	806532	806533	806534	806536	806537	806539	806541	806543
	7/8	806544	806545	806546	806547	806548	806549	806550	806552	806553	806555	806557	806559
	1	806560	806561	806562	806563	806564	806565	806566	806568	806569	806571	806573	806575
	Heavy Duty Button Handle - Metric												
	Pin Dia	Grip Length (mm)											
		10	15	20	25	30	40	50	60	70	80	90	100
B E R R S	5	855400	855401	855402	855403	855404	855405	855406	855407	855408	855409	855410	855411
	6	855412	855413	855414	855415	855416	855417	855418	855419	855420	855421	855422	855423
	8	855424	855425	855426	855427	855428	855429	855430	855431	855432	855433	855434	855435
	10	855436	855437	855438	855439	855440	855441	855442	855443	855444	855445	855446	855447
	12	855448	855449	855450	855451	855452	855453	855454	855455	855456	855457	855458	855459
	16	855460	855461	855462	855463	855464	855465	855466	855467	855468	855469	855470	855471
	20	855472	855473	855474	855475	855476	855477	855478	855479	855480	855481	855482	855483
	25	855484	855485	855486	855487	855488	855489	855490	855491	855492	855493	855494	855495

Contact customer service for other sizes. Includes attachment ring.

Ring-Handle Kwik-Lok Pin



Ring Handle Specifications - Inch

Nom Pin Dia	ØA		+/- .005 B	+.000/ -.040 C	D	E	F	G	H	I
	Min	Max								
3/16 (#10)	.1870	.1885	.220	.260	1/4	7/16	1 1/8	13/16	29/64	1 11/32
1/4	.2470	.2485	.289	.290	1/4	7/16	1 1/8	13/16	29/64	1 11/32
5/16	.3095	.3110	.375	.330	1/4	7/16	1 1/8	27/32	29/64	1 11/32
3/8	.3720	.3735	.440	.365	5/16	9/16	1 1/8	1	19/32	1 1/2
7/16	.4345	.4360	.509	.380	5/16	9/16	1 1/8	1	19/32	1 1/2
1/2	.4970	.4985	.594	.460	7/16	11/16	1 3/8	1 1/4	5/8	1 7/8
9/16	.5595	.5610	.666	.510	7/16	11/16	1 3/8	1 1/4	11/16	1 7/8
5/8	.6220	.6235	.750	.580	1/2	15/16	1 5/8	1 11/16	7/8	2 7/16
3/4	.7470	.7485	.887	.670	9/16	15/16	1 5/8	1 13/16	1 1/16	2 7/16
7/8	.8720	.8735	1.046	.760	3/4	1 3/16	1 3/4	2 3/16	1 13/32	2 29/32
1	.9970	.9985	1.209	.890	3/4	1 3/16	1 3/4	2 1/8	1 13/32	2 29/32

- The Ring-Handle Kwik-Lok Pin is designed for applications which require small clearance area around the pin.
- Stainless steel handle for tough environment with blue anodized aluminum button (steel shanks), or stainless button (stainless steel shanks).
- Shank available in steel and stainless steel body.
- Ring allows for easy attachment of optional lanyard.

Ring Handle Specifications - Metric

Nom Pin Dia	ØA		+/- .005 B	+.000/ -.040 C	D	E	F	G	H	I
	Min	Max								
5	4.92	4.96	5.54	6	6.5	10.8	28.0	21.0	11.5	34.1
6	5.92	5.96	6.99	7	6.5	10.8	28.0	21.0	11.5	34.1
8	7.92	7.96	9.42	8	6.5	10.8	28.0	22.0	11.5	34.1
10	9.92	9.96	11.86	9	7.7	14.2	28.0	25.0	15.1	38.0
12	11.92	11.96	14.45	10	10.1	17.2	35.2	28.6	15.9	46.0
16	15.92	15.96	19.00	14	12.4	23.9	41.9	37.0	22.2	56.0
20	19.92	19.96	24.08	17	14.6	23.9	41.9	46.0	27.0	61.6
25	24.92	24.96	30.94	22	19.2	30.0	45.0	55.6	35.7	72.4

Dimensions in millimeters

Ring-Handle - Inch

	Pin Dia	Grip Length (inches)											
		0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	4	5	6
PART NUMBERS	Stainless Steel												
	3/16	800200	800201	800202	800203	800204	800205	800206	800208	800209	800211	800213	800215
	1/4	800216	800217	800218	800219	800220	800221	800222	800224	800225	800227	800229	800231
	5/16	800232	800233	800234	800235	800236	800237	800238	800240	800241	800243	800245	800247
	3/8	800248	800249	800250	800251	800252	800253	800254	800256	800257	800259	800261	800263
	7/16	800264	800265	800266	800267	800268	800269	800270	800272	800273	800275	800277	800279
	1/2	800280	800281	800282	800283	800284	800285	800286	800288	800289	800291	800293	800295
	9/16	800296	800297	800298	800299	800300	800301	800302	800304	800305	800307	800309	800311
	5/8	800312	800313	800314	800315	800316	800317	800318	800320	800321	800323	800325	800327
	3/4	800328	800329	800330	800331	800332	800333	800334	800336	800337	800339	800341	800343
	7/8	800344	800345	800346	800347	800348	800349	800350	800352	800353	800355	800357	800359
	1	800360	800361	800362	800363	800364	800365	800366	800368	800369	800371	800373	800375
	Alloy Steel												
	3/16	800000	800001	800002	800003	800004	800005	800006	800008	800009	800011	800013	800015
	1/4	800016	800017	800018	800019	800020	800021	800022	800024	800025	800027	800029	800031
	5/16	800032	800033	800034	800035	800036	800037	800038	800040	800041	800043	800045	800047
	3/8	800048	800049	800050	800051	800052	800053	800054	800056	800057	800059	800061	800063
	7/16	800064	800065	800066	800067	800068	800069	800070	800072	800073	800075	800077	800079
	1/2	800080	800081	800082	800083	800084	800085	800086	800088	800089	800091	800093	800095
	9/16	800096	800097	800098	800099	800100	800101	800102	800104	800105	800107	800109	800111
	5/8	800112	800113	800114	800115	800116	800117	800118	800120	800121	800123	800125	800127
	3/4	800128	800129	800130	800131	800132	800133	800134	800136	800137	800139	800141	800143
	7/8	800144	800145	800146	800147	800148	800149	800150	800152	800153	800155	800157	800159
	1	800160	800161	800162	800163	800164	800165	800166	800168	800169	800171	800173	800175

Contact customer service for other sizes.

Ring-Handle - Metric

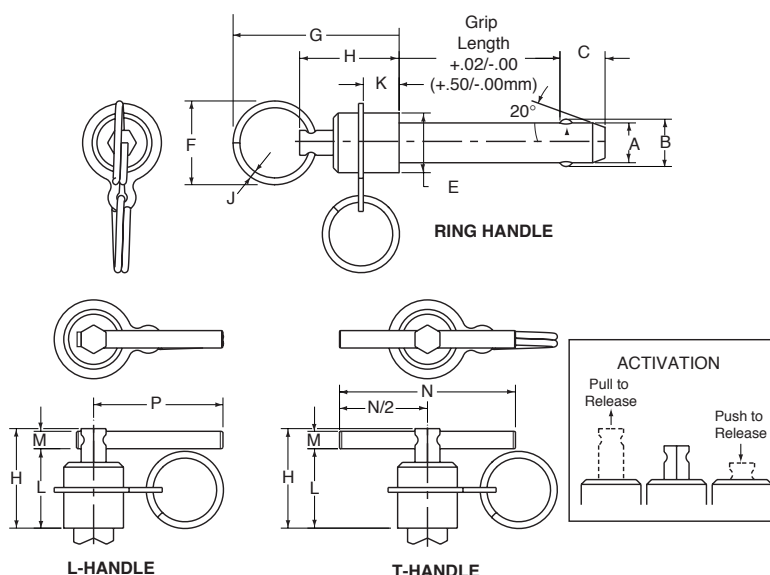
	Pin Dia	Grip Length (mm)											
		10	15	20	25	30	40	50	60	70	80	90	100
PART NUMBERS	Stainless Steel												
	5	850200	850201	850202	850203	850204	850205	850206	850207	850208	850209	850210	850211
	6	850212	850213	850214	850215	850216	850217	850218	850219	850220	850221	850222	850223
	8	850224	850225	850226	850227	850228	850229	850230	850231	850232	850233	850234	850235
	10	850236	850237	850238	850239	850240	850241	850242	850243	850244	850245	850246	850247
	12	850248	850249	850250	850251	850252	850253	850254	850255	850256	850257	850258	850259
	16	850260	850261	850262	850263	850264	850265	850266	850267	850268	850269	850270	850271
	20	850272	850273	850274	850275	850276	850277	850278	850279	850280	850281	850282	850283
	25	850284	850285	850286	850287	850288	850289	850290	850291	850292	850293	850294	850295
	Alloy Steel												
	5	850000	850001	850002	850003	850004	850005	850006	850007	850008	850009	850010	850011
	6	850012	850013	850014	850015	850016	850017	850018	850019	850020	850021	850022	850023
	8	850024	850025	850026	850027	850028	850029	850030	850031	850032	850033	850034	850035
	10	850036	850037	850038	850039	850040	850041	850042	850043	850044	850045	850046	850047
	12	850048	850049	850050	850051	850052	850053	850054	850055	850056	850057	850058	850059
	16	850060	850061	850062	850063	850064	850065	850066	850067	850068	850069	850070	850071
	20	850072	850073	850074	850075	850076	850077	850078	850079	850080	850081	850082	850083
	25	850084	850085	850086	850087	850088	850089	850090	850091	850092	850093	850094	850095

Contact customer service for other metric sizes.

Double Acting Pins



Push/Pull Actuation



- Double Acting Pins are activated by push or pull motion
- All stainless steel construction provides additional corrosion resistance
- Ideal for quick insertion and removal
- Four ball options available upon request
- Includes ring for easy attachment of optional lanyard
- Meets or exceeds NASM 23460 specifications
- Meets or exceeds design specifications MS17988, MS17989, MS17990
- Drive Out feature available upon request

Double Acting Specifications - Inch

Nom Pin Dia	Pin Dia A		B +/- .005	C Max	E		F		Max G	H	J	K		L	M	N	P
	Min	Max			Min	Max	Min	Max				Min	Max				
3/16 (#10)	.1870	.1885	.220	.410	.360	.450	1.000	1.125	1.945	1.030	.080	.415	.480	.780	.105	1.500	1.300
1/4	.2470	.2485	.289	.410	.360	.450	1.000	1.125	1.945	1.030	.080	.415	.480	.780	.105	1.500	1.300
5/16	.3095	.3110	.375	.440	.390	.505	1.000	1.125	1.945	1.030	.080	.415	.480	.780	.105	1.500	1.300
3/8	.3720	.3773	.440	.510	.510	.630	1.000	1.125	2.025	1.090	.080	.445	.540	.830	.134	2.000	1.500
7/16	.4345	.4360	.509	.510	.630	.510	1.000	1.125	2.025	1.090	.080	.445	.540	.830	.134	2.000	1.500
1/2	.4970	.4985	.594	.590	.640	.755	1.000	1.125	2.200	1.270	.080	.445	.540	.880	.200	2.250	1.655
9/16	.5595	.5610	.666	.660	.640	.755	1.000	1.125	2.200	1.270	.080	.445	.540	.880	.200	2.250	1.655
5/8	.6220	.6235	.750	.750	.805	.870	1.312	1.500	2.690	1.465	.120	.510	.575	1.000	.231	2.500	1.810
3/4	.7470	.7485	.887	.790	.890	.960	1.312	1.500	2.690	1.465	.120	.530	.595	1.000	.231	2.500	1.810
7/8	.8720	.8735	1.046	.950	1.070	1.150	1.312	1.500	2.860	1.640	.120	.665	.730	1.180	.231	2.875	2.250
1	.9970	.9985	1.219	1.110	1.200	1.280	1.312	1.500	3.010	1.830	.120	.800	.865	1.320	.231	2.875	2.250

Double Acting Specifications - Metric

Nom Pin Dia	Pin Dia A		B +/- .025	C Max	E		F		Max G	H	J	K		L	M	N	P
	Min	Max			Min	Max	Min	Max				Min	Max				
5	4.92	4.96	5.54	10.41	9.14	11.43	25.40	28.58	49.40	26.16	2.03	10.54	12.19	19.81	2.67	44.45	33.02
6	5.92	5.96	6.99	10.41	9.14	11.43	25.40	28.58	49.40	26.16	2.03	10.54	12.19	19.81	2.67	44.45	33.02
8	7.92	7.96	9.42	11.68	9.91	12.83	25.40	28.58	49.40	26.16	2.03	10.54	12.19	19.81	2.67	44.45	33.02
10	9.92	9.96	11.86	13.21	12.95	16.00	25.40	28.58	51.44	27.69	2.03	11.30	13.72	21.08	3.40	50.80	38.10
12	11.92	11.96	14.45	13.72	12.95	16.00	25.40	28.58	51.44	27.69	2.03	11.30	13.72	21.08	3.40	50.80	38.10
16	15.92	15.96	19.00	19.18	20.45	22.10	33.32	38.10	68.33	37.21	3.04	12.95	14.61	25.40	5.87	63.50	45.97
20	19.92	19.96	24.08	20.57	22.61	24.38	33.32	38.10	68.33	37.21	3.04	13.46	15.11	25.40	5.87	63.50	45.97
25	24.92	24.96	30.94	28.83	30.48	32.51	33.32	38.10	76.45	46.48	3.04	20.32	21.97	33.53	5.87	73.03	57.15

Dimensions in millimeters

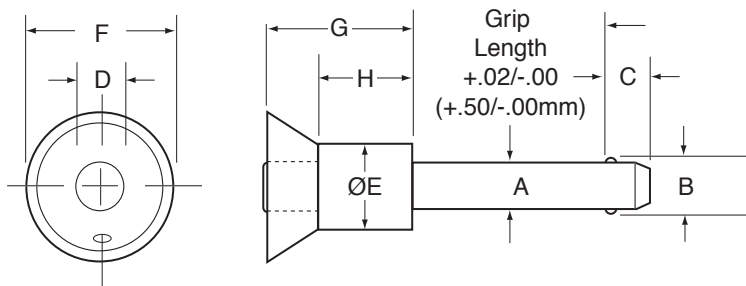
	Pin Dia	Grip Length (inches)											
		0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	4	5	6
PARTS	Double Acting Ring Handle - Inch												
	3/16	806200	806201	806202	806203	806204	806205	806206	806208	806209	806211	806213	806215
	1/4	806216	806217	806218	806219	806220	806221	806222	806224	806225	806227	806229	806231
	5/16	806232	806233	806234	806235	806236	806237	806238	806240	806241	806243	806245	806247
	3/8	806248	806249	806250	806251	806252	806253	806254	806256	806257	806259	806261	806263
	7/16	806264	806265	806266	806267	806268	806269	806270	806272	806273	806275	806277	806279
	1/2	806280	806281	806282	806283	806284	806285	806286	806288	806289	806291	806293	806295
	9/16	806296	806297	806298	806299	806300	806301	806302	806304	806305	806307	806309	806311
	5/8	806312	806313	806314	806315	806316	806317	806318	806320	806321	806323	806325	806327
	3/4	806328	806329	806330	806331	806332	806333	806334	806336	806337	806339	806341	806343
NUMBERS	7/8	806344	806345	806346	806347	806348	806349	806350	806352	806353	806355	806357	806359
	1	806360	806361	806362	806363	806364	806365	806366	806368	806369	806371	806373	806375
	Double Acting T-Handle - Inch												
	3/16	803400	803401	803402	803403	803404	803405	803406	803408	803409	803411	803413	803415
	1/4	803416	803417	803418	803419	803420	803421	803422	803424	803425	803427	803429	803431
	5/16	803432	803433	803434	803435	803436	803437	803438	803440	803441	803443	803445	803447
	3/8	803448	803449	803450	803451	803452	803453	803454	803456	803457	803459	803461	803463
	7/16	803464	803465	803466	803467	803468	803469	803470	803472	803473	803475	803477	803479
	1/2	803480	803481	803482	803483	803484	803485	803486	803488	803489	803491	803493	803495
	9/16	803496	803497	803498	803499	803500	803501	803502	803504	803505	803507	803509	803511
BENCHES	5/8	803512	803513	803514	803515	803516	803517	803518	803520	803521	803523	803525	803527
	3/4	803528	803529	803530	803531	803532	803533	803534	803536	803537	803539	803541	803543
	7/8	803544	803545	803546	803547	803548	803549	803550	803552	803553	803555	803557	803559
	1	803560	803561	803562	803563	803564	803565	803566	803568	803569	803571	803573	803575
	Double Acting L-Handle - Inch												
	3/16	806000	806001	806002	806003	806004	806005	806006	806008	806009	806011	806013	806015
	1/4	806016	806017	806018	806019	806020	806021	806022	806024	806025	806027	806029	806031
	5/16	806032	806033	806034	806035	806036	806037	806038	806040	806041	806043	806045	806047
	3/8	806048	806049	806050	806051	806052	806053	806054	806056	806057	806059	806061	806063
	7/16	806064	806065	806066	806067	806068	806069	806070	806072	806073	806075	806077	806079
TOOLS	1/2	806080	806081	806082	806083	806084	806085	806086	806088	806089	806091	806093	806095
	9/16	806096	806097	806098	806099	806100	806101	806102	806104	806105	806107	806109	806111
	5/8	806112	806113	806114	806115	806116	806117	806118	806120	806121	806123	806125	806127
	3/4	806128	806129	806130	806131	806132	806133	806134	806136	806137	806139	806141	806143
	7/8	806144	806145	806146	806147	806148	806149	806150	806152	806153	806155	806157	806159
	1	806160	806161	806162	806163	806164	806165	806166	806168	806169	806171	806173	806175

Contact customer service for other sizes.

	Pin Dia	Grip Length (mm)											
		10	15	20	25	30	40	50	60	70	80	90	100
PARTS	Double Acting Ring Handle - Metric												
	5	855000	855001	855002	855003	855004	855005	855006	855007	855008	855009	855010	855011
	6	855012	855013	855014	855015	855016	855017	855018	855019	855020	855021	855022	855023
	8	855024	855025	855026	855027	855028	855029	855030	855031	855032	855033	855034	855035
	10	855036	855037	855038	855039	855040	855041	855042	855043	855044	855045	855046	855047
	12	855048	855049	855050	855051	855052	855053	855054	855055	855056	855057	855058	855059
	16	855060	855061	855062	855063	855064	855065	855066	855067	855068	855069	855070	855071
	20	855072	855073	855074	855075	855076	855077	855078	855079	855080	855081	855082	855083
	25	855084	855085	855086	855087	855088	855089	855090	855091	855092	855093	855094	855095
NUMBERS	Double Acting T-Handle - Metric												
	5	853400	853401	853402	853403	853404	853405	853406	853407	853408	853409	853410	853411
	6	853412	853413	853414	853415	853416	853417	853418	853419	853420	853421	853422	853423
	8	853424	853425	853426	853427	853428	853429	853430	853431	853432	853433	853434	853435
	10	853436	853437	853438	853439	853440	853441	853442	853443	853444	853445	853446	853447
	12	853448	853449	853450	853451	853452	853453	853454	853455	853456	853457	853458	853459
	16	853460	853461	853462	853463	853464	853465	853466	853467	853468	853469	853470	853471
	20	853472	853473	853474	853475	853476	853477	853478	853479	853480	853481	853482	853483
	25	853484	853485	853486	853487	853488	853489	853490	853491	853492	853493	853494	853495
BESS	Double Acting L-Handle - Metric												
	5	854600	854601	854602	854603	854604	854605	854606	854607	854608	854609	854610	854611
	6	854612	854613	854614	854615	854616	854617	854618	854619	854620	854621	854622	854623
	8	854624	854625	854626	854627	854628	854629	854630	854631	854632	854633	854634	854635
	10	854636	854637	854638	854639	854640	854641	854642	854643	854644	854645	854646	854647
	12	854648	854649	854650	854651	854652	854653	854654	854655	854656	854657	854658	854659
	16	854660	854661	854662	854663	854664	854665	854666	854667	854668	854669	854670	854671
	20	854672	854673	854674	854675	854676	854677	854678	854679	854680	854681	854682	854683
	25	854684	854685	854686	854687	854688	854689	854690	854691	854692	854693	854694	854695

Contact customer service for other metric sizes.

Recessed Button Handle Kwik-Lok Pin



Recessed Button Handle Specifications - Inch

Nom Pin Dia	ØA		+/- .005 B	+.000/ -.040 C	Button Dia. D	E	F	G	H
	Min	Max							
3/16 (#10)	.1870	.1885	.220	.260	1/4	15/32	13/16	1"	23/32
1/4	.2470	.2485	.289	.290	1/4	15/32	13/16	1"	23/32
5/16	.3095	.3110	.375	.330	1/4	15/32	13/16	1"	23/32
3/8	.3720	.3735	.440	.365	5/16	1/2	1 3/32	1 5/16	7/8
7/16	.4345	.4360	.509	.380	5/16	1/2	1 3/32	1 5/16	7/8
1/2	.4970	.4985	.594	.460	7/16	5/8	1 1/16	1 1/8	11/16

- The Recessed Button Handle Kwik-Lok Pin design helps prevent accidental actuation of the pin.
- Handle is stainless steel and the button is stainless steel.
- Body is made from stainless steel.
- Includes hole for easy attachment of optional lanyard or ring.

		Pin Dia	Grip Length (Inches)											
			0.5	0.75	1	1.25	1.5	1.75	2	2.5	3*	4*	5*	6
P A R T N U M B E R S	3/16	803000	803001	803002	803003	803004	803005	803006	803008	803009	803011	803013	803015	
	1/4	803016	803017	803018	803019	803020	803021	803022	803024	803025	803027	803029	803031	
	5/16	803032	803033	803034	803035	803036	803037	803038	803040	803041	803043	803045	803047	
	3/8	803048	803049	803050	803051	803052	803053	803054	803056	803057	803059	803061	803063	
	7/16	803064	803065	803066	803067	803068	803069	803070	803072	803073	803075	803077	803079	
	1/2	803080	803081	803082	803083	803084	803085	803086	803088	803089	803091	803093	803095	

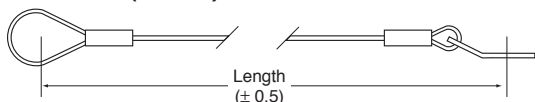
Contact customer service for other sizes.

Lanyards

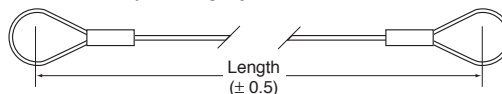


Lanyard does not include ring.
Rings included with T, L, and Button Handle Pins.

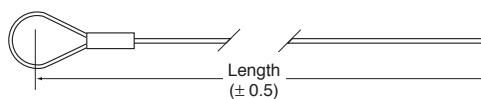
Standard (W/Tab)



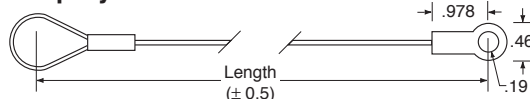
Standard (2 Loops)



Standard (1 Loop)



Loop/Eye



Lanyard Part Numbers (w/Tab)

Length (in.)	Standard			
	S.S. Round Tab		Alum. Oval Tab	
4	890054*	A*	890104*	M*
6	890056*	B*	890106*	N*
8	890058*	C*	890108*	P*
10	890060*	D*	890110*	Q*
12	890062*	H*	890112*	R*
16	890066*	J*	890116*	S*
20	890070*	K*	890120*	T*
24	890074*	L*	890124*	U*

Substitute the asterisk with the proper hole size letter in Table 1.

Contact Customer Service for other lanyard sizes.

Table 1

Tab Mounting Hole * = Tab Hole Letter	
*Hole Size (in)	Tab Extension
0.131	P
0.196	Q
0.257	R
0.283 ⁽¹⁾	S
0.320 ⁽¹⁾	T
0.379 ⁽¹⁾	U
0.406 ⁽¹⁾	V
0.468 ⁽¹⁾	W

(1) Only available with round tabs.

Lanyard Part Numbers (w/o Tab)

Length (in.)	Standard				Loop/Eye	
	2 Loops		1 Loop		S.S.	
4	890204	EA	890254	FA	890304	GA
6	890206	EB	890256	FB	890306	GB
8	890208	EC	890258	FC	890308	GC
10	890210	ED	890260	FD	890310	GD
12	890212	EE	890262	FE	890312	GE
16	890216	EF	890266	FF	890316	GF
20	890220	EG	890270	FG	890320	GG
24	890224	EH	890274	FH	890324	GH

Kwik-Lok Pin Lanyard Ordering Instructions:

When ordering lanyards attached directly to Kwik-Lok Pins (w/o rings), use the pin part number in conjunction with the 2 letter lanyard designation. (See example "A" right) When specifying a "tabbed" lanyard, substitute the ASTERISK* with the hole size letter designation shown in Table 1. (see example "B" right).

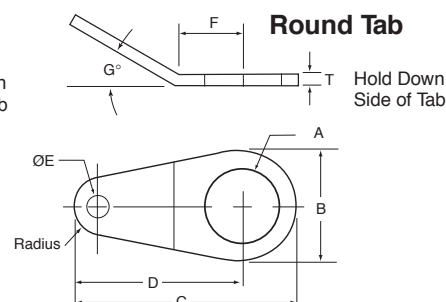
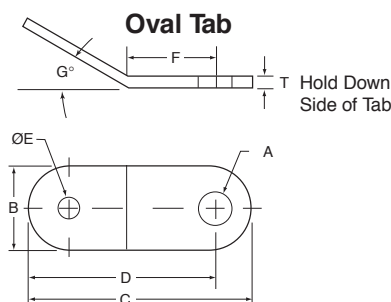
When ordering lanyards separately use lanyard part numbers listed in the tables above. For tabbed lanyards substitute the hole size letter in place of the ASTERISK*.

Example A:

Standard lanyard without tab –
801082EC = T-Handle Pin
with 8" standard lanyard
(with 2 loops).

Example B:

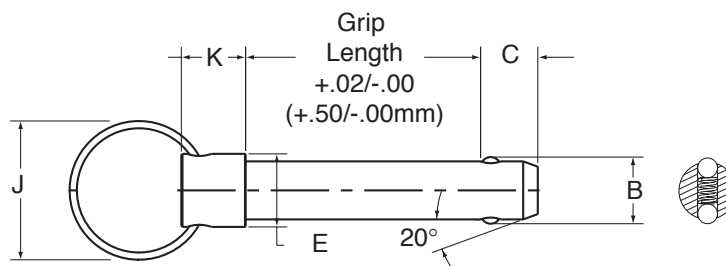
Standard lanyard with tab –
801082CR = T-Handle Pin with
8" lanyard, and stainless steel
(round) tab with a .257" mounting hole.



Tab Dimensions - Inch

Tab Style	+/- .005 ØA	+/- .010 B	+/- .020 C	+/- .020 D	+/- .005 ØE	+/- .016 Radius	+/- .010 F	+/- 5 deg. G	+/- .010 T	Material
Round Tab	See Table 1	0.688	1.316	1.004	0.125	0.160	0.406	12	0.048	Stain. Steel
Oval Tab	See Table 1	0.375	1.130	0.945	0.125	—	0.500	12	0.060	Aluminum

Heavy Duty Detent Pins



The Heavy Duty Detent Kwik-Lok Pin is a high quality shoulder style alignment pin for applications that don't require the positive locking ball feature.

- Heavy duty spring and 2 spring loaded stainless steel locking balls provide high pull out force
- 300 Series Stainless steel and alloy steel styles available
- Designed to meet or exceed Mil-P-45952/1
- Includes ring for easy attachment of optional lanyard

Heavy Duty Detent Specifications - Inch

Nom. Pin Dia	Dia. $\pm .000/-0.003$ A	Min. B	+0.000/-0.060 C	Dia. $\pm .015$ E	Dia. J	K	Double Shear Strength - lbs.		Pull Out Force lbs.
							Alloy Steel	S.S.	
3/16 (#10)	.1885	.200	.329	.312	1.187	.50	4,700	2,530	2 to 7
1/4	.2480	.280	.344	.375	1.187	.50	8,500	4,500	2 to 7
5/16	.3105	.360	.359	.438	1.187	.50	13,400	7,100	2 to 7
3/8	.3730	.430	.390	.500	1.187	.50	19,600	10,300	6 to 14
7/16	.4355	.495	.469	.563	1.187	.55	26,700	14,050	6 to 14
1/2	.4980	.570	.516	.625	1.187	.55	34,900	18,400	10 to 22
9/16	.5605	.645	.593	.688	1.687	.55	44,300	23,300	15 to 30
5/8	.6230	.720	.672	.750	1.687	.55	54,900	28,900	15 to 30
3/4	.7480	.860	.750	.875	1.687	.55	79,300	41,800	15 to 30
7/8	.8730	1.030	.859	1.000	2.187	.55	108,000	57,000	20 to 35
1	.9980	1.160	.984	1.125	2.187	.55	141,500	74,600	20 to 40

Heavy Duty Detent Specifications - Metric

Nom. Pin Dia	Dia. $\pm .000/-0.08$ A	Min. B	+0.00/-1.52 C	Dia. ± 0.38 E	Dia. J	K	Double Shear Strength - kN		Pull Out Force N
							Alloy Steel	S.S.	
5	4.95	5.23	8.36	7.92	30.15	12.7	23	12	9 to 31
6	5.95	6.88	8.74	9.53	30.15	12.7	33	17	9 to 31
8	7.95	9.35	9.12	11.13	30.15	12.7	60	32	9 to 31
10	9.95	11.58	9.91	12.70	30.15	12.7	96	50	26 to 62
12	11.95	13.84	13.11	15.88	30.15	14.2	138	73	44 to 97
16	15.95	18.54	17.07	19.05	42.85	14.2	248	130	66 to 133
20	19.95	22.91	19.05	22.23	42.85	14.2	388	204	89 to 155
25	24.95	29.18	24.99	28.58	55.55	14.2	609	321	89 to 178

Dimensions in millimeters

Heavy Duty Detent Pins - Inch

	Pin Dia	Grip Length (inches)											
		0.5	0.75	1	1.25	1.5	1.75	2	2.5	3	4	5	6
PART NUMBERS	Stainless Steel												
	3/16	803800	803801	803802	803803	803804	803805	803806	803808	803809	803811	803813	803815
	1/4	803816	803817	803818	803819	803820	803821	803822	803824	803825	803827	803829	803831
	5/16	803832	803833	803834	803835	803836	803837	803838	803840	803841	803843	803845	803847
	3/8	803848	803849	803850	803851	803852	803853	803854	803856	803857	803859	803861	803863
	7/16	803864	803865	803866	803867	803868	803869	803870	803872	803873	803875	803877	803879
	1/2	803880	803881	803882	803883	803884	803885	803886	803888	803889	803891	803893	803895
	9/16	803896	803897	803898	803899	803900	803901	803902	803904	803905	803907	803909	803911
	5/8	803912	803913	803914	803915	803916	803917	803918	803920	803921	803923	803925	803927
	3/4	803928	803929	803930	803931	803932	803933	803934	803936	803937	803939	803941	803943
	7/8	803944	803945	803946	803947	803948	803949	803950	803952	803953	803955	803957	803959
	1	803960	803961	803962	803963	803964	803965	803966	803968	803969	803971	803973	803975
	Alloy Steel												
	3/16	803600	803601	803602	803603	803604	803605	803606	803608	803609	803611	803613	803615
	1/4	803616	803617	803618	803619	803620	803621	803622	803624	803625	803627	803629	803631
	5/16	803632	803633	803634	803635	803636	803637	803638	803640	803641	803643	803645	803647
	3/8	803648	803649	803650	803651	803652	803653	803654	803656	803657	803659	803661	803663
	7/16	803664	803665	803666	803667	803668	803669	803670	803672	803673	803675	803677	803679
	1/2	803680	803681	803682	803683	803684	803685	803686	803688	803689	803691	803693	803695
	9/16	803696	803697	803698	803699	803700	803701	803702	803704	803705	803707	803709	803711
	5/8	803712	803713	803714	803715	803716	803717	803718	803720	803721	803723	803725	803727
	3/4	803728	803729	803730	803731	803732	803733	803734	803736	803737	803739	803741	803743
	7/8	803744	803745	803746	803747	803748	803749	803750	803752	803753	803755	803757	803759
	1	803760	803761	803762	803763	803764	803765	803766	803768	803769	803771	803773	803775

Contact customer service for other sizes.

Heavy Duty Detent Pins - Metric

	Pin Dia	Grip Length (mm)												
		10	15	20	25	30	40	50	60	70	80	90	100	
PART NUMBERS	Stainless Steel													
	5	853800	853801	853802	853803	853804	853805	853806	853807	853808	853809	853810	853811	
	6	853812	853813	853814	853815	853816	853817	853818	853819	853820	853821	853822	853823	
	8	853824	853825	853826	853827	853828	853829	853830	853831	853832	853833	853834	853835	
	10	853836	853837	853838	853839	853840	853841	853842	853843	853844	853845	853846	853847	
	12	853848	853849	853850	853851	853852	853853	853854	853855	853856	853857	853858	853859	
	16	853860	853861	853862	853863	853864	853865	853866	853867	853868	853869	853870	853871	
	20	853872	853873	853874	853875	853876	853877	853878	853879	853880	853881	853882	853883	
	25	853884	853885	853886	853887	853888	853889	853890	853891	853892	853893	853894	853895	
	Alloy Steel													
	5	853600	853601	853602	853603	853604	853605	853606	853607	853608	853609	853610	853611	
	6	853612	853613	853614	853615	853616	853617	853618	853619	853620	853621	853622	853623	
	8	853624	853625	853626	853627	853628	853629	853630	853631	853632	853633	853634	853635	
	10	853636	853637	853638	853639	853640	853641	853642	853643	853644	853645	853646	853647	
	12	853648	853649	853650	853651	853652	853653	853654	853655	853656	853657	853658	853659	
	16	853660	853661	853662	853663	853664	853665	853666	853667	853668	853669	853670	853671	
	20	853672	853673	853674	853675	853676	853677	853678	853679	853680	853681	853682	853683	
	25	853684	853685	853686	853687	853688	853689	853690	853691	853692	853693	853694	853695	

Contact customer service for other metric sizes.

Specifications & Materials

Specifications

Pin Dia (in.)	Double Shear Min (lbs.)		Locking Element Tensile Strength Min (lbs.)	Recommended Hole Diameter	
	Steel	S.S.		Max	Min
3/16 (#10)	4,600	5,150	200	0.1940	0.1900
1/4	8,200	9,200	230	0.2540	0.2500
5/16	12,800	14,400	510	0.3165	0.3125
3/8	18,400	20,700	575	0.3790	0.3750
7/16	25,000	28,500	710	0.4425	0.4375
1/2	32,800	36,900	1,160	0.5050	0.5000
9/16	41,600	46,700	1,420	0.5675	0.5625
5/8	51,400	57,800	2,070	0.6300	0.6250
3/4	74,600	83,200	2,950	0.7570	0.7500
7/8	100,000	112,500	3,900	0.8820	0.8750
1	131,000	147,200	5,480	1.0100	1.0000

Heavy Duty Detent Pin specifications, see page 1.20

Metric Specifications

Pin Dia (mm)	Double Shear min (kN)		Locking Element Tensile Strength (Newtons) Min	Recommended Hole Diameter	
	Steel	S.S.		Max	Min
5	21	24	890	5.1	5
6	31	35	890	6.1	6
8	56	63	2,250	8.1	8
10	88	100	2,280	10.1	10
12	128	144	3,150	12.1	12
16	229	257	9,200	16.1	16
20	358	403	13,100	20.15	20
25	561	631	23,400	25.15	25

	CRES 17-4 PH (S.S.)	CRES 440C (S.S.)	CRES 303 (S.S.)	CRES 300 Series (S.S.)	CRES 303 or 304 (S.S.)	CRES 302 (S.S.)	CRES 302 or 304 (S.S.) w/ Nylon Jacket	Alloy Steel 4130	Aluminum Alloy 2024	Aluminum (380) Casting	Aluminum
Body (Shank)/Spindle											
S.S. Pin	•										
Alloy Steel Pin							•				
Balls		•									
Buttons											
S.S.		•									
Aluminum								•			
Handles											
T and L Handles									•		
Heavy Duty T & L		•									
Button Handles								•			
Ring Handles		•									
Rec. Button			•								
S.S. Button		•									
Collar				•							
Lanyard Ring					•						
Lanyard						•					
Lanyard Tabs											
S.S.			•								
Aluminum										•	
Detent Pins											
S.S. Body		•									
Alloy Steel Body							•				

Jergens Kwik-Lok Pins are designed and manufactured to meet or exceed these standards and specifications.

Heat Treatment: Stainless Steel: Body/spindle per MIL-H-6875, condition H-900, Rockwell C40 Min.

Alloy Steel: Body/spindle to Rockwell C36-40

Surface Treatment: CRES Parts - passivate per QQ-P-35, Alloy Steel Parts - Cadmium plate per QQ-P-416, Type II, Class 2

Aluminum Alloy Parts: Anodize per MIL-A-8625 type I or II, Class 2 or chemical film per MIL-C-5541,

Class 1A. Handles are black.

Designed to meet or exceed the following specifications: NASM 23460, NASM 17984 thru 17990, NAS 1332, NAS 1333 thru 1346.

MIL-SPEC Quick Release Pins



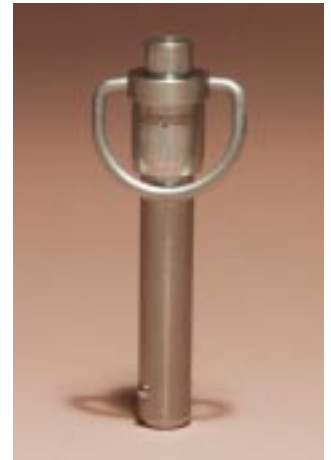
MS 17985



MS 17986



MS 17984



MS 17987



MS 17988



MS 17989



MS 17990



MIL - P - 45952/1

**NAS items available:
NASM 1334 - NASM 1348**

**Department of Defense approved
supplier of Quick Release Pins,
under CAGE code 94882.**

Visit www.jergensinc.com for complete listing
of MS numbers.

Certificate of Conformance is available upon request
at time of order.

**Military and Aerospace special sizes and
configurations available. Please contact
customer service 1-800-JERGENS (537-4367)**

Kwik-Lok™ Lifting Pins



Features:

- All stainless steel construction and components
- 17-4 PH stainless steel forged, heat treated lifting ring with large opening
- Lifting ring with Load Spreader Bar
- 5 to 1 strength factor

Benefits:

- Resists corrosion in harsh environments
- Accommodates wide range of lifting hooks/hardware
- Helps prevent accidental actuation of ball release button
- Lift with confidence

Lifting Pin Specifications - Inches

Nom Pin Dia	ØA		±.005 B	+.000/- .040 C
	Min	Max		
1/4	.2470	.2485	.286	.290
5/16	.3095	.3110	.375	.330
3/8	.3720	.3735	.440	.365
1/2	.4970	.4985	.594	.460
5/8	.6220	.6235	.750	.580

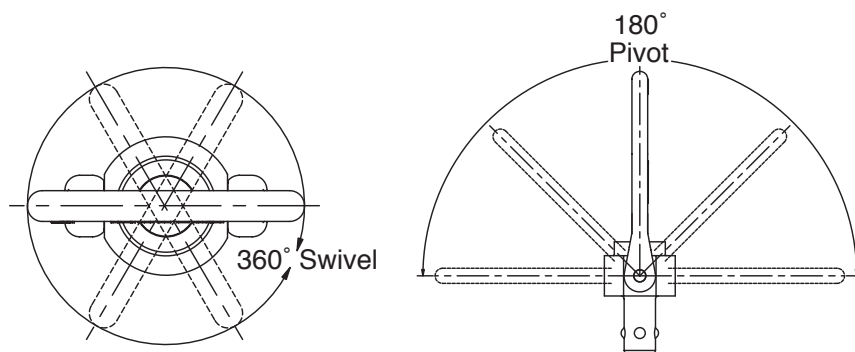
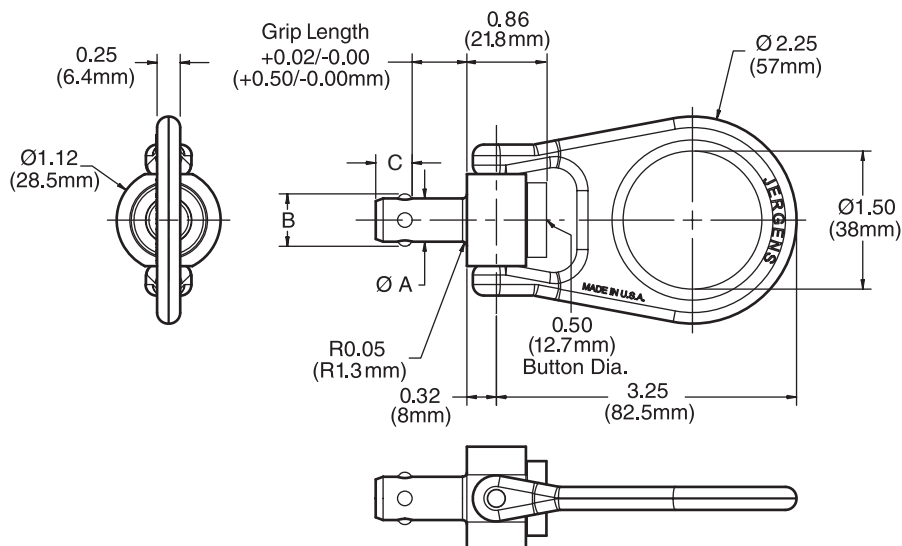
Lifting Pin Specifications - Metric

Nom Pin Dia	ØA		±.025 B	±.1.0 C
	Min	Max		
10	9.92	9.96	12.00	9
12	11.92	11.96	14.27	10
16	15.92	15.96	19.00	14

*Dimensions in millimeters

Material Specifications:

Part Description	Material
Body (Shank)	CRES 17-4 PH (S.S.)
Balls	CRES 440C (S.S.)
Button	CRES 303 (S.S.)
Lift Ring	Forged 17-4 PH (S.S.)
Spring	CRES 302 (S.S.)

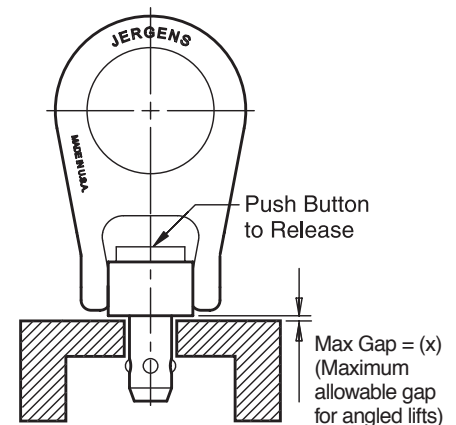


Kwik-Lok Lifting Pin - Inches

Dia.	Grip Length							
	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00
1/4	807216	807217	807218	807219	807220	807222	807224	807225
5/16	807232	807233	807234	807235	807236	807238	807240	807241
3/8	807248	807249	807250	807251	807252	807254	807256	807257
1/2	807280	807281	807282	807283	807284	807286	807288	807289
5/8	807312	807313	807314	807315	807316	807318	807320	807321

Kwik-Lok Lifting Pin - Metric

Dia.	Grip Length							
	15	20	25	30	35	40	50	75
10	857237	857238	857239	857240	857299	857241	857242	857307
12	857249	857250	857251	857252	857300	857253	857254	857308
16	857261	857262	857263	857264	857301	857265	857266	857309



Typical Application

*Lifting Load Specifications - Inches

Nom Dia	Max. Load Rating (lbs)	Max. Gap (X) (in)	Required Hole Dia (in)	
			Max.	Min.
1/4	400	0.06	0.2540	0.2500
5/16	700	0.06	0.3165	0.3125
3/8	1,000	0.06	0.3790	0.3750
1/2	1,250	0.06	0.5050	0.5000
5/8	1,400	0.06	0.6300	0.6250

Important: Please review all operating instructions that are included in the packaging or online before use.

Note: If the required hole size cannot be achieved; Jergens recommends the use of our threaded receptacle; please contact customer service at 800-537-4367 with any questions.

*Lifting load ratings are based on tests with hardened tool steel plates or shoulder bushings. Load ratings may be reduced if oversized holes or parent material under 80,000 psi tensile are used.

*Lifting Load Specifications - Metric

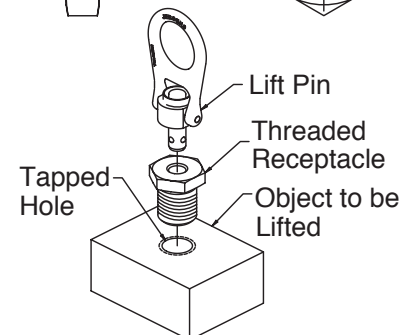
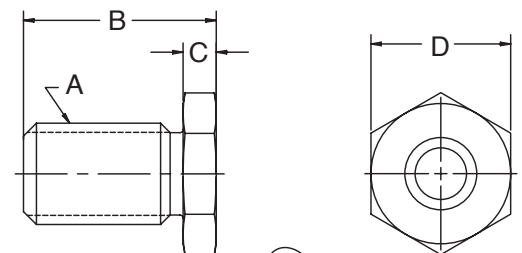
Nom Dia (mm)	Max. Load Rating (kN)	Max. Gap (X) (mm)	Required Hole Dia (mm)	
			Max.	Min.
10	4.4	1.5	10.1	10.0
12	5.5	1.5	12.1	12.0
16	6.2	1.5	16.1	16.0

KLP Threaded Receptacles - Inch

Part Number	Thread Size A	B	C	D	For Use With:	Torque (ft•lbs)
845100	1/2-13	0.930	0.16	11/16	807216	7
845101	3/4-10	1.100	0.28	1	807232	18
845102	3/4-10	1.100	0.28	1	807248	25
845103	1 1/8-7	1.625	0.37	1 1/2	807280	47
845104	1 1/8-7	1.625	0.37	1 1/2	807312	53

KLP Threaded Receptacles - Metric

Part Number	Thread Size A	B	C	D	For Use With:	Torque (kg•m)
855100	M20 x 2.5	29	7	26	857237	3.6
855101	M22 x 2.5	37	9	32	857249	5
855102	M27 x 3	41	10	32	857261	6.9



You Strip 'Em... We Fix 'Em!

Threaded Inserts Quickly Repair & Strengthen Damaged Threads

Jergens inserts are easy to use...no special tooling is required. They are also ideal for:

- strengthening threads in parent material (i.e. aluminum)
- repairing holes that have been mislocated

Full line available in carbon and stainless steel, inch and metric sizes:

- thinwall
- heavy duty
- extra heavy duty
- solid plug
- inch/metric
- internal locking



Easy installation: drill out old threads, countersink, tap, screw inserts in place.

Jergens®



Solid



Stainless Steel



Carbon Steel

***Complete information, including the new and improved
Jergens Thread Repair Kits, can be found in the
Threaded Insert Section, pages 8.1 Thru 8.14.***



Bolster Plate Bushings	8.5
Installation and Removal Instructions	8.2
Internal Locking Thread Repair Insert	8.8-8.9
Keylocking, Extra Heavy Duty Industrial Style	8.6
Keylocking, Heavy Duty Industrial Style	8.4
Keylocking, Metric/Inch	8.5
Keylocking, Solid Industrial Style	8.7
Keylocking, Thinwall Industrial Style	8.3
Thread Repair Kits	8.10-8.14

Installation Information



1. Drill to allow full tap depth shown in chart. Note: Tap drill is oversized; see chart below. Countersink as shown in chart.



2. Tap to depth shown in chart.



3. Install insert .010" to .030" below surface.



4. Drive keys down with proper installation tool.

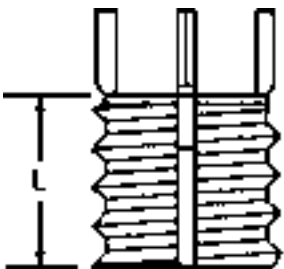
Removal Information

Jergens Keylocking Inserts can be removed without damage to the parent material.

1. Drill the insert to the size and depth shown under removal data in the chart below.
2. Bend the keys down and break them off.
3. Remove the insert using an E-Z out or similar tool.

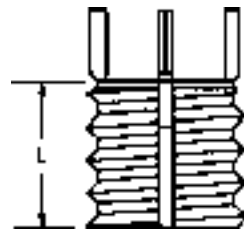


Installation Information Preparation of External Threads Prior to Installation (For Keylocking Inserts Only)



Insert		Installation Data			Removal Data	
External Thread Class 2A	Length L	Tap Drill Size	C'sink Dia. +.010 -.000	Minimum Tap Depth	Drill	
					Size	Depth
5/16-18	.31	I	.323	.37	7/32	1/8
3/8-16	.31/.37	Q	.385	.37/.43	9/32	1/8
7/16-14	.31/.37/.43	X	.447	.37/.43/.50	11/32	3/16
1/2-13	.37/.43/.50	29/64	.510	.44/.50/.56	13/32	3/16
9/16-12	.43/.50/.56	33/64	.572	.50/.56/.62	15/32	3/16
5/8-11	.50/.62	37/64	.635	.56/.68	17/32	3/16
3/4-16	.62/.81	45/64	.760	.68/.94	21/32	3/16
7/8-14	.68/.81/.87	53/64	.885	.75/.94/1.0	25/32	3/16
1-12	.87	15/16	1.020	1.0	27/32	5/16
1 1/8-12	1.12	1 1/16	1.145	1.31	31/32	5/16
1 1/4-12	1.12/1.25	1 3/16	1.270	1.31/1.44	1 3/32	5/16
1 3/8-12	1.25/1.37	1 5/16	1.395	1.44/1.56	1 7/32	5/16
1 1/2-12	1.37/1.62	1 7/16	1.520	1.56/1.84	1 11/32	5/16
1 5/8-12	1.81	1 9/16	1.640	2.06	1 15/32	5/16
1 7/8-12	2.00	1 13/16	1.890	2.28	1 23/32	5/16

Keylocking Inserts Thinwall Industrial Style



- Material: Carbon Steel Inserts - C1215 or equivalent
Stainless Steel Insert - 303 Keys - 302
- Finish: Carbon Steel Inserts - Parkerized
Stainless Steel Inserts - Passivated
- Tolerances: Inch $\pm .010$ Metric $\pm .25\text{mm}$
- Keys: Inserts with internal thread size of 5/16-18 or larger are furnished with four locking keys.

Inch Inserts - Thinwall

Internal Thread Class 2B	Part Number		External Thread	Length L	Installation Tool Part Number
	Carbon Steel	Stainless Steel			
10-24	25921	26321	5/16-18	.31	24721
10-32	26121	26521	5/16-18	.31	24721
1/4-20	25922	26322	3/8-16	.37	24722
1/4-28	26122	26522	3/8-16	.37	24722
5/16-18	25923	26323	7/16-14	.43	24723
5/16-24	26123	26523	7/16-14	.43	24723
3/8-16	25924	26324	1/2-13	.50	24724
3/8-24	26124	26524	1/2-13	.50	24724
7/16-14	25925	26325	9/16-12	.56	24725
7/16-20	26125	26525	9/16-12	.56	24725
1/2-13	25926	26326	5/8-11	.62	24726
1/2-20	26126	26526	5/8-11	.62	24726

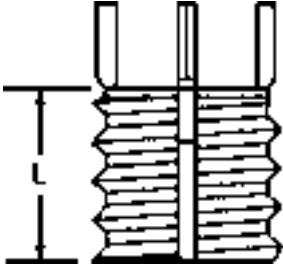
See chart on page 8.2 for installation information.

Metric Inserts - Thinwall

Part Number		Insert		Installation						Removal	
Carbon Steel	Stainless Steel	Internal Thread Class 6H	External Thread Class 6g	Length L	Installation Tool Part No.	Tap Drill Size	C'sink Dia. +.25 -.00	Thread Tap		Drill	
								Size Class 6h	Min. Depth	Size	Depth
25951	26351	M 5x0.8	M 8x1.25	8.0	24751	6.9	8.25	M 8x1.25	9.5	5.50	4.00
25952	26352	M 6x1.0	M 10x1.25	10.0	24752	8.8	10.25	M 10x1.25	11.5	7.50	4.75
25953	26353	M 8x1.25	M 12x1.25	12.0	24753	10.8	12.25	M 12x1.25	13.5	9.50	4.75
26153	26553	M 8x1.0	M 12x1.25	12.0	24753	10.8	12.25	M 12x1.25	13.5	9.50	4.75
25955	26355	M 10x1.5	M 14x1.5	14.0	24755	12.8	14.25	M 14x1.5	15.5	11.50	4.75
26155	26555	M 10x1.25	M 14x1.5	14.0	24755	12.8	14.25	M 14x1.5	15.5	11.50	4.75
25956	26356	M 12x1.75	M 16x1.5	16.0	24756	14.75	16.25	M 16x1.5	17.5	13.50	4.75
26156	26556	M 12x1.25	M 16x1.5	16.0	24756	14.75	16.25	M 16x1.5	17.5	13.50	4.75

Keylocking Inserts

Heavy Duty Industrial Style



- Material: Carbon Steel Inserts - C1215 or equivalent
Stainless Steel Insert - 303
Keys - 302
- Finish: Carbon Steel Inserts - Parkerized
Stainless Steel Inserts - Passivated
- Tolerances: Inch $\pm .010$
Metric $\pm .25\text{mm}$
- Keys: Inserts with internal thread size of 5/16-18 or larger are furnished with four locking keys.

Inch Inserts - Heavy Duty

Internal Thread Class 2B	Part Number		External Thread	Length L	Installation Tool Part Number
	Carbon Steel	Stainless Steel			
8-32	25900	26300	5/16-18	.31	24719
10-24	25901	26301	3/8-16	.31	24701
10-32	26101	26501	3/8-16	.31	24701
1/4-20	25902	26302	7/16-14	.37	24702
1/4-28	26102	26502	7/16-14	.37	24702
5/16-18	25903	26303	1/2-13	.43	24703
5/16-24	26103	26503	1/2-13	.43	24703
3/8-16	25904	26304	9/16-12	.50	24704
3/8-24	26104	26504	9/16-12	.50	24704
7/16-14	25905	26305	5/8-11	.62	24705
7/16-20	26105	26505	5/8-11	.62	24705
1/2-13	25906	26306	3/4-16	.62	24706
1/2-20	26106	26506	3/4-16	.62	24706
9/16-12	25907	26307	3/4-16	.81	24707
9/16-18	26107	26507	3/4-16	.81	24707
5/8-11	25908	26308	7/8-14	.87	24708
5/8-18	26108	26508	7/8-14	.87	24708
3/4-10	25909	26309	1 1/8-12	1.12	24709
3/4-16	26109	26509	1 1/8-12	1.12	24709
7/8-9	25910	26310	1 1/4-12	1.25	24710
7/8-14	26110	26510	1 1/4-12	1.25	24710
1-8	25911	26311	1 3/8-12	1.37	24711
1-12	26111	26511	1 3/8-12	1.37	24711
1-14	26112	—	1 3/8-12	1.37	24711
1 1/8-7	25913	—	1 1/2-12	1.62	24713
1 1/8-12	26113	—	1 1/2-12	1.62	24713
1 1/4-7	25914	—	1 5/8-12	1.81	24714
1 1/4-12	26114	—	1 5/8-12	1.81	24714
1 1/2-6	25916	—	1 7/8-12	2.00	24716
1 1/2-12	26116	—	1 7/8-12	2.00	24716

See chart on page 8.2 for installation information.

Metric Inserts - Heavy Duty

Part Number Carbon Steel	Part Number Stainless Steel	Insert			Installation					Removal	
		Internal Thread Class 6H	External Thread Class 6g	Length L	Installation Tool Part No.	Tap Drill Size	C'sink Diameter +.25 -.00	Thread Tap		Drill	
								Size Class 6h	Min. Depth	Size	Depth
25963	26363	M 4x0.7	M 8x1.25	8.0	24763	6.9	8.25	M 8x1.25	9.5	5.50	4.00
25964	26364	M 5x0.8	M 10x1.25	10.0	24764	8.8	10.25	M 10x1.25	12.5	7.50	4.75
25965	26365	M 6x1.0	M 12x1.25	12.0	24765	10.8	12.25	M 12x1.25	14.5	9.50	4.75
25966	26366	M 8x1.25	M 14x1.5	14.0	24766	12.8	14.25	M 14x1.5	16.5	11.50	4.75
26166	26566	M 8x1.0	M 14x1.5	14.0	24766	12.8	14.25	M 14x1.5	16.5	11.50	4.75
25967	26367	M 10x1.5	M 16x1.5	16.0	24767	14.75	16.25	M 16x1.5	18.5	13.50	4.75
26167	26567	M 10x1.25	M 16x1.5	16.0	24767	14.75	16.25	M 16x1.5	18.5	13.50	4.75
25969	26369	M 12x1.75	M 18x1.5	18.0	24769	16.75	18.25	M 18x1.5	20.5	15.50	4.75
26169	26569	M 12x1.25	M 18x1.5	18.0	24769	16.75	18.25	M 18x1.5	20.5	15.50	4.75
25970	26370	M 14x2.0	M 20x1.5	20.0	24770	18.75	20.25	M 20x1.5	22.5	17.50	4.75
26170	26570	M 14x1.5	M 20x1.5	20.0	24770	18.75	20.25	M 20x1.5	22.5	17.50	4.75
25971	26371	M 16x2.0	M 22x1.5	22.0	24771	20.5	22.25	M 22x1.5	24.5	17.75	6.35
26171	26571	M 16x1.5	M 22x1.5	22.0	24771	20.5	22.25	M 22x1.5	24.5	17.75	6.35
26172	26572	M 18x1.5	M 24x1.5	24.0	24772	22.5	24.25	M 24x1.5	26.5	19.75	6.35
25973	26373	M 20x2.5	M 30x2.0	30.0	24773	28.0	30.25	M 30x2.0	34.5	25.75	6.35
26173	26573	M 20x1.5	M 30x2.0	30.0	24773	28.0	30.25	M 30x2.0	34.5	25.75	6.35
26174	26574	M 22x1.5	M 32x2.0	32.0	24774	30.0	32.25	M 32x2.0	36.5	27.75	6.35
25975	26375	M 24x3.0	M 33x2.0	33.0	24775	31.0	33.25	M 33x2.0	37.5	28.75	6.35
26175	26575	M 24x2.0	M 33x2.0	33.0	24775	31.0	33.25	M 33x2.0	37.5	28.75	6.35

NOTE: Install insert .25mm to .76mm below surface and drive locking keys down. See C'sink Diameter column above.

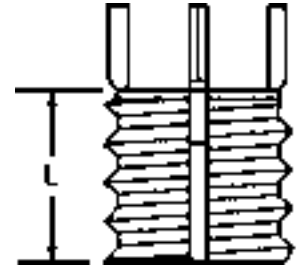
Keylocking Inserts Metric/Inch Inserts



Create Metric Holes...

With Inch Taps!

This unique product allows you to create a metric thread utilizing inch drills and taps. The insert O.D. is inch sized, the I.D. is metric.



Metric Internal/Inch External - Heavy Duty Industrial Style

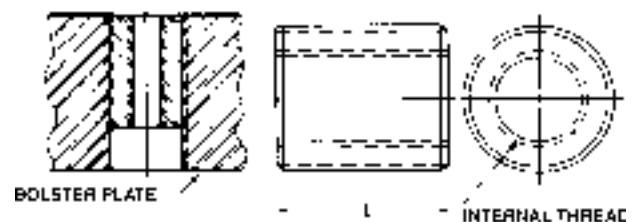
Part Number Carbon Steel	Insert			Installation					Removal	
	Internal Thread Class 6H	External Thread Class 2A	Length L	Installation Tool Part Number	Tap Drill Size	C'sink Diameter +.010 -.000	Thread Tap		Drill	
							Size Class 2b	Min. Depth	Size	Depth
26243	M 6x1.0	3/8 - 16	.31	24843	Q	.38	3/8 - 16	.37	9/32	1/8
26244	M 8x1.25	1/2 - 13	.43	24844	29/64	.51	1/2 - 13	.50	13/32	3/16
26245	M 10x1.5	5/8 - 11	.50	24845	37/64	.63	5/8 - 11	.56	17/32	3/16
26247	M 12x1.75	3/4 - 16	.62	24847	45/64	.76	3/4 - 16	.68	21/32	3/16
26248	M 14x2.0	7/8 - 14	.81	24848	53/64	.88	7/8 - 14	.94	25/32	5/16
26249	M 16x2.0	1" - 12	.87	24849	15/16	1.02	1" - 12	1.00	27/32	5/16

All dimensions are in inches except for internal thread, which is metric.

Bolster Plate Bushings



- Material: Stressproof
- Finish: Black Oxide
- Internal Thread: 2B-UNC
- External Thread: 2A-UNF

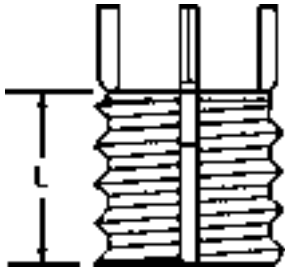


Repairs are made quickly, easily, and right on the machine. Re-tap bolster plate hole, insert the threaded bushing to match, use a locking type sealant to lock the bushing in place. The Bolster Plate Bushings can also be used as threaded bushings in cast iron machine bases where greater thread strength is necessary. Eliminates the problems of "pulled-out" cast iron threads, reduces the need for bulky threaded cast iron sections.

Part Number	Internal Thread	External Thread	L	Wt. (lbs) 10 Pcs.
11701	3/8-16	3/4-16	1 1/2	1.25
11702	1/2-13	1 -14	1 1/2	2.20
11703	5/8-11	1 -14	1 1/2	1.85
11704	3/4-10	1 1/4-12	1 1/2	3.00
11705	1 -8	1 1/2-12	2	5.15

Keylocking Inserts

Extra Heavy Duty Industrial Style



The increased wall thickness and greater external thread area of these extra heavy duty threaded inserts offer greater pull-out strength, stability, and longer life. These inserts should be used in materials with lower ultimate shear strength to obtain maximum pull-out strength and holding power.

- Greater Thread Area
- Increased Shear Engagement
- Offers Holding Power Comparable to Standard Heavy Duty Inserts in High Shear Strength Material
- Material: Carbon Steel Inserts - C1215 or equivalent
Stainless Steel Insert - 303
Keys - 302
- Finish: Carbon Steel Inserts - Parkerized
Stainless Steel Inserts - Passivated
- Tolerances: $\pm .010$
- Keys: Inserts with internal thread size of 5/16-18 or larger are furnished with four locking keys.

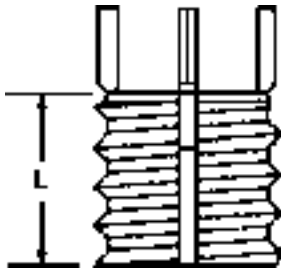
Internal Thread Class 2B	Part Number		External Thread Class 2A	Length L	Installation Tool Part Number
	Carbon Steel	Stainless Steel			
6-32	25931	26331	5/16-18	.31	24731
8-32	25932	26332	3/8-16	.31	24732
10-24	25933	26333	7/16-14	.31	24733
10-32	26133	26533	7/16-14	.31	24733
1/4-20	25934	26334	1/2-13	.37	24734
1/4-28	26134	26534	1/2-13	.37	24734
5/16-18	25935	26335	9/16-12	.43	24735
5/16-24	26135	26535	9/16-12	.43	24735
3/8-16	25936	26336	5/8-11	.50	24736
3/8-24	26136	26536	5/8-11	.50	24736
7/16-14	25937	26337	3/4-16	.62	24737
7/16-20	26137	26537	3/4-16	.62	24737
1/2-13	25938	26338	7/8-14	.68	24738
1/2-20	26138	26538	7/8-14	.68	24738
9/16-12	25939	26339	7/8-14	.81	24739
9/16-18	26139	26539	7/8-14	.81	24739
5/8-11	25940	26340	1-12	.87	24740
5/8-18	26140	26540	1-12	.87	24740
3/4-10	25941	26341	1 1/4-12	1.12	24741
3/4-16	26141	26541	1 1/4-12	1.12	24741
7/8-9	25942	26342	1 3/8-12	1.25	24742
7/8-14	26142	26542	1 3/8-12	1.25	24742
1-8	25943	26343	1 1/2-12	1.37	24743
1-12	26143	26543	1 1/2-12	1.37	24743

See chart on page 8.2 for installation information.

Keylocking Inserts Solid Industrial Style



- Material: Carbon Steel Inserts - C1215 or equivalent
Stainless Steel Insert - 303
Keys - 302
- Finish: Carbon Steel Inserts - Parkerized
Stainless Steel Inserts - Passivated
- Tolerances: Inch $\pm .010$
Metric $\pm .25\text{mm}$
- Keys: Inserts with internal thread size of M7 or larger are furnished with four locking keys.



- Salvage expensive castings
- Relocate holes that have been drilled or tapped in the wrong location
- Fill holes that are too large
- No need to alter original bolt size

External Thread Class 2A	Part Number		Length L	Installation Tool Part Number
	Carbon Steel	Stainless Steel		
5/16-18	26001	26401	.31	24801
3/8-16	26002	26402	.31	24802
7/16-14	26003	26403	.37	24803
1/2-13	26004	26404	.43	24804
9/16-12	26005	26405	.50	24805
5/8-11	26006	26406	.62	24806
3/4-16	26007	26407	.68	24807
7/8-14	26008	26408	.87	24808
1-12	26009	26409	.87	24809
1 1/8-12	26010	26410	1.12	24810
1 1/4-12	26011	26411	1.25	24811
1 3/8-12	26012	26412	1.37	24812

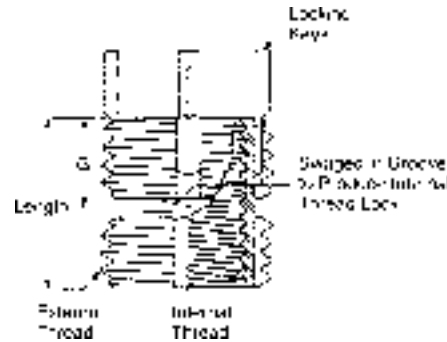
See chart on page 8.2 for installation information.

Metric Inserts - Solid

Part Number Carbon Steel	Insert		Installation					Removal	
	External Thread Class 6g	Length L	Installation Tool Part No.	Tap Drill Size	C'sink Dia. $+.25$ $-.00$	Thread Tap		Drill	
						Size Class 6h	Min. Depth	Size	Depth
26021	M 8x1.25	8.0	24821	6.9	8.25	M 8x1.25	9.5	5.50	4.00
26022	M 10x1.25	10.0	24822	8.8	10.25	M 10x1.25	12.5	7.50	4.75
26023	M 12x1.25	12.0	24823	10.8	12.25	M 12x1.25	14.5	9.50	4.75
26024	M 14x1.5	14.0	24824	12.8	14.25	M 14x1.5	16.5	11.50	4.75
26025	M 16x1.5	16.0	24825	14.75	16.25	M 16x1.5	18.5	13.50	4.75
26026	M 18x1.5	18.0	24826	16.75	18.25	M 18x1.5	20.5	15.50	4.75
26027	M 20x1.5	20.0	24827	18.75	20.25	M 20x1.5	22.5	17.50	4.75
26028	M 22x1.5	22.0	24828	20.5	22.25	M 22x1.5	24.5	17.75	6.35
26029	M 24x1.5	24.0	24829	22.5	24.25	M 24x1.5	26.5	19.75	6.35
26030	M 30x2.0	30.0	24830	28.0	30.25	M 30x2.0	34.5	25.75	6.35
26031	M 32x2.0	32.0	24831	30.0	32.25	M 32x2.0	36.5	27.75	6.35
26032	M 33x2.0	33.0	24832	31.0	33.25	M 33x2.0	37.5	28.75	6.35

Internal Locking Thread Repair Inserts

Material: Inserts - 303 stainless steel or equivalent
Keys - 302 stainless steel or equivalent
Finish: Passivated
Tolerances: $\pm .010$ inch unless specified otherwise.
Dimensions: All dimensions below are in inches.
Keys: Inserts with an internal thread size of 5/16 and larger are furnished with 4 locking keys. Smaller sizes have 2 locking keys.



Thinwall - Locking

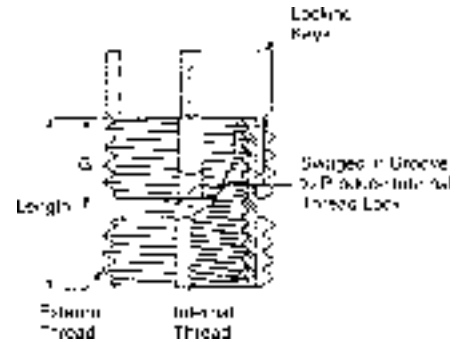
Insert					Installation					Removal	
Part Number	Internal Thread Class 2B	External Thread (Mod.) Class 2A	Length	G (Ref.)	Installation Tool Part No.	Tap Drill Size	C'sink Dia $+.010$ $-.000$	Thread Tap		Drill	
								Size Class 2B	Min. Depth	Size	Depth
24521	10 - 24	5/16 - 18	.31	.15	24721	"I"	.32	5/16 - 18	.37	7/32	1/8
24621	10 - 32	5/16 - 18	.31	.15	24721	"I"	.32	5/16 - 18	.37	7/32	1/8
24522	1/4 - 20	3/8 - 16	.37	.18	24722	"Q"	.38	3/8 - 16	.43	9/32	3/16
24622	1/4 - 28	3/8 - 16	.37	.18	24722	"Q"	.38	3/8 - 16	.43	9/32	3/16
24523	5/16 - 18	7/16 - 14	.43	.21	24723	"X"	.44	7/16 - 14	.50	11/32	3/16
24623	5/16 - 24	7/16 - 14	.43	.21	24723	"X"	.44	7/16 - 14	.50	11/32	3/16
24524	3/8 - 16	1/2 - 13	.50	.25	24724	29/64	.51	1/2 - 13	.56	13/32	3/16
24624	3/8 - 24	1/2 - 13	.50	.25	24724	29/64	.51	1/2 - 13	.56	13/32	3/16
24525	7/16 - 14	9/16 - 12	.56	.28	24725	33/64	.57	9/16 - 12	.62	15/32	3/16
24625	7/16 - 20	9/16 - 12	.56	.28	24725	33/64	.57	9/16 - 12	.62	15/32	3/16
24526	1/2 - 13	5/8 - 11	.62	.31	24726	37/64	.63	5/8 - 11	.68	17/32	3/16
24626	1/2 - 20	5/8 - 11	.62	.31	24726	37/64	.63	5/8 - 11	.68	17/32	3/16

Heavy Duty - Locking

Insert					Installation					Removal	
Part Number	Internal Thread Class 2B	External Thread (Mod.) Class 2A	Length	G (Ref.)	Installation Tool Part No.	Tap Drill Size	C'sink Dia $+.010$ $-.000$	Thread Tap		Drill	
								Size Class 2B	Min. Depth	Size	Depth
24500	8 - 32	5/16 - 18	.31	.15	24700	"I"	.32	5/16 - 18	.37	7/32	1/8
24501	10 - 24	3/8 - 16	.31	.15	24701	"Q"	.38	3/8 - 16	.37	9/32	1/8
24601	10 - 32	3/8 - 16	.31	.15	24701	"Q"	.38	3/8 - 16	.37	9/32	1/8
24502	1/4 - 20	7/16 - 14	.37	.18	24702	"X"	.44	7/16 - 14	.43	11/32	3/16
24602	1/4 - 28	7/16 - 14	.37	.18	24702	"X"	.44	7/16 - 14	.43	11/32	3/16
24503	5/16 - 18	1/2 - 13	.43	.21	24703	29/64	.51	1/2 - 13	.50	13/32	3/16
24603	5/16 - 24	1/2 - 13	.43	.21	24703	29/64	.51	1/2 - 13	.50	13/32	3/16
24504	3/8 - 16	9/16 - 12	.50	.25	24704	33/64	.57	9/16 - 12	.56	15/32	3/16
24604	3/8 - 24	9/16 - 12	.50	.25	24704	33/64	.57	9/16 - 12	.56	15/32	3/16
24505	7/16 - 14	5/8 - 11	.62	.31	24705	37/64	.63	5/8 - 11	.68	17/32	3/16
24605	7/16 - 20	5/8 - 11	.62	.31	24705	37/64	.63	5/8 - 11	.68	17/32	3/16
24506	1/2 - 13	3/4 - 16	.62	.31	24706	45/64	.76	3/4 - 16	.68	21/32	3/16
24606	1/2 - 20	3/4 - 16	.62	.31	24706	45/64	.76	3/4 - 16	.68	21/32	3/16
24507	9/16 - 12	3/4 - 16	.81	.40	24707	45/64	.76	3/4 - 16	.94	21/32	3/16
24607	9/16 - 18	3/4 - 16	.81	.40	24707	45/64	.76	3/4 - 16	.94	21/32	3/16
24508	5/8 - 11	7/8 - 14	.87	.43	24708	53/64	.88	7/8 - 14	1.00	25/32	5/16
24608	5/8 - 18	7/8 - 14	.87	.43	24708	53/64	.88	7/8 - 14	1.00	25/32	5/16
24509	3/4 - 10	1-1/8 - 12	1.12	.56	24709	1-1/16	1.14	1-1/8 - 12	1.31	31/32	5/16
24609	3/4 - 16	1-1/8 - 12	1.12	.56	24709	1-1/16	1.14	1-1/8 - 12	1.31	31/32	5/16
24510	7/8 - 9	1-1/4 - 12	1.25	.62	24710	1-3/16	1.27	1-1/4 - 12	1.44	1-3/32	5/16
24610	7/8 - 14	1-1/4 - 12	1.25	.62	24710	1-3/16	1.27	1-1/4 - 12	1.44	1-3/32	5/16
24511	1" - 8	1-3/8 - 12	1.37	.68	24711	1-5/16	1.39	1-3/8 - 12	1.56	1-7/32	5/16
24611	1" - 12	1-3/8 - 12	1.37	.68	24711	1-5/16	1.39	1-3/8 - 12	1.56	1-7/32	5/16

Metric Internal Locking Thread Repair Inserts

Material: Inserts - 303 stainless steel or equivalent
Keys - 302 stainless steel or equivalent
Finish: Passivated
Tolerances: $\pm .25$ mm unless specified otherwise.
Dimensions: All dimensions below are in millimeters
Keys: Inserts with an internal thread size of M7 and larger are furnished with 4 locking keys.
Smaller sizes have 2 locking keys.



Thinwall - Metric - Locking

Insert					Installation					Removal	
Part Number	Internal Thread Class 6H	External Thread Class 6g	Length	G (Ref.)	Installation Tool Part No.	Tap Drill Size	C'sink Dia. $+.25$ $-.00$	Thread Tap		Drill	
								Size Class 6h	Min. Depth	Size	Depth
24551	M 5x0.8	M8x1.25	8.0	4.0	24751	6.9	8.25	M 8x1.25	9.5	5.50	4.00
24552	M 6x1.0	M 10x1.25	10.0	5.0	24752	8.8	10.25	M 10x1.25	11.5	7.50	4.75
24553	M 8x1.25	M 12x1.25	12.0	6.0	24753	10.8	12.25	M 12x1.25	13.5	9.50	4.75
24653	M 8x1.0										
24555	M 10x1.5	M 14x1.5	14.0	7.0	24755	12.8	14.25	M 14x1.5	15.5	11.50	4.75
24655	M 10x1.25										
24556	M 12x1.75	M 16x1.5	16.0	8.0	24756	14.75	16.25	M 16x1.5	17.5	13.50	4.75
24656	M12x1.25										

Heavy Duty - Metric - Locking

Insert					Installation					Removal	
Part Number	Internal Thread Class 6H	External Thread Class 6g	Length	G (Ref.)	Installation Tool Part No.	Tap Drill Size	C'sink Dia. $+.25$ $-.00$	Thread Tap		Drill	
								Size Class 6h	Min. Depth	Size	Depth
24563	M 4X0.7	M8x1.25	8.0	4.0	24763	6.9	8.25	M 8x1.25	9.5	5.50	4.00
24564	M 5x0.8	M 10x1.25	10.0	5.0	24764	8.8	10.25	M 10x1.25	12.5	7.50	4.75
24565	M 6x1.0	M 12x1.25	12.0	6.0	24765	10.8	12.25	M 12x1.25	14.5	9.50	4.75
24566	M 8x1.25	M 14x1.5	14.0	7.0	24766	12.8	14.25	M 14x1.5	16.5	11.50	4.75
24666	M 8x1.0										
24567	M 10x1.5	M 16x1.5	16.0	8.0	24767	14.75	16.25	M 16x1.5	18.5	13.50	4.75
24667	M 10x1.25										
24569	M 12x1.75	M 18x1.5	18.0	9.0	24769	16.75	18.25	M 18x1.5	20.5	15.50	4.75
24669	M 12x1.25										
24570	M 14x2.0	M 20x1.5	20.0	10.0	24770	18.75	20.25	M 20x1.5	22.5	17.50	4.75
24670	M 14x1.5										
24571	M 16x2.0	M 22x1.5	22.0	11.0	24771	20.5	22.25	M 22x1.5	24.5	17.75	6.35
24671	M 16x1.5										
24672	M 18x1.5	M 24x1.5	24.0	12.0	24772	22.5	24.25	M 24x1.5	26.5	19.75	6.35
24573	M 20x2.5	M 30x2.0	30.0	15.0	24773	28.0	30.25	M30x2.0	34.5	25.75	6.35
24673	M 20x1.5										
24674	M 22x1.5	M 32x2.0	32.0	16.0	24774	30.0	32.25	M 32x2.0	36.5	27.75	6.35
24575	M 24x3.0	M33x2.0	33.0	16.5	24775	31.0	33.25	M 33x2.0	37.5	28.75	6.35
24675	M 24x2.0										

Master Thread Repair Kits

Small Assortments



The Jergens Master Thread Repair Kits include several different kinds of inserts, installation tools and installation and removal instructions.

The Kits are available with inch or metric, carbon steel inserts or with stainless steel inserts.

Coarse Series, Heavy Duty Kits

Internal Thread Class 2B	External Thread (Mod) Class 2A	Length	Quantity of Inserts Per Kit
10 - 24	3/8 - 16	.31	5
1/4 - 20	7/16 - 14	.37	10
5/16 - 18	1/2 - 13	.43	10
3/8 - 16	9/16 - 12	.50	10
1/2 - 13	3/4 - 16	.62	10
5/8 - 11	7/8 - 14	.87	10
3/4 - 10	1-1/8 - 12	1.12	5

Total Inserts Per Kit 60 pcs.

Carbon Steel Kit
25949

Stainless Steel Kit
26349

Fine Series, Heavy Duty Kits

Internal Thread Class 2B	External Thread Class 2A	Length	Quantity of Inserts Per Kit
10 - 32	3/8 - 16	.31	5
1/4 - 28	7/16 - 14	.37	10
5/16 - 24	1/2 - 13	.43	10
3/8 - 24	9/16 - 12	.50	10
1/2 - 20	3/4 - 16	.62	10
5/8 - 18	7/8 - 14	.87	10
3/4 - 16	1-1/8 - 12	1.12	5

Total Inserts Per Kit 60 pcs.

Carbon Steel Kit
26149

Stainless Steel Kit
26549

Metric, Thinwall Kits

Internal Thread Class 2B	External Thread Class 2A	Length (mm)	Quantity of Inserts Per Kit
M 5x0.8	M 8x1.25	8.0	8
M 6x1.0	M 10x1.25	10.0	8
M 8x1.25	M 12x1.25	12.0	6
M 8x1.0	M 12x1.25	12.0	6
M 10x1.5	M 14x1.5	14.0	4
M 10x1.25	M 14x1.5	14.0	4
M 12x1.75	M 16x1.5	16.0	3
M 12x1.25	M 16x1.5	16.0	3

Total Inserts Per Kit 42 pcs.

Metric Carbon Steel Kit
25999

Stainless Steel Kit
25998

Master Thread Repair Kits Large Assortments

Coarse Series, Heavy Duty Kits

Internal Thread Class 2B	External Thread (Mod) Class 2A	Length	Quantity of Inserts Per Kit
1/4 - 20	7/16 - 14	.37	20
5/16 - 18	1/2 - 13	.43	15
3/8 - 16	9/16 - 12	.50	10
7/16 - 14	5/8 - 11	.62	10
1/2 - 13	3/4 - 16	.62	6
9/16 - 12	3/4 - 16	.81	5
5/8 - 11	7/8 - 14	.87	3
3/4 - 10	1-1/8 - 12	1.12	3
7/8 - 9	1-1/4 - 12	1.25	3
1" - 8	1-3/8 - 12	1.37	2

Total Inserts Per Kit 77 pcs.

Carbon Steel Kit	Stainless Steel Kit
25945	26345

Fine Series, Heavy Duty Kits

Internal Thread Class 2B	External Thread (Mod) Class 2A	Length	Quantity of Inserts Per Kit
1/4 - 28	7/16 - 14	.37	10
5/16 - 24	1/2 - 13	.43	10
3/8 - 24	9/16 - 12	.50	10
7/16 - 20	5/8 - 11	.62	10
1/2 - 20	3/4 - 16	.62	6
9/16 - 18	3/4 - 16	.81	5
5/8 - 18	7/8 - 14	.87	3
3/4 - 16	1-1/8 - 12	1.12	3
7/8 - 14	1-1/4 - 12	1.25	3
1" - 12	1-3/8 - 12	1.37	2

Total Inserts Per Kit 77 pcs.

Carbon Steel Kit	Stainless Steel Kit
26145	26545

Metric, Thinwall Kits

Internal Thread Class 6H	External Thread Class 6g	Length (mm)	Quantity of Inserts Per Kit
M 6x1.0	M 10x1.25	10.0	20
M 8x1.25	M 12x1.25	12.0	15
M 8x1.0	M 12x1.25	12.0	15
M 10x1.5	M 14x1.5	14.0	10
M 10x1.25	M 14x1.5	14.0	10
M 12x1.75	M 16x1.5	16.0	6
M 12x1.25	M 16x1.5	16.0	6

Total Inserts Per Kit 82 pcs.

Metric Carbon Steel Kit	Stainless Steel Kit
25997	25996

Coarse Series, Thinwall Kits

Internal Thread Class 2B	External Thread (Mod) Class 2A	Length	Quantity of Inserts Per Kit
10 - 24	5/16 - 18	.31	20
1/4 - 20	3/8 - 16	.37	20
5/16 - 18	7/16 - 14	.43	15
3/8 - 16	1/2 - 13	.50	10
7/16 - 14	9/16 - 12	.56	10
1/2 - 13	5/8 - 11	.62	6

Total Inserts Per Kit 81 pcs.

Carbon Steel Kit	Stainless Steel Kit
25948	26348

Fine Series, Thinwall Kits

Internal Thread Class 2B	External Thread (Mod) Class 2A	Length	Quantity of Inserts Per Kit
10 - 32	5/16 - 18	.31	20
1/4 - 28	3/8 - 16	.37	20
5/16 - 24	7/16 - 14	.43	15
3/8 - 24	1/2 - 13	.50	10
7/16 - 20	9/16 - 12	.56	10
1/2 - 20	5/8 - 11	.62	6

Total Inserts Per Kit 81 pcs.

Carbon Steel Kit	Stainless Steel Kit
25947	26548

Inch Thread Repair Insert Kits



The Jergens Keylocking Inserts provide strong and durable threads in most types of material. They are easily installed using standard drills and taps.

The Jergens Thread Repair Insert Kits include inserts, an installation tool, and installation and removal instructions.

The Kits are available with either inch, metric, or metric internal/inch external carbon steel inserts.

Each Kit is comprised of one size of insert in various quantities. For Thread Repair Kits that include several different sizes, see pages 8.10 - 8.11.

Inch Thread Kits - Heavy Duty

Carbon Steel Part Number	Stainless Steel Part Number	Internal Thread	External Thread	Inserts Per Kit	Insert Part Number	Stainless Steel Insert Part Number	Tool Part Number
75900	76300	8-32	5/16-18	9	25900	26300	24700
75901	76301	10-24	3/8-16	9	25901	26301	24701
76101	76501	10-32	3/8-16	9	26101	26501	24701
75902	76302	1/4-20	7/16-14	8	25902	26302	24702
76102	76502	1/4-28	7/16-14	8	26102	26502	24702
75903	76303	5/16-18	1/2-13	7	25903	26303	24703
76103	76503	5/16-24	1/2-13	7	26103	26503	24703
75904	76304	3/8-16	9/16-12	6	25904	26304	24704
76104	76504	3/8-24	9/16-12	6	26104	26504	24704
75905	76305	7/16-14	5/8-11	6	25905	26305	24705
76105	76505	7/16-20	5/8-11	6	26105	26505	24705
75906	76306	1/2-13	3/4-16	4	25906	26306	24706
76106	76506	1/2-20	3/4-16	4	26106	26506	24706
75907	76307	9/16-12	3/4-16	3	25907	26307	24707
76107	76507	9/16-18	3/4-16	3	26107	26507	24707
75908	76308	5/8-11	7/8-14	3	25908	26308	24708
76108	76508	5/8-18	7/8-14	3	26108	26508	24708
75909	76309	3/4-10	1 1/8-12	3	25909	26309	24709
76109	76509	3/4-16	1 1/8-12	3	26109	26509	24709
75910	76310	7/8-9	1 1/4-12	3	25910	26310	24710
76110	76510	7/8-14	1 1/4-12	3	26110	26510	24710
75911	76311	1 - 8	1 3/8-12	2	25911	26311	24711
76111	76511	1 - 12	1 3/8-12	2	26111	26511	24711
75913		1 1/8-7	1 1/2-12	2	25913		24713
76113		1 1/8-12	1 1/2-12	2	26113		24713
75914		1 1/4-7	1 5/8-12	2	25914		24714
76114		1 1/4-12	1 5/8-12	2	26114		24714
75916		1 1/2-6	1 7/8-12	2	25916		24716
76116		1 1/2-12	1 7/8-12	2	26116		24716

Inch Thread Kits - Thin Wall

Carbon Steel Part Number	Stainless Steel Part Number	Internal Thread	External Thread	Inserts Per Kit	Carbon Steel Insert Part Number	Stainless Steel Insert Part Number	Installation Tool Part Number
75921	76421	10-24	5/16-18	9	25921	26321	24721
76121	76521	10-32	5/16-18	9	26121	26521	24721
75922	76422	1/4-20	3/8-16	8	25922	26322	24722
76122	76522	1/4-28	3/8-16	8	26122	26522	24722
75923	76423	5/16-18	7/16-14	7	25923	26323	24723
76123	76523	5/16-24	7/16-14	7	26123	26523	24723
75924	76424	3/8-16	1/2-13	6	25924	26325	24724
76124	76524	3/8-24	1/2-13	6	26124	26524	24724
75925	76425	7/16-14	9/16-12	6	25925	26325	24725
76125	76525	7/16-20	9/16-12	6	26125	26525	24725
75926	76426	1/2-13	5/8-11	4	25926	26326	24726
76126	76526	1/2-20	5/8-11	4	26126	26526	24726

Metric Thread Repair Insert Kits



The Jergens Keylocking Inserts provide strong and durable threads in most types of material. They are easily installed using standard drills and taps.

The Jergens Thread Repair Insert

Kits include inserts, an installation tool, and installation and removal instructions.

The Kits are available with either inch, metric, or metric internal/inch external carbon steel inserts.

Each Kit is comprised of one size of insert in various quantities. For Thread Repair Kits that include several different sizes, see pages 8.10 - 8.11.

Metric Thread Kits - Heavy Duty

Carbon Steel Part Number	Stainless Steel Part Number	Internal Thread	External Thread	Inserts Per Kit	Insert Part Number	Stainless Steel Insert Part Number	Tool Part Number
75963	76463	M4x0.7	M8x1.25	9	25963	26363	24763
75964	76464	M5x0.8	M10x1.25	8	25964	26364	24764
75965	76465	M6x1.0	M12x1.25	8	25965	26365	24765
75966	76466	M8x1.25	M14x1.5	6	25966	26366	24766
76166	76566	M8x1.0	M14x1.5	6	26166	26566	24766
75967	76467	M10x1.5	M16x1.5	4	25967	26367	24767
76167	76567	M10x1.25	M16x1.5	4	26167	26567	24767
75969	76469	M12x1.75	M18x1.5	3	25969	26369	24769
76169	76569	M12x1.25	M18x1.5	3	26169	26569	24769
75970	76470	M14x2.0	M20x1.5	4	25970	26370	24770
76170	76570	M14x1.5	M20x1.5	4	26170	26570	24770
75971	76471	M16x2.0	M22x1.5	3	25971	26371	24771
76171	76571	M16x1.5	M22x1.5	3	26171	26571	24771
76172	76572	M18x1.5	M24x1.5	2	26172	26572	24772
75973	76473	M20x2.5	M30x2.0	3	25973	26373	24773
76173	76573	M20x1.5	M30x2.0	3	26173	26573	24773
76174	76574	M22x1.5	M32x2.0	3	26174	26574	24774
75975	76475	M24x3.0	M33x2.0	3	25975	26375	24775
76175	76575	M24x2.0	M33x2.0	2	26175	26575	24775

Metric Thread - Thin Wall

Carbon Steel Part Number	Stainless Steel Part Number	Internal Thread	External Thread	Inserts Per Kit	Insert Part Number	Stainless Steel Insert Part Number	Tool Part Number
75951	76451	M5x0.8	M8x1.25	8	25951	26351	24751
75952	76452	M6x1.0	M10x1.25	8	25952	26352	24752
75953	76453	M8x1.25	M12x1.25	6	25953	26353	24753
76153	76553	M8x1.0	M12x1.25	6	26153	26553	24753
75955	76455	M10x1.5	M14x1.5	4	25955	26355	24755
76155	76555	M10x1.25	M14x1.5	4	26155	26555	24755
75956	76456	M12x1.75	M16x1.5	3	25956	26356	24756
76156	76556	M12x1.25	M16x1.5	3	26156	26556	24756

Carbon Steel Kits - Metric Internal/Inch External Threads - Heavy Duty

Part Number	Internal Thread	External Thread	Inserts Per Kit	Insert Part Number	Tool Part Number
76243	M 6x1.0	3/8 - 16	8	26243	24843
76244	M 8x1.25	1/2 - 13	8	26244	24844
76245	M 10x1.5	5/8 - 11	6	26245	24845
76247	M 12x1.75	3/4 - 16	4	26247	24847
76248	M 14x2.0	7/8 - 14	3	26248	24848
76249	M 16x2.0	1" - 12	3	26249	24849

MRO Thread Repair Kits



Thread Repair Insert Applications:

- Rapid repair of stripped threads in a wide range of materials
- Reinforce thread strength in lighter weight material such as aluminum and magnesium
- Eliminate re-machining for hole relocation

Features

- 2 or 4 locking keys
- Insert material is C1215 steel with Parkerized finish
- Locking keys manufactured from 302 stainless steel
- Easy installation and removal
- Kits are all inclusive

Benefits

- Holds insert firmly in position in parent material
- Reduce friction during installation
- Corrosion resistant
- Shortens repair time
- No special tools required

	Kit Part Number	Internal Thread		Keylocking Insert Style	Insert #	Qty	Install. Tool #	Drill Size	O.D. Tap size
		Size	Pitch						
INCH	76601	10-32	Fine	Heavy Duty	26101	24	24701	Letter "Q"	3/8-16
	76602	1/4-20	Coarse	Heavy Duty	25902	24	24702	Letter "X"	7/16-14
	76612	1/4-28	Fine	Heavy Duty	26102	24	24702	Letter "X"	7/16-14
	76702	1/4-20	Coarse	Thinwall	25922	24	24722	Letter "Q"	3/8-16
	76603	5/16-18	Coarse	Heavy Duty	25903	24	24703	29/64"	1/2-13
	76613	5/16-24	Fine	Heavy Duty	26103	24	24703	29/64"	1/2-13
	76604	3/8-16	Coarse	Heavy Duty	25904	12	24704	33/64"	9/16-12
	76614	3/8-24	Fine	Heavy Duty	26104	12	24704	33/64"	9/16-12
	76605	7/16-14	Coarse	Heavy Duty	25905	12	24705	37/64"	5/8-11
	76606	1/2-13	Coarse	Heavy Duty	25906	6	24706	45/64"	3/4-16
	76616	1/2-20	Fine	Heavy Duty	26106	6	24706	45/64"	3/4-16
	76608	5/8-11	Coarse	Heavy Duty	25908	6	24708	53/64"	7/8-14
	76618	5/8-18	Fine	Heavy Duty	26108	6	24708	53/64"	7/8-14
	76609	3/4-10	Coarse	Heavy Duty	25909	6	24709	1-1/16"	1-1/8-12
	76619	3/4-16	Fine	Heavy Duty	26109	6	24709	1-1/16"	1-1/8-12
	76611	1-8	Coarse	Heavy Duty	25911	4	24711	1-5/16"	1-3/8-12
	76621	1-12	Fine	Heavy Duty	26111	4	24711	1-5/16"	1-3/8-12
METRIC	76663	M4 x 0.7	Coarse	Metric Heavy Duty	25963	12	24763	6.9mm	M8 x 1.25
	76664	M5 x 0.8	Coarse	Metric Heavy Duty	25964	12	24764	8.8mm	M10 x 1.25
	76665	M6 x 1.0	Coarse	Metric Heavy Duty	25965	12	24765	10.8mm	M12 x 1.25
	76676	M8 x 1.25	Coarse	Metric Heavy Duty	25966	12	24766	12.8mm	M14 x 1.5
	76666	M8 x 1.0	Fine	Metric Heavy Duty	26166	12	24766	12.8mm	M14 x 1.5
	76677	M10 x 1.5	Coarse	Metric Heavy Duty	25967	12	24767	14.75mm	M16 x 1.5
	76667	M10 x 1.25	Fine	Metric Heavy Duty	26167	12	24767	14.75mm	M16 x 1.5
	76679	M12 x 1.75	Coarse	Metric Heavy Duty	25969	12	24769	16.75mm	M18 x 1.5
	76669	M12 x 1.25	Fine	Metric Heavy Duty	26169	12	24779	16.75mm	M18 x 1.5

Each Kit includes:

- Keylocking thread repair inserts
- Correctly sized drill & tap
- Installation tool
- Durable storage tube

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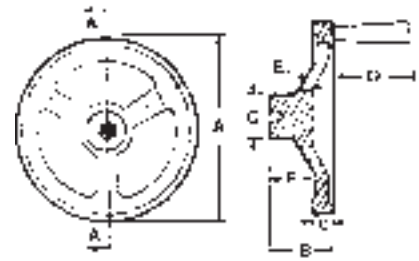
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Aluminum Angular Spoked Handwheel



- Diameters from 4" to 23" and 100mm to 575mm
- Lightweight, 319 Aluminum Alloy
- Rims machined to run concentric with center drill
- Available with or without handle
- Special bores and keyways quoted upon request
- Available in FixturePro™ Design Software



Handwheels With Handle

Part Number	A	B	C	D	E	F	G	Number Of Spokes
22308	4	1 1/2	5/8	1 5/8	1/4	1	1 3/16	2
22301	6	2	3/4	2 9/16	5/16	1 7/16	1 1/2	3
22302	8	2 1/2	7/8	2 15/16	3/8	1 7/8	2	3
22303	10	3	7/8	3 5/16	7/16	2 1/8	2 3/8	3
22304	12	3 3/8	7/8	3 5/16	7/16	2 3/16	2 1/2	3
22305	14	3 13/16	1	3 5/16	7/16	2 17/32	2 3/4	5
22306	18	4 7/8	1 1/4	3 5/16	7/16	3 1/16	4 1/8	5
22307	23	7 1/8	1 1/4	3 5/16	7/16	4 3/8	4 1/2	6

Part Number	
Handwheel Only	Handle Only
22108*	21902
22101*	21904
22102*	21905
22103*	21906
22104*	21906
22105*	21906
22106*	21906
22107*	21906

*Not tapped for handle

Metric Handwheels With Handle

Part Number	A	B	C	D	E	F	G	Number Of Spokes
22358	100	38	16	41	6	25	30	2
22351	150	50	19	64	8	36	38	3
22352	200	63	22	73	9	47	50	3
22353	250	75	22	83	11	53	59	3
22354	300	84	22	83	11	55	63	3
22355	350	95	25	83	11	63	69	5
22356	450	122	31	83	11	77	103	5
22357	575	178	31	83	11	110	113	6

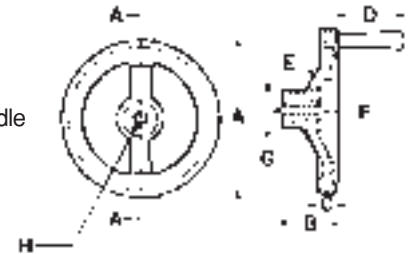
Part Number	
Handwheel Only	Handle Only
22108*	21952
22101*	21954
22102*	21955
22103*	21956
22104*	21956
22105*	21956
22106*	21956
22107*	21956

*Not tapped for handle

Cast Iron Angular Spoked Handwheel



- Fine Grain Cast Iron
- Rims machined to run concentric with center hole
- All cast iron wheels have two spokes and finger grips. Available with or without handle
- Available with Black Epoxy finish and a plain finished handle with polished rim
- Other colors of Epoxy Finish available upon request
- Available in FixturePro™ Design Software



Handwheels With Handle

Part Number (Polished)	Part Number (Black)	A	B	C	D	E	F	G	H
22401	22411	4	1 1/2	5/8	1 5/8	1/4	1	1 3/16	3/8
22402	22412	6	2	3/4	2 9/16	3/8	1 7/16	1 9/16	1/2
22403	22413	8	2 1/4	7/8	2 15/16	7/16	1 1/2	1 25/32	5/8
22404	22414	10	3	1	3 5/16	1/2	2 1/4	2 1/4	5/8

Polished Part Number	
Handwheel Only	Handle Only
22201*	21902
22202*	21904
22203*	21905
22204*	21906

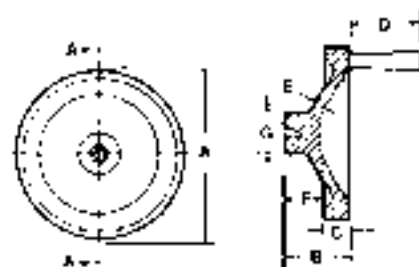
Black Part Number	
Handwheel Only	Handle Only
22211*	21912
22212*	21914
22213*	21915
22214*	21916

*Not drilled and tapped for handle

Aluminum Angular Solid Handwheel



- Diameters from 3" to 12" and 75mm to 300mm
- Lightweight, 319 Aluminum Alloy
- Rims machined to run concentric with center drill
- Available with or without handle
- Special bores and keyways quoted upon request
- Available in FixturePro™ Design Software



Handwheels With Handle

Part Number	A	B	C	D	E	F	G
22702	3	1 11/16	5/8	1 5/8	1/4	1 7/32	1 1/4
22703	4	1 7/8	5/8	1 5/8	3/16	1 7/16	1 1/2
22704	5	2	11/16	2 1/16	3/16	1 1/4	1 1/2
22705†	6	2	3/4	2 9/16	3/16	1 3/8	1 1/2
22706†	8	2 1/2	7/8	2 15/16	3/16	1 3/4	2
22707†	10	3 1/4	1	3 5/16	3/16	2 7/32	2 5/16
22708†	12	3 1/2	1	3 5/16	1/4	2 1/4	2 1/2

†Finger grips formed behind solid wheel rim

Part Number	
Handwheel Only	Handle Only
22502*	21902
22503*	21902
22504*	21903
22505*†	21904
22506*†	21905
22507*†	21906
22508*†	21906

*Not tapped for handle

Metric Handwheels With Handle

Part Number	A	Ref. B	C	D	E	F	G
22752	75	42	16	41	6	30	31
22753	100	47	16	41	5	36	38
22754	125	50	17	52	5	31	38
22755	150	50	19	64	5	34	38
22756	200	63	22	73	5	44	50
22757	250	81	25	83	5	55	58
22758	300	88	25	83	6	56	63

*Not tapped for handle

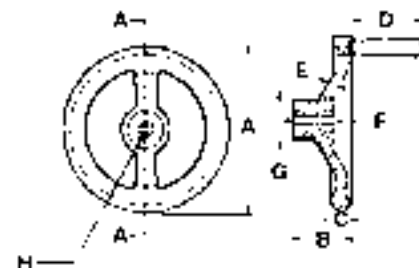
Part Number	
Handwheel Only	Handle Only
22502*	21952
22503*	21952
22504*	21953
22505*	21954
22506*	21955
22507*	21956
22508*	21956

Cast Iron Angular Spoked Handwheel

Metric



- Fine Grain Cast Iron
- Rims machined to run concentric with center hole
- All cast iron wheels have two spokes and finger grips
- Available with or without handle
- Available with Black Epoxy finish and a plain finished handle with polished rim upon request
- Other colors of Epoxy Finish available upon request



Metric Polished Handwheels With Handle

Part Number	A	B	C	D	E	F	G	H
22451	100	38	16	41	6	25	30	10
22452	150	50	19	64	9	36	39	12
22453	200	57	22	73	11	38	45	16
22454	250	75	25	83	13	57	57	16

*Not tapped for handle

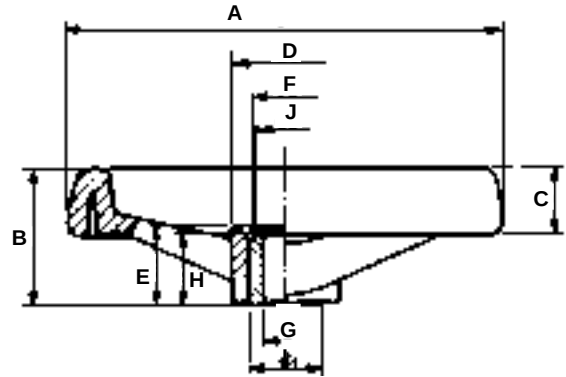
Part Number	
Handwheel Only	Handle Only
22251*	21952
22252*	21954
22253*	21955
22254*	21956

Plastic Two Spoked Handwheel

ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



Handwheels Only

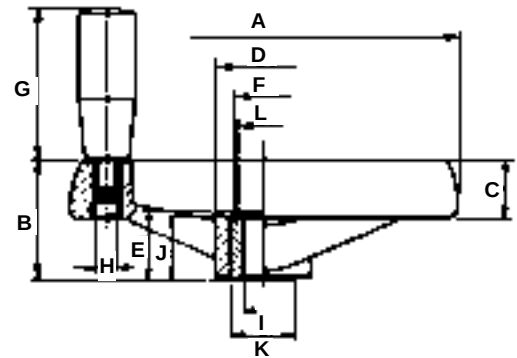
Part Number	A	B	C	D	E	F	Fractional G	H	I	J
22601	3.15	1.38	0.71	0.91	0.75	0.67	5/16	0.67	0.71	0.62
22602	3.90	1.46	0.79	0.98	0.75	0.67	3/8	0.67	0.71	0.63
22603	4.88	1.73	0.87	1.22	0.98	0.83	3/8	0.87	0.87	0.79
22604	6.30	2.01	0.98	1.57	1.14	0.98	1/2	1.06	1.02	0.94
22605	7.87	2.40	1.10	1.97	1.42	1.22	5/8	1.34	1.18	1.10
22606	9.84	2.76	1.26	2.32	1.57	1.34	5/8	1.50	1.32	1.30
22607	11.73	3.07	1.42	2.60	1.81	1.65	3/4	1.69	1.57	1.46
22608	14.67	3.23	1.50	2.72	1.81	1.65	3/4	1.69	1.57	1.46

Plastic Two Spoked Handwheel

With Revolving Handles



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



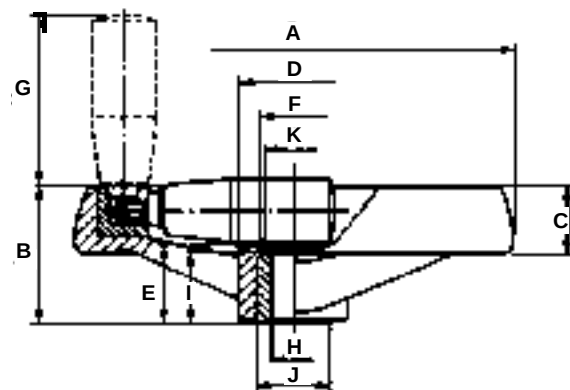
Handwheels With Revolving Handle

Part Number	A	B	C	D	E	F	G	H	I	J	K	L
22611	3.15	1.38	0.71	0.91	0.75	0.67	1.57	M6	0.312	0.67	0.71	0.63
22612	3.90	1.46	0.79	0.98	0.75	0.67	2.20	M6	0.375	0.67	0.71	0.63
22613	4.88	1.73	0.87	1.22	0.98	0.83	2.56	M8	0.375	0.87	0.87	0.79
22614	6.30	2.01	0.98	1.57	1.14	0.98	2.56	M8	0.500	1.06	1.02	0.94
22615	7.87	2.40	1.10	1.97	1.42	1.22	3.15	M8	0.625	1.34	1.18	1.10
22616	9.84	2.76	1.26	2.32	1.57	1.34	3.54	M10	0.625	1.50	1.38	1.30
22617	11.73	3.07	1.42	2.60	1.81	1.65	3.54	M10	0.750	1.69	1.57	1.46
22618	14.67	3.23	1.50	2.72	1.81	1.65	3.54	M10	0.750	1.69	1.57	1.46

Plastic Two Spoked Handwheel With Revolving Fold Away Handle ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

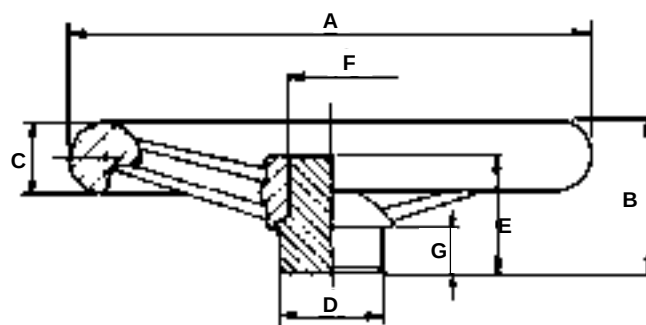


Part Number	A	B	C	D	E	F	G	H	I	J	K
22621	3.15	1.38	.71	.91	.75	.67	1.96	.312	.67	.71	.62
22622	3.90	1.46	.79	.98	.75	.67	2.20	.375	.67	.71	.63
22623	4.88	1.73	.87	1.22	.98	.83	2.56	.375	.87	.87	.79
22624	6.30	2.01	.98	1.57	1.14	.98	2.56	.500	1.06	1.02	.94
22625	7.87	2.40	1.10	1.97	1.42	1.22	3.15	.625	1.34	1.18	1.10
22626	9.84	2.76	1.26	2.32	1.57	1.34	3.54	.625	1.50	1.38	1.30

Plastic Three Spoked Handwheel ELESA Original Design



- Material: High Strength Reinforced Duroplast
- Finish: Black Bright
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



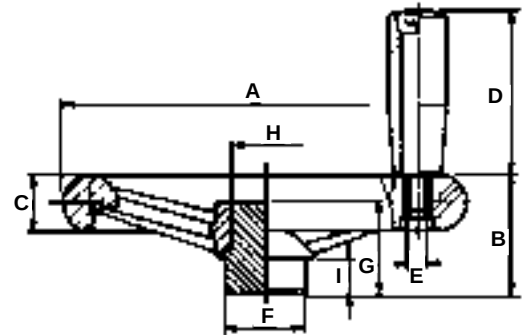
Part Number	A	B	C	D	E	F	G
22631	3.86	1.57	.55	.94	1.42	.79	.47
22632	4.88	1.77	.71	.94	1.42	.79	.47
22633	6.18	1.97	.87	1.26	1.50	.94	.59
22634	7.09	2.20	.94	1.57	1.69	1.22	.59
22635	7.80	2.20	.94	1.57	1.69	1.22	.59
22636	9.72	2.60	1.18	1.93	1.73	1.50	.59
22637	11.34	3.07	1.26	2.28	2.20	1.85	.71
22638	14.76	4.25	1.57	2.28	3.03	2.28	1.02

Plastic Three Spoked Handwheel With Revolving Handle

ELESA Original Design



- Material: High Strength Reinforced Duroplast
- Finish: Black Bright
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



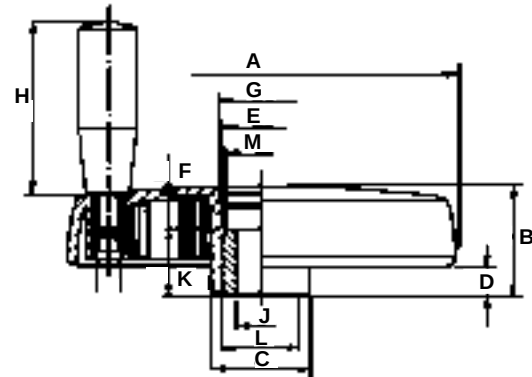
Part Number	A	B	C	D	E	F	G	H	I
22641	3.86	1.57	.55	1.57	M6	.94	1.42	.79	.47
22642	4.88	1.77	.71	1.97	M8	.94	1.42	.79	.47
22643	6.18	1.97	.87	2.56	M8	1.26	1.50	.94	.59
22644	7.09	2.20	.94	3.15	M10	1.57	1.69	1.22	.59
22645	7.80	2.20	.94	3.15	M10	1.57	1.69	1.22	.59
22646	9.72	2.60	1.18	3.54	M10	1.93	1.73	1.50	.59
22647	11.34	3.07	1.26	3.94	M12	2.28	2.20	1.85	.71
22648	14.76	4.25	1.57	3.94	M14	2.28	3.03	2.28	1.02

Plastic Solid Handwheel With Revolving Handle

ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



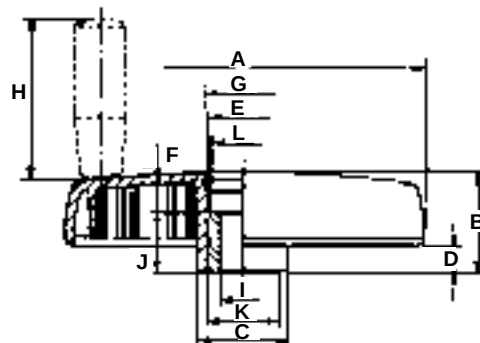
Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M
22801	3.27	1.14	.98	.35	.75	.31	.82	1.57	M6	.312	.67	.71	.63
22802	4.02	1.34	1.18	.39	.98	.35	1.06	1.97	M6	.375	.87	.87	.79
22803	4.92	1.54	1.38	.43	1.10	.31	1.22	2.20	M6	.375	1.06	1.02	.94
22804	5.91	1.73	1.50	.47	1.18	.39	1.34	2.56	M8	.500	1.18	1.02	.94
22805	6.93	1.93	1.73	.51	1.38	.63	1.54	3.15	M10	.500	1.10	1.38	1.30
22806	7.87	2.09	1.97	.55	1.57	.51	1.73	3.54	M10	.625	1.42	1.57	1.50
22807	9.84	2.36	2.24	.66	1.88	.75	1.97	3.54	M10	.625	1.42	1.57	1.50

Plastic Solid Handwheel With Revolving, Fold Away Handle ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

This type of handwheel with fold-away handle has been designed for applications where limited space or safety reasons demand that the handle be folded back flat after manual use.



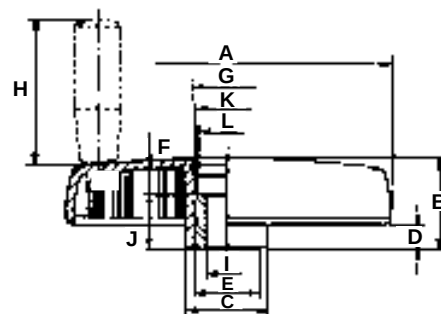
Part Number	A	B	C	D	E	F	G	H	I	J	K	L
22811	3.27	1.50	0.98	0.73	0.53	0.14	0.65	1.77	0.312	0.67	0.71	0.63
22812	4.02	1.34	1.18	0.39	0.98	0.35	1.06	1.97	0.375	0.87	0.87	0.79
22813	4.92	1.54	1.38	0.43	1.10	0.31	1.22	2.20	0.375	1.06	1.02	0.94
22814	5.91	1.73	1.50	0.47	1.18	0.39	1.34	2.56	0.50	1.18	1.02	0.94
22815	6.93	1.93	1.73	0.51	1.38	0.63	1.54	3.15	0.50	1.10	1.38	1.30
22816	7.87	2.09	1.97	0.55	1.57	0.51	1.73	3.54	0.625	1.42	1.57	1.50
22817	9.84	2.36	2.24	0.66	1.88	0.74	1.97	3.54	0.625	1.42	1.57	1.50

Plastic Solid Handwheel With Revolving, Spring Loaded, Fold Away Handle ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

This handwheel has a special spring loaded handle which automatically folds down into the cavity of the handwheel when the operator releases it. The handle disengages only when the axial pressure exerted by the operator ceases.



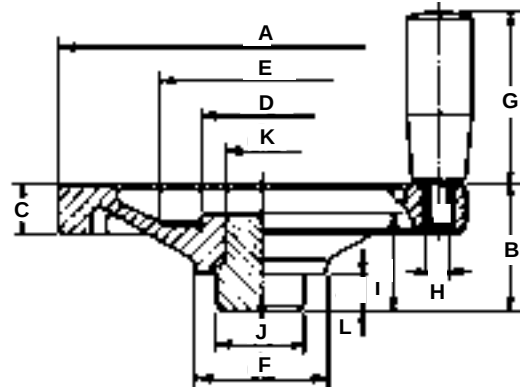
Part Number	A	B	C	D	E	F	G	H	I	J	K	L
22825	6.93	1.93	1.73	.51	1.38	.63	1.54	3.15	.500	1.10	1.38	1.30
22826	7.87	2.09	1.97	.55	1.57	.51	1.75	3.54	.625	1.42	1.57	1.50
22827	9.84	2.36	2.24	.66	1.88	.74	1.96	3.54	.625	1.42	1.57	1.50

Plastic Solid Handwheel

ELESA Original Design



- Material: High Strength Reinforced Duroplast
- Finish: Black Bright
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



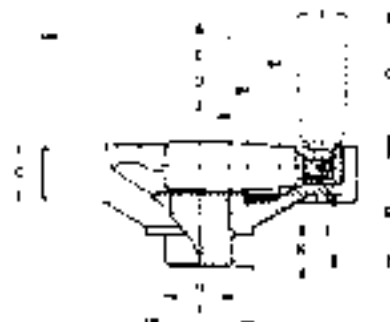
Part Number	A	B	C	D	E	F	G	H	I	J	K	L
22831	3.15	1.22	0.55	1.10	1.69	1.18	-	-	1.10	0.79	0.63	0.39
22841*	3.15	1.22	0.55	1.10	1.69	1.18	1.57	M6	1.10	0.79	0.63	0.39
22832	3.94	1.57	0.59	1.38	2.13	1.54	-	-	1.42	0.94	0.79	0.47
22842*	3.94	1.57	0.59	1.38	2.13	1.54	1.97	M6	1.42	0.94	0.79	0.47
22833	4.92	1.73	0.59	1.73	2.76	1.81	-	-	1.5	1.26	0.94	0.59
22843*	4.92	1.73	0.59	1.73	2.76	1.81	2.56	M8	1.5	1.26	0.94	0.59
22834	5.91	1.89	0.71	1.73	2.76	1.89	-	-	1.5	1.26	0.94	0.59
22844*	5.91	1.89	0.71	1.73	2.76	1.89	2.56	M8	1.5	1.26	0.94	0.59
22835	6.89	2.09	0.75	2.17	3.54	2.2	-	-	1.69	1.57	1.22	0.59
22845*	6.89	2.09	0.75	2.17	3.54	2.2	3.15	M10	1.69	1.57	1.22	0.59
22836	7.87	2.24	0.83	2.17	3.54	2.36	-	-	1.69	1.57	1.22	0.59
22846*	7.87	2.24	0.83	2.17	3.54	2.36	3.54	M10	1.69	1.57	1.22	0.59
22837	9.8	2.56	0.98	2.6	4.33	2.76	-	-	1.73	1.93	1.5	0.59
22847*	9.8	2.56	0.98	2.6	4.33	2.76	3.54	M10	1.73	1.93	1.5	0.59
22838	11.85	2.95	0.98	3.7	5.83	3.23	-	-	2.2	2.28	2.28	0.71
22848*	11.85	2.95	0.98	3.7	5.83	3.23	3.54	M10	2.2	2.28	2.28	0.71

* With Revolving Handle

Plastic Solid Handwheel With Finger Grips and Revolving Fold Away Handle ELESA Original Design



- Material: High Strength Reinforced Duroplast
- Finish: Black Bright
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

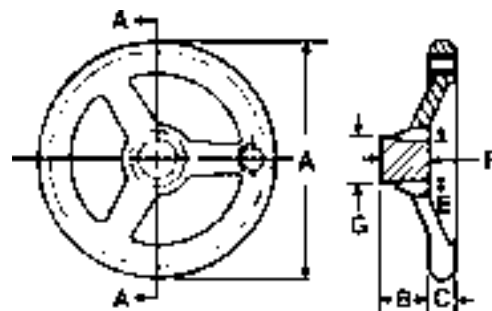


Part Number	A	B	C	D	E	F	G	H	I	J	K
22852	3.94	2.04	1.02	1.37	2.12	1.53	2.20	.94	1.29	.78	.47
22853	4.92	2.36	1.18	1.73	2.76	1.81	2.56	1.26	1.50	.94	.59
22854	5.91	2.48	1.26	1.73	2.76	1.89	2.56	1.26	1.50	.94	.59
22855	7.01	2.56	1.26	2.17	3.54	2.20	3.54	1.57	1.69	1.22	.59
22856	7.91	2.76	1.34	2.17	3.54	2.36	3.54	1.57	1.69	1.22	.59
22857	9.80	3.03	1.42	2.60	4.33	2.76	3.54	1.93	1.73	1.50	.59

Nylon Angular Three Spoked Handwheel



- Material: Wheel, 6-6 Nylon
Hub, Cast Iron
- Finish: Wheel, Black
Hub, Black Oxide
- Threaded Brass Inserts have serrated O.D. for rigid union with Handwheel.
- All Wheels have three spokes
- Available in FixturePro™ Design Software

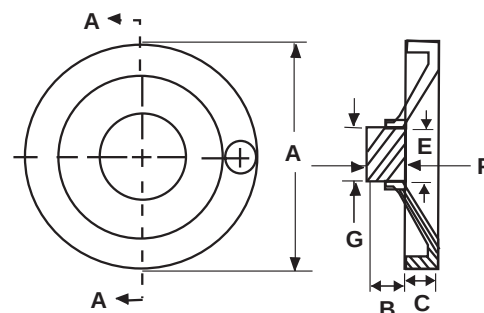


Part Number	A	B	C	E	F	G	Thread Size
34051	4	1 3/32	9/16	15/16	15/16	1 1/16	M8 x 1.25
34054	6	1 13/32	23/32	1 3/16	1 3/8	1 3/8	M10 x 1.50
34055	8	1 13/32	7/8	1 3/8	1 29/32	1 17/32	M10 x 1.50

Plastic Angular Solid Handwheel

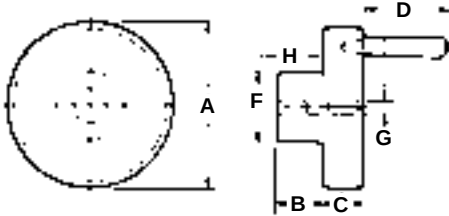


- Material: Wheel, Acetal Co-Polymer
Hub, Cast Iron
- Finish: Wheel, Black
Hub, Black Oxide
- Threaded Brass Inserts have serrated O.D. for rigid union with Handwheel.
- Aluminum Center Plate can be imprinted with your company name, instructions, etc.
- Available in FixturePro™ Design Software



Part Number	A	B	C	E	F	G	Thread Size
34061	5	1 1/8	5/8	1	1 1/8	1 1/8	M8 x 1.25
34062	6	1 11/32	23/32	1 3/16	1 11/32	1 11/32	M10 x 1.50
34063	8	1 29/32	25/32	1 3/8	1 29/32	1 17/32	M10 x 1.50

Aluminum Finger Wheel



- Material: 2024 Aluminum
- Finish: Black Anodize
- Knurled O.D. for better gripping
- Revolving handle and reamed hole are included
- Available in FixturePro™ Design Software

Finger Wheel With Handle

Part Number	A	B	C	D	F	G	H	Part Number	
								Wheel Only	Handle Only
22721	2	9/16	9/16	1 1/8	13/16	3/8	7/8	22521	21911

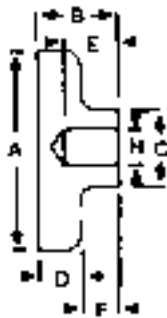
Metric Finger Wheel With Handle

Part Number	A	B	C	D	F	G	H	Part Number	
								Wheel Only	Handle Only
22771	50	14	14	28	20	10	22	22571*	21951

*Not tapped for handle

Aluminum Finger Wheel

- Material: 2024 Aluminum
- Finish: Clear anodized polished to a high luster
- Outer rim is knurled



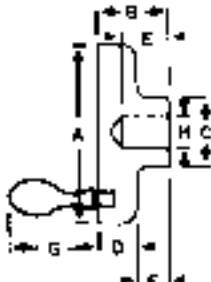
Finger Wheels

Part Number	A	B	C	D	E	F	H
21280	1	13/16	1/2	3/8	—	7/16	Blank
21281	2	1 1/8	13/16	9/16	—	9/16	Blank
21282	3	1 1/4	1 1/4	11/16	—	9/16	Blank
21285	1	13/16	1/2	3/8	5/8	7/16	1/4
21286	2	1 1/8	13/16	9/16	7/8	9/16	3/8
21287	3	1 1/4	1 1/4	11/16	7/8	9/16	5/8

Finger Wheels With Handle

Part Number	A	B	C	D	E	F	G	H
21291	2	1 1/8	13/16	9/16	—	9/16	1 9/32	Blank
21292	3	1 1/4	1 1/4	9/16	—	9/16	1 15/16	Blank
21296	2	1 1/8	13/16	9/16	7/8	9/16	1 9/32	3/8
21297	3	1 1/4	1 1/4	9/16	7/8	9/16	1 15/16	5/8

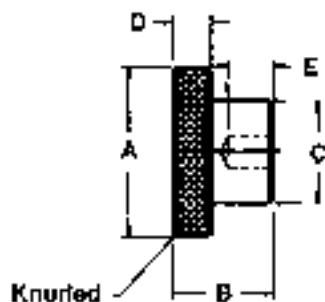
Note: Also available in Stainless Steel



Steel Knurled Control Knob



- Material: 1214 Steel
- Finish: Black Oxide
- Knurled Head



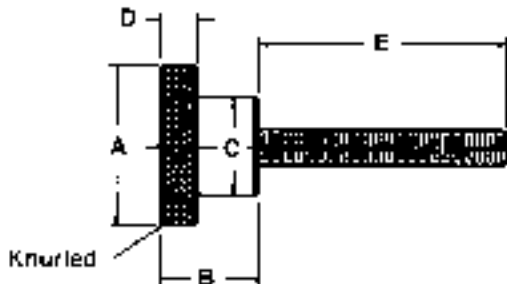
Part Number	A	B	C	D	E	Hole Diameter
21200	3/4	5/8	1/2	1/4	3/8	3/16 Ream
21201	3/4	5/8	1/2	1/4	3/8	10-24 Tap
21202	3/4	5/8	1/2	1/4	3/8	10-24 Thru Hole
21203	3/4	5/8	1/2	1/4	3/8	1/4 Ream
21204	3/4	5/8	1/2	1/4	3/8	1/4-20 Tap
21205	3/4	5/8	1/2	1/4	3/8	1/4-20 Thru Hole
21206	1	3/4	5/8	1/4	1/2	1/4 Ream
21207	1	3/4	5/8	1/4	1/2	1/4-20 Tap
21208	1	3/4	5/8	1/4	1/2	1/4-20 Thru Hole
21209	1	3/4	5/8	1/4	1/2	5/16 Ream
21210	1	3/4	5/8	1/4	1/2	5/16-18 Tap
21211	1	3/4	5/8	1/4	1/2	5/16-18 Thru Hole
21212	1 1/2	1	3/4	5/16	5/8	5/16 Ream
21213	1 1/2	1	3/4	5/16	5/8	5/16-18 Tap
21214	1 1/2	1	3/4	5/16	5/8	5/16-18 Thru Hole
21215	1 1/2	1	3/4	5/16	5/8	3/8 Ream
21216	1 1/2	1	3/4	5/16	5/8	3/8-16 Tap
21217	1 1/2	1	3/4	5/16	5/8	3/8-16 Thru Hole
21218	2	1 1/8	1	3/8	5/8	3/8 Ream
21219	2	1 1/8	1	3/8	5/8	3/8-16 Tap
21220	2	1 1/8	1	3/8	5/8	3/8-16 Thru Hole
21221	2	1 1/8	1	3/8	5/8	1/2 Ream
21222	2	1 1/8	1	3/8	5/8	1/2-13 Tap
21223	2	1 1/8	1	3/8	5/8	1/2-13 Thru Hole
21224	2 1/2	1 1/2	1 1/2	9/16	3/4	1/2 Ream
21225	2 1/2	1 1/2	1 1/2	9/16	3/4	1/2-13 Tap
21226	2 1/2	1 1/2	1 1/2	9/16	3/4	1/2-13 Thru Hole
21227	2 1/2	1 1/2	1 1/2	9/16	3/4	5/8 Ream
21228	2 1/2	1 1/2	1 1/2	9/16	3/4	5/8-11 Tap
21229	2 1/2	1 1/2	1 1/2	9/16	3/4	5/8-11 Thru Hole
21230	3	1 3/4	1 3/4	5/8	1	5/8 Ream
21231	3	1 3/4	1 3/4	5/8	1	5/8-11 Tap
21232	3	1 3/4	1 3/4	5/8	1	5/8-11 Thru Hole
21233	3	1 3/4	1 3/4	5/8	1	3/4 Ream
21234	3	1 3/4	1 3/4	5/8	1	3/4-10 Tap
21235	3	1 3/4	1 3/4	5/8	1	3/4-10 Thru Hole

Note: Also available in Metric and Stainless Steel

Steel Knurled Control Knob With Stud

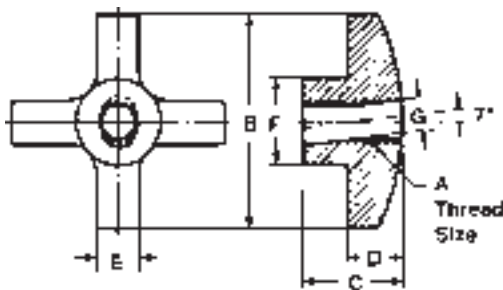
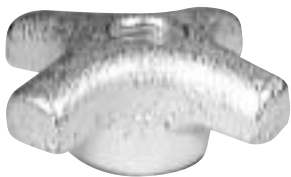


- Material: 1214 Steel
- Finish: Black Oxide
- Knurled Head



Part Number	A	B	C	D	E	Stud Thread
21240	3/4	5/8	1/2	1/4	1/2	10-24
21241	3/4	5/8	1/2	1/4	1	10-24
21242	3/4	5/8	1/2	1/4	3/4	1/4-20
21243	3/4	5/8	1/2	1/4	1 1/4	1/4-20
21244	1	3/4	5/8	1/4	1 3/4	1/4-20
21245	1	3/4	5/8	1/4	1 3/4	5/16-18
21246	1	3/4	5/8	1/4	3	5/16-18
21247	1 1/2	1	3/4	5/16	1 3/4	5/16-18
21248	1 1/2	1	3/4	5/16	3	5/16-18
21249	1 1/2	1	3/4	5/16	1 3/4	3/8-16
21250	1 1/2	1	3/4	5/16	3	3/8-16
21251	2	1 1/8	1	3/8	1 3/4	3/8-16
21252	2	1 1/8	1	3/8	3	1/2-13
21253	2	1 1/8	1	3/8	1 3/4	1/2-13
21254	2 1/2	1 1/2	1 1/2	9/16	1 3/4	1/2-13
21255	2 1/2	1 1/2	1 1/2	9/16	3	1/2-13
21256	2 1/2	1 1/2	1 1/2	9/16	1 3/4	5/8-11

Quick Lock Hand Knob



- Material: 40 Grey Iron
- Finish: Zinc Plate
- Thread: Class 2B-UNC
- Available in FixturePro™ Design Software

Used to save time where a knob must be completely removed from the stud. After approximately one-quarter turn of the hand knob, it can be tilted on an angle and removed from the stud. Recommended for light duty applications.

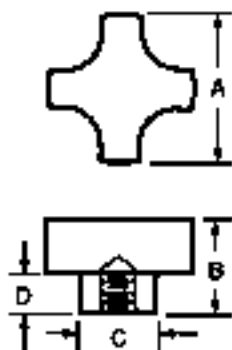


Part Number	Thread Size A	B	C	D	E	F	G	Wt. (lbs)
33901	1/4-20	1 1/8	11/16	5/16	5/16	9/16	17/64	.06
33902	3/8-16	2 3/16	1	1/2	1/2	7/8	25/64	.27
33903	1/2-13	3	1 1/4	5/8	5/8	1 7/16	33/64	.72
33904	5/8-11	3	1 1/4	5/8	5/8	1 7/16	41/64	.69

Plastic Four Prong Knob



- Material: Plastic
- Finish: Tumble
- Insert: Brass
- Excellent gripping action for turning and tightening uses: adjusting devices, tripods, lawn mower height adjustments, valve controls, etc.
- Available in FixturePro™ Design Software



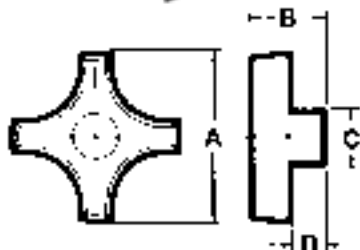
Part Number	Insert Thread and Depth	A	B	C	D
32201	1/4-20 x 7/16	1 1/4	7/8	5/8	3/8
32270	5/16-18 x 7/16	1 1/4	7/8	5/8	3/8
32202*	1/4-20 x 1/2	1 1/4	7/8	5/8	3/8
32271	1/4-20 x 7/16	1 3/4	1	13/16	1/2
32203	5/16-18 x 7/16	1 3/4	1	13/16	1/2
32204*	5/16-18 x 5/8	1 3/4	1	13/16	1/2
32272*	1/4-20 x 5/8	1 3/4	1	13/16	1/2
32205	3/8-16 x 1/2	1 3/4	1	13/16	1/2
32206*	3/8-16 x 5/8	1 3/4	1	13/16	1/2
32207	3/8-16 x 1/2	2 1/4	1 1/8	1	9/16
32273	5/16-18 x 1/2	2 1/4	1 1/8	1	9/16
32208*	3/8-16 x 5/8	2 1/4	1 1/8	1	9/16
32274*	5/16-18 x 5/8	2 1/4	1 1/8	1	9/16
32209	1/2-13 x 5/8	2 1/4	1 1/8	1	9/16
32210*	1/2-13 x 5/8	2 1/4	1 1/8	1	9/16

*Indicates knobs with through clearance hole.

Plastic Four Prong Knob With Extended Prong



- Material: Polypropylene
- Finish: Tumble
- Insert: Brass



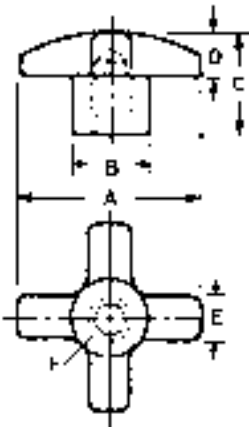
Part Number	A	B	C	D	Insert
32260	3	1 1/4	7/8	5/8	1/4-20
32261*	3	1 1/4	7/8	5/8	1/4-20
32262	3	1 1/4	7/8	5/8	5/16-18
32263*	3	1 1/4	7/8	5/8	5/16-18
32264	3	1 1/4	7/8	5/8	3/8-16
32265*	3	1 1/4	7/8	5/8	3/8-16

* Through Hole Style

Cast Iron Hand Knob



- Material: #30 Grey Iron
- Finish: Zinc Plate
- Thread: 2B-UNC
- Ream: +.002
-.000
- Hub: Available Blank, Reamed or Tapped
- Available in FixturePro™ Design Software



Cast Iron Hand Knob Metric

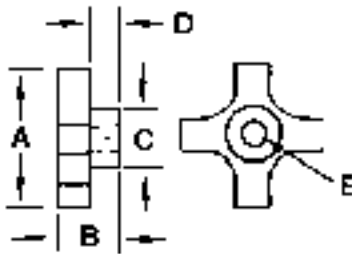
- Material: #30 Grey Iron
- Finish: Zinc Plate
- Thread: Class 6h
- Ream: -.000
+.05
- Blank Knobs are Zinc Plated
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	Hub Style	F	Wt. (lbs) 10 Pcs.
16305*	1 1/8	5/8	3/4	5/16	5/16	Blank	—	.78
16331*	1 1/8	5/8	11/16	5/16	5/16	1/4 Ream	1/2	.63
16330	1 1/8	5/8	11/16	5/16	5/16	5/16 Ream	1/2	.63
16306*	1 1/8	5/8	11/16	5/16	5/16	1/4-20 Tap	1/2	.63
16307	1 1/8	5/8	11/16	5/16	5/16	5/16-18 Tap	1/2	.63
16308*	1 1/2	11/16	15/16	7/16	3/8	Blank	—	1.56
16309*	1 1/2	11/16	7/8	7/16	3/8	5/16 Ream	9/16	1.30
16310	1 1/2	11/16	7/8	7/16	3/8	3/8 Ream	9/16	1.30
16311*	1 1/2	11/16	7/8	7/16	3/8	5/16-18 Tap	9/16	1.30
16312	1 1/2	11/16	7/8	7/16	3/8	3/8-16 Tap	9/16	1.30
16313*	2	3/4	1 3/16	1/2	1/2	Blank	—	3.00
16314*	2	3/4	1 1/8	1/2	1/2	3/8 Ream	11/16	2.75
16315	2	3/4	1 1/8	1/2	1/2	1/2 Ream	11/16	2.70
16316*	2	3/4	1 1/8	1/2	1/2	3/8-16 Tap	11/16	2.75
16317	2	3/4	1 1/8	1/2	1/2	1/2-13 Tap	11/16	2.70
16318*	2 1/2	1 1/8	1 9/16	5/8	5/8	Blank	—	7.00
16319*	2 1/2	1 1/8	1 1/2	5/8	5/8	1/2 Ream	1	6.00
16320*	2 1/2	1 1/8	1 1/2	5/8	5/8	5/8 Ream	1	5.80
16321*	2 1/2	1 1/8	1 1/2	5/8	5/8	1/2-13 Tap	1	6.00
16322*	2 1/2	1 1/8	1 1/2	5/8	5/8	5/8-11 Tap	1	5.80
16323*	3	1 1/4	1 13/16	9/16	5/8	Blank	—	11.25
16324*	3	1 1/4	1 3/4	9/16	5/8	5/8 Ream	1 1/8	10.00
16325*	3	1 1/4	1 3/4	9/16	5/8	3/4 Ream	1 1/8	9.20
16326	3	1 1/4	1 3/4	9/16	5/8	1/2-13 Tap	1 1/8	10.70
16327*	3	1 1/4	1 3/4	9/16	5/8	5/8-11 Tap	1 1/8	10.25
16328*	3	1 1/4	1 3/4	9/16	5/8	3/4-10 Tap	1 1/8	9.50

*TCMA Standard

Part Number	A	B	C	D	E	Hub Style	F
16305	28	16	19	8	8	Blank	—
16354	28	16	17	8	8	6mm Ream	12
16355	28	16	17	8	8	M6 x 1.0 Tap	12
16308	38	17	23	11	9	Blank	—
16359	38	17	22	11	9	8mm Ream	14
16361	38	17	22	11	9	M8 x 1.25 Tap	14
16313	50	19	30	13	13	Blank	—
16364	50	19	28	13	13	10mm Ream	17
16366	50	19	28	13	13	M10 x 1.5 Tap	17
16318	63	29	39	16	16	Blank	—
16369	63	29	38	16	16	12mm Ream	25
16370	63	29	38	16	16	16mm Ream	25
16371	63	29	38	16	16	M12 x 1.75 Tap	25
16372	63	29	38	16	16	M16 x 2.0 Tap	25
16323	75	32	45	14	16	Blank	—
16374	75	32	44	14	16	16mm Ream	28
16375	75	32	44	14	16	20mm Ream	28
16377	75	32	44	14	16	M16 x 2.0 Tap	28
16378	75	32	44	14	16	M20 x 2.5 Tap	28

Aluminum Hand Knob

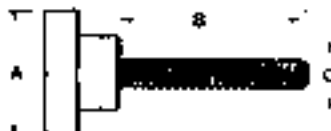


- Material: Aluminum
- Also available in black, red, blue, clear and gold anodized

Part Number	A	B	C	D	E
21000	1	7/8	1/2	1/2	Blank
21001	1	7/8	1/2	1/2	1/4-20 Tap
21002	1	7/8	1/2	1/2	1/4-20 Thru Hole
21003	1	7/8	1/2	1/2	1/4 Ream
21004	1 1/2	7/8	5/8	3/8	Blank
21005	1 1/2	7/8	5/8	3/8	5/16-18 Tap
21006	1 1/2	7/8	5/8	3/8	5/16-18 Thru Hole
21007	1 1/2	7/8	5/8	3/8	5/16 Ream
21008	2	1	13/16	1/2	Blank
21009	2	1	13/16	1/2	3/8-16 Tap
21010	2	1	13/16	1/2	3/8-16 Thru Hole
21011	2	1	13/16	1/2	3/8 Ream
21012	2 1/2	1 1/8	1	9/16	Blank
21013	2 1/2	1 1/8	1	9/16	1/2-13 Tap
21014	2 1/2	1 1/8	1	9/16	1/2-13 Thru Hole
21015	2 1/2	1 1/8	1	9/16	1/2 Ream

Note: Also available in metric sizes.

Aluminum Hand Knob With Stud

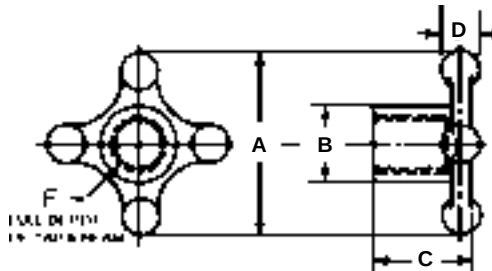


- Material: Aluminum
- Also available in black, red, blue, clear and gold anodized

Part Number	A	B	C
21020	1 1/2	1 3/4	1/4-20
21021	1 1/2	3	1/4-20
21022	2	1 3/4	5/16-18
21023	2	3	5/16-18
21024	2 1/2	1 3/4	3/8-16
21025	2 1/2	3	3/8-16
21026	2 1/2	1 3/4	1/2-13
21027	2 1/2	3	1/2-13

Note: Also available in metric sizes.

Aluminum Hand Knob



- Material: 319 Aluminum Alloy
- Thread: 2B-UNC
- Ream: +.002
-.000
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	Hub Style	F	Wt. (lbs) 10 Pcs.
21101	1 1/4	9/16	3/4	5/16	Blank	—	.21
21102	1 1/4	9/16	3/4	5/16	1/4 Ream	1/2	.16
21104	1 1/4	9/16	3/4	5/16	1/4-20 Tap	1/2	.16
21105	1 1/4	9/16	3/4	5/16	5/16-18 Tap	1/2	.16
21106	1 1/2	11/16	7/8	3/8	Blank	—	.47
21108	1 1/2	11/16	7/8	3/8	3/8 Ream	5/8	.31
21109	1 1/2	11/16	7/8	3/8	5/16-18 Tap	5/8	.31
21110	1 1/2	11/16	7/8	3/8	3/8-16 Tap	5/8	.31
21111	2 1/8	7/8	1 1/4	1/2	Blank	—	1.10
21112	2 1/8	7/8	1 1/4	1/2	3/8 Ream	7/8	1.00
21113	2 1/8	7/8	1 1/4	1/2	1/2 Ream	7/8	1.00
21114	2 1/8	7/8	1 1/4	1/2	3/8-16 Tap	7/8	1.00
21115	2 1/8	7/8	1 1/4	1/2	1/2-13 Tap	7/8	1.00
21116	3	1 3/8	1 3/4	11/16	Blank	—	3.80
21118	3	1 3/8	1 3/4	11/16	5/8 Ream	1 1/4	3.30
21119	3	1 3/8	1 3/4	11/16	3/4 Ream	1 1/4	3.10
21120	3	1 3/8	1 3/4	11/16	1/2-13 Tap	1 1/4	3.40
21121	3	1 3/8	1 3/4	11/16	5/8-11 Tap	1 1/4	3.30
21122	3	1 3/8	1 3/4	11/16	3/4-10 Tap	1 1/4	3.10

Aluminum Hand Knob Metric

- Material: 319 Aluminum Alloy
- Thread: Class 6h
- Ream: +.05
-.000

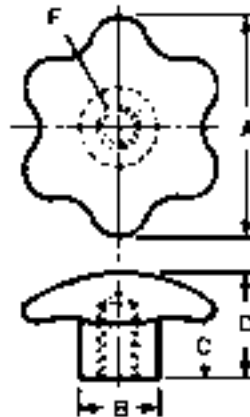
Part Number	A	B	C	D	Hub Style	F
21101	31	14	19	8	Blank	—
21152	31	14	19	8	6mm Ream	13
21154	31	14	19	8	M6 Tap	13
21155	31	14	19	8	M8 Tap	13
21106	38	17	22	9	Blank	—
21158	38	17	22	9	10mm Ream	16
21159	38	17	22	9	M8 Tap	16
21160	38	17	22	9	M10 Tap	16
21111	53	22	32	12	Blank	—
21162	53	22	32	12	10mm Ream	22
21163	53	22	32	12	12mm Ream	22
21164	53	22	32	12	M10 Tap	22
21165	53	22	32	12	M12 Tap	22
21116	75	34	44	17	Blank	—
21168	75	34	44	17	16mm Ream	32
21169	75	34	44	17	20mm Ream	32
21170	75	34	44	17	M12 Tap	32
21171	75	34	44	17	M16 Tap	32
21172	75	34	44	17	M20 Tap	32

Aluminum Palmgrip Knob



Full Depth of
Tap and Ream

- Material: 319 Aluminum Alloy
- Finish: Tumble
- Thread: 2B-UNC or Class 6h
- Ream: +.002
-.000
- Metric Ream:
+.05
-.000
- Available in FixturePro™ Design Software

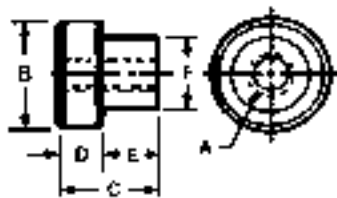


Part Number	A	B	C	D	F	Hub Style
20901	1 1/2	27/32	7/8	3/8	—	Blank
20902	1 1/2	27/32	7/8	1 5/16	3/4	1/4 Ream
20903	1 1/2	27/32	7/8	1 5/16	3/4	1/4-20 Tap
20904	2	1	7/8	1 19/32	—	Blank
20905	2	1	7/8	1 1/2	3/4	3/8 Ream
20906	2	1	7/8	1 1/2	3/4	3/8-16 Tap
20907	2 3/4	1 3/16	1 1/8	1 31/32	—	Blank
20908	2 3/4	1 3/16	1 1/8	1 7/8	1 1/4	1/2 Ream
20909	2 3/4	1 3/16	1 1/8	1 7/8	1 1/4	1/2-13 Tap
20910	3 1/2	1 1/4	1	1 13/16	—	Blank
20911	3 1/2	1 1/4	1	1 3/4	1 1/4	1/2 Ream
20912	3 1/2	1 1/4	1	1 3/4	1 1/4	1/2-13 Tap

Metric

Part Number	A	B	C	D	F	Hub Style
20901	38	19	22	34	—	Blank
20952	38	19	22	33	19	6mm Ream
20953	38	19	22	33	19	M6 Tap
20904	50	25	22	40	—	Blank
20955	50	25	22	38	19	10mm Ream
20956	50	25	22	38	19	M10 Tap
20907	69	30	29	49	—	Blank
20958	69	30	29	47	31	12mm Ream
20959	69	30	29	47	31	M12 Tap
20910	88	31	25	45	—	Blank
20961	88	31	25	44	31	12mm Ream
20962	88	31	25	44	31	M12 Tap

Knurled Steel Knob



- Material: Low Carbon Steel
- Finish: Black Oxide
- Thread: 2B-UNC or Class 6h
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	F
27901	10-24	3/4	5/8	1/4	3/8	7/16
27902	1/4-20	1	3/4	1/4	1/2	5/8
27903	3/8-16	1 1/4	1 1/8	1/2	5/8	3/4
27904	1/2-13	1 1/2	1 1/4	1/2	3/4	1
27905	5/8-11	2	1 3/4	5/8	1 1/8	1 1/4
27906	3/4-10	2 1/2	2 1/4	5/8	1 5/8	1 1/2

Metric

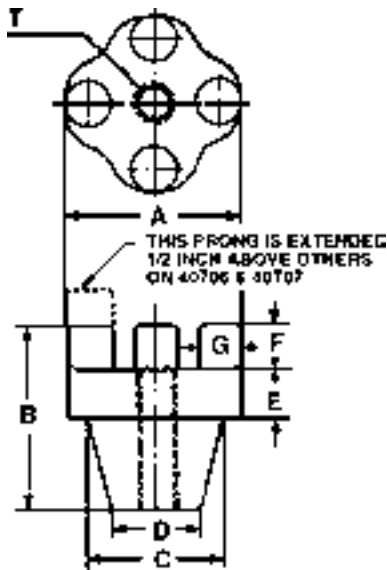
Part Number	A	B	C	D	E	F
27951	M5 x 0.8	19	16	6	9	11
27952	M6 x 1.0	25	19	6	13	16
27953	M10 x 1.5	31	28	13	16	19
27954	M12 x 1.75	38	31	13	19	25
27955	M16 x 2.0	50	44	16	28	31
27956	M20 x 2.5	63	57	16	41	38

Speed Bar Knob



Speed Bar Knobs offer the ultimate in strength to hold down covers and clamp heavy work pieces. Insert bar between four vertical prongs for maximum leverage and holding force. One extra long prong is available on part numbers **40706** and **40707** for use with a crank handle.

- Material: Malleable ASTM 32510
- Finish: Mill
- Thread: 2B-UNC or Metric Class 6h
- Available in FixturePro™ Design Software



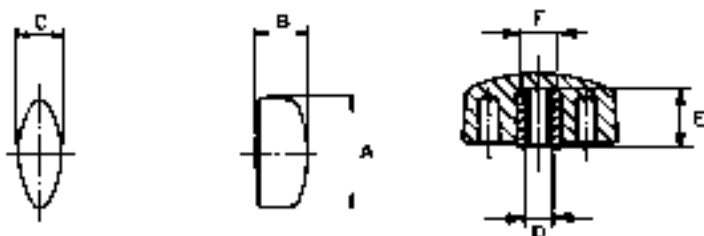
Part Number	A	B	C	D	E	F	G	T	Wt. (lbs)
40701	2	2 1/8	1 1/4	1 1/8	1/2	3/4	1/2	Blank	0.80
40711	2	3 1/8		1 1/8	1/2			3/8-16	
40702	2	2 1/8	1 1/4	1 1/8	1/2	3/4	1/2	1/2-13	0.72
40712	2	2 1/8		1 1/8	1/2			5/8-11	
40703	2 1/2	2 3/8	1 3/4	1 1/2	9/16	7/8	5/8	Blank	1.56
40713	2 1/2	2 3/8		1 1/2	9/16			1/2-13	
40704	2 1/2	2 3/8	1 3/4	1 1/2	9/16	7/8	5/8	5/8-11	1.44
40705	2 1/2	2 3/8	1 3/8	1 1/2	9/16	7/8	5/8	3/4-10	1.44
40706	3 1/2	2 3/8	2 3/8	2 1/8	1/2	7/8	5/8	Blank	2.50
40707	3 1/2	2 3/8	2 3/8	2 1/8	1/2	7/8	5/8	1-8	2.25

Metric

Part Number	A	B	C	D	E	F	G	T
40701	50	53	31	28	12	19	12	Blank
40752	50	53	31	28	12	19	12	M12
40703	63	59	44	38	14	22	16	Blank
40754	63	59	44	38	14	22	16	M16
40755	63	59	44	38	14	22	16	M20
40706*	88	59	59	53	12	22	16	Blank
40757*	88	59	59	53	12	22	16	M24

*Note: One extra long prong is available on part numbers 40706 and 40757 for use with a crank handle.

Plastic Wing Knob ELESA Original Design Metric

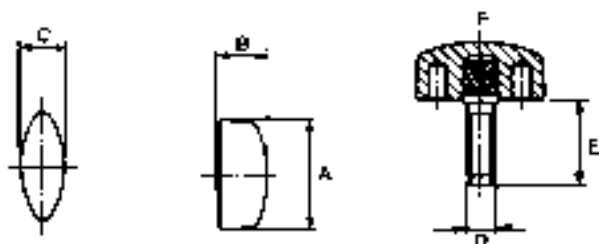


- Material: Glass-Fibre Reinforced Black Technopolymer
- Finish: Black Matte
- Insert: Brass with tapped blind hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number*	A	B	C	D	E
33776	26	13	11	M5	5
33777	32	15	13	M6	8
33778	40	17	15.5	M8	8

*Dimensions in millimeters

Plastic Wing Knob With Stud ELESA Original Design



- Material: Glass-Fibre Reinforced Black Technopolymer
- Finish: Black Matte
- Zinc-Plated Steel Stud with chamfered flat end
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number*	A	B	C	D	E
33765	1.02	.51	.43	10-32	.500
33766	1.02	.51	.43	10-32	.750
33767	1.26	.59	.51	1/4-20	.500
33768	1.26	.59	.51	1/4-20	.750
33769	1.26	.59	.51	1/4-20	1.000
33770	1.57	.67	.61	5/16-18	.750
33771	1.57	.67	.61	5/16-18	1.000

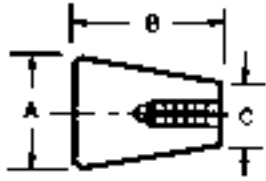
*Dimensions in millimeters

Metric

Part Number*	A	B	C	D	E
33781	26	13	11	M5	16
33782	32	15	13	M6	16
33783	32	15	13	M8	16
33784	40	17	15.5	M8	25
33785	40	17	15.5	M10	30

*Dimensions in millimeters

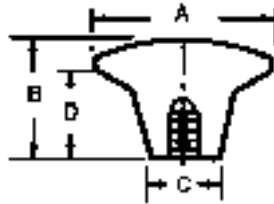
Plastic Tapered Knob



- Tapered shanks, enlarged heads provide good finger clearance and excellent grasp for pulling
- Popular Applications: push-pull rods, palm switch knobs, palm grasp knobs (for portable power tools), push buttons, drawer pulls, etc.
- Material: Plastic
- Finish: Tumble
- Insert: Brass
- Available in FixturePro™ Design Software

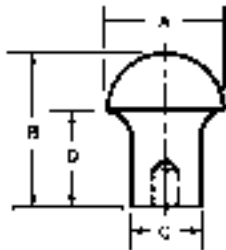
Part Number	A	B	C	Insert Thread and Depth
32213	1	1 1/4	1/2	1/4-20 x 7/16
32214	1	1 1/4	1/2	5/16-18 x 7/16

Plastic Lift Knob



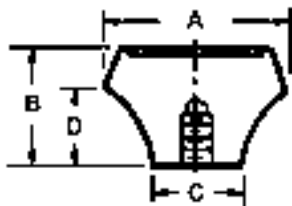
- Material: Plastic
- Finish: Tumble
- Insert: Brass
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	Insert Thread and Depth
32217	1 3/8	7/8	5/8	5/8	1/4-20 x 7/16



Part Number	A	B	C	D	Insert Thread and Depth
32215	1	1 3/16	9/16	11/16	10-32 x 5/16
32216	1	1 3/16	9/16	11/16	1/4-20 x 7/16

Plastic Push/Pull Knob



- Material: Plastic
- Finish: Tumbled
- Insert: Brass
- Available in FixturePro™ Design Software

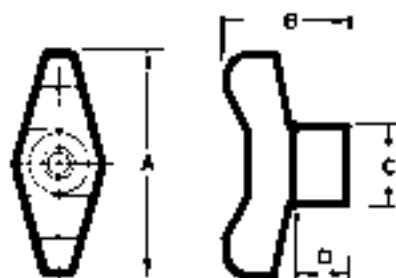
Part Number	A	B	C	D	Insert Thread and Depth
32220	1	11/16	1/2	7/16	8-32 x 5/16
32221	1	11/16	1/2	7/16	10-32 x 5/16
32222	1	11/16	1/2	7/16	1/4-20 x 7/16
32223	1	15/16	9/16	11/16	10-32 x 7/16
32224	1	15/16	9/16	11/16	1/4-20 x 7/16

Plastic Wing Nut



- Material: Thermoplastic
- Finish: Matte
- Insert: Brass
- Also available in Ergostyle®. See Ergostyle Section.

Part	A	B	C	D	Insert
32130	2 1/2	1 3/64	7/8	3/8	5/16-18
32131	2 1/2	1 3/64	7/8	3/8	3/8-16

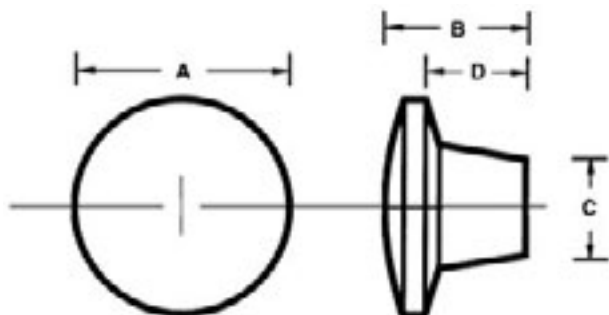


Plastic Push/Pull Knob

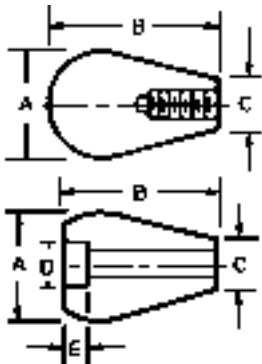


- Material: Thermoplastic
- Finish: Matte
- Insert: Brass
- Also available with stud

Part Number	A	B	C	D	Insert
32225	1 3/8	7/8	5/8	5/8	8-32
32226	1 3/8	7/8	5/8	5/8	10-32
32227	1 3/8	7/8	5/8	5/8	1/4-20
32228	1 3/8	7/8	5/8	5/8	5/16-18
32229	1 3/8	7/8	5/8	5/8	3/8-16



Plastic Oval Tapered Knob



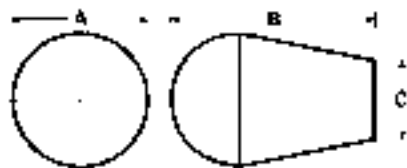
- Material: Polypropylene
- Finish: Tumble
- For shift levers, control levers, push/pull rods on machine tools, lawn and garden equipment, jigs and fixtures, and for finger tip levers or lid knobs.
- Available with either brass insert, tapped plastic thread, or untapped through hole.
- Sand and Buff Finish available upon request
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	Hole Diameter
32211*	1 3/16	1 7/8	9/16	—	—	5/16-18 x 3/4
32218**	1 3/16	1 7/8	9/16	—	—	1/4-20 x 7/16
32212	1 3/16	1 3/4	9/16	9/16	5/16	.380/.385 through hole (untapped)
32219	1 3/16	1 3/4	9/16	9/16	5/16	.313/.318 through hole (untapped)

*Tapped plastic threads

**Brass insert

Soft Touch Oval Tapered Knob



- Material: Soft Touch Plastic
- Finish: "Soft Feel" Black Matte
- Insert: Brass
- Cushioned vinyl covering helps to dampen vibrations
- Also available in red, blue, yellow, and green (250 piece minimum)

This Oval Tapered Knob has the original soft touch material that helps in gripping. It is designed with an enlarged head and tapered shaft for maximum push, pull, and turning.

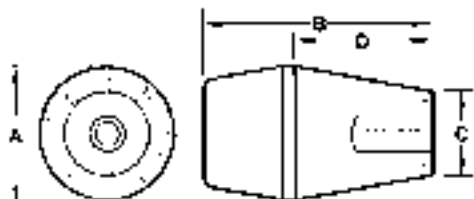
Part Number	A	B	C	Hole Diameter
32150	1 5/8	2 1/2	7/8	5/16-18 x 5/8
32151	1 5/8	2 1/2	7/8	5/16
32152	1 5/8	2 1/2	7/8	3/8-16 x 5/8
32153	1 5/8	2 1/2	7/8	3/8

Soft Touch Tapered Knob



- Material: Soft Touch Plastic
- Finish: Black Matte
- Insert: Brass
- Cushioned vinyl covering helps to dampen vibrations
- Also available in red, blue, yellow, and green (250 piece minimum)

This Oval Tapered Knob has the original soft touch material that helps in gripping. It is designed with an enlarged head and tapered shaft for maximum push, pull, and turning.

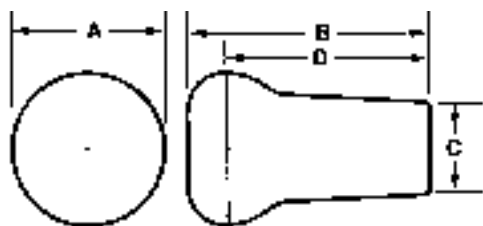


Part Number	A	B	C	D	Hole Diameter
32160	1 1/2	2 1/2	15/16	1 1/2	1/4-20 x 5/8
32161	1 1/2	2 1/2	15/16	1 1/2	5/16-18 x 3/4
32162	1 1/2	2 1/2	15/16	1 1/2	3/8-16 x 5/8

Soft Touch Tapered Knob



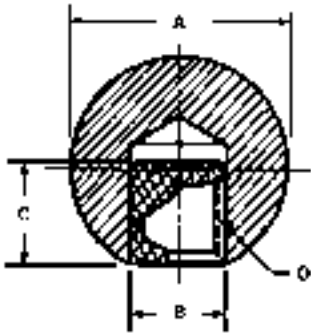
- Material: Soft Touch Plastic
- Finish: Black Matte
- Insert: Brass
- Cushioned vinyl covering helps to dampen vibrations
- Also available in red, blue, yellow, and green (250 piece minimum)
- A standard 1" stud is available, other lengths available upon request.



Part Number	A	B	C	D	Hole Diameter
32180	1 5/8	2 1/2	7/8	2 1/8	1/4-20 x 5/8
32181*	1 5/8	2 1/2	7/8	2 1/8	1/4 x 1
32182	1 5/8	2 1/2	7/8	2 1/8	5/16-18 x 5/8
32183*	1 5/8	2 1/2	7/8	2 1/8	5/16 x 1
32184*	1 5/8	2 1/2	7/8	2 1/8	3/8 x 1
32170	1 3/8	2 1/8	13/16	1 3/4	5/16-18 x 5/8
32171	1 3/8	2 1/8	13/16	1 3/4	3/8-16 x 5/8
32172*	1 3/8	2 1/8	13/16	1 3/4	3/8 x 1
32173	1 3/8	2 1/8	13/16	1 3/4	1/2-13 x 5/8
32174*	1 3/8	2 1/8	13/16	1 3/4	1/2 x 1

*Cored Hole

Plastic Ball



- Material: Plastic, Red or Black
- Insert: Brass
- Finish: Tumble
- Sand and Buff Finish available upon request
- Available in FixturePro™ Design Software

Black Part Number	Red Part Number	A	B	C	Brass Insert D
31301		3/4	1/4	5/16	10-32
31316		3/4	1/4	5/16	1/4-20
31317		1	1/2	1/2	10-32
31302	31502	1	1/2	7/16	1/4-20
31308		1	1/2	7/16	5/16-18
31303	31503	1	1/2	1/2	3/8-16
31318		1 3/8	5/8	5/8	1/4-20
31309		1 3/8	5/8	7/16	5/16-18
31304	31504	1 3/8	5/8	1/2	3/8-16
31310		1 3/8	5/8	1/2	3/8-24
31305	31505	1 3/8	5/8	5/8	1/2-13
31311		1 3/8	5/8	5/8	1/2-20
31319		1 5/8	11/16	5/8	5/16-18
31314		1 5/8	11/16	1/2	3/8-16
31315		1 5/8	11/16	5/8	1/2-13
31320		1 7/8	3/4	7/16	5/16-18
31312		1 7/8	3/4	1/2	3/8-16
31306	31506	1 7/8	3/4	5/8	1/2-13
31313		1 7/8	3/4	5/8	1/2-20
31307	31507	1 7/8	3/4	3/4	5/8-18

Soft Touch Ball



- Material: Soft Touch Plastic
- Finish: Black Matte
- Insert: Brass
- Also available in red, blue, yellow, and green (250 piece minimum)

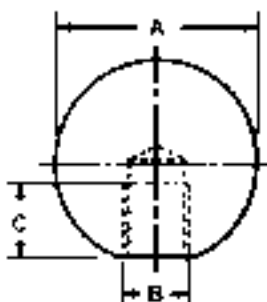
Part Number	A	B	C	Insert D
31330	1 1/2	1 15/64	5/8	1/4-20 x 5/8
31331	1 1/2	1 15/64	5/8	5/16-18 x 5/8
31332	1 1/2	1 15/64	5/8	3/8-16 x 5/8
31333	1 1/2	1 15/64	5/8	1/2-13 x 5/8

This Ball Knob has a soft touch material which enables the operator to get a better grip on the knob for many different types of operations.

Plain Steel Ball



- Material: Carbon Steel
- Finish: Black Oxide
- Available Tapped or Blank
- Available in FixturePro™ Design Software

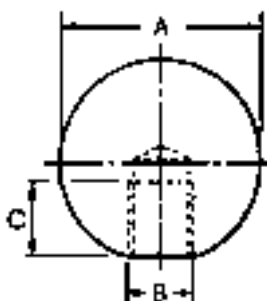


Part Number	A	B	C
36511	1 1/2	Blank	—
36512	1 1/2	3/8-16	5/8
36513	2	Blank	—
36514	2	1/2-13	3/4
36515	2	5/8-11	7/8

Polished Steel Ball



- Material: Steel
- Finish: Polished

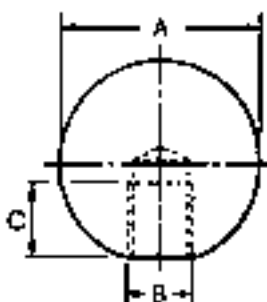


Part Number	A	B	C
36520	3/4	10-32	3/8
36521	1	10-32	3/8
36522	1	1/4-20	1/2
36523	1	5/16-18	1/2
36524	1	3/8-16	1/2
36525	1 3/8	1/4-20	5/8
36526	1 3/8	5/16-18	5/8
36527	1 3/8	3/8-16	5/8
36528	1 3/8	1/2-13	5/8
36529	1 7/8	3/8-16	3/4
36530	1 7/8	1/2-13	3/4
36531	1 7/8	5/8-11	3/4

Brass Ball

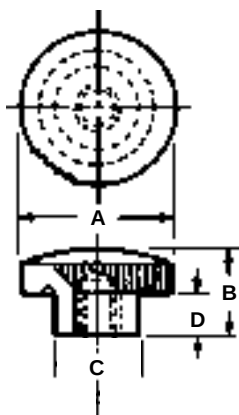


- Material: Brass
- Finish: Polished
- Water Resistant



Part Number	A	B	C
36540	3/4	10-32	3/8
36541	1	10-32	3/8
36542	1	1/4-20	1/2
36543	1	5/16-18	1/2
36544	1	3/8-16	1/2
36545	1 3/8	1/4-20	5/8
36546	1 3/8	5/16-18	5/8
36547	1 3/8	3/8-16	5/8
36548	1 3/8	1/2-13	5/8
36549	1 7/8	3/8-16	3/4
36550	1 7/8	1/2-13	3/4
36551	1 7/8	5/8-11	3/4

Plastic Knurled Torque Knob

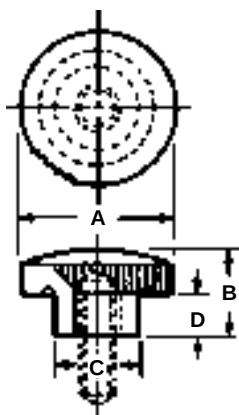


- Material: Plastic
- Finish: Tumble
- Knurled edge for non-slip grip
- Insert Threads: Brass
- Available in FixturePro™ Design Software

Part Number	Insert Thread and Depth	A	B	C	D
32324	8-32 x 5/16	3/4	9/16	5/8	—
32325	10-32 x 5/16	3/4	9/16	5/8	—
32328	1/4-20 x 3/8	3/4	9/16	5/8	—
32301	10-32 x 5/16	1	21/32	5/8	5/16
32303	1/4-20 x 3/8	1	21/32	5/8	5/16
32305	1/4-20 x 7/16	1 3/8	25/32	3/4	3/8
32308	5/16-18 x 7/16	1 3/8	25/32	3/4	3/8
32310	3/8-16 x 3/8	1 3/8	25/32	3/4	3/8
32311	5/16-18 x 7/16	1 7/8	1	1	1/2
32312	3/8-16 x 1/2	1 7/8	1	1	1/2
32315	Bushing*	1 7/8	1	1	1/2

*.377 I.D. x 1/2" O.D. x 1/2" long plain hole brass bushing, drilled and tapped for one #10-32 set screw.

Plastic Knurled Torque Knob With Stud



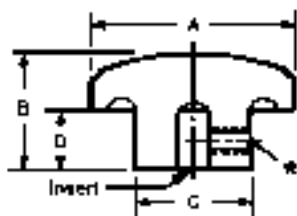
- Material: Plastic
- Finish: Tumble
- Knurled edge for non-slip grip
- Stud Threads: Zinc Plated Steel
- Available in FixturePro™ Design Software

Part Number	Stud Thread and Length	A	B	C	D
32326	10-32 x 1/2	3/4	9/16	5/8	—
32327	10-32 x 1	3/4	9/16	5/8	—
32329	1/4-20 x 1/2	3/4	9/16	5/8	—
32330	1/4-20 x 1	3/4	9/16	5/8	—
32302	10-32 x 1	1	21/32	5/8	5/16
32304	1/4-20 x 1	1	21/32	5/8	5/16
32334	5/16-18 x 1	1	21/32	5/8	5/16
32306	1/4-20 x 1	1 3/8	25/32	3/4	3/8
32307	1/4-20 x 2	1 3/8	25/32	3/4	3/8
32331	5/16-18 x 1	1 3/8	25/32	3/4	3/8
32309	5/16-18 x 2	1 3/8	25/32	3/4	3/8
32332	3/8-16 x 1	1 3/8	25/32	3/4	3/8
32333	5/16-18 x 1	1 7/8	1	1	1/2
32313	3/8-16 x 1	1 7/8	1	1	1/2

Plastic Fluted Knob



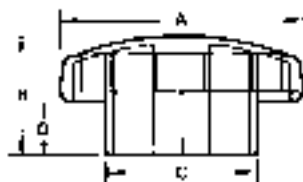
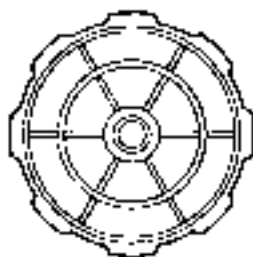
- Material: Plastic
- Finish: Tumble
- Insert Threads: Brass
- Bushing: Brass
- Stud Threads: Zinc Plated Steel
- For heavy torque applications, clamping devices, adjusting rods
- Available in FixturePro™ Design Software



Part Number	Insert Thread and Depth	Stud Thread and Length	A	B	C	D
32320	1/4-20 x 7/16	—	1 3/8	27/32	27/32	25/64
32340	—	1/4-20 x 1	1 3/8	27/32	27/32	25/64
32321	5/16-18 x 7/16	—	1 3/8	27/32	27/32	25/64
32341	—	5/16-18 x 1	1 3/8	27/32	27/32	25/64
32342	—	3/8-16 x 1	1 3/8	27/32	27/32	25/64
32343	—	1/4-20 x 1	1 3/4	1 1/16	1 1/16	1/2
32322	5/16-18 x 7/16	—	1 3/4	1 1/16	1 1/16	1/2
32344	—	5/16-18 x 1	1 3/4	1 1/16	1 1/16	1/2
32323	3/8-16 x 1/2	—	1 3/4	1 1/16	1 1/16	1/2
32345	—	3/8-16 x 1	1 3/4	1 1/16	1 1/16	1/2
32346	1/4-20 x 7/16	—	1 3/4	1 1/16	1 1/16	1/2
32316	3/8-16 x 1/2	—	2 3/8	1 5/16	1 1/4	5/8
32347	5/16-18 x 7/16	—	2 3/8	1 5/16	1 1/4	5/8
32317	—	3/8-16 x 1	2 3/8	1 5/16	1 1/4	5/8
32318	—	3/8-16 x 2	2 3/8	1 5/16	1 1/4	5/8
32348	—	5/16-18 x 1	2 3/8	1 5/16	1 1/4	5/8
32319	Bushing*	—	2 3/8	1 5/16	1 1/4	5/8

*.377 I.D. x 1/2" O.D. x 1/2" deep plain brass bushing, drilled and tapped for one #10-32 set screw.

Thermoplastic Fluted Knob

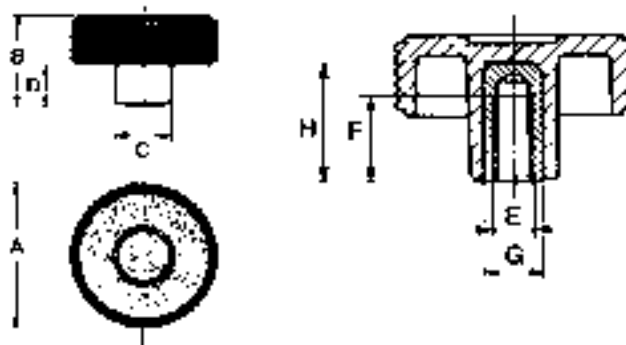


- Material: Thermoplastic
- Finish: Black Matte
- Insert: Brass
- Textured surface resists scratches, nicks, and fingerprints
- Also available in red, blue, yellow, and green
- A standard 1" stud is available, other lengths available upon request.

Part Number	A	B	C	D	Insert
32350	3 1/4	1 3/8	2	3/4	1/4-20 x 5/8
32351	3 1/4	1 3/8	2	3/4	5/16-18 x 3/4
32352	3 1/4	1 3/8	2	3/4	3/8-16 x 7/8

Plastic Knurled Knob

ELESA Original Design

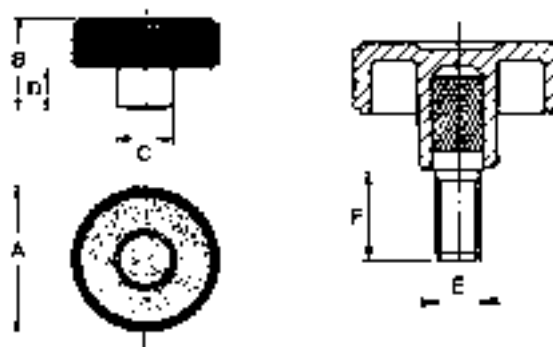


- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Brass Insert with tapped or plain blind hole
- Knobs with plain blind hole complete with set screw
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number	A	B	C	D	E	Set Screw	F	G	H
33801	1.22	.87	.59	.35	1/4-20	-	.47	-	-
33802	1.57	.94	.67	.43	1/4	10-32	.55	.47	.67
33803	1.57	.94	.67	.43	1/4-20	-	.47	-	-
33804	1.57	.94	.67	.43	5/16-18	-	.51	-	-
33805	1.97	1.18	.79	.53	3/8	10-32	.79	.63	.98
33806	1.97	1.18	.79	.53	5/16-18	-	.70	-	-
33807	1.97	1.18	.79	.53	3/8-16	-	.67	-	-
33808	2.36	1.38	.91	.59	3/8	1/4-20	.79	.63	1.18
33809	2.36	1.38	.91	.59	3/8-16	-	.79	-	-
33810	2.36	1.38	.91	.59	1/2-13	-	.79	-	-

Plastic Knurled Knob With Stud

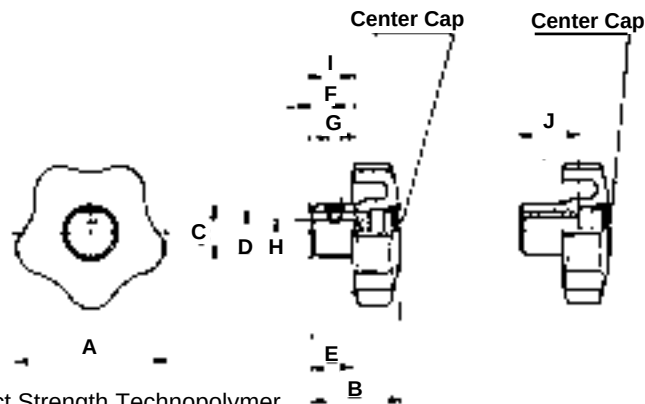
ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Stud: Zinc Plated Steel with chamfered flat end
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number	A	B	C	D	E	F
33811	1.22	.87	.59	.35	1/4-20	.500
33812	1.22	.87	.59	.35	1/4-20	.750
33813	1.57	.94	.67	.43	1/4-20	.750
33814	1.57	.94	.67	.43	1/4-20	1.00
33815	1.57	.94	.67	.43	5/16-18	.750
33816	1.57	.94	.67	.43	5/16-18	1.00
33817	1.97	1.18	.79	.53	3/8-16	1.00
33818	1.97	1.18	.79	.53	3/8-16	1.25
33819	2.36	1.38	.91	.59	3/8-16	1.00
33820	2.36	1.38	.91	.59	3/8-16	1.25

Plastic Lobe Knob ELESA Original Design

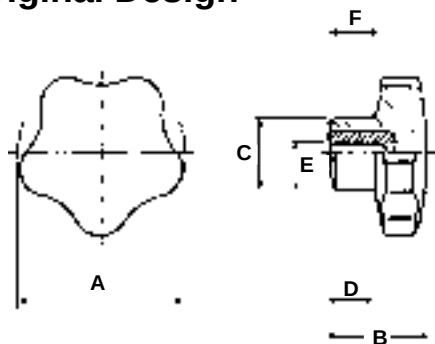


- Material: High Impact Strength Technopolymer
- Finish: Black
- Insert: Brass with tapped or plain blind hole
- Knobs with plain blind hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number	A	B	C	D	E	F	Set Screw G	Mounting Holes (H)		I	J
								Plain	Tapped		
33840	0.98	0.75	0.51	0.28	0.31	-	-	-	10-32	-	0.39
33841	1.26	0.91	0.59	-	0.39	-	-	-	1/4-20	-	0.47
33842	1.26	0.91	0.59	0.47	0.39	0.2	10-32	1/4	-	-	0.47
33843	1.57	1.06	0.67	-	0.47	-	-	-	1/4-20	-	0.71
33844	1.57	1.06	0.67	-	0.47	-	-	-	5/16-18	-	0.71
33845	1.57	1.06	0.67	0.47	0.47	0.24	10-32	1/4	-	0.55	-
33846	1.57	1.06	0.67	0.55	0.47	0.24	10-32	5/16	-	0.59	-
33847	1.97	1.26	0.75	-	0.55	-	-	-	5/16-18	-	0.79
33848	1.97	1.26	0.75	-	0.55	-	-	-	3/8-16	-	0.79
33849	1.97	1.26	0.75	0.55	0.55	0.28	10-32	5/16	-	0.63	-
33850	1.97	1.26	0.75	0.63	0.55	0.28	10-32	3/8	-	0.63	-
33851	2.48	1.46	0.87	-	0.63	-	-	-	3/8-16	-	1.02
33852	2.48	1.46	0.87	-	0.63	-	-	-	1/2-13	-	1.02
33853*	2.48	1.46	0.87	0.67	0.63	0.31	1/4-20	3/8	-	0.79	-
33854*	2.48	1.46	0.87	0.75	0.63	0.31	1/4-20	1/2	-	0.79	-
33855	2.91	1.71	1.02	0.75	0.87	0.31	1/4-20	1/2	-	0.79	-
33856	2.91	1.71	1.02	-	0.87	-	-	-	1/2-13	-	1.02

*Steel Insert

Plastic Lobe Knob Metric Elesa Original Design



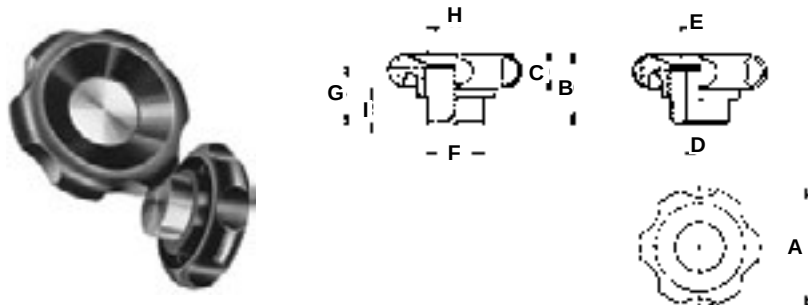
- Material: Duroplast
- Finish: Black Matte
- Insert: Stainless Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number*	A	B	C	D	E	F
34121	32	23	19	11	M6	12
34122	40	27	21	12	M8	13
34123	50	33	25	14	M10	17
34124	60	37	27	17	M12	20

*Dimensions in millimeters

Plastic Lobe Knob

ELESA Original Design

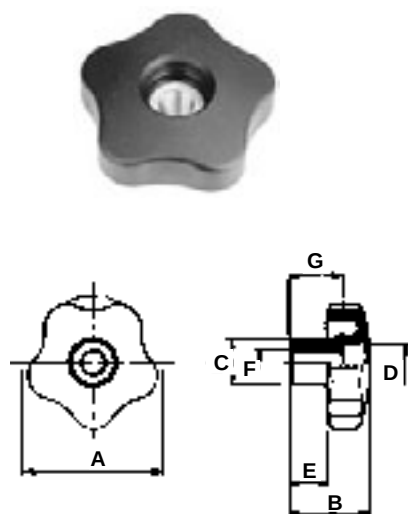


- Material: Black Duroplast
- Finish: Black Bright
- Metal Hub
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number	A	B	C	D	E	F	G	H	I
33751	2.01	1.14	.51	Blank	—	.79	.83	.71	.39
33752	2.01	1.14	.51	5/16	—	.79	.83	.71	.39
33753	2.01	1.14	.51	5/16-18	—	.79	.83	.71	.39
33754	2.72	1.30	.71	Blank	—	1.18	.98	1.10	.47
33755	2.72	1.30	.71	3/8	.71	1.18	.98	1.10	.47
33756	2.72	1.30	.71	3/8-16	.71	1.18	.98	1.10	.47
33757	3.23	1.57	.75	Blank	—	1.38	1.18	1.34	.59
33758	3.23	1.57	.75	1/2	.71	1.38	1.18	1.34	.59
33759	3.23	1.57	.75	1/2-13	.71	1.38	1.18	1.34	.59
33760	3.90	1.73	.79	Blank	—	1.42	1.34	1.34	.55
33761	3.90	1.73	.79	1/2	.84	1.42	1.34	1.34	.55
33762	3.90	1.73	.79	5/8-11	.84	1.42	1.34	1.34	.55
33763	5.07	1.85	.87	Blank	—	1.57	1.34	1.42	.51
33764	5.07	1.85	.87	1/2	—	1.57	1.34	1.46	.51

Plastic Lobe Knob

ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Insert: Brass with tapped through hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number	A	B	C	D	E	F	G
33831	1.26	0.91	0.59	0.39	0.39	1/4-20	0.47
33832	1.57	1.06	0.67	0.47	0.47	5/16-18	0.71
33833	1.97	1.26	0.75	0.59	0.55	3/8-16	0.79
33834	2.48	1.46	0.87	0.75	0.63	3/8-16	1.02
33835	2.48	1.46	0.87	0.75	0.63	1/2-13	1.02
33836	2.91	1.17	1.02	0.67	0.87	1/2-13	1.02

Plastic Lobe Knob ELESA Original Design



- Material:
Phenolic based
Duroplast
- Insert:
Black oxide steel
or Brass

Part Number	A	B	C	D	E	F	Set Screw		Mounting Hole (I)		J	Wt. lbs.
							G	H	Plain	Tapped		
33884*	1.26	0.91	0.75	-	-	0.43	-	-	-	1/4-20	0.39	0.04
33885*	1.57	1.06	0.83	-	-	0.47	-	-	-	1/4-20	0.47	0.07
33886*	1.57	1.06	0.83	-	-	0.47	-	-	-	5/16-18	0.51	0.06
33887*	1.57	1.06	0.83	0.47	0.67	0.47	0.28	10-32	0.250	-	0.55	0.07
33888*	1.57	1.06	0.83	0.63	0.79	0.47	0.28	10-32	0.312	-	0.63	0.06
33889*	1.97	1.3	0.98	-	-	0.55	-	-	-	5/16-18	0.71	0.11
33890*	1.97	1.3	0.98	-	-	0.55	-	-	-	3/8-16	0.67	0.10
33891*	1.97	1.3	0.98	0.59	0.99	0.55	0.31	10-32	0.312	-	0.79	0.14
33892*	1.97	1.3	0.98	0.63	0.99	0.55	0.31	10-32	0.375	-	0.79	0.13
33893	2.36	1.46	1.06	-	-	0.67	-	-	-	3/8-16	0.67	0.16
33894	2.36	1.46	1.06	-	-	0.67	-	-	-	1/2-13	0.79	0.17
33895	2.36	1.46	1.06	0.67	1.02	0.67	0.35	1/4-20	0.375	-	0.79	0.21
33896	2.36	1.46	1.06	0.79	1.18	0.67	0.35	1/4-20	0.500	-	0.99	0.19
33897	2.75	1.73	1.18	-	-	0.79	-	-	-	1/2-13	0.79	0.26
33898	2.75	1.73	1.18	0.79	1.18	0.79	0.43	1/4-20	0.500	-	0.99	0.27
33899	3.34	2.16	1.37	-	-	1.18	-	-	-	5/8-11	0.86	0.38

*denotes brass insert.

Plastic Lobe Knob ELESA Original Design



- Materials: Glass reinforced polyamide based technopolymer
- Finish: Black glossy
- Black-oxide steel hub
- Lighter Design
- With plain or tapped hole

1. Not drilled
2. Plain through hole
3. Tapped through hole

Part Number	A	B	C	D	E	F	G	H	Mounting Holes (I)		J	Wt. lbs.
									Plain	Tapped		
34000¹	1.97	1.14	0.51	0.79	0.71	0.39	-	-	-	-	0.83	0.16
34001²	1.97	1.14	0.51	0.79	0.71	0.39	-	-	0.312	-	0.83	0.14
34002³	1.97	1.14	0.51	0.79	0.71	0.39	-	-	-	5/16-18	0.83	0.15
34003¹	2.40	1.18	0.53	0.98	0.94	0.43	-	-	-	-	0.91	0.28
34004¹	2.76	1.30	0.71	1.18	1.14	0.47	-	-	-	-	0.98	0.42
34005²	2.76	1.30	0.71	1.18	1.14	0.47	0.03	0.71	0.375	-	0.98	0.37
34006³	2.76	1.30	0.71	1.18	1.14	0.47	0.03	0.71	-	3/8-16	0.98	0.39
34007¹	3.15	1.57	0.75	1.38	1.34	0.59	-	-	-	-	1.18	0.66
34008²	3.15	1.57	0.75	1.38	1.34	0.59	0.03	0.71	0.500	-	1.18	0.61
34009³	3.15	1.57	0.75	1.38	1.34	0.59	0.03	0.71	-	1/2-13	1.18	0.62

Plastic Lobe Knob With Stud

ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Stud: Zinc Plated Steel with Chamfered Flat End
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



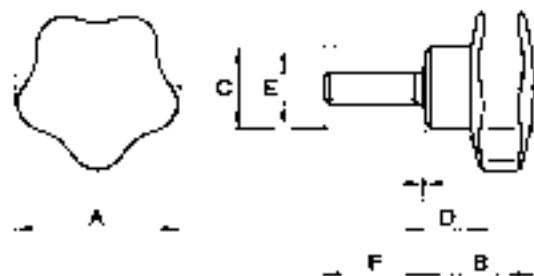
Part Number	A	B	C	D	E	F
33859	0.98	0.75	0.51	0.31	10-32	0.500
33860	0.98	0.75	0.51	0.31	10-32	0.750
33861	1.26	0.91	0.59	0.39	1/4-20	0.500
33862	1.26	0.91	0.59	0.39	1/4-20	0.750
33863	1.26	0.91	0.59	0.39	1/4-20	1.000
33864	1.57	1.06	0.67	0.47	1/4-20	0.500
33865	1.57	1.06	0.67	0.47	1/4-20	1.000
33866	1.57	1.06	0.67	0.47	5/16-18	0.750
33867	1.57	1.06	0.67	0.47	5/16-18	1.000
33868	1.97	1.26	0.75	0.55	5/16-18	1.000
33869	1.97	1.26	0.75	0.55	5/16-18	1.500
33870	1.97	1.26	0.75	0.55	3/8-16	1.000
33871	1.97	1.26	0.75	0.55	3/8-16	1.500
33872	2.48	1.46	0.87	0.63	3/8-16	1.250
33873	2.48	1.46	0.87	0.63	3/8-16	2.000
33874	2.48	1.46	0.87	0.63	1/2-13	1.500
33877	2.91	1.71	1.02	0.87	1/2-13	1.250
33878	2.91	1.71	1.02	0.87	1/2-13	2.000

Plastic Lobe Knob With Stainless Steel Stud

ELESA Original Design



- Material: Duroplast
- Finish: Black Matte
- Stud: Stainless Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



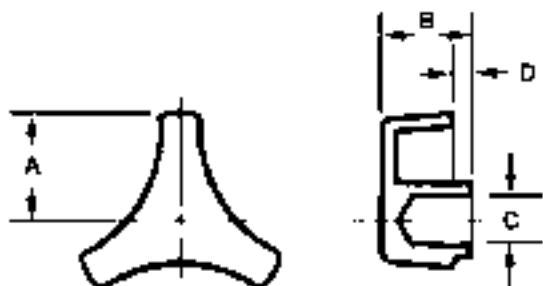
Part Number	A	B	C	D	E	F
34181	1.26	.91	.75	.43	1/4-20	.500
34182	1.26	.91	.75	.43	1/4-20	.750
34183	1.26	.91	.75	.43	1/4-20	1.00
34184	1.57	1.06	.83	.47	5/16-18	.750
34185	1.57	1.06	.83	.47	5/16-18	1.00
34186	1.57	1.06	.83	.47	5/16-18	1.25
34187	1.97	1.30	.98	.55	3/8-16	1.00
34188	1.97	1.30	.98	.55	3/8-16	1.25
34189	1.97	1.30	.98	.55	3/8-16	1.50
34190	1.97	1.30	.98	.55	3/8-16	2.00

Metric

Part Number*	A	B	C	D	E	F
34131	32	23	19	11	M6	16
34132	40	27	21	12	M8	20
34133	40	27	21	12	M8	30
34134	50	33	25	14	M10	20
34135	50	33	25	14	M10	40
34136	60	37	27	17	M12	30

*Dimensions in millimeters

Plastic Three Prong Knob



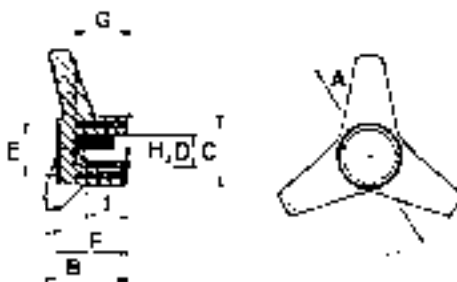
- Material: Polypropylene
- Finish: Tumble
- Insert: Brass

Part Number	A	B	C	D	Insert
32230	3/4	5/8	1/2	1/8	1/4-20 x 3/8
32231*	3/4	5/8	1/2	1/8	1/4-20 x 1/2
32232	3/4	5/8	1/2	1/8	5/16-18 x 3/8
32233*	3/4	5/8	1/2	1/8	5/16-18 x 1/2
32234	1	13/16	9/16	1/4	1/4-20 x 7/16
32235*	1	13/16	5/8	1/4	1/4-20 x 5/8
32236	1	13/16	9/16	1/4	5/16-18 x 7/16
32237*	1	13/16	5/8	1/4	5/16-18 x 5/8
32238	1	13/16	9/16	1/4	3/8-16 x 1/2
32239*	1	13/16	5/8	1/4	3/8-16 x 5/8
32240	1	1 1/16	9/16	1/2	1/4-20 x 7/16
32241*	1	1 1/16	5/8	1/2	1/4-20 x 7/8
32242	1	1 1/16	9/16	1/2	5/16-18 x 7/16
32243*	1	1 1/16	5/8	1/2	5/16-18 x 5/8
32244	1	1 1/16	9/16	1/2	3/8-16 x 1/2
32245*	1	1 1/16	5/8	1/2	3/8-16 x 5/8
32246	1 1/4	7/8	5/8	1/4	5/16-18 x 7/16
32247*	1 1/4	7/8	3/4	1/4	5/16-18 x 5/8
32248	1 1/4	7/8	5/8	1/4	3/8-16 x 1/2
32249*	1 1/4	7/8	3/4	1/4	3/8-16 x 5/8
32250	1 1/4	1 1/8	5/8	1/2	5/16-18 x 7/16
32251*	1 1/4	1 1/8	3/4	1/2	5/16-18 x 5/8
32252	1 1/4	1 1/8	5/8	1/2	3/8-16 x 1/2
32253*	1 1/4	1 1/8	3/4	1/2	3/8-16 x 5/8

*Through Hole Style

Plastic Three Spoked Knob

ELESA Original Design



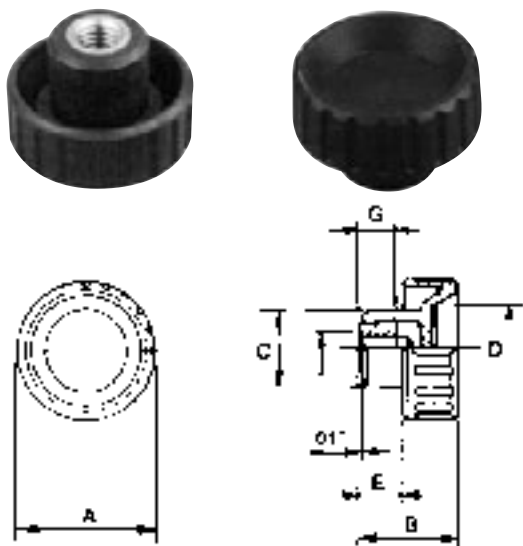
- Material: Glass-Fibre Reinforced Technopolymer
- Finish: Black Matte
- Brass Insert with tapped blind hole
- Insert: Brass or Steel with plain blind hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number	A	B	C	D	E	F	G	H	I	Insert
33731	2.48	1.10	1.02	—	.70	.98	—	5/16-18	.62	Brass
33732	2.48	1.10	1.02	.59	.70	.98	.87	5/16	.62	Steel
33733	3.14	1.37	1.25	—	.82	1.18	—	3/8-16	.67	Brass
33734	3.14	1.37	1.25	.59	.82	1.18	.98	3/8	.79	Steel
33735	3.93	1.65	1.41	—	.98	1.41	—	1/2-13	.79	Brass
33736	3.93	1.65	1.41	.94	.98	1.41	1.29	1/2	.98	Steel

Plastic Fluted Grip Knob

ELESA Original Design

- Material: High Strength Technopolymer
- Finish: Black Matte
- Insert: Brass with tapped blind hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



Part Number	A	B	C	D	E	F	G
34200	.79	.63	.47	.43	.24	8-32	.24
34201	.79	.63	.47	.43	.24	10-32	.24
34202	.98	.75	.63	.59	.31	10-32	.39
34203	.98	.75	.63	.59	.31	1/4-20	.31
34204	1.26	.87	.67	.83	.35	1/4-20	.39
34205	1.26	.87	.67	.83	.35	5/16-18	.39

Metric

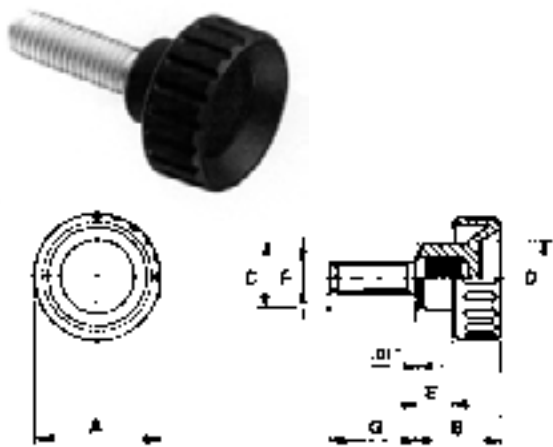
Part Number*	A	B	C	D	E	F	G
34260	16	13	11	9	5	M4	6
34261	20	16	12	11	6	M5	6
34262	25	19	16	15	8	M6	8
34263	32	22	17	21	9	M8	10

*Dimensions in millimeters

Plastic Fluted Grip Knob

With Stud

ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Zinc-Plated Steel Stud With Chamfered Flat End
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

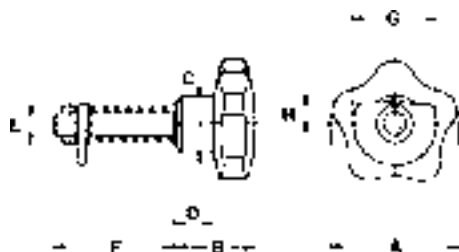
Part Number	A	B	C	D	E	F	G
34210	0.63	0.51	0.43	0.35	0.2	8-32	0.375
34211	0.63	0.51	0.43	0.35	0.2	8-32	0.500
34212	0.79	0.63	0.47	0.43	0.24	8-32	0.500
34213	0.79	0.63	0.47	0.43	0.24	8-32	0.750
34214	0.79	0.63	0.47	0.43	0.24	10-32	0.500
34215	0.79	0.63	0.47	0.43	0.24	10-32	0.750
34216	0.98	0.75	0.63	0.59	0.31	1/4-20	0.500
34217	0.98	0.75	0.63	0.59	0.31	1/4-20	0.750
34218	0.98	0.75	0.63	0.59	0.31	1/4-20	1.000
34219	1.26	0.87	0.67	0.83	0.35	5/16-18	0.750
34220	1.26	0.87	0.67	0.83	0.35	5/16-18	1.000
34221	1.57	1.06	0.75	0.98	0.51	3/8-16	1.000
34222	1.97	1.12	0.87	1.22	0.53	3/8-16	1.000

Metric

Part Number*	A	B	C	D	E	F	G
34250	16	13	11	9	5	M4	10
34251	16	13	11	9	5	M5	10
34252	20	16	12	11	6	M5	16
34253	20	16	12	11	6	M6	16
34254	25	19	16	15	8	M6	16
34255	25	19	16	15	8	M8	16
34256	32	22	17	21	9	M8	16
34257	32	22	17	21	9	M10	20

*Dimensions in millimeters

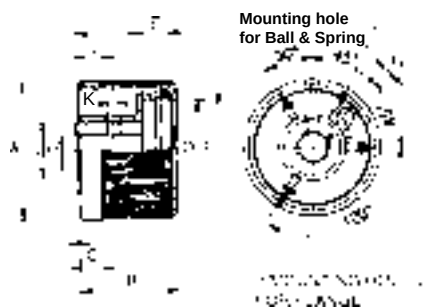
Plastic Latch Type Lobe Knob ELESA Original Design



- Material: Black Duroplast
- Finish: Black Bright
- Stud: Zinc Plated Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Available in Stainless Steel with left or right swing style

Part Number	A	B	C	D	E	F	G	H	Swing Style
33881	1.97	1.30	.98	.55	.47	1.81	1.77	.47	Left
33882	2.36	1.46	1.06	.67	.47	1.81	1.77	.47	Right

Plastic Knurled Grip Knob ELESA Original Design



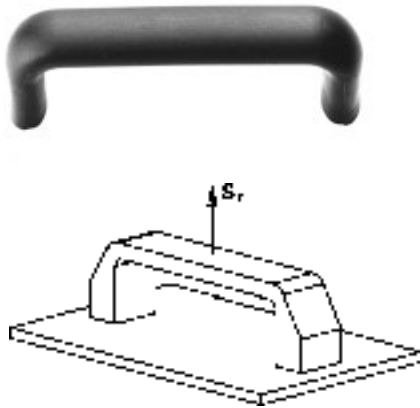
- Material: Glass-Fibre Reinforced Technopolymer
- Finish: Black Bright
- Black Oxide Steel Insert
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number	A	B	C	D	E	F	G	H	I	J	K	L
33741	1.89	1.38	.31	1.26	.39	1.34	.13	.375	.87	.87	.16	.55
33742	2.05	1.54	.35	1.46	.51	1.54	.17	.500	.87	.87	.16	.55
33743	2.28	1.61	.39	1.65	.43	1.73	.20	.500	1.06	1.02	.20	.63
33744	2.48	1.73	.43	1.89	.39	1.97	.24	.500	1.18	1.02	.20	.63

Plastic Handle

ELESA Original Design

- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Insert: Brass With Tapped Blind Hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

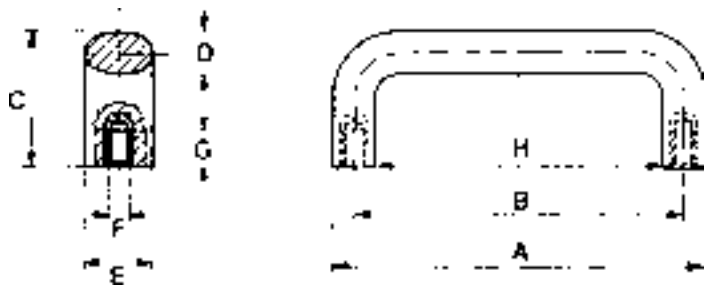


Part Number	A	B	C	D	E	F	G	St lbs
33791	3.94	3.38	1.73	0.55	0.91	1/4-20	0.47	538
33792	5.28	4.61	1.87	0.59	0.94	5/16-18	0.51	594
33793	7.72	7.05	2.24	0.63	1.06	5/16-18	0.51	450

Metric

Part Number*	A	B	C	D	E	F	G	H	St N
33706	100	86	44	14	23	M6	12	73	2400
33705	132	117	48	15	24	M8	13	103	2650
33707	196	179	57	16	27	M8	13	105	2000

*Dimensions in millimeters



Plastic Handle

Metric

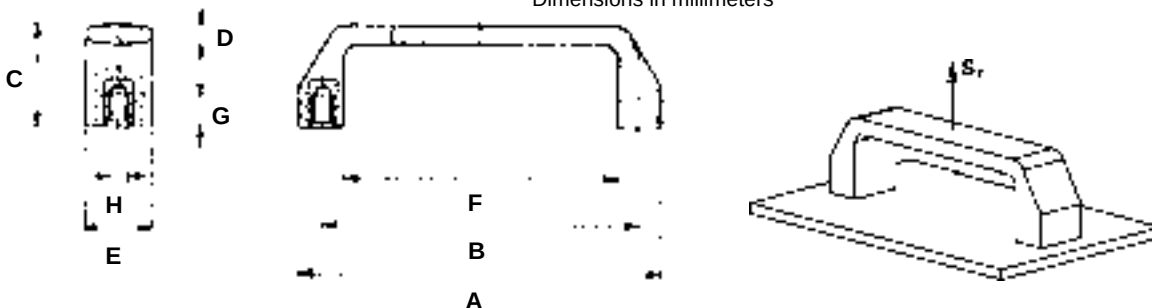
ELESA Original Design

- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Insert: Brass With Tapped Blind Hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



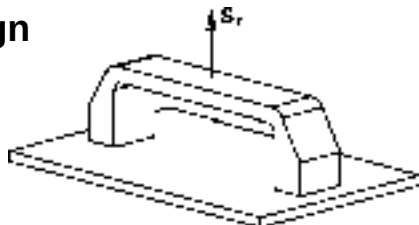
Part Number*	A	B	C	D	E	F	G	H	St N
33708	134	117	38	7.5	25	102	12	M6	2000
33709	134	117	38	7.5	25	102	12	M8	2000

*Dimensions in millimeters

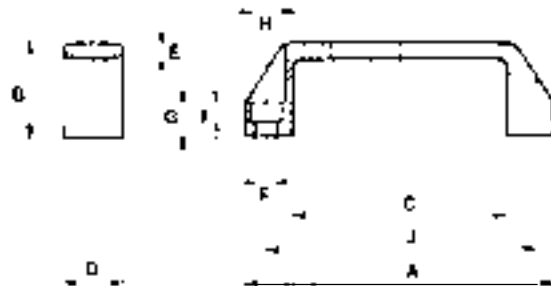


Plastic Pull/Lift Handle

ELESA Original Design



- Material: Glass-Fibre Reinforced Polyamide Technopolymer
- Finish: Black Matte
- Maximum Working Temp. 230°F
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



Part Number	A	B	C	D	E	F	G	H	I	J	St*
33701	4.21	1.42	2.91	0.83	0.24	0.26	0.51	0.41	0.28	3.68	560
33702	5.28	1.61	3.74	1.02	0.28	0.34	0.59	0.53	0.33	4.61	560
33703	5.90	1.77	4.25	1.06	0.28	0.34	0.63	0.53	0.33	5.20	560
33704	7.76	1.97	6.02	1.10	0.31	0.34	0.67	0.53	0.33	7.05	605
33710	10.31	2.13	7.95	1.22	0.35	0.41	0.79	0.65	0.41	9.25	784

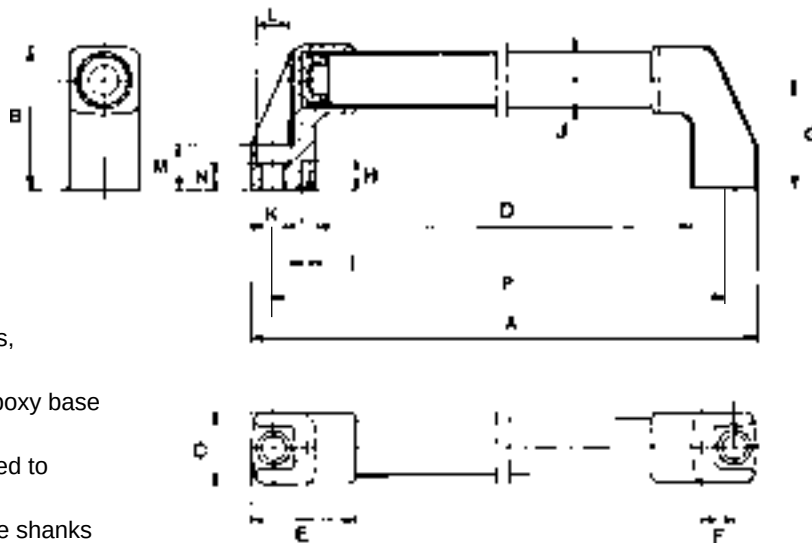
* Denotes Strength Table

Aluminum Tubular Handle

Elesa Original Design

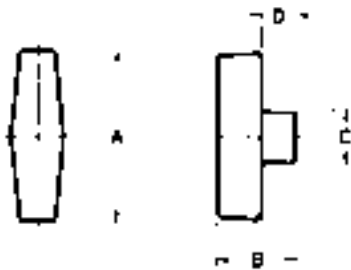


- Material: Tube, Aluminum Handle Shanks, Reinforced Polyamide Technopolymer
- Finish: Tube, Polyurethane coat on an epoxy base Color, Metalfake Graphite
- Handle Shank connection is axially knurled to the tube to prevent tube rotation
- Reference pins for safer positioning of the shanks
- Resistant to wear, scratches, and chemical agents



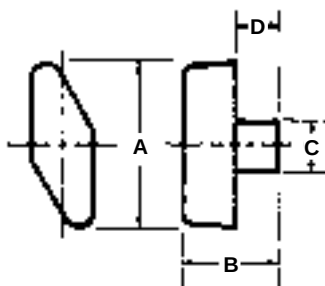
Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
33725	12.76	3.07	1.50	10.00	2.24	.71	2.36	.59	.16	1.18	.41	.63	.98	.59	12
33727	16.69	3.07	1.50	13.94	2.24	.71	2.36	.59	.16	1.18	.41	.63	.98	.59	16
33728	20.63	3.07	1.50	17.87	2.24	.71	2.36	.59	.16	1.18	.41	.63	.98	.59	20
33730	28.50	3.07	1.50	25.75	2.24	.71	2.36	.59	.16	1.18	.41	.63	.98	.59	28

Plastic T-Handle

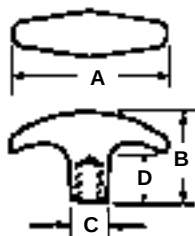


- Material: Polypropylene
- Finish: Tumble
- Insert: Metal
- Also Available With Stud
- Ideal For High Torque Applications
- Textured Grip

Part Number	A	B	C	D	Insert
32126	2 1/2	1 1/4	3/4	5/8	5/16-18 x 3/4



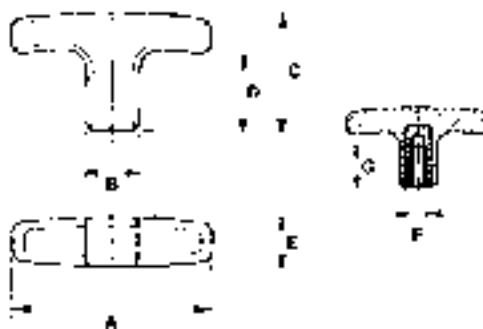
Part Number	A	B	C	D	Insert
32121	2	1 1/8	5/8	1/2	5/16-18 x 5/8



- Material: Plastic
- Finish: Tumble
- For heavy-duty clamping and push/pull applications; latch release with pull cables or rods; also for cabinet doors, access panel latches, etc.

Part Number	Insert Thread and Depth	A	B	C	D
32115	5/16-18 x 7/16	2 1/4	1 1/4	9/16	11/16
32116	1/4-20 x 7/16	2 1/4	1 1/4	9/16	11/16

Plastic T-Handle ELESA Original Design



- Material: Glass-Fibre Reinforced Technopolymer
- Finish: Black Matte
- Insert: Brass With Tapped Blind Hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

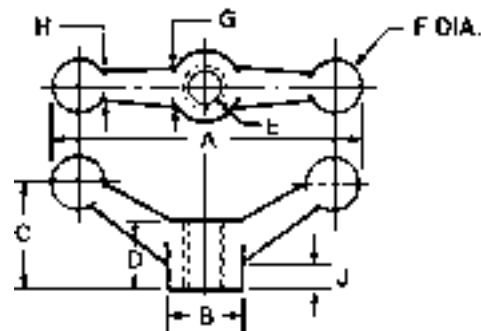
Part Number	A	B	C	D	E	F	G	Ft.* lbs.
33711	1.57	0.51	1.18	0.79	0.51	1/4-20	0.63	560
33712	2.17	0.55	1.3	0.87	0.55	1/4-20	0.71	739
33713	2.64	0.63	1.46	0.98	0.63	5/16-18	0.79	1,008
33714	3.15	0.79	1.61	1.02	0.79	3/8-16	0.79	1,568
33715	3.66	0.83	1.77	1.12	0.83	1/2-13	0.79	1,795

*Max. Tensile strength / Pull Force

Aluminum & Malleable Speed Handle



- Material: 319 Aluminum
Malleable ASTM A47, GR32510
- Finish: Mill
- Thread: 2B-UNC or class 6h
- Can be used with rod ends for clamping tank covers, locking lids or any fast spin locking application
- With or without tapped or blank hole
- Three head widths
- Available in FixturePro™ Design Software
- "D" dimension is based on machined castings. It may be slightly greater on blanks.

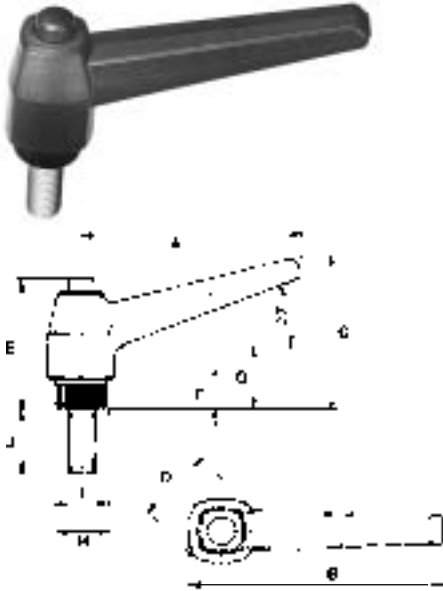


Part Number		A	B	C	D	E	Dia F	G	H	J
Aluminum	Malleable									
39901	40301	4 1/2	1 1/8	1 1/2	1	Blank	11/16	3/4	7/16	1/2
39902	40302	4 1/2	1 1/8	1 1/2	1	3/8-16	11/16	3/4	7/16	1/2
39903	40303	4 1/2	1 1/8	1 1/2	1	1/2-13	11/16	3/4	7/16	1/2
39904	40304	6	1 1/2	2 1/8	1 1/2	Blank	.94	7/8	5/8	3/4
39905	40305	6	1 1/2	2 1/8	1 1/2	1/2-13	.94	7/8	5/8	3/4
39906	40306	6	1 1/2	2 1/8	1 1/2	5/8-11	.94	7/8	5/8	3/4
39907	40307	8 3/4	2	3	2	Blank	1 3/16	1.02	7/8	.94
—	40308	8 3/4	2	3	2	3/4-10	1 3/16	1.02	7/8	.94

Part Number		A	B	C	D	E	Dia F	G	H	J
Aluminum	Malleable									
39901	40301	113	28	38	25	Blank	17	19	11	13
39952	40352	113	28	38	25	M10	17	19	11	13
39953	40353	113	28	38	25	M12	17	19	11	13
39954	40304	150	38	53	38	Blank	24	22	16	19
39955	40355	150	38	53	38	M12	24	22	16	19
39956	40356	150	38	53	38	M16	24	22	16	19
39907	40307	219	50	75	50	Blank	30	26	22	24
—	40358	222	50	75	50	M20	30	26	22	24

Plastic Button Head Adjustable Handle With Stud

ELESA Original Design



- Material: Glass-Fibre Reinforced Technopolymer Lever Body
- Finish: Black Matte
- Available with a Zinc Plated Steel Stud with a chamfered flat end or with a Brass Insert with a tapped blind hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Available In Ergostyle®. See Ergostyle Section.
- Available in FixturePro™ Design Software

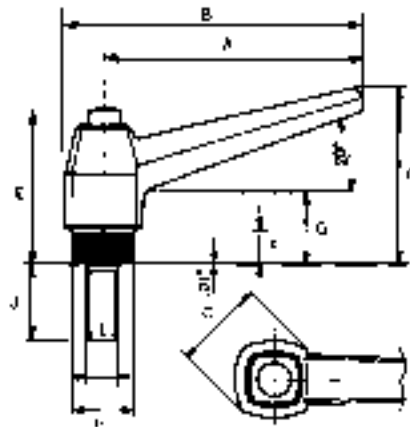
Part Number	A	B	C	D	E	F	G	H	I	J
34311	1.65	1.96	1.25	0.70	1.14	0.23	0.55	0.47	10-24	0.750
34312	1.65	1.96	1.25	0.70	1.14	0.23	0.55	0.47	1/4-20	0.500
34313	1.65	1.96	1.25	0.70	1.14	0.23	0.55	0.47	1/4-20	0.750
34314	1.65	1.96	1.25	0.70	1.14	0.23	0.55	0.47	1/4-20	1.00
34315	1.65	1.96	1.25	0.70	1.14	0.23	0.55	0.47	1/4-20	1.50
34321	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	1/4-20	0.750
34322	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	1/4-20	1.00
34323	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	1/4-20	1.50
34324	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	5/16-18	0.500
34325	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	5/16-18	0.750
34326	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	5/16-18	1.00
34327	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	5/16-18	1.25
34328	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	5/16-18	1.50
34329	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	5/16-18	2.00
34331	3.15	3.63	2.13	1.10	1.85	0.39	0.86	0.75	3/8-16	0.750
34332	3.15	3.63	2.13	1.10	1.85	0.39	0.86	0.75	3/8-16	1.00
34333	3.15	3.63	2.13	1.10	1.85	0.39	0.86	0.75	3/8-16	1.25
34334	3.15	3.63	2.13	1.10	1.85	0.39	0.86	0.75	3/8-16	1.50
34335	3.15	3.63	2.13	1.10	1.85	0.39	0.86	0.75	3/8-16	2.00
34337	3.15	3.63	2.13	1.10	1.85	0.39	0.86	0.75	1/2-13	1.25
34338	3.15	3.63	2.13	1.10	1.85	0.39	0.86	0.75	1/2-13	1.50
34339	3.15	3.63	2.13	1.10	1.85	0.39	0.86	0.75	1/2-13	2.00
34341	3.94	4.50	2.55	1.30	2.12	0.47	0.98	0.98	1/2-13	1.25
34342	3.94	4.50	2.55	1.30	2.12	0.47	0.98	0.98	1/2-13	1.50
34343	3.94	4.50	2.55	1.30	2.12	0.47	0.98	0.98	1/2-13	2.00

Plastic Button Head Tapped Adjustable Handle



Part Number	A	B	C	D	E	F	G	H	I	J
34301	1.65	1.96	1.25	0.70	1.14	0.23	0.55	0.47	10-24	0.39
34302	1.65	1.96	1.25	0.70	1.14	0.23	0.55	0.47	1/4-20	0.39
34303	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	1/4-20	0.47
34304	2.48	2.87	1.69	0.90	1.45	0.31	0.66	0.60	5/16-18	0.51
34305	3.15	3.62	2.12	1.10	1.85	0.39	0.86	0.74	5/16-18	0.71
34306	3.15	3.62	2.12	1.10	1.85	0.39	0.86	0.74	3/8-16	0.67
34307	3.15	3.62	2.12	1.10	1.85	0.39	0.86	0.74	1/2-13	0.67
34308	3.94	4.48	2.55	1.30	2.12	0.47	0.98	0.98	3/8-16	0.79
34309	3.94	4.48	2.55	1.30	2.12	0.47	0.98	0.98	1/2-13	0.79

Plastic Adjustable Handle With Stainless Steel Stud ELESA Original Design



- Material: Lever Body, Glass-Fibre Reinforced Technopolymer
- Finish: Lever Body, Black Matte
- Stainless Steel Stud with chamfered flat end
- Retaining Pin, Glass-Fibre Reinforced Technopolymer integrally molded with the Locking Element
- Push Button, Black Matte Technopolymer
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number	A	B	C	D	E	F	G	H	I	J
34145	2.48	2.87	0.91	1.69	1.46	0.31	0.67	0.59	5/16-18	0.750
34146	2.48	2.87	0.91	1.69	1.46	0.31	0.67	0.59	5/16-18	1.000
34147	2.48	2.87	0.91	1.69	1.46	0.31	0.67	0.59	5/16-18	1.250

Metric

Part Number*	A	B	C	D	E	F	G	H	I	J
34156	42	50	32	18	29	6	14	12	M6	16
34157	63	73	43	23	37	8	17	15	M8	20
34158	80	92	51	28	47	10	22	19	M10	20
34159	80	92	54	28	47	10	22	19	M12	30

*Dimensions in millimeters

Plastic Button Head Adjustable Tapped Handle With Stainless Steel Insert

Metric

ELESA Original Design



- Material: Glass-Fibre Reinforced Technopolymer Lever Body
- Finish: Black Matte
- Locking Element: Black, Glass-Fibre Reinforced Technopolymer
- Insert: 303 Stainless Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

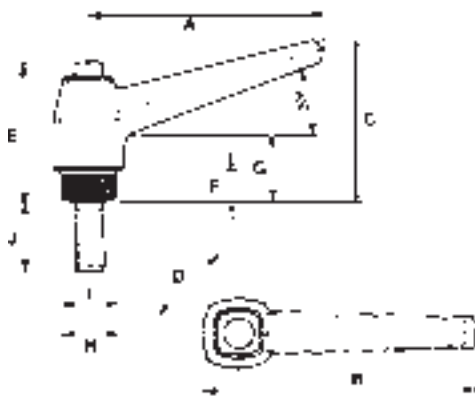
Part Number*	A	B	C	D	E	F	G	H	I	J
34151	42	50	32	18	29	6	14	12	M6	10
34152	63	73	43	23	37	8	17	15	M8	13
34153	80	92	54	28	47	10	22	19	M10	17

*Dimensions in millimeters

Plastic Button Head Adjustable Handle With Stud

Metric

ELESA Original Design



For adjustable clamping or tightening controls when the operating angle is limited. To adjust during the locking operation, lift the lever in order to disengage the teeth from the locking element and change lever position. The return spring automatically engages the teeth again.

- Material: Glass-Fibre Reinforced Technopolymer Lever Body
- Finish: Black Matte
- Locking Element: Black, Glass-Fibre Reinforced Technopolymer
- Stud: Zinc Plated Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

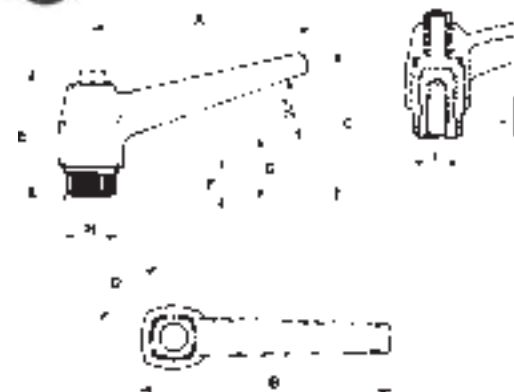
Part Number*	A	B	C	D	E	F	G	H	I	J
34362	42	50	32	18	29	6	14	12	M6	16
34363	42	50	32	18	29	6	14	12	M6	20
34364	42	50	32	18	29	6	14	12	M6	30
34374	63	73	43	23	37	8	17	15	M8	16
34375	63	73	43	23	37	8	17	15	M8	20
34377	63	73	43	23	37	8	17	15	M8	30
34378	63	73	43	23	37	8	17	15	M8	40
34379	63	73	43	23	37	8	17	15	M8	50
34381	80	92	54	28	47	10	22	19	M10	20
34383	80	92	54	28	47	10	22	19	M10	30
34385	80	92	54	28	47	10	22	19	M10	50
34387	80	92	54	28	47	10	22	19	M12	30
34388	80	92	54	28	47	10	22	19	M12	40
34391	100	114	65	33	54	12	25	25	M12	30
34393	100	114	65	33	54	12	25	25	M12	50

*Dimensions in millimeters

Plastic Button Head Tapped Adjustable Handle

Metric

ELESA Original Design



- Material: Glass-Fibre Reinforced Technopolymer Lever Body
- Finish: Black Matte
- Locking Element: Black, Glass-Fibre Reinforced Technopolymer
- Insert: Brass
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

Part Number*	A	B	C	D	E	F	G	H	I	J
34352	42	50	32	18	29	6	14	12	M6	10
34354	63	73	43	23	37	8	17	15	M8	13
34355	80	92	54	28	47	10	22	19	M8	20
34356	80	92	54	28	47	10	22	19	M10	18
34357	80	92	54	28	47	10	22	19	M12	17
34359	100	114	65	33	54	12	25	25	M12	20

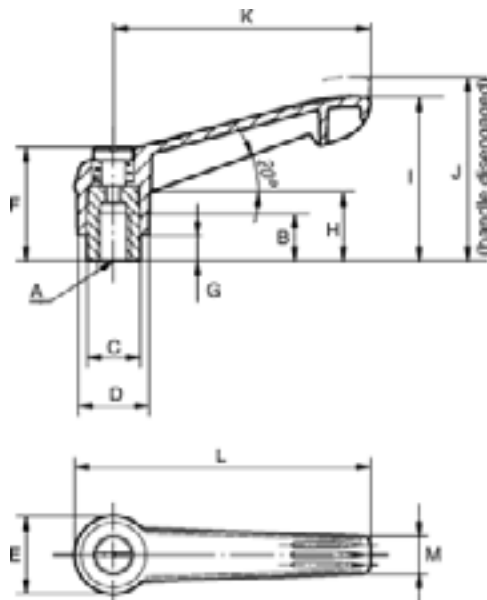
*Dimensions in millimeters

Metal Adjustable Handles



- Tapped Holes:
 - Material: Handle, Die Cast Zinc
 - Finish: Handle, Plastic Coated
Steel Parts, Black Oxide
 - Color: Black Satin Finish
- Stainless Steel Tapped Holes:
 - Material: Handle, Die Cast Zinc Steel Parts, 303 Stainless Steel
 - Finish: Handle, Plastic Coated Steel Parts, Bright
 - Color: Black Satin Finish

For adjustable clamping or tightening controls for limited operating angles. Adjustment of handle position occurs by pulling up on the handle, which disengages the teeth from the locking mechanism, and turning to the desired position. Releasing the handle allows for tightening or loosening.



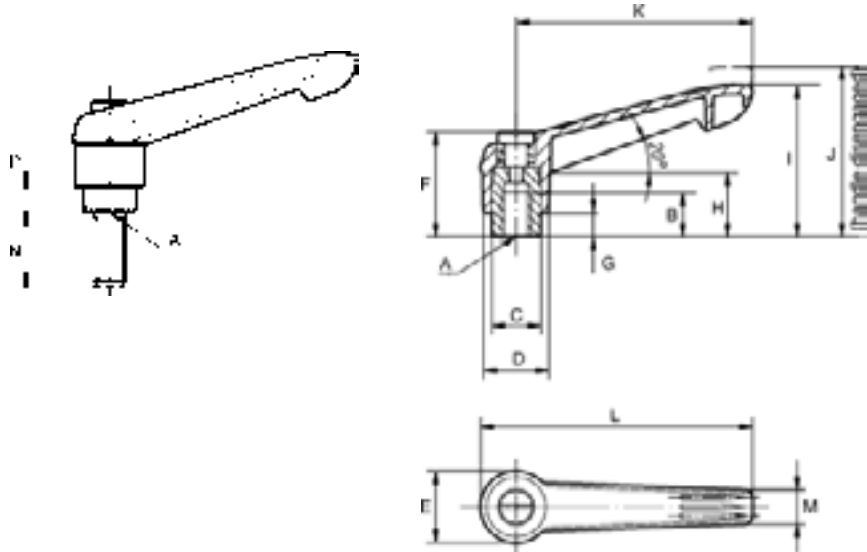
With Tapped Holes

Tapped Part Number	Stainless Tapped Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M
40501	-	8-32	0.35	0.39	0.51	0.57	0.94	0.16	0.59	1.16	1.31	1.57	1.85	0.29
-	40602	10-24	0.35	0.39	0.51	0.57	0.94	0.15	0.59	1.16	1.31	1.57	1.85	0.29
40502	-	10-24	0.35	0.39	0.51	0.57	0.94	0.16	0.59	1.16	1.31	1.57	1.85	0.29
-	40603	1/4-20	0.35	0.39	0.51	0.57	0.94	0.15	0.59	1.16	1.31	1.57	1.85	0.29
40503	-	1/4-20	0.35	0.39	0.51	0.57	0.94	0.16	0.59	1.16	1.31	1.57	1.85	0.29
40504	40604	1/4-20	0.47	0.53	0.70	0.76	1.14	0.25	0.68	1.61	1.77	2.55	2.95	0.37
40505	40605	5/16-18	0.47	0.53	0.70	0.76	1.14	0.25	0.68	1.61	1.77	2.55	2.95	0.37
-	40606	5/16-18	0.55	0.62	0.84	0.90	1.47	0.39	0.94	2.08	2.24	3.14	3.60	0.45
40506	-	5/16-18	0.55	0.70	0.84	0.90	1.47	0.39	0.94	2.08	2.24	3.14	3.60	0.43
-	40607	3/8-16	0.55	0.62	0.84	0.90	1.47	0.39	0.94	2.08	2.24	3.14	3.60	0.45
40507	-	3/8-16	0.55	0.70	0.84	0.90	1.47	0.39	0.94	2.08	2.24	3.74	3.60	0.43
-	40608	3/8-16	0.66	0.74	1.00	1.08	1.67	0.39	1.06	2.40	2.55	3.74	4.28	0.53
40508	-	3/8-16	0.66	0.70	1.00	1.08	1.67	0.39	1.06	2.40	2.55	3.74	4.25	0.51
-	40609	1/2-13	0.66	0.74	1.00	1.08	1.67	0.39	1.06	2.40	2.55	3.74	4.28	0.53
40509	-	1/2-13	0.66	0.70	1.00	1.08	1.67	0.39	1.06	2.40	2.55	3.74	4.25	0.51
40510	40610	1/2-13	0.90	0.90	1.18	1.27	2.00	0.47	1.29	2.85	3.05	4.32	4.97	0.61
40511	40611	5/8-11	0.90	0.90	1.18	1.27	2.00	0.47	1.29	2.85	3.05	4.32	4.97	0.61

Metal Adjustable Handles



For adjustable clamping or tightening controls for limited operating angles. Adjustment of handle position occurs by pulling up on the handle, which disengages the teeth from the locking mechanism, and turning to the desired position. Releasing the handle allows for tightening or loosening.



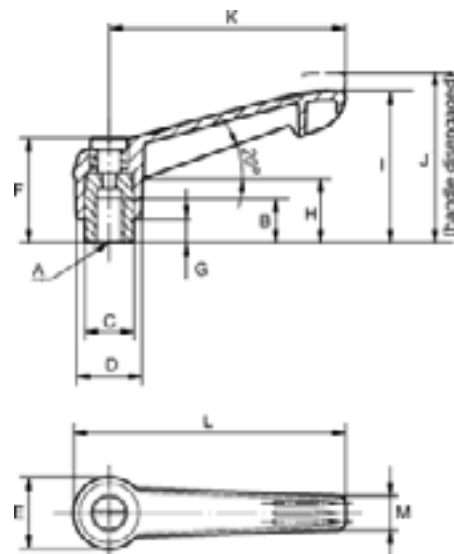
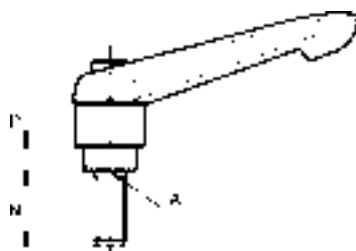
- Material: Handle, Die Cast Zinc
- Finish: Handle, Plastic Coated
Steel Parts, Black Oxide
- Color: Black Satin Finish

Part Number	Thread Size A	Thread Length N	P	B	C	D	E	F	G	H	I	J	K	L	M
40521	10-24	.59	.15	.35	.39	.51	.57	.94	.16	.59	1.16	1.31	1.57	1.85	.29
40522	10-24	.98	.15	.35	.39	.51	.57	.94	.16	.59	1.16	1.31	1.57	1.85	.29
40523	1/4-20	.78	.15	.35	.39	.51	.57	.94	.16	.59	1.16	1.31	1.57	1.85	.29
40524	1/4-20	.98	.15	.35	.39	.51	.57	.94	.16	.59	1.16	1.31	1.57	1.85	.29
40525	1/4-20	1.57	.15	.35	.39	.51	.57	.94	.16	.59	1.16	1.31	1.57	1.85	.29
40526	1/4-20	.78	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40527	1/4-20	.98	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40528	1/4-20	1.57	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40529	5/16-18	.78	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40530	5/16-18	.98	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40531	5/16-18	1.57	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40532	3/8-16	.98	.39	.55	.70	.84	.90	1.47	.39	.94	2.08	2.24	3.14	3.60	.43
40533	3/8-16	1.57	.39	.55	.70	.84	.90	1.47	.39	.94	2.08	2.24	3.14	3.60	.43
40534	3/8-16	1.96	.39	.55	.70	.84	.90	1.47	.39	.94	2.08	2.24	3.14	3.60	.43
40535	3/8-16	.98	.39	.66	.70	1.00	1.08	1.67	.39	1.06	2.40	2.55	3.74	4.25	.51
40536	3/8-16	1.57	.39	.66	.70	1.00	1.08	1.67	.39	1.06	2.40	2.55	3.74	4.25	.51
40537	3/8-16	1.96	.39	.66	.70	1.00	1.08	1.67	.39	1.06	2.40	2.55	3.74	4.25	.51
40538	1/2-13	.98	.39	.66	.70	1.00	1.08	1.67	.39	1.06	2.40	2.55	3.74	4.25	.51
40539	1/2-13	1.57	.39	.66	.70	1.00	1.08	1.67	.39	1.06	2.40	2.55	3.74	4.25	.51
40540	1/2-13	1.96	.39	.66	.70	1.00	1.08	1.67	.39	1.06	2.40	2.55	3.74	4.25	.51
40541	1/2-13	.98	.47	.90	.90	1.18	1.27	2.00	.47	1.29	2.85	3.05	4.32	4.97	.61
40542	1/2-13	1.57	.47	.90	.90	1.18	1.27	2.00	.47	1.29	2.85	3.05	4.32	4.97	.61
40543	1/2-13	1.96	.47	.90	.90	1.18	1.27	2.00	.47	1.29	2.85	3.05	4.32	4.97	.61
40544	5/8-11	1.37	.47	.90	.90	1.18	1.27	2.00	.47	1.29	2.85	3.05	4.32	4.97	.61
40545	5/8-11	1.77	.47	.90	.90	1.18	1.27	2.00	.47	1.29	2.85	3.05	4.32	4.97	.61
40546	5/8-11	2.16	.47	.90	.90	1.18	1.27	2.00	.47	1.29	2.85	3.05	4.32	4.97	.61

Metal Adjustable Handles



For adjustable clamping or tightening controls for limited operating angles. Adjustment of handle position occurs by pulling up on the handle, which disengages the teeth from the locking mechanism, and turning to the desired position. Releasing the handle allows for tightening or loosening.

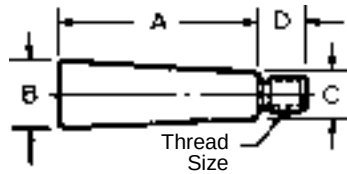


- Material: Handle, Die Cast Zinc
Steel Parts, 303 Stainless Steel
- Finish: Handle, Plastic Coated
Steel Parts, Bright
- Color: Black Satin Finish

With Stainless Steel Stud

Part Number	Thread Size A	Thread Length N	P	B	C	D	E	F	G	H	I	J	K	L	M
40621	10-24	.59	.15	.35	.39	.51	.57	.94	.15	.59	1.16	1.31	1.57	1.85	.29
40623	1/4-20	.78	.15	.35	.39	.51	.57	.94	.15	.59	1.16	1.31	1.57	1.85	.29
40625	1/4-20	1.57	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40630	5/16-18	.78	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40631	5/16-18	1.57	.25	.47	.53	.70	.76	1.14	.25	.68	1.61	1.77	2.55	2.95	.37
40632	3/8-16	.98	.39	.55	.62	.84	.90	1.47	.39	.94	2.08	2.24	3.14	3.60	.45
40634	3/8-16	1.96	.39	.55	.62	.84	.90	1.47	.39	.94	2.08	2.24	3.14	3.60	.45
40641	1/2-13	.98	.39	.66	.74	1.00	1.08	1.67	.39	1.06	2.40	2.55	3.74	4.28	.53
40643	1/2-13	1.96	.39	.66	.74	1.00	1.08	1.67	.39	1.06	2.40	2.55	3.74	4.28	.53
40644	5/8-11	1.57	.47	.90	.90	1.18	1.27	2.00	.47	1.29	2.85	3.05	4.32	4.97	.61
40646	5/8-11	2.36	.47	.90	.90	1.18	1.27	2.00	.47	1.29	2.85	3.05	4.32	4.97	.61

Aluminum Revolving and Solid Handle



- Material: Handle, 2024 Aluminum
Stem, Low Carbon Steel
- Finish: Revolving Handle, Clear or Black Anodize
Stem for Revolving Handle, Zinc Plate
Solid Handle, Plain
- Available in FixturePro™ Design Software

Aluminum Revolving Handles

Part Number		A	B	C	D	Thread Size	Wt. (lbs)
Clear	Black						
21901	21911	1 1/8	7/16	3/8	3/8	10-24	.02
21902	21912	1 9/16	5/8	1/2	7/16	1/4-20	.03
21903	21913	2	7/8	9/16	1/2	5/16-18	.08
21904	21914	2 1/2	1	3/4	1/2	3/8-16	.19
21905	21915	2 7/8	1 1/8	15/16	1/2	1/2-13	.23
21906	21916	3 1/4	1 1/4	15/16	1/2	1/2-13	.39

Solid Handles

Part Number	Wt. (lbs)
—	—
10301	.03
10302	.10
10303	.15
—	—
10304	.31

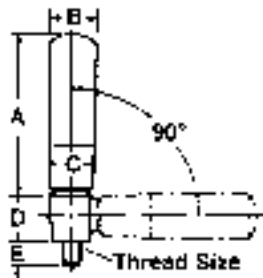
Metric

Clear	Black	A	B	C	D	Thread Size
Part Number*						
21951	21961	28	11	9	9	M5
21952	21962	39	16	13	11	M6
21953	21963	50	22	14	13	M8
21954	21964	63	25	19	13	M10
21955	21965	72	28	23	13	M12
21956	21966	82	31	23	13	M12

- Material: Handles: 2024 Aluminum
Stem: Low Carbon Steel
- Finish: Clear or Black Anodize
Stem: Zinc Plate
- Thread: Class 6g

*Dimensions in millimeters

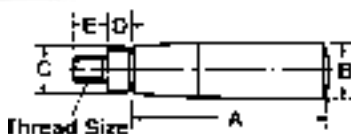
Plastic Folding Handle



- Material: Handle, 6-6 Nylon Stem, Steel
- Finish: Handle, Black Stem, Chrome Plated
- Folds out of the way
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	Thread Size
34070	2 1/4	25/32	25/32	7/8	1/2	M8 x 1.25
34071	3	25/32	25/32	7/8	9/16	M10 x 1.50

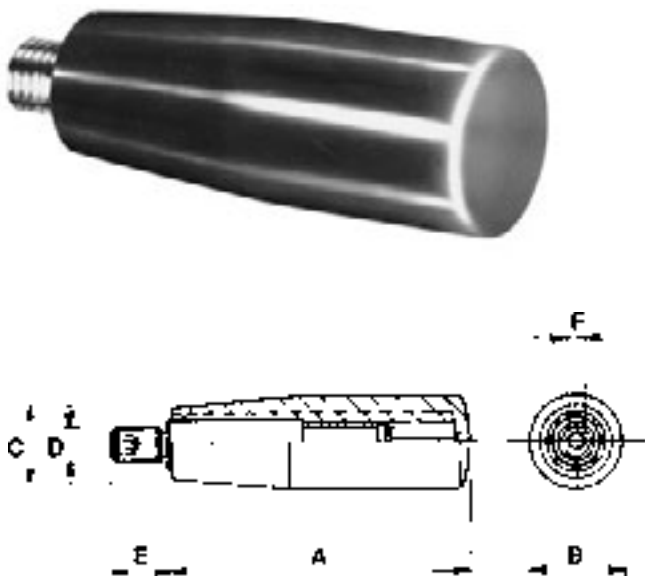
Plastic Fixed Handle



- Material: Handle, 6-6 Nylon Stem, Steel
- Finish: Handle, Black Stem, Chrome Plated
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	Thread Size
34075	2 9/32	5/8	9/16	5/16	1/2	M8 x 1.25
34076	2 15/32	7/8	11/16	23/32	9/16	M10 x 1.50

Plastic Revolving Heavy Duty Handle With Steel Shank ELESA Original Design



- Material: Black Duroplast
- Finish: Black Bright
- Shank: Zinc Plated Steel or Stainless Steel 303
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

With Steel Shank

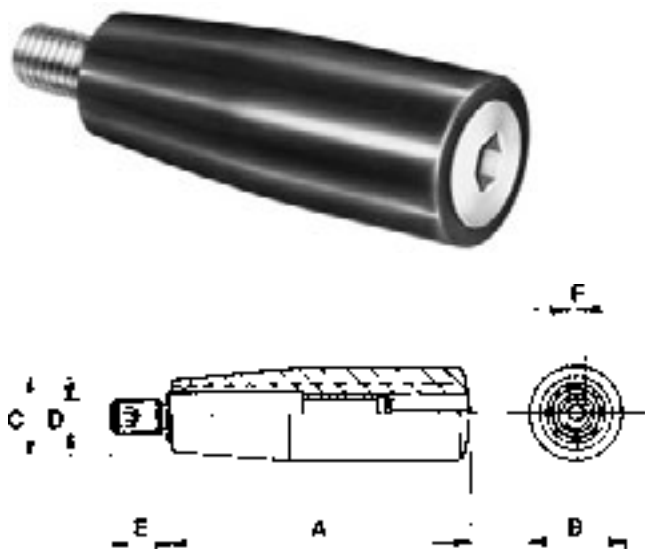
Part Number	A	B	C	D	E	F
33621	1.57	.71	.59	M6	.51	.12
33622	1.97	.83	.67	M6	.51	.12
33624	2.56	.91	.75	M8	.59	.16
33625	3.15	1.02	.83	M10	.67	.20
33626	3.54	1.10	.87	M10	.67	.20

With Stainless Steel Shank

Part Number*	A	B	C	D	E	F
34101	1.57	.71	.59	M6	.51	.12
34102	1.97	.83	.67	M6	.51	.12
34103	2.56	.91	.75	M8	.59	.16
34104	3.15	1.02	.83	M10	.67	.20
34105	3.54	1.10	.87	M10	.67	.20

*Dimensions in millimeters

Plastic Revolving Handle With Steel Through Shank ELESA Original Design



- Material: Black Duroplast
- Finish: Black Bright
- Shank: Matte Chrome Plated Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

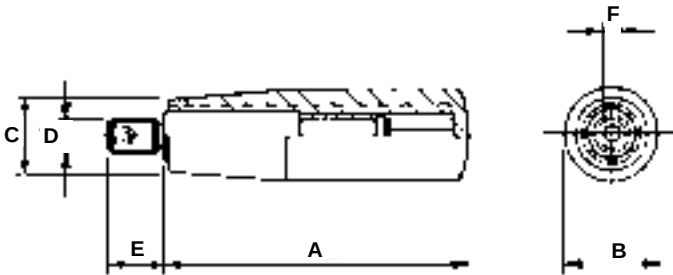
Part Number	A	B	C	D	E	F
33601	1.57	.71	.59	1/4-20	.51	5/32
33602	1.97	.83	.67	5/16-18	.59	3/16
33604	2.56	.91	.75	5/16-18	.67	1/4
33605	3.15	1.02	.83	3/8-16	.71	1/4
33606	3.54	1.10	.87	3/8-16	.71	5/16

Plastic Revolving Handle With Steel Shank

ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Shank: Zinc Plated Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



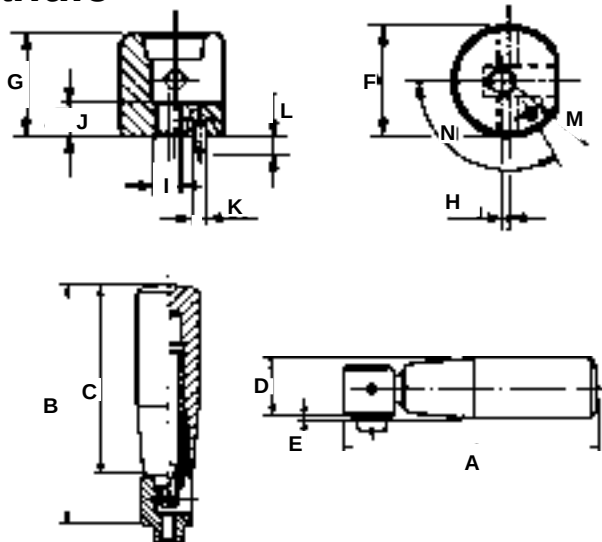
Part Number	A	B	C	D	E	F
33611	1.57	.71	.59	M6	.51	.12
33612	1.97	.83	.67	M6	.51	.12
33613	2.20	.87	.71	M6	.51	.12
33614	2.56	.91	.75	M8	.59	.16
33615	3.15	1.02	.83	M8	.59	.16
33616	3.54	1.10	.87	M10	.67	.20

Plastic Revolving Fold Away Handle

ELESA Original Design



- Material: High Impact Strength Technopolymer
- Finish: Black Matte
- Stud: Black Oxide Steel Double Guide
- Resistant to Solvents, Oils, Greases, and other Chemical Agents

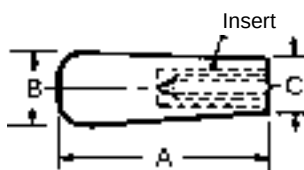


Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M	N
33631	2.91	2.80	2.20	.75	.10	.63	.59	.04	M4	.20	.12	.12	.22	90°
33632	3.27	3.15	2.56	.79	.12	.63	.59	.04	M4	.20	.12	.12	.22	90°
33633	3.50	3.35	2.56	.87	.04	.79	.77	.02	M6	.24	.12	.12	.28	120°
33634	4.09	3.94	3.15	.94	.10	.79	.77	.02	M6	.24	.12	.12	.28	120°
33635	4.49	4.33	3.54	.94	.12	.79	.77	.02	M6	.24	.12	.12	.28	120°
33636	4.65	4.45	3.54	1.06	.04	1.02	.91	.06	M6	.28	.12	.12	.37	90°

Plastic Heavy Duty Tapered Handle



- Use as grasp handles on portable tools or as machine shift levers
- Inserts: Brass
- Available in FixturePro™ Design Software



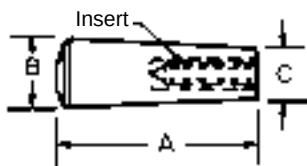
With Tapped Holes

Part Number	A	B	C	Insert Thread and Depth
32105	4 1/2	1 3/8	1	3/8-16 x 5/8
32106	4 1/2	1 3/8	1	3/8-24 x 5/8
32101	4 1/2	1 3/8	1	3/8-16 x 2
32107	4 1/2	1 3/8	1	1/2-13 x 5/8
32108	4 1/2	1 3/8	1	1/2-20 x 5/8
32103	4 1/2	1 3/8	1	1/2-13 x 1 1/4
32104	4 1/2	1 3/8	1	5/8-18 x 3/4

Plastic Light Duty Tapered Handle



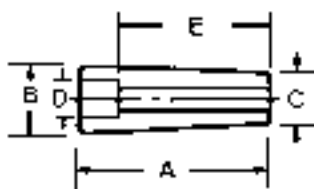
- Use as grasp handles on small tools, utensils, and gauges
- Inserts: Brass
- Through hole style for use with a socket head cap screw
- Available in FixturePro™ Design Software



With Hole

Part Number	A	B	C	Insert Thread and Depth
32111	2 5/8	1	5/8	1/4-20 x 7/16
32112	2 5/8	1	5/8	5/16-18 x 7/16
32117	2 5/8	1	5/8	3/8-16 x 1/2
32118	3 7/8	1 1/8	3/4	1/4-20 x 1/2
32119	3 7/8	1 1/8	3/4	5/16-18 x 7/16
32109	3 7/8	1 1/8	3/4	3/8-16 x 5/8
32102	3 7/8	1 1/8	3/4	3/8-16 x 2
32110*	3 7/8	1 1/8	3/4	.500/.510 x 2

* Cored Hole

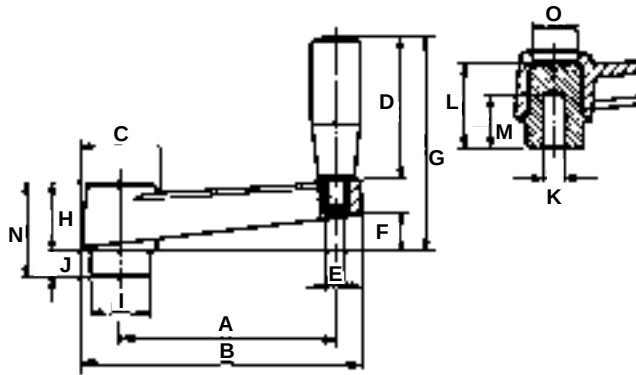


With Through Hole

Part Number	A	B	C	D	E	Through Hole Size
32113	2 9/16	1	5/8	1/2	5/8	.251/.256
32114	3 11/16	1 1/8	3/4	3/4	2 5/8	.380/.385

Plastic Crank With Revolving Handle

ELESA Original Design

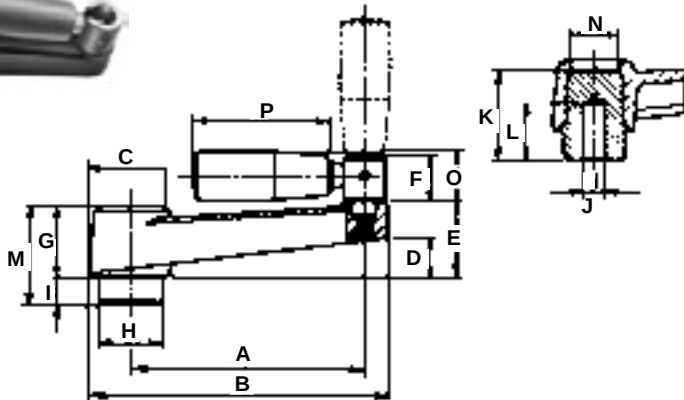


- Material: Glass-Fibre Reinforced Technopolymer
- Finish: Black Matte
- Ribbed Structure for heavy duty applications
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Available in Ergostyle®. See Ergostyle Section.
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
33651	2.52	3.39	1.06	1.57	M6	.39	2.48	.91	.71	.39	.236	1.14	.71	1.30	.63
33652	3.15	4.13	1.18	1.97	M6	.51	2.99	1.02	.87	.39	.236	1.26	1.02	1.42	.67
33653	3.94	5.04	1.34	2.56	M8	.59	3.78	1.18	.94	.39	.315	1.46	1.10	1.57	.83
33654	5.11	6.37	1.57	3.15	M8	.79	4.52	1.37	1.10	.55	.394	1.73	1.18	1.93	.98
33655	6.30	7.80	1.77	3.54	M10	.91	5.12	1.57	1.34	.59	.394	1.93	1.18	2.17	1.06
33656	8.35	9.92	1.97	3.54	M10	1.02	5.35	1.77	1.57	.59	.472	2.09	1.18	2.36	1.22

Plastic Crank With Revolving Fold Away Handle

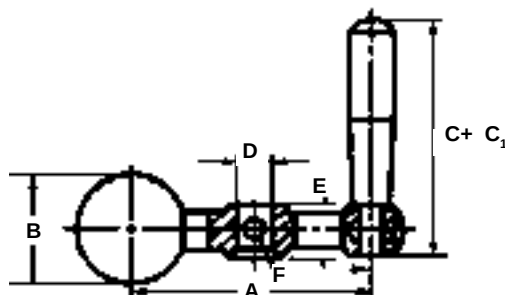
ELESA Original Design



- Material: Glass-Fibre Reinforced Technopolymer
- Finish: Black Matte
- Ribbed Structure for heavy duty applications
- Hub: Black Oxide Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
33662	3.15	4.13	1.18	.51	1.06	.59	1.02	.87	.39	.236	1.26	1.02	1.42	.67	.74	2.20
33663	3.94	5.04	1.34	.59	1.22	.79	1.18	.94	.39	.315	1.46	1.10	1.57	.83	.86	2.56
33664	5.11	6.37	1.57	.78	1.37	.79	1.37	1.10	.55	.394	1.73	1.18	1.93	.98	.86	2.56
33665	6.30	7.80	1.77	.91	1.57	.79	1.57	1.34	.59	.394	1.93	1.18	2.17	1.06	.94	3.15
33666	8.35	9.92	1.97	1.02	1.81	.91	1.77	1.57	.59	.472	2.09	1.18	2.36	1.22	1.06	3.54

Steel Solid and Revolving Balanced Crank Handle



SOLID HANDLE DOES NOT REVOLVE

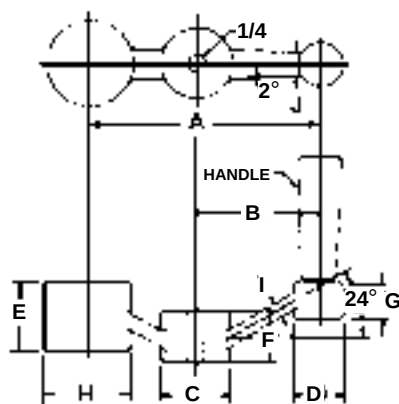
- Material: Steel
- Finish: Bright Chrome
- Available in FixturePro™ Design Software
- Revolving Handle is a replacement set for Bridgeport Style Mills

Part Number		A	B	C	C ₁ [†]	Reamed D	E	Center Hole* F
Solid	Revolving							
11401	—	2	13/16	2	—	5/16	7/16	1/8
11402	11412	2 1/2	1	2 1/2	2 3/4	5/16	9/16	1/8
11403	11413	3 1/8	1 1/4	3 1/4	3 1/2	3/8	11/16	5/32
11404	11414	4	1 1/4	3 1/4	3 1/2	3/8	11/16	5/32
11405	11415	5	1 1/2	4	4 3/16	1/2	7/8	3/16
11406	—	6 1/8	1 1/2	4	—	1/2	7/8	3/16

* Center Hole is cross drilled on one side.

[†] Dimension for Revolving Style

Aluminum Balanced Crank Handle

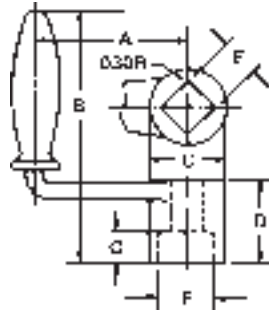


Jergens Aluminum Balanced Crank Handles are good replacements for heavier steel handles. The light-weight characteristics make table positioning easier as no fall-off occurs after position has been established. Light-weight Aluminum Balanced Crank Handles are ideal for applications such as optical jig boring equipment and inspection instruments.

- Material: 319 Aluminum Alloy
- Finish: Grey Enamel
- Available in FixturePro™ Design Software

Part Number	A	B	C	D	E	F	G	H	I	J	Handle	Wt. (lbs)
11301	2 5/16	1 1/4	3/4	1/2	11/16	1/2	7/16	7/8	3/16	5/16	21902	.14
11302	3 1/16	1 11/16	1	5/8	7/8	5/8	1/2	1 1/4	1/4	3/8	21903	.30
11303	3 15/16	2 1/8	1 1/8	3/4	1 3/16	3/4	5/8	1 3/8	5/16	7/16	21904	.54
11304	4 11/16	2 9/16	1 3/8	7/8	1 5/16	1	3/4	1 5/8	5/16	1/2	21905	.75
11305	5 11/16	3 1/16	1 3/8	7/8	1 1/2	1	1	1 3/4	3/8	9/16	21905	.90

Forged Crank Handle



- Material: C-1021 Forging
- Finish: Mill
- Available in FixturePro™ Design Software

Blank Crank Handles

Part Number	A	B	C	D	Wt. (lbs)
20501	2 1/2	3 3/4	1	1/4	.60
20503	3	4 1/4	1 1/4	1 1/2	.97
20504	3 1/2	4 3/16	1 1/16	1 5/16	.90
20505	4	4 1/2	1 1/4	1 3/8	1.14
20506	5	4 15/16	1 1/4	1 13/16	1.62
20507	6	5 1/16	1 1/4	1 15/16	1.62
20508	7	5 7/16	1 3/8	2 1/16	1.95
20509	8	6 1/16	1 9/16	2 7/16	3.00
20510	9 1/8	6 1/4	1 1/2	2 1/2	3.25
20511	10	7	1 3/4	3	4.37

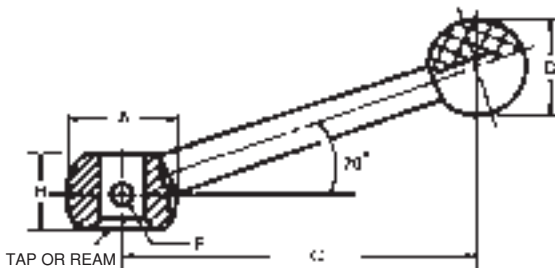
Finished Crank Handles

Part Number	E	F	G	Wt. (lbs)
20301	1/2 Sq.	3/4	3/16	.50
20303	9/16 Sq.	3/4	1/4	.82
20304	1/2 Sq.	11/16	1/4	.74
20305	9/16 Sq.	3/4	5/16	.97
20306	5/8 Sq.	7/8	3/8	1.37
20307	11/16 Sq.	15/16	3/8	1.25
20308	3/4 Sq.	1 1/16	1/2	1.67
20309	7/8 Sq.	1 1/4	1/2	2.44
20310	7/8 Sq.	1 1/4	1/2	2.60
20311	1 Sq.	1 3/8	9/16	3.62

Steel Clamp Lever



- Material: Lever, Low Carbon Steel
Ball, Plastic
- Finish: Lever, Satin Chrome Plate
Ball, Black



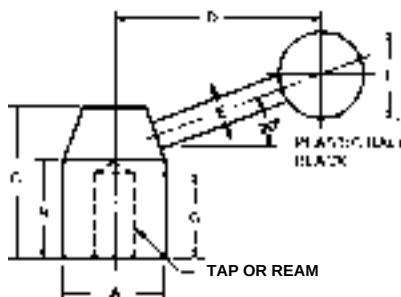
Part Number	Hub Style	A	B	C	D	E
16601	1/4 Ream	5/8	7/16	2 1/4	3/4	1/8
16602	5/16-18 Tap	5/8	7/16	2 1/4	3/4	—
16603	5/16 Ream	25/32	9/16	2 3/4	13/16	1/8
16604	3/8-16 Tap	25/32	9/16	2 3/4	13/16	—
16605	3/8 Ream	1	3/4	3 1/2	15/16	5/32
16606	1/2-13 Tap	1	3/4	3 1/2	15/16	—
16607	1/2 Ream	1 1/4	7/8	4 3/8	1 1/4	3/16
16608	5/8-11 Tap	1 1/4	7/8	4 3/8	1 1/4	—
16609	5/8 Ream	1 9/16	1 1/8	5 1/2	1 1/2	1/4
16610	3/4-10 Tap	1 9/16	1 1/8	5 1/2	1 1/2	—

Single Handle Locking Lever



A fast and efficient means of clamping and locking on jigs, fixtures, machine tools and special applications where high clamping force is necessary.

- Material: Low Carbon Steel
- Finish: Zinc Plate
- Thread: Class 2B-UNC
- Handles: Copper Brazed into the hubs
- Ream: + .001
- .000
- Available in FixturePro™ Design Software



Part Number	A	B	C	D	E	F	G	Hub Style
28901	1	1	1 1/2	2	1/4	1	-	Blank
28902	1	1	1 1/2	2	1/4	1	11/16	3/8-16 Tap
28903	1	1	1 1/2	2	1/4	1	13/16	3/8 Ream
28904	1 1/4	1 1/8	1 11/16	3	3/8	1	-	Blank
28905	1 1/4	1 1/8	1 11/16	3	3/8	1	3/4	1/2-13 Tap
28906	1 1/4	1 1/8	1 11/16	3	3/8	1	7/8	1/2 Ream
28907	1 1/2	1 1/4	2	4	1/2	1 3/8	-	Blank
28908	1 1/2	1 1/4	2	4	1/2	1 3/8	15/16	5/8-11 Tap
28909	1 1/2	1 1/4	2	4	1/2	1 3/8	1 1/16	5/8 Ream

Metric

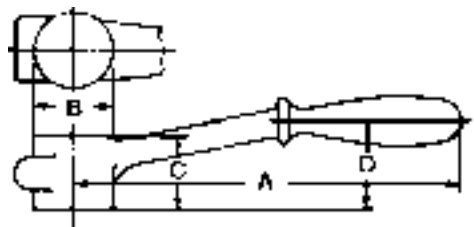
Part Number*	A	B	C	D	E	F	G	Hub Style
28901	25	25	38	50	6	25	-	Blank
28952	25	25	38	50	6	25	17	M8 Tap
28953	25	25	38	50	6	25	20	8mm Ream
28904	31	28	42	75	9	25	-	Blank
28955	31	28	42	75	9	25	19	M12 Tap
28956	31	28	42	75	9	25	22	12mm Ream
28907	38	31	50	100	13	34	-	Blank
28958	38	31	50	100	13	34	23	M16 Tap
28959	38	31	50	100	13	34	27	16mm Ream

*Dimensions in millimeters

Aluminum & Malleable Offset Handle



- Material: 319 Aluminum Alloy
Malleable ASTM A47, GR32510
- Finish: Mill
- Available in FixturePro™ Design Software



Aluminum

Part Number	A	B	C	D	Wt. (lbs)
29901	4 1/2	1	3/4	1	.15
29902	6	1 1/2	1 1/4	1 3/4	.44
29903	11	1 5/8	1 3/8	1 15/16	.78

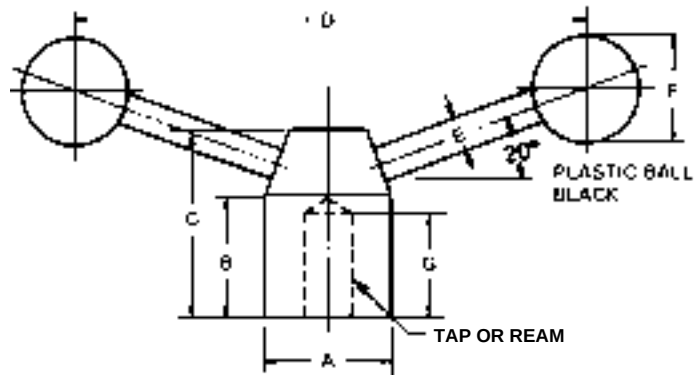
Malleable

Part Number	Wt. (lbs)
30101	.45
30102	1.24
30103	2.25

Double Handle Locking Lever



- Material: Low Carbon Steel
- Finish: Zinc Plate
- Thread: Class 2B-UNC or Class 6h
- Handles: Copper brazed into the hubs
- Ream: + .001
- .000
- Metric Ream:
+ .025
- .000
- Available in FixturePro™ Design Software



Part Number	A	B	C	D	E	F	G	Hub Style
28910	1	1	1 1/2	4	1/4	1	-	Blank
28911	1	1	1 1/2	4	1/4	1	11/16	3/8-16 Tap
28912	1 1/4	1 1/8	1 11/16	6	3/8	1	-	Blank
28913	1 1/4	1 1/8	1 11/16	6	3/8	1	3/4	1/2-13 Tap
28914	1 1/2	1 1/4	2	8	1/2	1 3/8	-	Blank
28915	1 1/2	1 1/4	2	8	1/2	1 3/8	15/16	5/8-11 Tap
28916	1 1/2	1 1/4	2	8	1/2	1 3/8	1 1/16	5/8 Ream

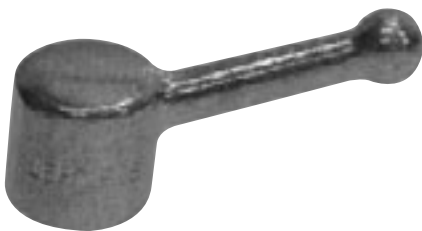
Locking levers with double handles are used where it is advantageous to clamp and lock quickly with high clamping force.

Metric

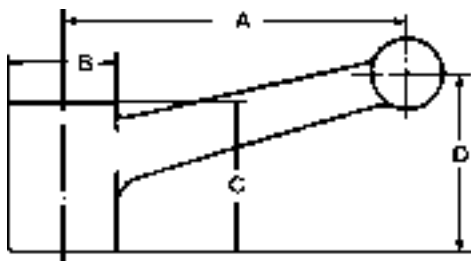
Part Number*	A	B	C	D	E	F	G	Hub Style
28910	25	25	38	100	6	25	-	Blank
28961	25	25	38	100	6	25	17	M8 Tap
28912	31	28	42	150	9	25	-	Blank
28963	31	28	42	150	9	25	19	M12 Tap
28914	38	31	50	200	13	34	-	Blank
28965	38	31	50	200	13	34	23	M16 Tap
28966	38	31	50	200	13	34	27	16mm Ream

*Dimensions in millimeters

Aluminum & Malleable Clamping Levers



- Material: 319 Aluminum Alloy
Malleable ASTM A47, GR32510
- Finish: Mill
- Available In FixturePro™ Design Software



Aluminum

Part Number	A	B	C	D	Wt. (lbs)
16501	2	1	1	1 1/8	.10
16502	4	1 1/2	2	2 3/8	.53
16503	5 9/64	2	2 1/4	2 3/4	1.00

Malleable

Number	Wt. (lbs)
16701	.30
16702	1.50
16703	2.80

Machine Guard Handles

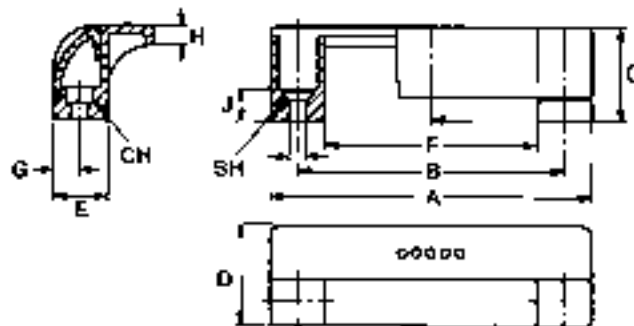
ELESA Original Design



Closed Style



Open Style



- Material: Glass-Fibre Reinforced Technopolymer
- Finish: Gray/Black Matte
- Handle Shank, Matte Reinforced Polyamide Technopolymer
- Safety Cover Caps, Technopolymer Orange
- Cylindrical Socket Head (CH) or Countersunk Head (SH) Self-Tapping Screws (use 1/4-20 screws)
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Optional cap colors available upon request (Black, Grey, Yellow, Blue & Red)

Part Number	Mounting Style	A	B	C	D	E	F	G	H	I	J
34240	CH	4.49	3.68	1.30	1.38	.75	2.91	.37	.28	.26	.43
34241	SH	4.49	3.68	1.30	1.38	.75	2.91	.37	.28	.26	.43
34242*	CH	4.49	3.68	1.30	1.38	.75	2.91	.37	.28	.26	.43
34243*	SH	4.49	3.68	1.30	1.38	.75	2.91	.37	.28	.26	.43

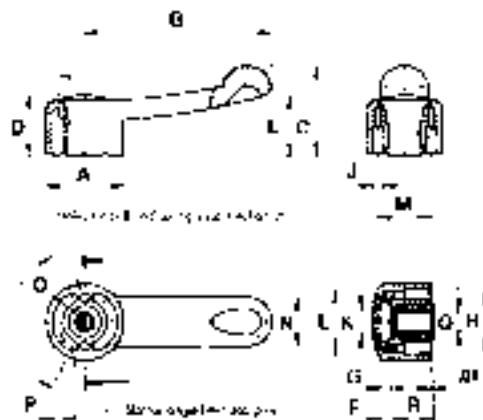
* Open Style

Control Lever

ELESA Original Design



- Material: Glass Fibre Reinforced Technopolymer
- Finish: Gray/Black Matte
- Removable Boss Caps
- Adaptable For Click Positioning Applications
- Slot Provided For Angle Limit Stop Pins
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Optional cap colors available upon request (Black, Grey, Yellow, Blue & Red)



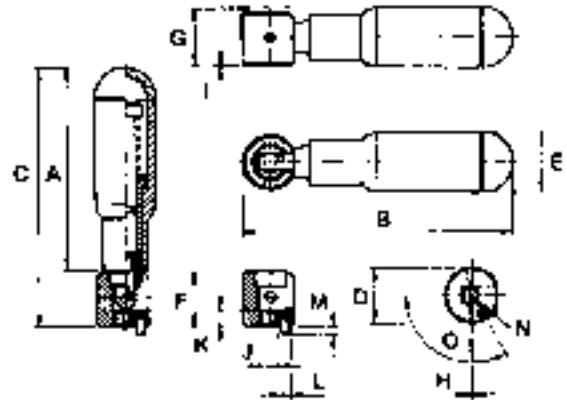
Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
34460	1.46	3.35	1.56	1.04	1.02	.30	.20	.71	1.02	.20	.53	.79	1.02	.91	.54	.17	.315	.69
34461	1.81	4.33	2.13	1.38	1.42	.39	.31	.87	1.24	.24	.67	1.00	1.26	1.14	.69	.26	.472	.87

Fold Away Handle

ELESA Original Design



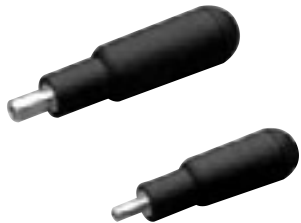
- Material: High Impact Strength Technopolymer
- Finish: Gray/Black Matte
- Base: Sintered and Oxidized
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



Part Number	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
34481	2.56	3.27	3.17	.63	.81	.59	.75	.04	.06	M4	.20	.12	.12	.22	90°
34482	2.87	3.58	3.48	.63	.87	.59	.77	.04	.10	M4	.20	.12	.12	.22	90°
34483	2.87	3.82	3.66	.79	.87	.77	.85	.02	.02	M6	.24	.12	.12	.22	120°
34484	3.39	4.33	4.17	.79	.96	.77	.91	.02	.06	M6	.24	.12	.12	.28	120°
34485	3.74	4.69	4.53	.79	1.04	.77	.94	.02	.10	M6	.24	.12	.12	.28	120°

Revolving Handle

ELESA Original Design



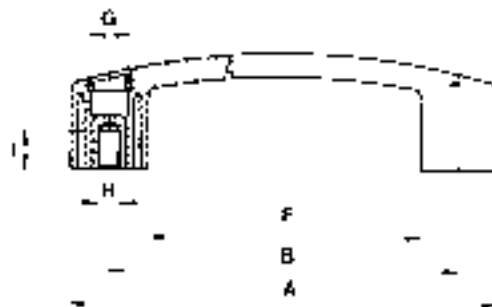
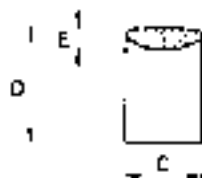
- Material: High Impact Strength Technopolymer
- Finish: Gray/Black Matte
- Stud: Zinc Plated Steel
- Resistant to Solvents, Oils, Greases, and other Chemical Agents



Part Number	A	B	C	D	E	F	G
34471	2.56	.81	.59	.73	M6	.51	.12
34472	2.87	.87	.63	.75	M8	.59	.16
34473	3.39	.96	.69	.94	M8	.59	.16
34474	3.39	.96	.69	.94	M10	.67	.20
34475	3.74	1.04	.71	.98	M10	.67	.20

Back Mounted Bridge Handle

ELESA Original Design

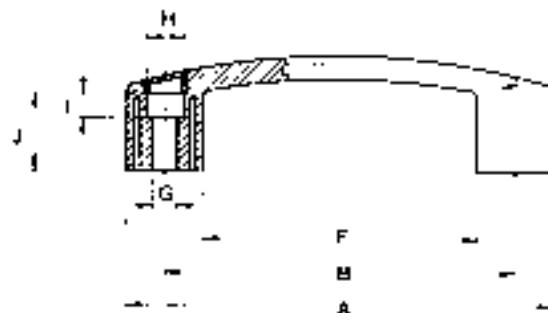


- Material: Glass Fibre Reinforced Technopolymer
- Finish: Gray/Black Matte
- Inserts: Tapped with Blind Hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Optional cap colors available upon request (Black, Grey, Yellow, Orange, Blue & Red)

Part Number	A	B	C	D	E	F	G	H	I
33875	4.57	3.68	0.87	1.38	0.29	2.83	0.51	1/4-20	0.47
34469	5.67	4.61	1.02	1.54	0.33	3.62	0.53	5/16-18	0.51
33876	7.01	5.91	1.10	1.77	0.37	4.80	0.53	5/16-18	0.51

Front Mounted Bridge Handle

ELESA Original Design



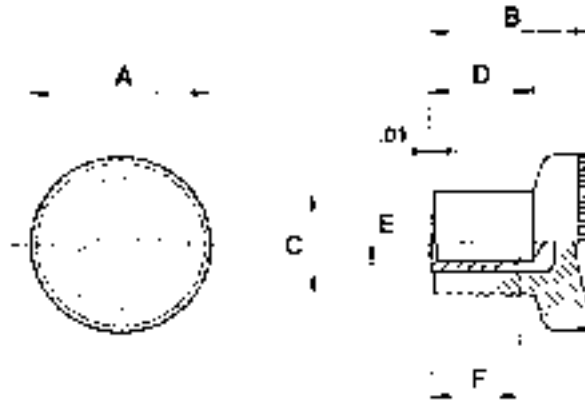
- Material: Glass Fibre Reinforced Technopolymer
- Finish: Gray/Black Matte
- Mounted by Two Through Holes in Front
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Optional cap colors available upon request (Black, Grey, Yellow, Orange, Blue & Red)



Part Number	A	B	C	D	E	F	G	H	I	J
34467	4.57	3.68	0.87	1.38	0.29	2.83	0.25	0.41	0.25	0.92
34468	5.67	4.61	1.02	1.54	0.31	3.62	0.33	0.53	0.33	1.04
34479	7.01	5.91	1.10	1.77	0.37	4.8	0.33	0.53	0.55	1.26

Knurled Knob

ELESA Original Design

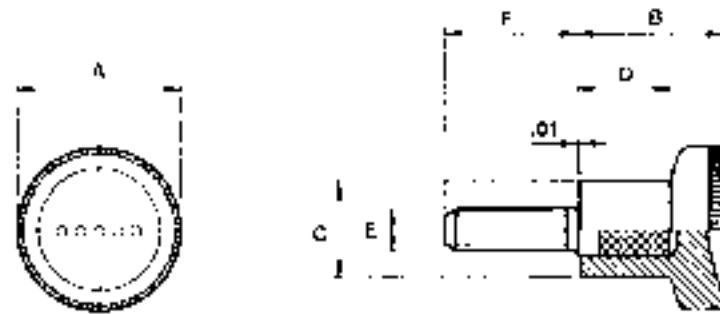


- Material: High Strength Technopolymer
- Finish: Gray/Black Matte
- Insert: Brass With Tapped Blind Hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Concave surface makes gripping easier.

Part Number	A	B	C	D	E	F
34490	0.83	0.71	0.49	0.41	10-32	0.39
34491	0.98	0.89	0.57	0.55	1/4-20	0.47
34492	1.22	1.06	0.73	0.67	5/16-18	0.63

Knurled Knob With Stud

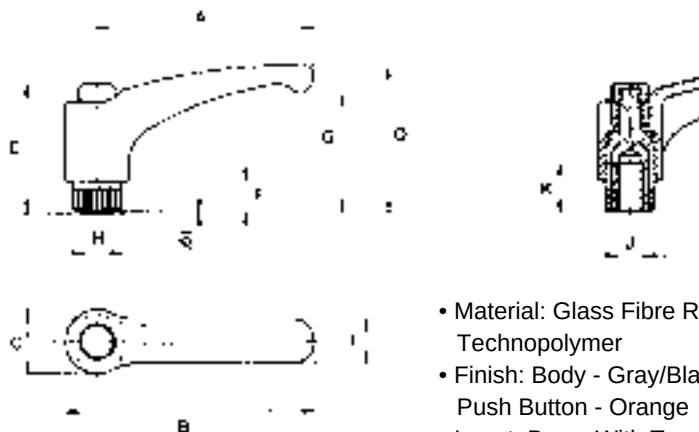
ELESA Original Design



- Material: High Strength Technopolymer
- Finish: Gray/Black Matte
- Stud: Zinc Plated Threaded Steel With Chamfered End
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Concave surface makes gripping easier.

Part Number	A	B	C	D	E	F
34493	.83	.71	.49	.41	10-32	.750
34494	.98	.89	.57	.55	1/4-20	.750
34495	1.22	1.06	.73	.67	5/16-18	.750

Adjustable Handle ELESA Original Design



- Material: Glass Fibre Reinforced Technopolymer
- Finish: Body - Gray/Black Matte
Push Button - Orange
- Insert: Brass With Tapped Blind Hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Optional button colors available upon request (Black, Grey, Yellow, Blue & Red)

With Brass Insert

Brass Insert	Stainless Insert	A	B	C	D	E	F	G	H	I	J	K
34401	-	1.73	2.05	.61	1.28	1.16	.24	.98	.47	.43	10-24	.39
34402	34412	1.73	2.05	.61	1.28	1.16	.24	.98	.47	.43	1/4-20	.39
34403	-	2.48	2.89	.75	1.69	1.48	.31	1.36	.59	.53	1/4-20	.47
34404	34414	2.48	2.89	.75	1.69	1.48	.31	1.36	.59	.53	5/16-18	.51
34406	-	3.07	3.56	.91	2.13	1.85	.47	1.73	.75	.63	3/8-16	.67
34407	34416	3.07	3.56	.91	2.13	1.85	.47	1.73	.75	.63	1/2-13	.67
34408	-	3.74	4.29	1.04	2.54	2.15	.51	2.09	.85	.71	3/8-16	.79
34409	-	3.74	4.29	1.04	2.54	2.15	.51	2.09	.85	.71	1/2-13	.79

Adjustable Handle With Stud ELESA Original Design



- Material: Glass Fibre Reinforced Technopolymer
- Finish: Body - Gray/Black Matte
Push Button - Orange
- Stud: Zinc Plated Steel With Chamfered End.
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Optional button colors available upon request (Black, Grey, Yellow, Blue & Red)



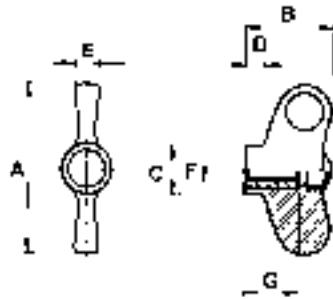
Part Number	A	B	C	D	E	F	G	H	I	J	K
34421	1.73	2.05	.61	1.28	1.16	.24	.98	.47	.43	10-24	.75
34422	1.73	2.05	.61	1.28	1.16	.24	.98	.47	.43	1/4-20	.75
34423	1.73	2.05	.61	1.28	1.16	.24	.98	.47	.43	1/4-20	1
34424	2.48	2.89	.75	1.69	1.48	.31	1.36	.59	.53	5/16-18	75
34425	2.48	2.89	.75	1.69	1.48	.31	1.36	.59	.53	5/16-18	1
34426	2.48	2.89	.75	1.69	1.48	.31	1.36	.59	.53	5/16-18	1.2
34427	3.07	3.56	.91	2.13	1.85	.47	1.73	.75	.63	3/8-16	1
34428	3.07	3.56	.91	2.13	1.85	.47	1.73	.75	.63	3/8-16	1.2
34429	3.07	3.56	.91	2.13	1.85	.47	1.73	.75	.63	3/8-16	1.5

Wing Nut

ELESA Original Design



- Material: Glass Fibre Reinforced Technopolymer
- Finish: Gray/Black Matte
- Insert: Brass With Tapped Hole
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Optional cap colors available upon request (Black, Grey, Yellow, Blue & Red)



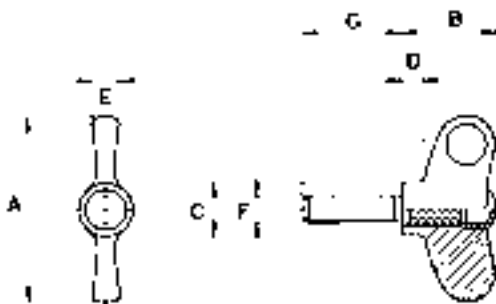
Part Number	A	B	C	D	E	F	G
34450	2.17	1.1	0.63	0.26	0.31	1/4-20	0.71
34451	2.17	1.1	0.63	0.26	0.31	5/16-18	0.71
34452	2.76	1.42	0.79	0.31	0.39	5/16-18	0.79
34453	2.76	1.42	0.79	0.31	0.39	3/8-16	0.79

Wing Nut With Stud

ELESA Original Design



- Material: Glass Fibre Reinforced Technopolymer
- Finish: Gray/Black Matte
- Stud: Zinc Plated Threaded Steel With Chamfered End
- Resistant to Solvents, Oils, Greases, and other Chemical Agents
- Optional cap colors available upon request (Black, Grey, Yellow, Blue & Red)



Part Number	A	B	C	D	E	F	G
34455	2.17	1.10	.63	.26	.31	5/16-18	1.00
34456	2.17	1.10	.63	.26	.31	5/16-18	1.50
34457	2.76	1.42	.79	.31	.39	3/8-16	1.00
34458	2.76	1.42	.79	.31	.39	3/8-16	1.50

Materials

DUROPLAST: Phenolic based thermosetting materials which undergo irreversible polymerization during molding.

DUROPLAST does not soften upon contact with a heat source, therefore it is not damaged by the hot metal chips which could fall into contact with Jergens Knobs, Handles, and Handwheels. The good insulation properties of the Duroplast product mean that they are suitable for many electro-mechanical applications and are preferable to similar metal products.

TECHNOPOLYMERS: Thermoplastic materials having highly desirable mechanical properties such as acetal resins, polyamides, polypropylene, polycarbonates and polyesters.

REINFORCED PLASTICS WITH GLASS FIBERS:

Used for all items requiring high mechanical strength (three spoked handwheels, two and four arm type, crank handles, levers, balanced handles, etc.)

All plastic materials used are resistant to acids, solvents, petroleum products, grease and perspiration.

The surface hardness of these materials is the highest found in plastics. This affords the preservation of surfaces, which remain in perfect condition even when in prolonged contact with hot metal chips during machining or with hot abrasive granules from grinding wheels.

The high heat resistance of these technopolymer materials enable our Knobs, Handles, and Handwheels to be used at temperatures up to 300°F without appreciable impairment to their mechanical properties. Duroplast material is good up to 230°F.

Technical information on aluminum, cast iron, steel, zinc and other plastic products are shown on individuals pages.

Technopolymer

 Conc = Concentration
 Sol. = Solution
 Liq. = Liquid

 Sat. = Saturated
 Swell. = Swelling
 ● = good resistance

 □ = fair resistance (limited use according to working conditions)
 ▲ = poor resistance (should not be used)
 N. B. = blanks stand for data not available

Chemical Agents and Solvents	Polyamide (PA)			Polypropylene (PP)			Transparent polyamide (PA-T)			Alcohol-Resistant transparent polyamide (PA-T AR)			NBR Rubber			FKM Fluorated Rubber			SoftTouch Thermoplastic elastomer (TPE)		Acetal Resin (POM)			
	notes	conc.%	73°F	notes	conc.%	73°F	notes	conc.%	73°F	notes	conc.%	73°F	notes	conc.%	73°F	notes	conc.%	73°F	notes	73°F	notes	conc.%	73°F	
Acetic acid	Sol.	10	▲		40	●	Sol.	10	▲	Sol.	10	□			▲			▲		●	Sol.	20	▲	
Acetone		100	●			●			□			●			▲			▲		●			●	
Acrylonitrile		100	●						▲			▲			▲			▲		□				
Alimentary oils			●			●			●			●			●			●		Up to 140°F	●		●	
Aluminum chloride	Sol.	10	●			●			●			●	Sol.		●	Sol.		●		●				
Aluminum sulphate	Sol.	10	●			●	Sol.	10	●	Sol.		●	Sol.		●	Sol.		●		●				
Ammonia	Sol.	10	●	Conc.		●	Sol.	10	●	Sol.	10	●	Sol.		□	Sol.		▲		□				
Ammonia-gaseous			□			●			●			●			●			▲		□				
Ammonium chloride	Sol.	10	●			●	Sol.	10	●	Sol.	10	●	Sol.		●	Sol.		●		●		Sol.	10	●
Amyl alcohol		100	●			●			▲			●			●			●		●			●	
Aniline		100	□			●			▲			▲			▲			●		▲			●	
Beer			●			●			●			●			●			●		●			●	
Benzoic acid	Sol.	Sat	□		Sat.	●	Sol.	10	▲	Sol.	10	□	Sol.		□	Sol.		●		Up to 140°F	●			
Benzol/benzene		100	●			▲			●			●			▲			●		▲			●	
Boiling water	Swell.		□			●	Swell.		□	Swell.		□			□			□		□				
Boric acid	Sol.	10	●	Sat.		●			□			□	Sol.		●	Sol.		●		●				
Butter			●			●			●			●			●			●		●			●	
Butyl acetate		100	●			●		100	●		100	●								□				
Butyl alcohol		100	●			●			▲			●			●			●		●			●	
Calcium chloride	Sol.	10	●	Sol.	50	●			●			●	Sol.		●	Sol.		●		●			●	
Carbon disulphide		100	●			●									▲			●		▲				
Carbon tetrachloride			●			▲			□			●			▲			●		▲			●	
Caustic soda 10%	Sol.	5, 10	●	Sol.	5, 10	●	Sol.	5, 10	●	Sol.	5, 10	●	Sol.	5, 10	□	Sol.	5, 10	▲		●	Sol.	5, 10	●	
Casutic soda 50%	Sol.	50	□	Sol.	50	●	Sol.	50	●	Sol.	50	●	Sol.	50	▲	Sol.	50	▲		●				
Citric acid	Sol.	10	□		10	●	Sol.	10	□	Sol.		□	Sol.		●	Sol.		●		Up to 140°F	●		●	
Cloroform		100	▲			▲			▲			▲			▲			●		▲				
Copper sulphate	Sol.	10	●			●							Sol.		●	Sol.		●		●			●	
Dichloropropan						□														▲				
Distilled Water			●			●			●			●			●			●		●			●	
Edible Fat			●			●			●			●			●			●		●			●	
Ethyl acetate		100	●			●		100	●		100	●			▲					□			●	
Ethyl alcohol		96	●		96	●			▲			●			□			□		●			●	
Ethyl Chloride		100	●			▲			▲			▲			●			●						
Ethyl ether		100	●			●			●			●			□			▲		▲				
Ethylene glycol			●			●			▲			□			●			●		□				
Ferric chloride	Sol.	10	●			●			●			●	Sol.		●	Sol.		●		●			●	
Formaldehyde (formalin)	Sol.	30	●	Sol.	40	●	Sol.	40	□	Sol.	40	●	Sol.	40	□	Sol.	40	□		▲				
Formic acid	Sol.	10	▲	Sol.	10	●	Sol.		▲	Sol.		▲	Sat.		▲	Sat.		▲		Up to 140°F	●	100	▲	
Freon 11						□									●			□					●	
Freon 12	Liq.		●			□			●			●			●			□					●	
Freon 13						□									●			●					●	
Gas oil			●			●			●			●			●			●		▲			●	
Glycerine			●			●			●			●			●			●		▲				
Glycol butylene		100	●						▲			□			●			●		□				
Hydrochlorid acid	Sol.	10	▲	Sol.	30	●	Sol.	10	□	Sol.	10	□	Sol.	10	□	Sol.	10	●		Up to 140°F	●	Sol.	10	▲
Hydrofluoric acid	Sol.	40	▲	Sol.	40	●	Sol.	10	▲	Sol.	10	▲			50	▲		50	●		□		▲	
Hydrogen peroxide	Sol.	3	▲		30	●	Sol.	3	▲	Sol.	3	▲	Sol.	80	▲	Sol.	80	□		□		Sol.	90	▲
Iodine tincture-alcoholic			▲			●			▲			▲								●				
Isopropyl alcohol			●			●			▲			●			□			●		●			●	

Technopolymer

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Sat. = Saturated
Swell. = Swelling
● = good resistance

□ = fair resistance (limited use according to working conditions)
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Chemical Agents and Solvents	Polyamide (PA)			Polypropylene (PP)			Transparent polyamide (PA-T)			Alcohol-Resistant transparent polyamide (PA-T AR)			NBR Rubber			FKM Fluorated Rubber			SoftTouch Thermoplastic elastomer (TPE)		Acetal Resin (POM)			
	notes	conc.%	73°F	notes	conc.%	73°F	notes	conc.%	73°F	notes	conc.%	73°F	notes	conc.%	73°F	notes	conc.%	73°F	notes	73°F	notes	conc.%	73°F	
Kerosene			●			□			●			●			●			●			▲		●	
Lactic Acid	Sol.	10	●	Sol.	20	●	Sol.	10	□	Sol.	10	□	Sol.		●	Sol.		●	Up to 140°F	●			●	
Linseed Oil			●			●			●			●			●			●	Up to 140°F	●			●	
Magnesium chloride	Sol.	10	●	Sol.	Sat.	●			●			●	Sol.		●	Sol		●			●		●	
Mercuric chloride	Sol.	6	▲			●			●			●			●			●			●		●	
Mercury			●			●			●			●			●			●			●		●	
Methyl acetate		100	●			●		100	●		100	●			●			●			□		●	
Methyl alcohol		100	●		100	●			□			●			□			▲			●		●	
Methyl ethyl ketone		●				□			▲			▲			▲			▲			▲		▲	
Methylene chloride		100	●			□			▲			●			▲			●			▲		●	
Milk			●			●			●			●			●			●			●		●	
Mineral oil			●			●			●			●			●			●	Up to 140°F	●			●	
Nitric acid		10	▲	Sol.	10	●	Sol.	2	□	Sol.	2	□	Sol.	10	□	Sol.	10	□		□	Sol.	10	▲	
Oil			●			□			●			●			●			●			▲		●	
Oil ether			●			●			●			●			●			●			●		●	
Oils for transformers			●			□			●			●			●			●	Up to 140°F	□			●	
Oleic acid		100	●	Sol.		●			●			●			□			●	Up to 140°F	●			●	
Paraffin oil			●			●			●			●			●			●	Up to 140°F	●			●	
Petrol			●			□			●			●	Swell.		□			●			▲		●	
Petrol vapor			●	Swell.		□			●			●			□			●			▲		●	
Phenol	Sol.		▲			●			▲			▲			▲			●			▲		●	
Phosphoric acid	Sol.	10	▲	Sol.	85	●	Sol.	20	▲			▲	Sol.	20	□	Sol.	20	●	Up to 140°F	●	Sol.	10	▲	
(Caustic Potash) Potassium hydroxide 50%	Sol.	50	□	Sol.	50	●	Sol.	50	●	Sol.	50	●	Sol.	50	▲	Sol.	50	▲			●		●	
(Caustic Potash) Potassium hydroxide10%	Sol.	5, 10	●	Sol.	5, 10	●	Sol.	5, 10	●	Sol.	5, 10	●	Sol.	5, 10	□	Sol.	5, 10"	▲			●	Sol.	10	□
Potassium nitrate	Sol.	10	●	Sat.		●	Sol.	10	●	Sol.	10	●			●			●			●		●	
Sea, river, and drinkable water			●			●			●			●			●			●			●		●	
Silicone oil			●			●			●			●			●			●					●	
Silver nitrate			●	Sol.	20	●	Sol.	10	●	Sol.	10	●	Sol.		□			●			●		●	
Soap solution	Sol.		●	Sol.		●	Sol.		●	Sol.		●	Sol.		●	Sol.		●			●		●	
Sodium carbonate	Sol.	10	●	Sol.	Sat.	●			●			●	Sol.		●	Sol.		●			●		●	
Sodium chloride	Sol.	10	●	Sol.	Sat.	●	Sol.	25	●	Sol.	25	●	Sol.		●	Sol.		●			●		●	
Sodium hypochlorite	Sol.		●	Sol.	20	●			▲			▲	Sol.	10	▲	Sol.	10	●			●	Sol.	5	▲
Soidum nitrate	Sol.	10	●	Sat.		●	Sol.	10	●	Sol.	10	●			●			●			●		●	
Sodium silicate			●			●			●			●	Sol.		●	Sol.		●			●		●	
Sodium sulphate	Sol.	10	●			●	Sol.	10	●	Sol.	10	●	Sol.		●	Sol.		●			●		●	
Steam			●			●			●			●			□			●			●		●	
Sulphuric acid	Sol.	10	▲		98	●	Sol.	2	●	Sol.	2	●	Sol.	20	●	Sol.	20	●	Up to 140°F	●	Sol.	10	▲	
Tartaric acid			●	Sol.	10	●	Sol.		□	Sol.		□	Sol.		●	Sol.		●	Up to 140°F	●			●	
Tetralin			●			▲			●			●			▲			●			▲		●	
Toluol/toluene			●			□			●			●			▲			□			▲		●	
Trichloroethylene			□			▲			●			●			▲			□			▲		●	
Unleaded petrol			●	Swell.		□			●			●	Swell.		□			●			▲		●	
Vaseline			●			●			●			●			●			●			□		●	
Vinegar			●			●			●			●			□			□			●		●	
Whisky			●			●			□			●			●			●			●		●	
Wine			●			●			●			●			●			●			●		●	
Xiyol			●			▲			●			●			▲			●			▲		●	
Zinc Chloride		10	□	Sol.	20	●	Sol.	50	●	Sol.	51	●	Sol		●	Sol.		●			●		●	

** Data provided by ELESA.

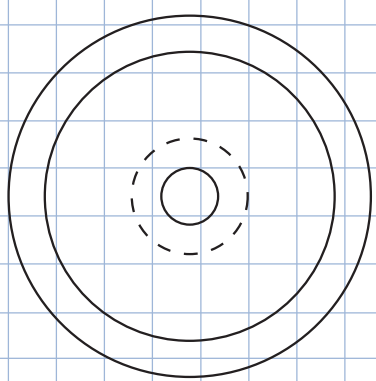
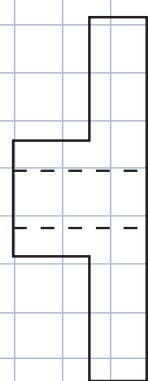
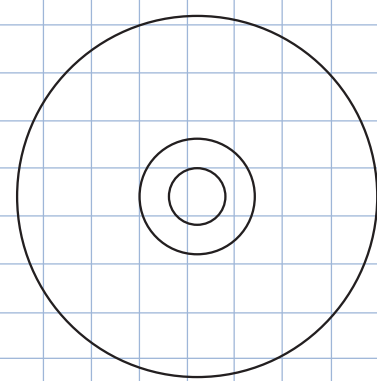
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Special Handwheels and Knobs

If you don't see the exact handwheel or knob to meet your application requirements, please show modifications below or fax drawing for quotation.

Fax: 216-481-6193 Attn: Technical Sales

Handwheel and Knob Quotation Request Worksheet

Top View	Side View	Bottom View
		
Please show: Location of Modifications Add any Key Dimensions Standard Catalog Item No. to Modify: _____ Use space below to include additional information if applicable. Material: ☐ Aluminum ☐ Steel ☐ Thermo Plastic Bore: _____ Setscrew 1: _____ Setscrew 2: _____ Tapped Hole Size: _____		Dim. 1: _____ Dim. 2: _____ Dim. 3: _____ Dim. 4: _____ Dim. 5: _____ Keyway: Length: _____ x Width: _____ Location of Keyway in relation to handle if applicable: _____ _____ _____

Application (describe): _____

Type of Handwheel or Knob: _____ ☐ Other (see sketch/drawing)

Thread or O.D.: _____ (Class 2A Threads unless Otherwise Specified)

Type of Environment (describe—corrosives, chemicals, contaminants, etc.): _____

Other Specifications: _____

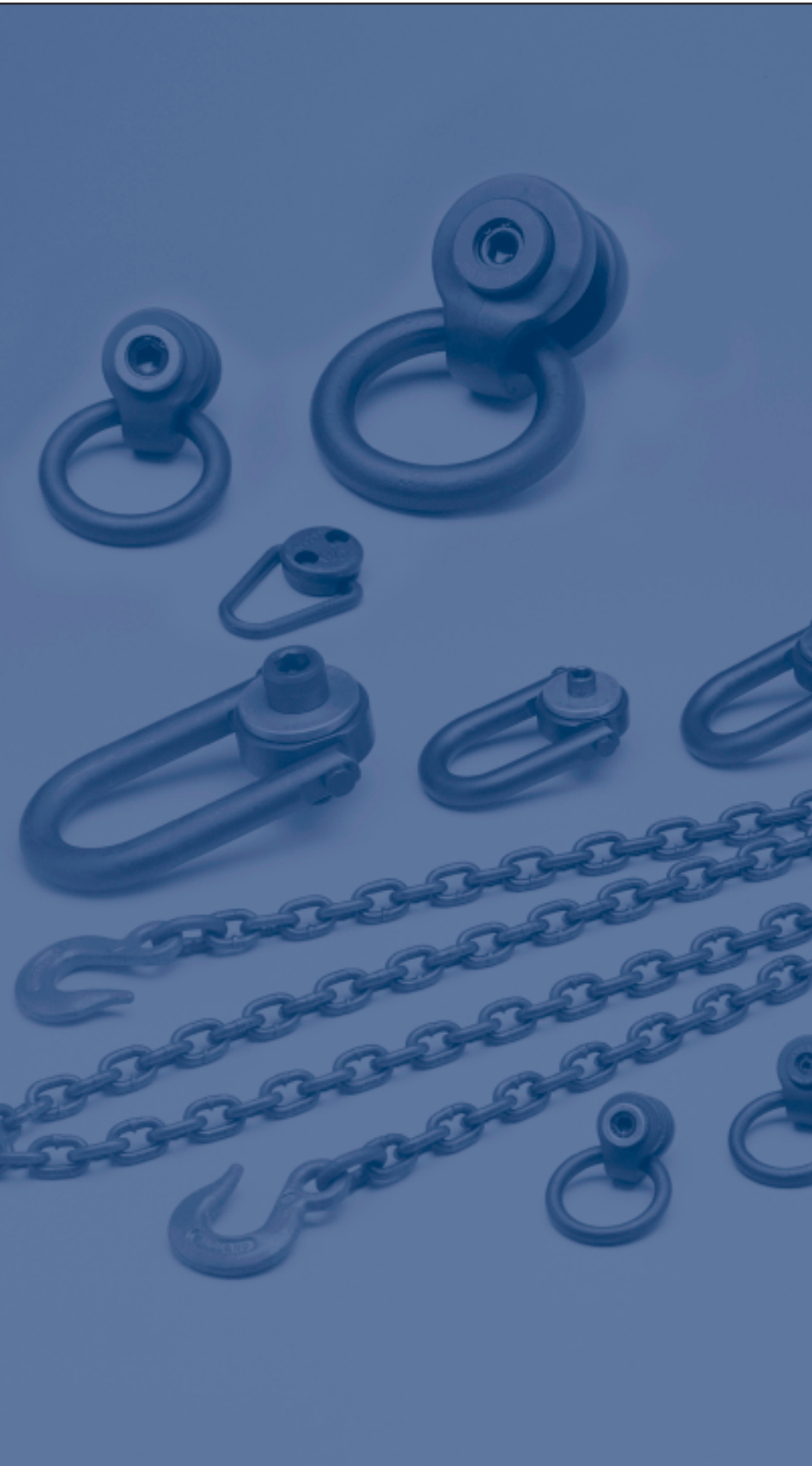
Quantity Needed: _____ Delivery By: _____

Name: _____ Title: _____

Company: _____ Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____



Adjustable Chain Sling	10.18
Center Pull Style	10.4-10.5
Envirolox™ Protective Finish	10.13
Eye Bolts	10.17
Eye Nuts	10.16
Forged Center Pull	10.6-10.7
Hold Down Clips	10.13
Installation Information	10.3
Pivoting Lift Rings	10.16
Quality Standard Information ..	10.19-10.20
Shoulder Eyebolts	10.15
Side-Pull Style	10.8-10.9
Side Swivel	10.12
SP 2000 Side-Pull Style	10.10-10.11
Swivel Eyebolts	10.14-10.15

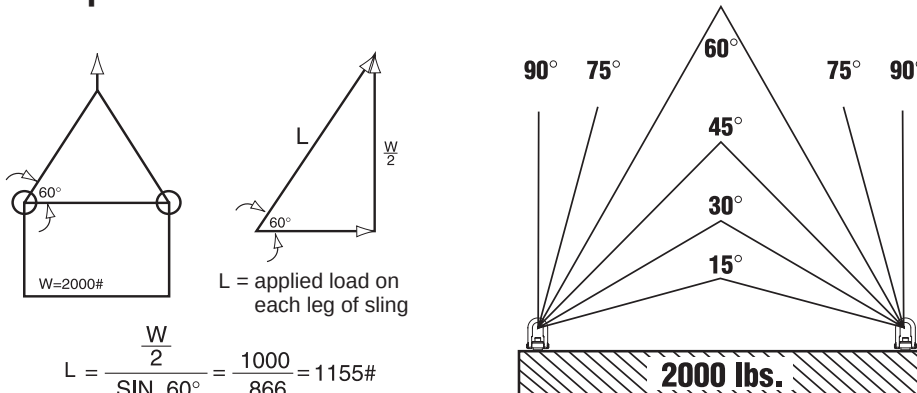
Engineer The Lift!!

- Jergens recommends the use of swiveling and pivoting hoist rings, rather than conventional eye bolts.
- Are you using the proper hoist ring for the application?
- Is the hoist ring free to swivel and pivot? Any movement restrictions?
- Are lifting hole(s) in the proper location?
- Do you have the correct hole size for the hardware - safe lift capacity?
- Are the holes tapped deep enough to assure full thread engagement?
(See figure #3 on Installation Information; page 10.3.)
- Recommended hole depth:
 - Steel – 1-1/2 times the bolt diameter (min.)
 - Aluminum – 2 times the bolt diameter (min.)
- **RULE OF THUMB, IF IN DOUBT – DON'T!!!**

Applied Load Changes With Sling Angle

Jergens hoist rings are designed and rated to be pulled at any angle at the rated load. However, the applied load on a multipoint lift will increase if the sling angle is less than 90°. So be sure to consider the sling angle when selecting lifting equipment. See illustration below.

Sample Calculation:



Sling Angle (Degrees)	Applied Load (Pounds)
90	1000
75	1040
60	1155
45	1410
30	2000
15	3860

DO'S

1. Observe working load limitations (be especially careful with eyebolts used for angle lifts – see sling angle chart).
2. Visually inspect hoist ring prior to use.
3. Fully tighten hoist ring to recommended torque. Full thread engagement is required (no space between swivel bushing and lift).
4. Assure proper thread depth - do not shim.
5. Make sure hoist rings have free travel - it must swivel and pivot without restrictions.
6. When installing in soft metal, such as aluminum, the minimum effective thread engagement should be two times the diameter of the thread (1-1/2 times bolt diameter – steel).

DON'TS

1. Never pull a Center Pull Style hoist ring from the side.
2. Never use an oversized hook in eyebolts or hoist rings (See figure #1 on Installation Information; page 10.3).
3. Never use excessive sling angle.
4. Never steam clean or degrease hoist rings (could cause rusting and binding).
5. Never apply shock loads.
6. Never allow the side of a hoist ring to make contact with the lift. (See figure #2 on Installation Information; page 10.3.)

Installation Information



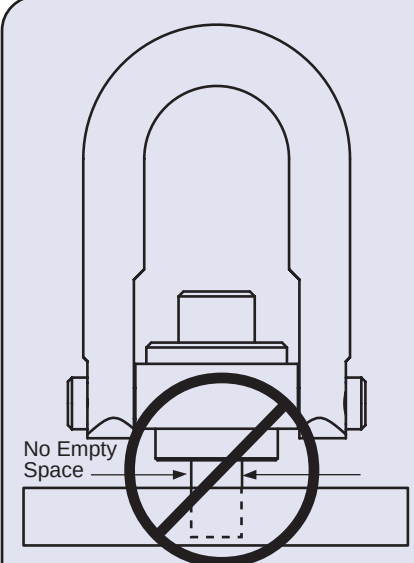
Never use a hook or other lifting device which will pry or tend to open the "U" shaped bar on Center-Pull Hoist Rings!

Fig. 1



After installation, check the hoist ring to be sure it swivels and pivots freely in all directions. **The side of the ring must not contact anything!**

Fig. 2



Always ensure full thread engagement when installing hoist rings!

Fig. 3

Select the proper Hoist Ring for the job. Do not attempt to apply more than the rated load capacity. *The load capacity is marked on the Hoist Ring.*

Drill and tap the workpiece so that the hoist ring bolt is installed perpendicular to the surface of the workpiece. Countersink the tapped hole to prevent "swelling" of the top thread when the hoist ring bolt is torqued. The workpiece surface must be flat, providing complete contact for the hoist ring bushing.

Do not use spacers between the hoist ring bushing and the workpiece surface.

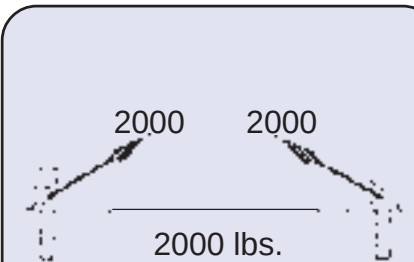
When installing in soft metal, such as aluminum, the minimum effective thread engagement should be two times the diameter of the thread. When installing in steel, thread engagement should be 1-1/2 times the thread diameter.

Always tighten the bolt to the proper torque value, which is stamped on the Hoist Ring.

Loosening of the *bolt* may develop during use. *Re-tightening to the required torque must be done whenever the bolt loosens.* The proper tightening torque is stamped on the Hoist Ring.

When lifting, apply force gradually. **DO NOT APPLY SHOCK LOADS.**

For through-hole applications, be sure that nut/washer are the same quality grade as the Hoist Ring.



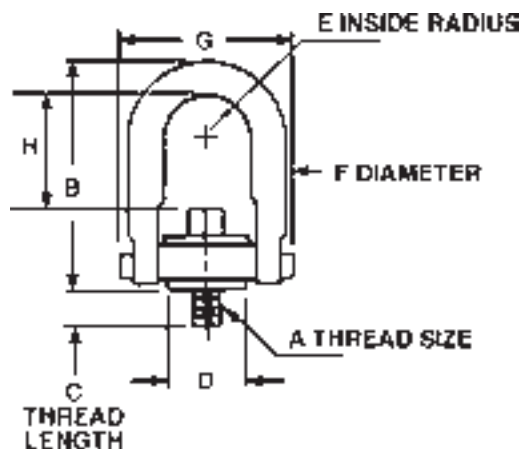
Depending upon the sling angle, **the applied load may be more than the weight being lifted.** Two point lifting of a 2000 pound weight, with a sling angle of 30°, will result in an applied load of 2000 pounds to **each** hoist ring!

Fig. 4

Center-Pull Traditional Style



- Full 360° Swivel and 180° Pivot Action
- Rated at 5:1 Strength Factor
- Material: Alloy Steel
- Finish: Black Oxide (Except Washer)
- U-Bar, Bolt, Pins, Base, Washer and Bushing are Magnetic Particle Inspected
- Washer: Zinc Plated with Gold Colored (Inch), Clear/Blue (Metric) Conversion Coating
- Proof Tested to 200% of Rated Load Capacity
- Certificate of Proof Test provided (See sample on page 10.17)
- 3D Solid Models available in multiple formats from www.jergensinc.com
- Available with Envirolux™ protective finish. See page 10.13 for more information.



Thread Size A	Load ¹ Capacity (lbs)	Std. U-Bar		Long U-Bar		Envirolux Part Number ³	Thread Length C	D	E	F	G	Std. U-Bar H	Long U-Bar H	Torque ² (ft. lbs)	Wt. (lbs)
		Part Number	B	Part Number	B										
5/16-18	800	23406	2.67	—	—	23306	9/16	.75	.43	.38	1.84	1 1/4	—	7	.3
3/8-16	1000	23408	2.67	—	—	23308	9/16	.75	.43	.38	1.84	1 1/4	—	12	.3
1/2-13	2500	23410	3.75	—	—	23310	1 1/16	1.20	.69	.50	2.56	1 25/32	—	28	1.0
1/2-13	2500	23411	4.78	23511	6.72	23311	3/4	1.50	.88	.75	3.52	2 3/8	4 1/4	28	2.5
1/2-13	2500	23412	4.78	23512	6.72	23312	1	1.50	.88	.75	3.52	2 3/8	4 1/4	28	2.5
1/2-13	2500	23413	4.78	23513	6.72	23313	1 1/4	1.50	.88	.75	3.52	2 3/8	4 1/4	28	2.5
5/8-11	4000	23414	4.78	23514	6.72	23314	1	1.50	.88	.75	3.52	2 1/4	4 3/16	60	2.7
5/8-11	4000	23415	4.78	23515	6.72	23315	1 1/4	1.50	.88	.75	3.52	2 1/4	4 3/16	60	2.7
3/4-10	5000	23417	4.78	23517	6.72	23317	1	1.50	.88	.75	3.52	2 1/8	4	100	3.0
3/4-10	5000	23418	4.78	23518	6.72	23318	1 1/2	1.50	.88	.75	3.52	2 1/8	4	100	3.0
3/4-10	7000	23420	6.52	23520	8.11	23320	1	2.31	1.40	1.00	5.14	2 15/16	4	100	7.0
3/4-10	7000	23421	6.52	23521	8.11	23321	1 1/2	2.31	1.40	1.00	5.14	2 15/16	4	100	7.0
7/8-9	8000	23423	6.52	23523	8.11	23323	1	2.31	1.40	1.00	5.14	2 13/16	4 3/8	160	7.0
7/8-9	8000	23424	6.52	23524	8.11	23324	1 1/4	2.31	1.40	1.00	5.14	2 13/16	4 3/8	160	7.0
1-8	10000	23425	6.52	23525	8.11	23325	1 1/4	2.31	1.40	1.00	5.14	2 11/16	4 3/8	230	7.5
1-8	10000	23426	6.52	23526	8.11	23326	1 1/2	2.31	1.40	1.00	5.14	2 11/16	4 3/8	230	7.5
1-8	10000	23427	6.52	23527	8.11	23327	2 1/4	2.31	1.40	1.00	5.14	2 11/16	4 3/8	230	7.5
1 1/4-7	15000	23429	8.73	—	—	23329	1 7/8	3.19	1.75	1.25	6.50	4 1/4	—	470	14
1 1/4-8	15000	23429-08	8.73	—	—	—	1 7/8	3.19	1.75	1.25	6.50	4 1/4	—	470	14
1 1/2-6	24000	23433	12.47	—	—	23333	2 3/4	4.19	2.25	1.75	8.55	6 1/2	—	800	33
1 1/2-8	24000	23433-08	12.47	—	—	—	2 3/4	4.19	2.25	1.75	8.55	6 1/2	—	800	33
2-4 1/2	30000	23435	12.47	—	—	23335	3 1/8	4.19	2.25	1.75	8.55	6	—	800	36
2-8	30000	23435-08	12.47	—	—	—	3 1/8	4.19	2.25	1.75	8.55	6	—	800	36
2 1/2-4	50000	23438	16.50	—	—	23338	4	5.75	3	2.25	11.72	8 1/4	—	2100	89
2 1/2-8	50000	23438-08	16.50	—	—	—	4	5.75	3	2.25	11.72	8 1/4	—	2100	89

¹ Stated load capacity based on recommended thread torques as shown in chart.

² It is recommended that these torques be used when installing hoist rings.

³ Available from stock as Standard Clevis.

Center-Pull Traditional Style Metric

Thread Size A	Load ¹ Capacity (kg)	Std. U-Bar		Long U-Bar		Envirolox	Thread Length C	D	E	F	G	Std. U-Bar H	Long U-Bar H	Torque ² (kg•m)	Wt. (kg)
		Part Number	B	Part Number	B	Part Number ³									
M8x1.25	400	23456	67.8	—	—	23356	12.5	19.0	10.9	9.7	46.7	32	—	1.0	.17
M10x1.50	450	23458	67.8	—	—	23358	17.5	19.0	10.9	9.7	46.7	30	—	1.7	.17
M12x1.75	1050	23462	123.0	23562	170.7	23362	19.0	38.1	22.4	19.0	89.4	60.5	108	3.8	1.08
M16x2.0	1900	23465	123.0	23565	170.7	23365	29.0	38.1	22.4	19.0	89.4	56.5	106	8.2	1.12
M20x2.5	2150	23468	123.0	23568	170.7	23368	34.0	38.1	22.4	19.0	89.4	52.5	101	13.6	1.19
M20x2.5	3000	23471	163.0	23571	206.0	23371	32.0	58.7	35.6	25.4	130.6	73	101	13.6	3.03
M24x3.0	4200	23474	163.0	23574	206.0	23374	37.0	58.7	35.6	25.4	130.6	69	111	31.0	3.10
M30x3.5	7000	23478	221.7	—	—	23378	46.0	81.0	44.5	31.7	165.1	107.4	—	60.0	6.3
M30x3.5	7000	23479	221.7	—	—	23379	66.0	81.0	44.5	31.7	165.1	107.4	—	60.0	6.4
M36x4.0	11000	23483	316.7	—	—	23383	68.0	106.4	57.2	44.4	217.2	166.5	—	100.0	15.5
M42x4.5	12500	23484	316.7	—	—	23384	68.0	106.4	57.2	44.4	217.2	160.5	—	100.0	16.0
M48x5.0	13500	23485	316.7	—	—	23385	88.0	106.4	57.2	44.4	217.2	154.5	—	100.0	16.8
M64x6.0	22500	23488	419.1	—	—	23388	96.0	146.0	76.2	57.15	297.6	210	—	290.0	40.0

All dimensions are in millimeters.

¹ Stated load capacity is based upon specific thread torques shown in chart.

² It is recommended that these torques be used when installing hoist rings.

³ Available from stock as Standard Clevis.

Bolt Replacement Kits - Inch threads

Black Oxide Hoist Rings			Envirolox Coated		Kit Wt. (lbs)
Std. U-Bar Part No.	Long U-Bar Part No.	Bolt Kit Part No.	Std. U-Bar Part No.	Bolt Kit Part No.	
23406		23606	23306	23606-E	.03
23408		23608	23308	23608-E	.05
23410		23610	23310	23610-E	.16
23411	23511	23611	23311	23611-E	.14
23412	23512	23612	23312	23612-E	.16
23413	23513	23613	23313	23613-E	.17
23414	23514	23614	23314	23614-E	.27
23415	23515	23615	23315	23615-E	.29
23417	23517	23617	23317	23617-E	.40
23418	23518	23618	23318	23618-E	.46
23420	23520	23620	23320	23620-E	.46
23421	23521	23621	23321	23621-E	.52
23423	23523	23623	23323	23623-E	.62
23424	23524	23624	23324	23624-E	.66
23425	23525	23625	23325	23625-E	.92
23426	23526	23626	23326	23626-E	.97
23427	23527	23627	23327	23627-E	1.13
23429		23629	23329	23629-E	2.90
23429-08		23629-08			2.90
23433		23633	23333	23633-E	3.50
23433-08		23633-08			3.50
23435		23635	23335	23635-E	7.30
23435-08		23635-08			7.30
23438		23638	23338	23638-E	15.66
23438-08		23638-08			15.96

Bolt Replacement Kits - Metric threads

Black Oxide Hoist Rings			Envirolox Coated		Kit Wt. (kg)
Std. U-Bar Part No.	Long U-Bar Part No.	Bolt Kit Part No.	Std. U-Bar Part No.	Bolt Kit Part No.	
23456		23656	23356	23656-E	.02
23458		23658	23358	23658-E	.03
23462	23562	23662	23362	23662-E	.06
23465	23565	23665	23365	23665-E	.12
23468	23568	23668	23368	23668-E	.21
23471	23571	23671	23371	23671-E	.23
23474	23574	23674	23374	23674-E	.40
23478		23678	23378	23678-E	.79
23479		23679	23379	23679-E	.91
23483		23683	23383	23683-E	1.52
23484		23684	23384	23684-E	2.75
23485		23685	23385	23685-E	3.27
23488		23688	23388	23688-E	7.12

Bolt Kits contain bolt and retaining ring.

Forged Center Pull

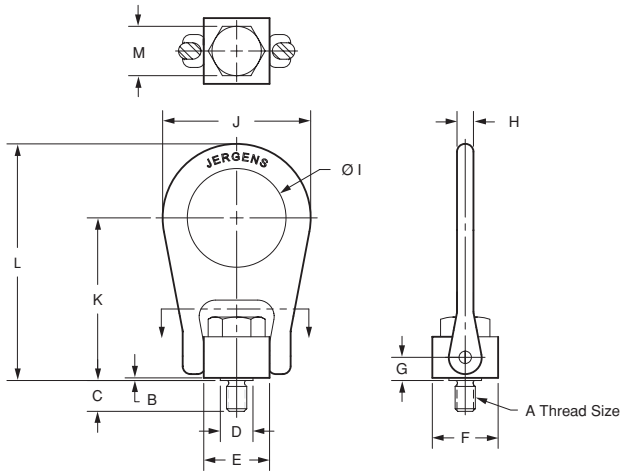


Our new Forged Center Pull Hoist Ring integrates a solid center brace lift bail into our most popular style product. This design eliminates the possibility of spreading the lift ring in misapplications. Forged hoist rings are ideal for OEM and industrial use.

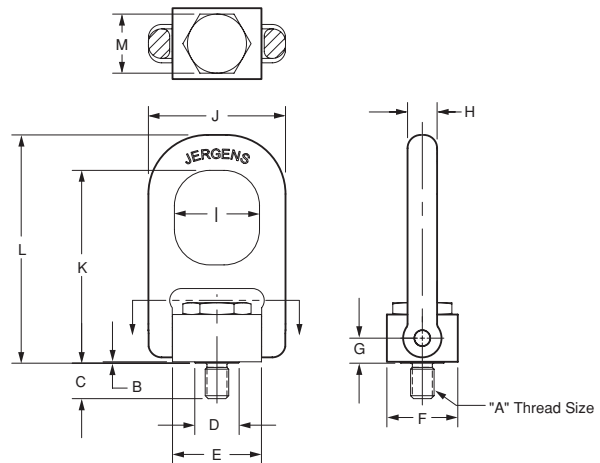
- Full (over center) 360° swivel and 180° pivot action
- Capacities up to 30,000 lbs.
- Inch and metric
- 5:1 strength factor-alloy steel
- Made in U.S.A.
- 3D Solid Models available in multiple formats from www.jergensinc.com

**New
Sizes
Available**

U.S. Patent No. 6,652,012



Ring Bail



Large Bail

Inch

Part Number	Load Capacity (lbs)	Thread Size A	B	C	D	E	F	G	H	I	J	K	L	Hex Size M	Torque (ft.lbs)	Weight (lbs)
23906	800	5/16-18	3/64	15/32	1/2	1	1	11/32	1/4	1 1/2	2 1/4	2 15/32	3 19/32	3/4	7	0.6
23907	800	5/16-18	3/64	5/8	1/2	1	1	11/32	1/4	1 1/2	2 1/4	2 15/32	3 19/32	3/4	7	0.6
23908	1000	3/8-16	3/64	9/16	1/2	1	1	11/32	1/4	1 1/2	2 1/4	2 15/32	3 19/32	3/4	12	0.6
23909	1000	3/8-16	3/64	3/4	1/2	1	1	11/32	1/4	1 1/2	2 1/4	2 15/32	3 19/32	3/4	12	0.6
23910	2500	1/2-13	1/16	11/16	1	2	1 1/2	9/16	3/4	3	4 7/16	4	6 3/8	1 1/4	28	3.6
23911	2500	1/2-13	1/16	1	1	2	1 1/2	9/16	3/4	3	4 7/16	4	6 3/8	1 1/4	28	3.6
23914	4000	5/8-11	1/16	15/16	1	2	1 1/2	9/16	3/4	3	4 7/16	4	6 3/8	1 1/4	60	3.6
23915	4000	5/8-11	1/16	1 1/4	1	2	1 1/2	9/16	3/4	3	4 7/16	4	6 3/8	1 1/4	60	3.6
23917	5000	3/4-10	1/16	1 1/8	1	2	1 1/2	9/16	3/4	3	4 7/16	4	6 3/8	1 1/4	100	3.6
23918	5000	3/4-10	1/16	1 1/2	1	2	1 1/2	9/16	3/4	3	4 7/16	4	6 3/8	1 1/4	100	3.6
23926	10000	1-8	1/16	1 1/2	1 7/8	3 25/32	3	1 1/16	1 1/4	3 19/32	5 13/16	8 5/32	9 21/32	2 1/2	230	15.7
23927	10000	1-8	1/16	2	1 7/8	3 25/32	3	1 1/16	1 1/4	3 19/32	5 13/16	8 5/32	9 21/32	2 1/2	230	15.9
23929	15000	1 1/4-7	1/16	1 7/8	1 7/8	3 25/32	3	1 1/16	1 1/4	3 19/32	5 13/16	8 5/32	9 21/32	2 1/2	470	16.0
23930	15000	1 1/4-7	1/16	2 1/2	1 7/8	3 25/32	3	1 1/16	1 1/4	3 19/32	5 13/16	8 5/32	9 21/32	2 1/2	470	16.2
23933	24000	1 1/2-6	7/64	2 1/4	2 1/2	4 7/8	4 1/2	1 7/16	1 3/4	4 1/2	7 23/32	11 7/16	13 27/32	3 1/4	800	42.3
23934	24000	1 1/2-6	7/64	3	2 1/2	4 7/8	4 1/2	1 7/16	1 3/4	4 1/2	7 23/32	11 7/16	13 27/32	3 1/4	800	42.7
23935	30000	2-4 1/2	7/64	3	2 1/2	4 7/8	4 1/2	1 7/16	1 3/4	4 1/2	7 23/32	11 7/16	13 27/32	3 1/4	800	43.8
23936	30000	2-4 1/2	7/64	4	2 1/2	4 7/8	4 1/2	1 7/16	1 3/4	4 1/2	7 23/32	11 7/16	13 27/32	3 1/4	800	44.7

Ring Bail



Ring Bail

Part Numbers:

23906 thru 23918 (Inch)

23956 thru 23968 (Metric)

Large Bail



Large Bail

Part Numbers:

23926 thru 23936 (Inch)

23974 thru 23987 (Metric)

- Replace Stationary Eyebolt
- Lifting Tooling Columns & Large Fixtures
- OEM Applications
- Lifting Die & Molds

Metric

Part Number	Load Capacity (kg)	Thread Size A	B	C	D	E	F	G	H	I	J	K	L	Hex Size M	Torque (N•m)	Weight (kg)
23956	400	M8 X 1.25	1.2	12	12.7	25.4	25.4	8.7	6.3	38.1	57.2	62.7	91.3	19	10	0.27
23958	450	M10 X 1.5	1.2	15	12.7	25.4	25.4	8.7	6.3	38.1	57.2	62.7	91.3	19	17	0.27
23962	1050	M12 X 1.75	1.6	18	25.4	50.8	38.1	14.3	19	76.2	112.7	101.6	161.9	32	37	1.64
23965	1900	M16 X 2.0	1.6	24	25.4	50.8	38.1	14.3	19	76.2	112.7	101.6	161.9	32	80	1.64
23968	2150	M20 X 2.5	1.6	30	25.4	50.8	38.1	14.3	19	76.2	112.7	101.6	161.9	32	134	1.7
23974	4200	M24 X 3.0	1.6	35.7	47.6	96.0	76.2	27.0	26.7	91.3	147.6	207.2	245.3	63.5	305	7.1
23975	4200	M24 X 3.0	1.6	47.6	47.6	96.0	76.2	27.0	26.7	91.3	147.6	207.2	245.3	63.5	305	7.2
23978	7000	M30 X 3.5	1.6	44.8	47.6	96.0	76.2	27.0	26.7	91.3	147.6	207.2	245.3	63.5	590	7.3
23979	7000	M30 X 3.5	1.6	60.0	47.6	96.0	76.2	27.0	26.7	91.3	147.6	207.2	245.3	63.5	590	7.4
23982	11000	M36 X 4.0	2.8	53.6	63.5	123.8	114.3	36.5	44.5	114.3	196.1	290.5	351.6	28.7	960	19.1
23983	11000	M36 X 4.0	2.8	71.4	63.5	123.8	114.3	36.5	44.5	114.3	196.1	290.5	351.6	28.7	960	19.3
23984	12500	M42 X 4.5	2.8	62.7	63.5	123.8	114.3	36.5	44.5	114.3	196.1	290.5	351.6	28.7	980	19.4
23985	12500	M42 X 4.5	2.8	83.3	63.5	123.8	114.3	36.5	44.5	114.3	196.1	290.5	351.6	28.7	980	19.6
23986	13500	M48 X 5.0	2.8	71.4	63.5	123.8	114.3	36.5	44.5	114.3	196.1	290.5	351.6	28.7	980	19.7
23987	13500	M48 X 5.0	2.8	95.3	63.5	123.8	114.3	36.5	44.5	114.3	196.1	290.5	351.6	28.7	980	20.0

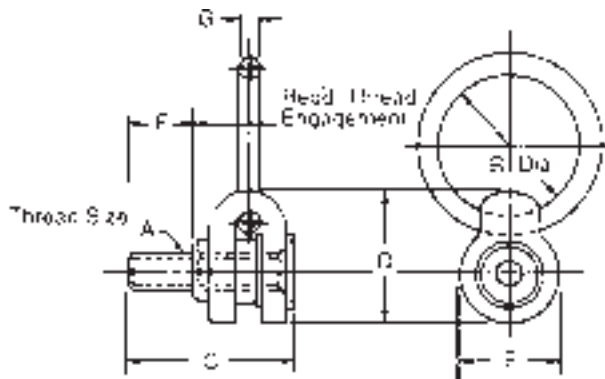
Side-Pull Traditional Style

Precision Cast Body



- Rated at 5:1 Strength Factor
- Material: Alloy Steel
- Clevis, Ring, Bushing and Cap Screw are magnetic particle inspected
- Clevis is x-rayed
- Finish: Black Oxide
- Bushing: Zinc Plated with conversion coating, yellow (inch), clear blue (metric)
- Proof Tested to 200% of Rated Load Capacity
- 3D Solid Models available in multiple formats from www.jergensinc.com
- Available with Envirolux™ protective finish. See page 10.13 for more information.

360° swivel plus pivot point moves around bolt to provide greater clearances in side lifting and when lifting rotating objects.



Inch

Part Number	Envirolux Part Number	Load ¹ Capacity (lbs)	A	B	C	D	E	F	G	Torque ² (ft. lbs)	Wt. (lbs)
47311	47311-E	650	5/16-18	2	2 1/8	2	1 1/2	5/8	3/8	3.5	.25
47312	47312-E	800	3/8-16	2	2 3/8	2	1 1/2	3/4	3/8	4.5	.25
47313	47313-E	1800	1/2-13	3	3 3/8	3 3/16	2 3/8	1	5/8	15.0	3.25
47314	47314-E	2500	5/8-11	3	3 5/8	3 3/16	2 3/8	1 1/4	5/8	25.0	3.25
47315	47315-E	4100	3/4-10	4	5	5	3 3/4	1 1/2	1	50.0	11.25
47316	47316-E	7100	1-8	4	5 3/8	5	3 3/4	2	1	90.0	11.50
47317	47317-E	14000	1 1/4-7	6	6 7/8	6 13/16	4 5/8	2	1 3/8	150.0	27.75
47317-08		14000	1 1/4-8	6	6 7/8	6 13/16	4 5/8	2	1 3/8	150.0	27.75
47318	47318-E	17200	1 1/2-6	6	7 7/8	6 13/16	4 5/8	2 1/2	1 3/8	250.0	31.50
47318-08		17200	1 1/2-8	6	7 7/8	6 13/16	4 5/8	2 1/2	1 3/8	250.0	31.50
47319	47319-E	29000	2-4 1/2	5 1/4 x 10 1/2	10	6 13/16	4 5/8	3 1/8	1 1/2	300.0	42.00
47319-08		29000	2-8	5 1/4 x 10 1/2	10	6 13/16	4 5/8	3 1/8	1 1/2	300.0	42.00

¹ Stated load capacity based on specific thread torques as shown in chart.

² It is recommended that these torques be used when installing hoist rings.

Side-Pull Traditional Style Precision Cast Body

Metric

Part Number	Envirolox Part Number	Load ¹ Capacity (kg)	A	B	C	D	E	F	G	Torque ² (kg-M)	Wt. (kg)
47351	47351-E	325	M 8 x 1.25	50.8	61.0	50.8	38.1	16.0	9.5	.43	.12
47352	47352-E	500	M 10 x 1.50	50.8	63.0	50.8	38.1	20.0	9.5	.60	.12
47353	47353-E	725	M 12 x 1.75	76.2	85.0	81	60.3	24.0	15.9	2.00	1.5
47354	47354-E	1400	M 16 x 2.0	76.2	94.0	81	60.3	31.0	15.9	3.50	1.5
47355	47355-E	2290	M 20 x 2.5	101.6	133.0	125.4	95.3	40.0	25.4	7.00	5.1
47356	47356-E	3050	M 24 x 3.0	101.6	147.0	125.4	95.3	47.0	25.4	12.50	5.2
47357	47357-E	4850	M 30 x 3.5	152.0	173.8	173.0	117.5	49.0	31.7	34.6	12.6
47358	47358-E	7500	M 36 x 4.0	152.0	191.0	173.0	117.5	67.5	35.0	55.0	14

All dimensions are in millimeters.

¹Stated load capacity based on specific thread torques as shown in charts.

²It is recommended that these torques be used when installing hoist rings.

Bolt Replacement Kits

Inch Thread

Hoist Ring Part No.	Bolt Kit Part No.	Envirolox Bolt Kit Part No.	Thread Size	Wt. (lbs)
47311	47341	47341-E	5/16-18	.05
47312	47342	47342-E	3/8-16	.06
47313	47343	47343-E	1/2-13	.17
47314	47344	47344-E	5/8-11	.28
47315	47345	47345-E	3/4-10	.59
47316	47346	47346-E	1-8	1.27
47317	47347	47347-E	1 1/4-7	2.50
47317-08	47347-08		1 1/4-8	2.50
47318	47348	47348-E	1 1/2-6	4.70
47318-08	47348-08		1 1/2-8	4.70
47319	47349	47349-E	2-4 1/2	9.50
47319-08	47349-08		2-8	9.50

Metric Thread

Hoist Ring Part No.	Bolt Kit Part No.	Envirolox Bolt Kit Part No.	Thread Size	Wt. (kg)
47351	47391	47391-E	M 8	.02
47352	47392	47392-E	M 10	.03
47353	47393	47393-E	M 12	.07
47354	47394	47394-E	M 16	.14
47355	47395	47395-E	M 20	.32
47356	47396	47396-E	M 24	.53
47357	47397	47397-E	M 30	1.03
47358	47398	47398-E	M 36	2.0

Bolt Kits contain bolt and retaining ring.

Bolt Kits with -E are for use with Envirolox Hoist Rings.

• See page 10.13 for Hoist Ring hold down clips.

SP 2000™ Side-Pull Style Extruded Body



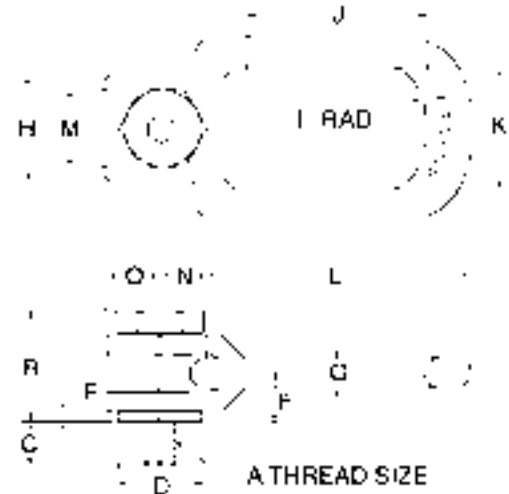
The Jergens SP2000 Side-Pull Style Hoist Ring is ideal for flipping fixtures, dies and molds. It swivels 360° and pivots around the center bolt providing the ring with greater clearances in side lifting applications and when lifting rotating objects. The hoist ring is low profile and has a unique bolt retention design. The oversized forged ring, and single piece forging, easily adapts to larger hoist hooks. Its relatively light weight makes it easier to handle than similar hoist rings and the installation is conveniently done with external wrenching (47531, 47532) or internal/external wrenching (all other sizes). All parts are made in the U.S.A.

- Can Be Used for Top Lifting as well as side lifting applications
- Full Swivel & Pivot Action
- Rated at 5:1 strength factor
- Material: Alloy Steel
- Finish: Black Oxide
- Proof Tested to 200% of Rated Load Capacity
- Available in Metric sizes. See next page.
- 3D Solid Models available in multiple formats from www.jergensinc.com

Patent Nos. 6,068,310
and 409,895



External Wrench Mounting
Part Numbers: 47531 & 47532



Internal/External Wrench Mounting
Part Numbers: 47533 thru 47539

Inch Threads

Part Number	Load Capacity (lbs)	Thread Size A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Torque (ft. lbs)	Hex Size	Wt. (lbs)
47531	650	5/16-18	1 9/32	15/32	13/16	1/8	9/16	5/16	1	1	2 1/16	1 3/4	3	3/4	1/2	1/2	4	—	.5
47532	800	3/8-16	1 9/32	5/8	13/16	1/8	9/16	5/16	1	1	2 1/16	1 3/4	3	3/4	1/2	1/2	5	—	.5
47533	1800	1/2-13	1 7/8	3/4	1 3/8	5/32	13/16	1/2	1 3/4	1 1/2	3 3/8	2	4 3/4	1 1/4	3/4	7/8	15	1/4	2
47534	2500	5/8-11	1 7/8	15/16	1 3/8	5/32	13/16	1/2	1 3/4	1 1/2	3 3/8	2	4 3/4	1 1/4	3/4	7/8	25	5/16	2
47535	4100	3/4-10	2 5/16	1 1/8	1 7/8	1/4	1 1/32	5/8	2 1/4	2	4	2 5/8	5 11/16	1 3/4	1	1 1/8	50	3/8	4
47536	7100	1-8	2 5/16	1 1/2	1 7/8	1/4	1 1/32	5/8	2 1/4	2	4	2 5/8	5 11/16	1 3/4	1	1 1/8	130	1/2	4.5
47537	14000	1 1/4-7	3 9/16	1 7/8	3 1/4	23/64	1 21/32	1 1/16	3 3/4	3	7 11/16	4 3/8	10 7/16	3	1 5/16	1 7/8	150	3/4	20
47538	17200	1 1/2-6	3 9/16	2 1/4	3 1/4	23/64	1 21/32	1 1/16	3 3/4	3	7 11/16	4 3/8	10 7/16	3	1 5/16	1 7/8	250	3/4	20
47539	29000	2-4 1/2	3 9/16	3	3 1/4	23/64	1 21/32	1 1/16	3 3/4	3	7 11/16	4 3/8	10 7/16	3	1 5/16	1 7/8	300	3/4	22

SP 2000™ Side-Pull Metric - Extruded Body



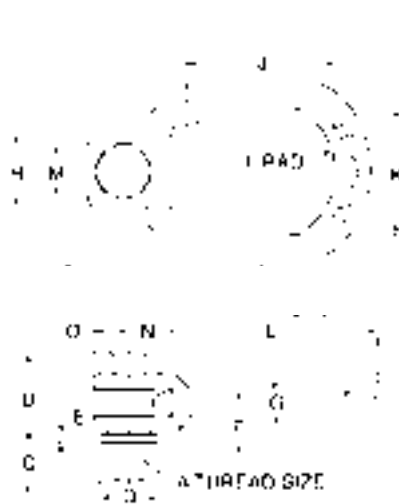
Patent Nos. 6,068,310
and 409,895



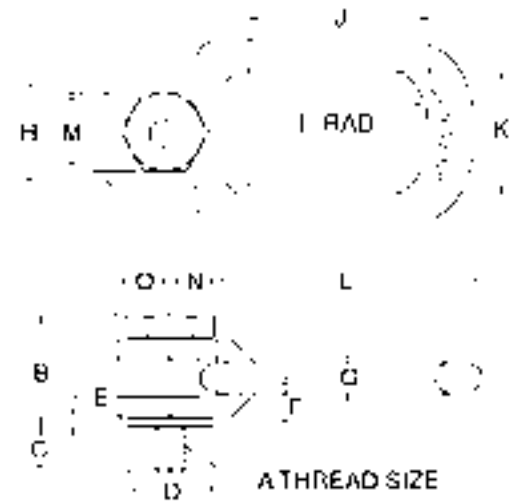
SIDE PULL APPLICATION



TOP PULL APPLICATION



External Wrench Mounting
Part Numbers: 47581 & 47582



Internal/External Wrench Mounting
Part Numbers: 47583 thru 47589, 47591

Metric Threads

Part Number	Load Capacity (kg)	Thread Size A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Torque (N•m)	Hex Size	Wt. (kg)
47581	325	M8 x 1.25	33	16	21	3	14	8	25	25	52	44	76	19	13	13	5	—	.25
47582	500	M10 x 1.5	33	20	21	3	14	8	25	25	52	44	76	19	13	13	10	—	.25
47583	725	M12 x 1.75	48	24	35	4	21	13	44	38	86	51	120	32	19	22	20	6	1
47584	1400	M16 x 2	48	32	35	4	21	13	44	38	86	51	120	32	19	22	40	8	1
47585	2290	M20 x 2.5	59	40	48	6	26	16	57	51	102	67	145	44	25	29	70	10	2
47586	3050	M24 x 3	59	48	48	6	26	16	57	51	102	67	145	44	25	29	140	12	2
47587	4850	M30 x 3.5	90	60	83	9	42	27	95	76	196	111	265	76	49	48	350	19	9
47588	7500	M36 x 4	90	72	83	9	42	27	95	76	196	111	265	76	49	48	550	19	9
47591	8700	M42 x 4.5	90	84	83	9	42	27	95	76	196	111	265	76	49	48	800	19	9
47589	10000	M48 x 5	90	96	83	9	42	27	95	76	196	111	265	80	49	48	1200	27	10

All dimensions are in millimeters.

Side Swivel



U.S. Patent No. 6,443,514

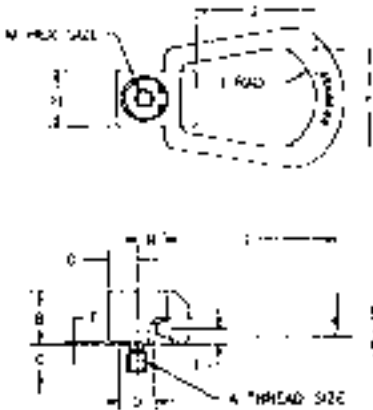
Jergens new Side Swivel™ Lifting Ring is designed specifically for OEM type applications. It replaces potentially dangerous eyebolts on commercial, military, and industrial lifts requiring full swivel and pivoting action.

- 5:1 strength factor-forged ring
- Unique 3 piece design
- Made in U.S.A.
- Capacities up to 4100 lbs.
- Inch and metric
- OEM Pricing
- 3D Solid Models available in multiple formats from www.jergensinc.com

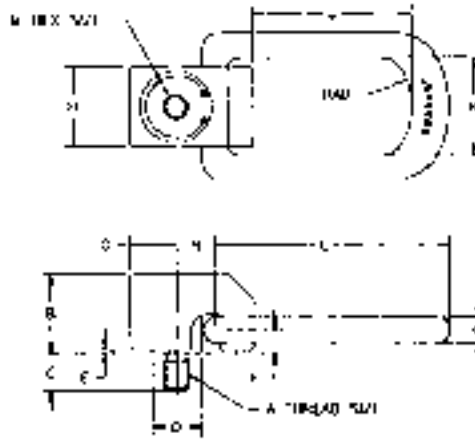
Ideally suited for OEM applications



Small Side Swivel*



Large Side Swivel



Part Number	Load Capacity (lbs)	Thread Size A	B	C	D	E	F	G	H	I	J	K	L	Hex Size M	N	O	Torque (ft.lbs)	Weight (lbs)
47800*	650	5/16-18	15/16	15/32	5/8	1/16	9/32	5/16	1	1	2 1/16	1 3/4	2 31/32	1/4	1/2	1/2	3.5	0.6
47801*	800	3/8-16	15/16	9/16	5/8	1/16	9/32	5/16	1	1	2 1/16	1 3/4	2 31/32	1/4	1/2	1/2	4.5	0.6
47802	1800	1/2-13	1 37/64	3/4	1	5/64	7/16	1/2	1 5/8	1 1/2	3 1/4	2	4 3/4	3/8	15/16	25/32	15	2.5
47803	2500	5/8-11	1 37/64	15/16	1	5/64	7/16	1/2	1 5/8	1 1/2	3 1/4	2	4 3/4	3/8	15/16	25/32	25	2.5
47804	4100	3/4-10	1 37/64	1 1/8	1	5/64	7/16	1/2	1 5/8	1 1/2	3 1/4	2	4 3/4	3/8	15/16	25/32	50	2.5

* Small Side Swivel

Metric

Part Number	Load Capacity (kg)	Thread Size A	B	C	D	E	F	G	H	I	J	K	L	Hex Size M	N	O	Torque (N•m)	Weight (kg)
47850*	325	M8 x 1.25	23.8	15.8	15.8	1.6	7.2	7.9	25.4	25.4	52.4	44.5	75.4	6	12.7	12.7	4.2	.27
47851*	500	M10 x 1.5	23.8	19.8	15.8	1.6	7.2	7.9	25.4	25.4	52.4	44.5	75.4	6	12.7	12.7	6	.27
47852	725	M12 x 1.75	40.1	23.8	25.4	2.0	11.1	12.7	66.7	38.1	82.6	50.8	120.7	10	23.8	19.8	20	1.14
47853	1400	M16 x 2.0	40.1	31.8	25.4	2.0	11.1	12.7	66.7	38.1	82.6	50.8	120.7	10	23.8	19.8	40	1.14
47854	2290	M20 x 2.5	40.1	39.7	25.4	2.0	11.1	12.7	66.7	38.1	82.6	50.8	120.7	10	23.8	19.8	70	1.18

* Small Side Swivel

Envirolox™ Protective Finish



The Envirolox™ Protective Finish is a *proprietary nickel based coating that helps to prevent rusting and other environmental hazards from affecting Jergens Hoist Rings*. This coating does not contain cadmium or chromium, is *environmentally friendly*, and is proven to be *effective in extreme conditions*. It provides surface hardness, lubricity and more effective corrosion protection than paints. Envirolox Protective Finish is available on Jergens Center-Pull and Side-Pull Style Hoist Rings. It is not recommended for the Swivel Eyebolt or the SP 2000 products.

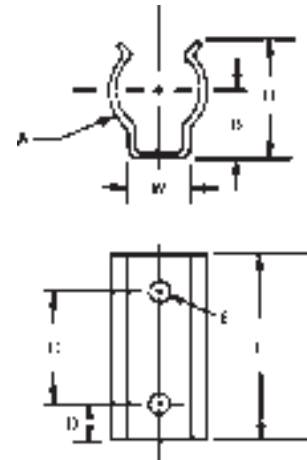
- Available on Center-Pull and Side-Pull Traditional Style Hoist Rings (See pages 10.4-10.5 and 10.8-10.9 for part numbers.)
- Available upon request for other selected Jergens lifting products.
- Protects against rusting
- Environmentally safe

Hoist Ring Hold Down Clips

Two or more Hoist Ring Hold Down Clips should be used to prevent ring movement when the hoist ring is not in use. These simple spring steel clips prevent ring movement, provide an additional safety feature when used around machine tools and give a neat finished appearance.

Clip Part Number	Diameter A	B	C	D	E	H	W	L
47331	3/8	.330	—	.250	.125	.575	.320	.500
47332	1/2	.388	.250	.125	.151	.712	.385	.500
47333	5/8	.450	.250	.125	.151	.832	.385	.500
47334	3/4	.513	.312	.156	.151	1.000	.385	.625
47335	1	.683	.312	.188	.188	1.133	.510	.687
47336	1 1/4	.750	.625	.187	.162	1.370	1.330	1.000
47337	1 3/8	.880	.312	.188	.188	1.439	.510	.688
47338	1 7/16	.850	.937	.312	.103	1.560	1.560	1.500
47339	1 3/4	1.070	.312	.188	.130	1.830	.780	.688

- Material: Spring, Steel
- Finish: Cadmium or Zinc



Swivel Eyebolt

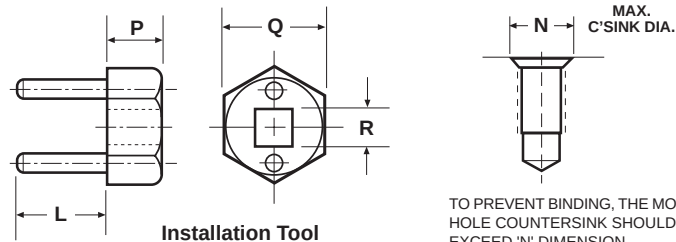


The Jergens Swivel Eyebolt™ lifting product has a full swivel and pivoting action that allows for the flipping and turning of the part without unhooking. The patented tamper resistant design is ideal for permanent mounting on OEM applications or on molds, dies and fixtures.



- Tamper Resistant Design
- Swivels 360°, Pivots 180°
- Eliminates Bending (of Eyebolt) Problem
- Forged, Oversized, One-Piece Lift Ring
- Rated at 5:1 Strength Factor
- Load Capacities to 4000 Lbs / 2000 Kg
- Economically Priced
- Material: Alloy Steel, or 316 Stainless Steel
- Finish: Black Oxide, or Passivated (SS)
- 3D Solid Models available in multiple formats from www.jergensinc.com

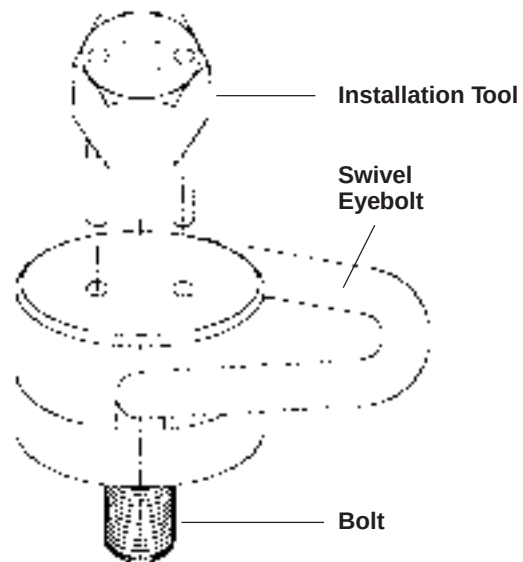
U.S. Patent Nos. 5,634,734
and 5,743,576
Foreign Patent Pending



Installation Tool Information

Installation Tool Part Number	Pin Length L	Head Thickness P	Hex Size Q	Square Drive R
47641	11/16	.55	15/16	1/4
47643	1 1/8	.65	1 1/4	3/8

Swivel Eyebolt Part Number	Installation Tool Part Number	Recommended Torque	Maximum Countersink Diameter N
47621	47641	7 ft. lbs.	1/2
47622	47641	20 ft. lbs.	5/8
47631	47641	7 ft. lbs.	1/2
47632	47641	20 ft. lbs.	5/8
47671	47641	10 N•m	13 mm
47672	47641	25 N•m	16 mm
47681	47641	10 N•m	13 mm
47682	47641	25 N•m	16 mm
47625	47643	35 ft. lbs.	3/4
47626	47643	55 ft. lbs.	7/8
47633	47643	35 ft. lbs.	3/4
47634	47643	55 ft. lbs.	7/8
47675	47643	50 N•m	19 mm
47676	47643	80 N•m	22 mm
47683	47643	50 N•m	19 mm
47684	47643	80 N•m	22 mm

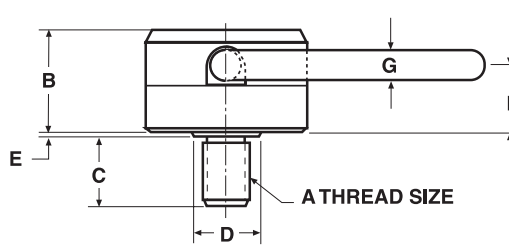
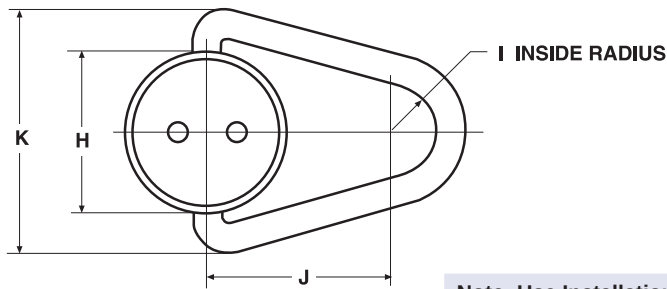


FREE SWIVEL EYEBOLT VIDEO



Applications and Installation Information. Contact Jergens for your **FREE** copy.

Small Swivel Eyebolt



Note: Use Installation Tool Part Number 47641 for this style Swivel Eyebolt.

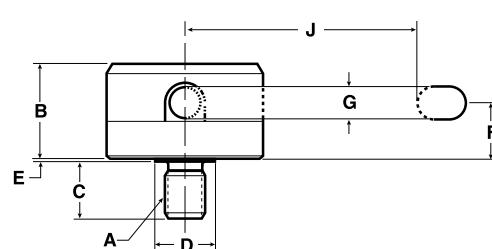
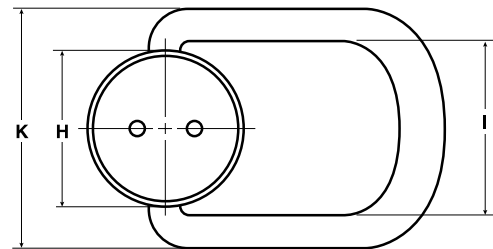
Swivel Eyebolt

Part Number		Load Capacity (lbs)		Thread Size A	B	C	D	E	F	G	H	I	J	K
Alloy Steel	Stainless Steel	Alloy Steel	Stainless Steel											
47621	47631	1000	500	3/8 - 16	1 3/32	9/16	3/4	3/64	45/64	5/16	1 3/4	1/2	2	2 5/8
47622	47632	2000	1000	1/2 - 13	1 3/32	3/4	3/4	3/64	45/64	5/16	1 3/4	1/2	2	2 5/8

Metric Swivel Eyebolt

Part Number		Load Capacity (Kg)		Thread Size A	B	C	D	E	F	G	H	I	J	K
Alloy Steel	Stainless Steel	Alloy Steel	Stainless Steel											
47671	47681	500	250	M10 x 1.5	27.8	14.6	19.1	1.2	17.9	7.9	44.5	12.7	50.8	66.7
47672	47682	700	350	M12 x 1.75	27.8	19.1	19.1	1.2	17.9	7.9	44.5	12.7	50.8	66.7

Large Swivel Eyebolt



Note: Use Installation Tool Part Number 47643 for this style Swivel Eyebolt.

Swivel Eyebolt

Part Number		Load Capacity (lbs)		Thread Size A	B	C	D	E	F	G	H	I	J	K
Alloy Steel	Stainless Steel	Alloy Steel	Stainless Steel											
47625	47633	3000	1500	5/8 - 11	1 33/64	15/16	7/8	1/32	57/64	1/2	2 1/2	2 3/4	3 1/2	3 13/16
47626	47634	4000	2000	3/4 - 10	1 33/64	1 1/8	1	1/32	57/64	1/2	2 1/2	2 3/4	3 1/2	3 13/16

Metric Swivel Eyebolt

Part Number		Load Capacity (Kg)		Thread Size A	B	C	D	E	F	G	H	I	J	K
Alloy Steel	Stainless Steel	Alloy Steel	Stainless Steel											
47675	47683	1500	750	M16 x 2.0	38.5	23.8	22.2	.8	22.6	12.7	63.5	70	93	97
47676	47684	2000	1000	M20 x 2.5	38.5	30.2	25.4	.8	22.6	12.7	63.5	70	93	97

Pivoting Lift Ring



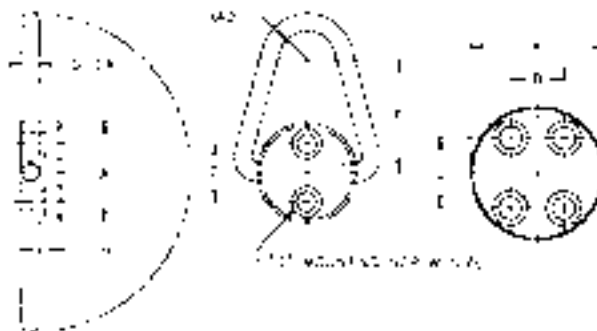
The Jergens Pivoting Lift Ring is a low profile lifting device that pivots 180°. It is one of the most economical lifting devices available and is ideal for applications that do not require a swivel action. This Lift Ring is easy to install and is available in five sizes. Load ratings range from 2,000 - 20,000 lbs. The product is manufactured from alloy steel, heat treated and magnafluxed.

- Base: Precision Machined Alloy Steel
- Ring: Alloy Steel forging, heat treated, magnafluxed and certified
- Finish: Black Oxide
- Rated at 6:1 Strength Factor
- 3D Solid Models available in multiple formats from www.jergensinc.com

Optional Mounting Bolts*

Lift Ring Part Number	Bolt Part Number	Bolt Size
47411	47421	5/16-18 x 1 1/4
47412	47422	3/8-16 x 1 1/2
47413	47423	1/2-13 x 1 3/4
47414	47424	1/2-13 x 2 1/2
47415	47425	5/8-11 x 2 1/2

*Note: Mounting Bolts must be ordered separately.



Pivoting Lift Rings

Part Number	Load Capacity (lbs)	A	B	C	Mounting Screw Size D	E	F	G	H
47411	2000	1 3/4	—	1	5/16-18 x 1 1/4	2	1/2	5/16	3/4
47412	2500	2 1/4	—	1 1/8	3/8-16 x 1 1/2	2 1/2	5/8	3/8	7/8
47413	5000	2 1/2	—	1 1/2	1/2-13 x 1 3/4	3	3/4	1/2	1 1/8
47414*	12000	3 1/8	1 1/4	1 5/8	1/2-13 x 2 1/2	4	7/8	3/4	1 3/8
47415*	20000	3 5/8	1 1/4	2 1/16	5/8-11 x 2 1/2	5	1	1	1 7/8

* The larger load capacity rings have four mounting holes.

Metric Pivoting Lift Rings

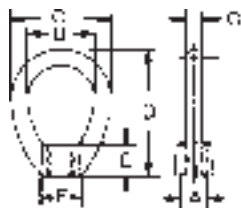
Part Number	Load Capacity (kg)	A	B	C	Mounting Screw Size D	E	F	G	H
47411	900	45	—	25.4	M 8 x 1.25 x 35 mm	51	13	8	19
47412	1100	57	—	28.6	M 10 x 1.5 x 40 mm	64	16	10	22
47413	2250	64	—	38.1	M 12 x 1.75 x 45 mm	76	19	13	29
47414*	5400	80	31.8	41.3	M 12 x 1.75 x 55 mm	102	22	19	35
47415*	9000	92	31.8	52.4	M 16 x 2.0 x 65 mm	127	25.4	25.4	48

* The larger load capacity rings have four mounting holes.

Eye Nuts

Inch

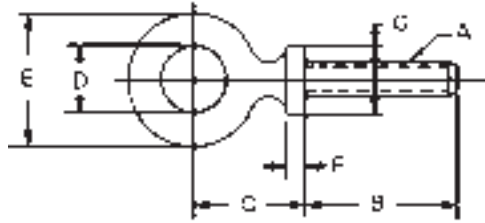
- Material: C-1030 Forge



Part Number	A	B	C	D	E	F	G	Wt (lbs)	Load Capacity (lbs)
18901	3/8-16	1 1/4	2	2 1/2	5/8	7/8	3/8	.22	2700
18902	1/2-13	1 1/4	2	2 1/2	5/8	7/8	3/8	.22	2700
18903	5/8-11	1 1/2	2 1/2	3	3/4	1 3/8	1/2	.50	5000
18904	3/4-10	1 1/2	2 1/2	3	3/4	1 3/8	1/2	.50	5000

Shoulder Eye Bolts

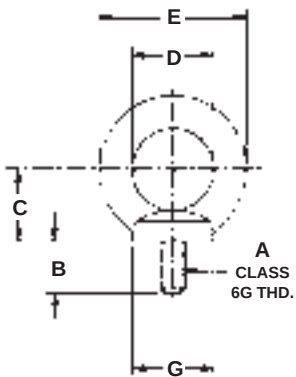
Inch



- Material: C-1030 Forge
- Finish: Mill
- Thread: 2A

For other than vertical loads, general practice is to use 60% of the working load capacity for a load 30° from vertical; 33% of vertical load for load 45° from vertical; and 20% of vertical load for load 90° from vertical.

NOTE: 2 1/2 threads runout on threaded portion.



Part Number	A	B	C (Ref.)	D	E	F (Ref.)	G	Wt (lbs)	Load Capacity (lbs)
18501	1/4-20	1	1 1/16	3/4	1 3/16	3/16	1/2	.05	500
18502	5/16-18	1 1/8	7/8	7/8	1 7/16	3/16	5/8	.10	900
18503	3/8-16	1 1/4	1 1/16	1	1 21/32	3/16	1 1/16	.16	1300
18504	1/2-13	1 1/2	1 5/16	1 3/16	2 1/16	1/4	7/8	.36	2400
18505	5/8-11	1 3/4	1 19/32	1 3/8	2 1/2	1/4	1 1/8	.65	4000
18506	3/4-10	2	1 23/32	1 1/2	2 13/16	5/16	1 1/4	1.00	5000
18507	7/8-9	2 1/4	2 3/16	1 11/16	3 1/4	3/8	1 7/16	1.70	7000
18508	1-8	2 1/2	2 13/32	1 13/16	3 9/16	13/32	1 9/16	2.36	9000
18509	1 1/8-7	2 3/4	2 23/32	2	4	15/32	1 11/16	3.41	12000
18510	1 1/4-7	3	2 15/16	2 3/16	4 7/16	1/2	1 7/8	4.68	15000
18511	1 1/2-6	3 1/2	3 7/16	2 1/2	5 3/16	9/16	2 3/16	7.77	21000
18512	1 3/4-5	3 3/4	3 31/32	2 7/8	6 1/16	5/8	2 1/2	11.35	28000
18513	2-4 1/2	4	4 1/2	3 1/4	6 7/8	3/4	2 7/8	16.70	38000

Metric - Short

Loads given ensure a strength factor of four against deformation of any kind and strength factor of five against fracture.

- Material: C-15 Annealed (AISI 1015)
- Finish: Mill
- Thread: 6g

Part Number	A	B	C (Ref.)	D	E	G	Wt. (kg)	Maximum permissible loads in lbs.	
								For one bolt firmly tightened	For two bolts total
18551	M6 x 1	13.0	17.5	19.1	36.5	20.0	.023	150	100
18552	M8 x 1.25	13.0	22.2	22.2	36.5	20.0	.045	300	200
18554	M12 x 1.75	20.5	33.3	30.2	52.4	30.0	.163	700	500
18555	M16 x 2	27.0	40.5	34.9	63.5	35.0	.295	1500	1100

All Dimensions in Millimeters.

Metric - Standard

Part Number	A	B	C (Ref.)	D	E	F (Ref.)	G	Wt (lbs)	Load Capacity (kg)	Load Capacity (lbs)
18561	M6 x 1.0	25.4	20.6	19	30.0	3.9	13.5	.06	210	462
18562	M8 x 1.25	31.7	29.4	25	43.0	4.8	17.5	.17	500	1110
18563	M10 x 1.5	35.0	33.3	27	46.0	5.2	19.8	.24	740	1628
18564	M12 x 1.75	38.0	36.5	30	54.0	5.6	22.2	.36	1030	2266
18565	M16 x 2.0	44.5	43.6	35	65.0	6.3	27.0	.69	1600	3520
18566	M20 x 2.5	57.0	55.6	41	81.0	9.5	36.5	1.51	2860	6292
18567	M24 x 3.0	63.5	61.1	44	90.4	10.3	39.7	2.36	3850	8470
18568	M30 x 3.5	76.0	74.6	55	112.7	12.7	47.6	4.68	6400	14080
18569	M36 x 4.0	89.0	87.3	63	131.8	14.3	55.6	7.77	8970	19734
18570	M42 x 4.5	95.0	93.6	73	152.4	15.1	60.3	11.10	11960	26312
18571	M48 x 5.0	101.6	107.9	82	174.6	17.5	69.8	15.90	16400	36080

- Material: C-1030 Forge
- Finish: Mill
- Thread: 6g

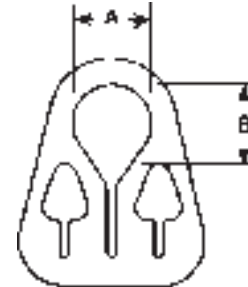
Adjustable Chain Sling



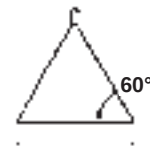
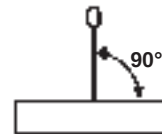
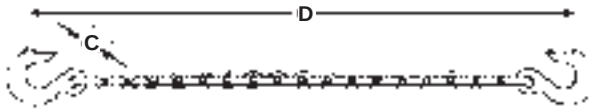
Patent No. 4,941,698

- Grade 80 Alloy Chain*
- Alloy Steel Master Control Link*
- Each assembly serialized for traceability
- Complies with OSHA - proof tested and certified
- Ideal for machine shop requirements
- Each hook is equipped with a latch

* These items are only available as an assembly and cannot be purchased separately.



Master Control Link



Part Number	Chain Size (in.)	Capacities		Dimensions				Weight (lbs)
		Single @ 90° (lbs)	Double @ 60° (lbs)	A (in.)	B (in.)	C (in.)	D (ft.)	
47701	7/32	2100	3600	2	2	15/16	6	4 1/2
47702	7/32	2100	3600	2	2	15/16	10	6 1/2
47703	9/32	3500	6100	3	3 1/2	1 1/16	6	8
47704	9/32	3500	6100	3	3 1/2	1 1/16	10	11
47705	3/8	7100	12300	3 1/4	3 1/4	1 9/16	10	19
47706	3/8	7100	12300	3 1/4	3 1/4	1 9/16	14	25
47707	1/2	12000	20800	4 3/8	4 3/8	2	10	42
47708	1/2	12000	20800	4 3/8	4 3/8	2	14	52



Latch



SINGLE



DOUBLE



BASKET



BASKET & SINGLE

WARNING:

- Failure to follow the care, use and inspection instructions could result in severe personal injury. Do not exceed rated capacities.
- Sling capacity rating decreases as the angle from horizontal decreases. We do not recommend using at angles of less than 45°.
- Loads must always be securely attached and balanced. You must never substitute another chain or exceed the load limit.
- The load bearing chain must be seated at the base of adjusting slot of the Master Control Link. The Alloy Chain and Master Control Link shall not be used separately for general purpose lifting.

Quality Standards Center-Pull Traditional and Side-Pull Traditional Style Hoist Rings

Load Bearing Member Components

- All material is domestically manufactured certified alloy steel.
- All components are machined prior to manufacture to remove any surface defects.
- All components are heat treated and certified to manufacturing specifications.
- Bolts are:

Inch Socket Screw Grade Tensile Strength -180,000 psi - 1/2" or Smaller -170,000 psi - Over 1/2" 100% Magnetic Particle Inspected to ASTM E709-80	Metric Grade 12.9 Tensile Strength -1220 MPa - (177,000 psi) 100% Magnetic Particle Inspected to ASTM E709-80
- All other load bearing components are magnetic particle inspected based upon ASTM E709-80 and MIL-STD-105 with zero defects permissible.
- Bolt torque and hoist ring load limit permanently marked on washer.
- **ISO 9001: 2000 Certified**

Individual certificate of proof-test accompanies Center-Pull and Side-Pull Traditional Style hoist rings in final packaging.

Certificate of Proof Test					
(1) Distinguishing Mark	(2) Description of Item Tested	(3) Quantity Tested	(4) Date Tested	(5) Load Applied	(6) Result Load
JL	23495 HOIST RINGS	1	01/01/03	232K LBS	PASS
(7) Name and address of supplier: Jergens, Inc., 15400 S. Mulberry Rd., Cleveland, OH 44130 (8) Name and address of Company performing test: Jergens, Inc., 15400 S. Mulberry Rd., Cleveland, OH 44130 (9) Name and address of user party: County Assurance Bureau We hereby certify that Jergens, Inc. Test Procedure 1001 requires all hoist rings to be proof tested and examined and that in so doing the test operator completed all procedures as required. Signature: WAB 15400 S. Mulberry Rd., Cleveland, OH 44130					

Quality Standards For Center-Pull and Side-Pull Traditional Style Hoist Rings

Assembly Data

- Traditional Center Pull and Side Pull hoist ring assemblies are pull-tested and certified to 200% of rated load capacity and stamped with identifying date code.
- All hoist rings are designed for 5:1 strength factor.
- Hoist rings are color coded for easy identification: gold washer denotes inch sizes, silver/clear blue washer denotes metric sizes.
- Finished assembly is black oxide (with the exception of the washer).
- The Jergens name or logo is prominently displayed on assembly for identification of original manufacturer.
- Special plating or marking is available upon customer's request.
- Proper warning label is affixed to each clevis.
- Proof load testing, magnafluxing, heat treating and material certification are on file at Jergens, Inc.
- The finished hoist ring product is individually boxed.

NOTE: Specifications for side pull style hoist rings are identical to center pull style with the exception that the clevis is of precision cast alloy material which is serialized and conforms to X-ray specifications.

Multi-lingual safety data instructions included in each package

IMPORTANT
GIVE TO SAFETY MANAGER

IMPORTANT
À FOURNIR AU
DIRECTEUR DE SÉCURITÉ

IMPORTANTE
ENTREGAR AL
SUPERVISOR DE SEGURIDAD

IMPORTANTE
CONSEGNARE AL
RESPONSABILE PER LA
SICUREZZA

IMPORTANTE
DÊ PARA O GERENTE
DE SEGURANÇA

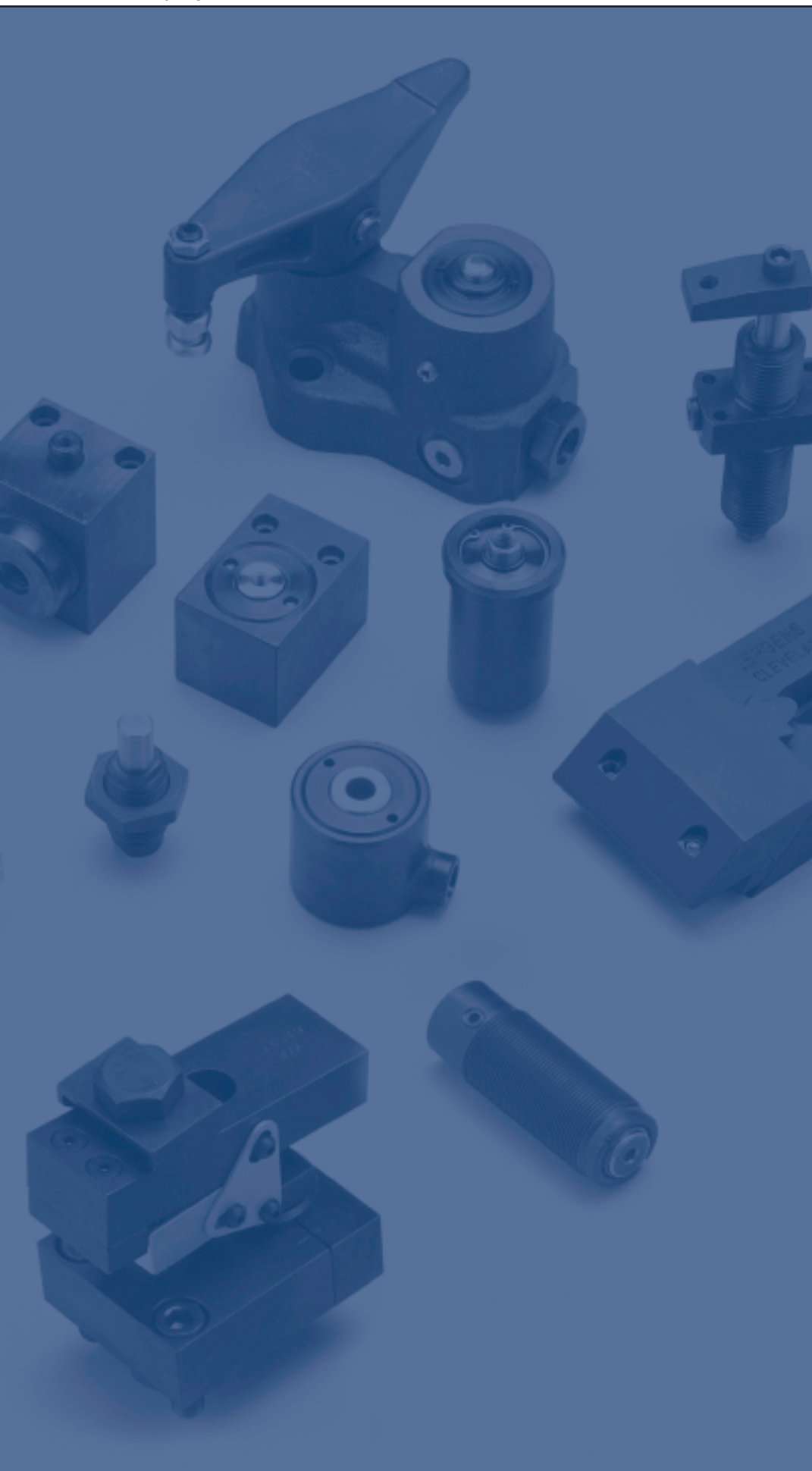
WICHTIG
AN DEN
SICHERHEITSMANAGER
WEITERGEBEN

重要
安全管理担当者様

Jergens Way • 15700 S. Waterloo Rd.
Cleveland, Ohio 44110-3898
Phone: (216) 486-5540 • Fax: (216) 481-6193

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Contact Jergens for quality standards on all other lifting products.



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Swing Cylinders



These versatile swing cylinders/clamps can be used as single or double acting rotating clamps, or push/pull cylinders. The piston in the Swing Cylinders rotate 90° to the right, but may easily be changed to 90° left rotation, or to no rotation at all.

WARNING:

All swing cylinders must be used with flow limit valves to dampen the rotating action. Please see maximum flow rate shown below.

- Can be mounted using four #10 cap screws or the 1"-12 thread on the O.D. of the cylinder
- Optional components include the threaded mounting bracket and jam nut shown below
- Can be used as a non-rotating clamp
- Maximum recommended flow rate is 20 cubic inches per minute per clamp (approximately 1 second clamp time)
- **Note: Arm length can affect clamping pressures.**
See chart at right for more information.
- Available in FixturePro™ Design Software

Specifications

60680 Swing Cylinder	Clamp (pull)	Return (push)
Operating Volume (cu in)	.18	.33
Effective Piston Area (sq in)	.24	.44
Minimum Operating Pressure (psi)	120	—
Maximum Operating Pressure (psi)	3000	3000
Maximum Output Force (lbs)	730	1320
Stroke (in): Full	.75	.75
Rotating	.50	.50
Clamping	.25	.25
Weight (lbs)	1	1

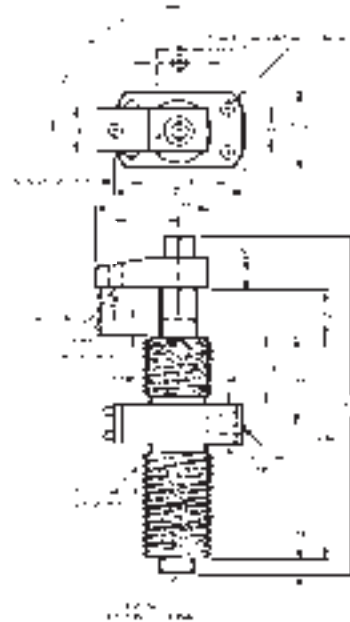
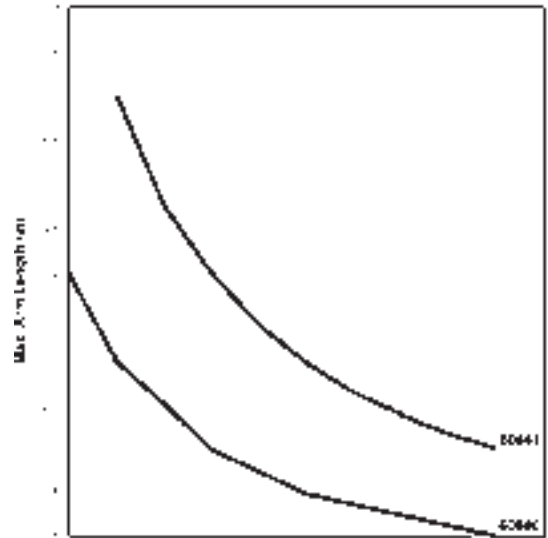
Accessories

Double Arm

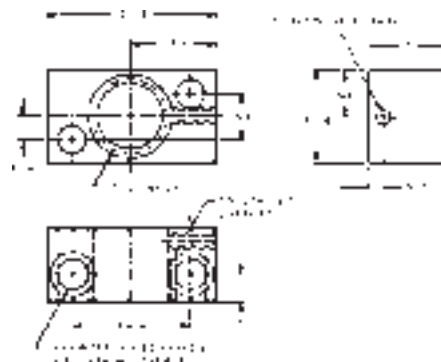


Description	Part Number
Mounting Block	60953
Hex Jam Nut	60964
Optional Arm	60923

Maximum Arm Length Vs. Pressure
Swing Cylinder with Single Arm



Mounting Block

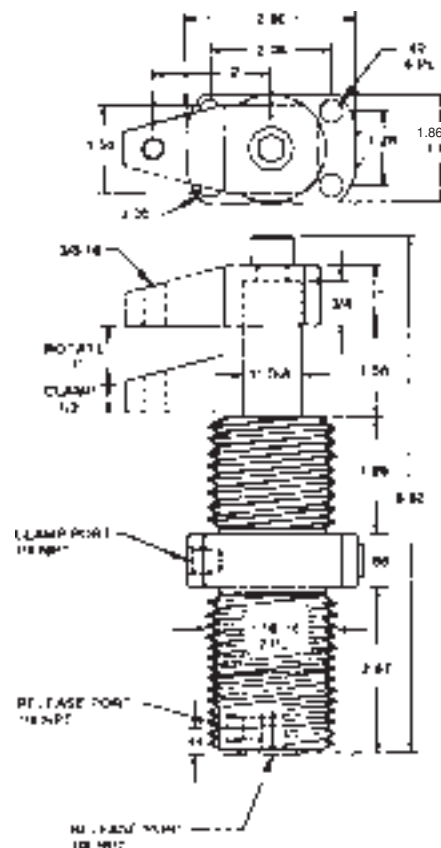


Swing Cylinders

Large



- Standard without an arm.
- Single or double arms are available.
- Can be mounted using four 3/8" cap screws, or the 1 7/8"-16 O.D. thread of the cylinder.
- Optional components include a jam nut or a mounting bracket to replace old Jergens part number 60621.
- Can be used as a non-rotating clamp.
- Maximum recommended flow rate is 90 cubic inches per minute per clamp. (Approximately 1 second clamp time.)
- **Note: Arm length can affect clamping pressures. See chart, page 11.2, for more information.**
- Available in FixturePro™ Design Software



**Jam Nut
Part
Number**

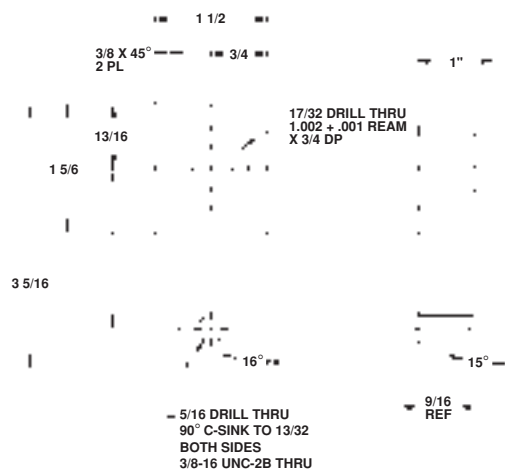
60967

Specifications

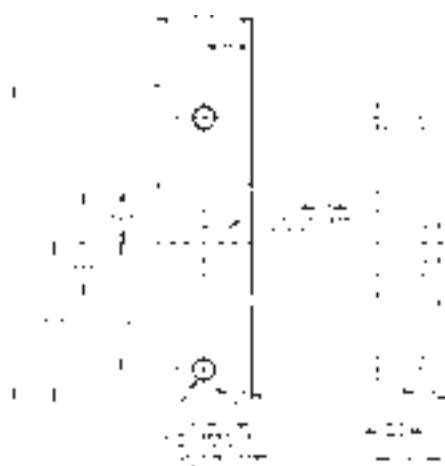
60681 Swing Cylinder	Clamp (pull)	Return (push)
Operating Volume (cu in)	1.5	2.7
Effective Piston Area (sq in)	.98	1.77
Minimum Operating Pressure (psi)	200	—
Maximum Operating Pressure (psi)	3000	3000
Maximum Output Force (lbs)	2900	5300
Stroke (in): Full	1.5	1.5
Rotating	1	1
Clamping	.50	.50
Weight (lbs)	5	5

Accessories

Single Arm Part Number	60921



Double Arm Part Number
60922



**Mounting Bracket
Part
Number**
60954



Swing Clamps



Jergens Swing Clamps are designed to swing 80° away from the workpiece to allow easy accessibility for part insertion or removal. Swing Clamps may be used in any attitude. The clamping arm may be positioned to swing either to the left or right by repositioning one cap screw. The right hand swing is standard.

- Right or Left Hand Swing
- 4800 lbs. Clamping Force
- Operates in any position
- Clamp arm has 1/4" of vertical travel
- Can be used with flood coolant
- Available in FixturePro™ Design Software

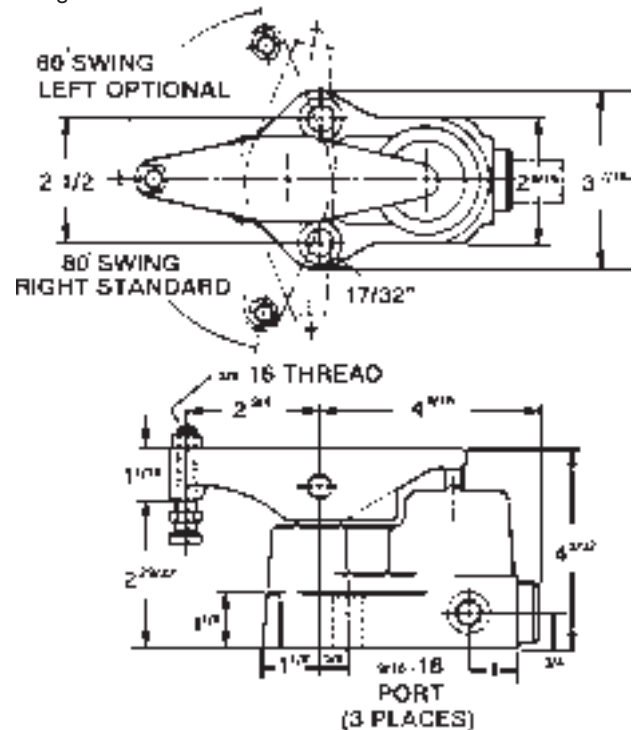
Specifications

Part Number	60685
Operating Volume (Cu. In.)	1.6
Minimum Operating Pressure (psi)	80*
Maximum Operating Pressure (psi)	3000
Maximum Output Force (lbs.)	4800
Weight (lbs.)	9.25

*80 psi to swing, 200 psi to clamp.

IMPORTANT:

Jergens Swing Clamps are built to operate on pre-fill systems allowing much larger circuits to be used. To use a Jergens Swing Clamp with a standard booster or with any other power source you **must** use the Flow Limit Valve shown below.

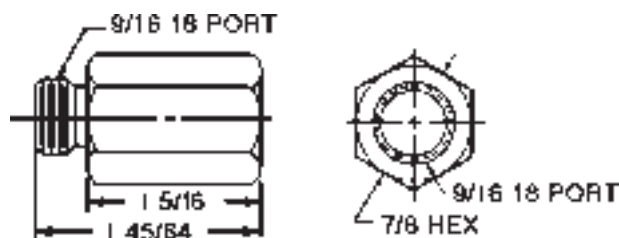


Flow Limit Valves

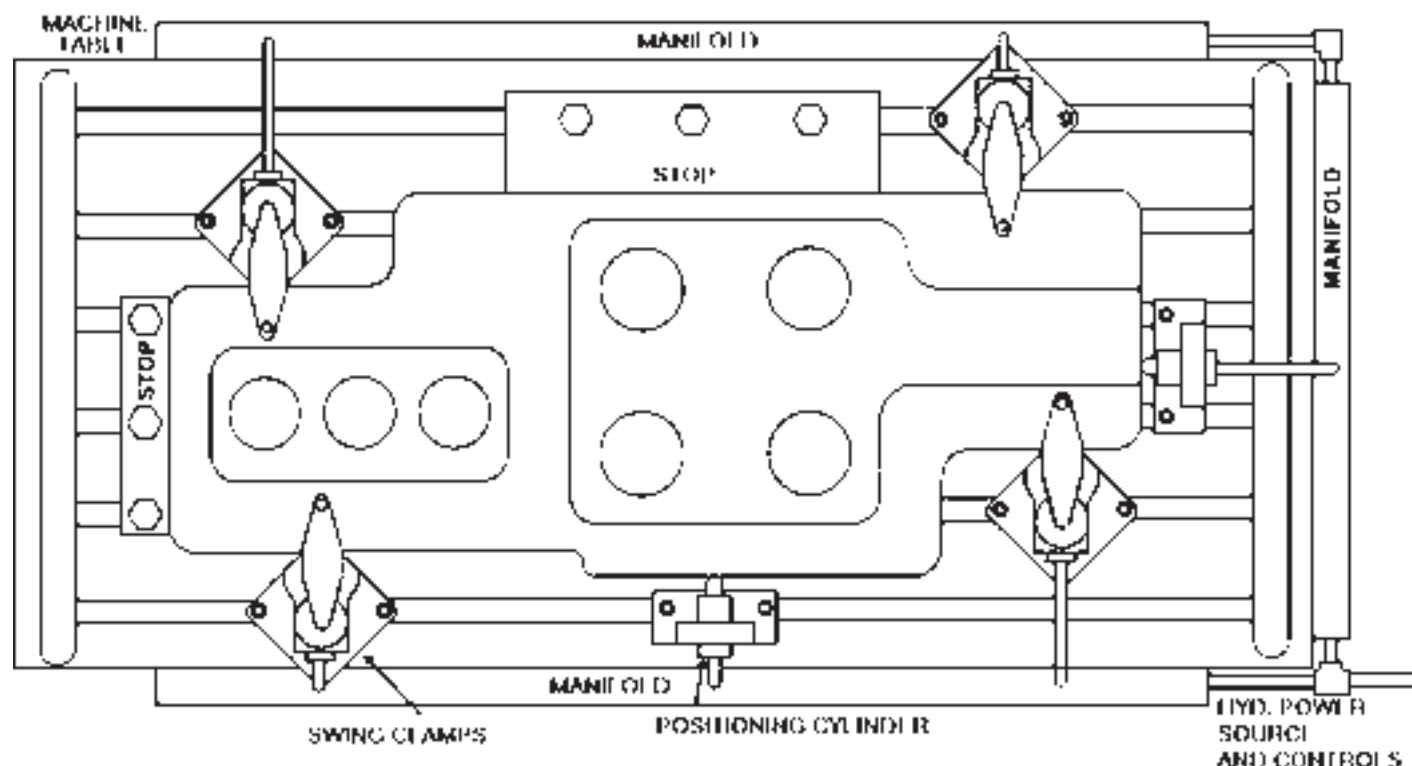


The Flow Limit Valve restricts the flow of oil to dampen the rotating action of the Swing Clamp. Flow Limit Valves are not needed with 36:1 or 71:1 Air Powered Hydraulic Pumps. (Part Number 61755 or 61756).

Part Number
61648



Swing Clamp Application



For hydraulic clamping directly on the machine table, use Jergens Swing Clamps and Mounting Plates. The workpiece is positioned using Threaded Cylinders and fixed stops. Manifolds at the edges of the table, with hydraulic quick disconnects, allow any number of clamps to be used.

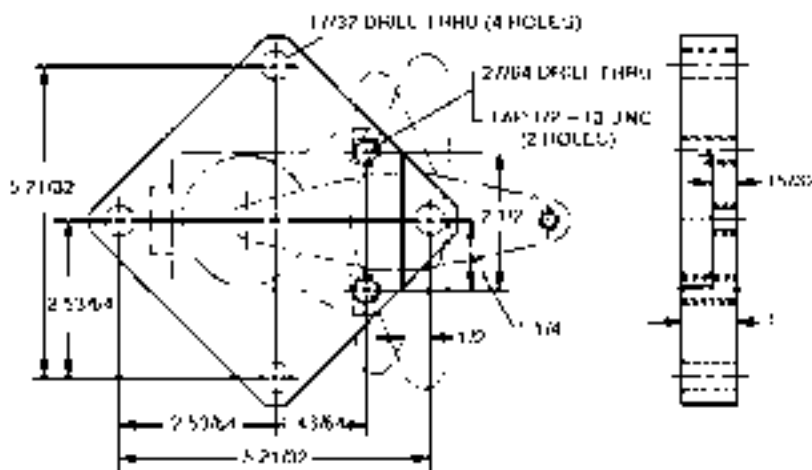
Mounting Plates



- Material: Low Carbon Steel
- Finish: Black Oxide
- Available in FixturePro™ Design Software

Part Number 60971

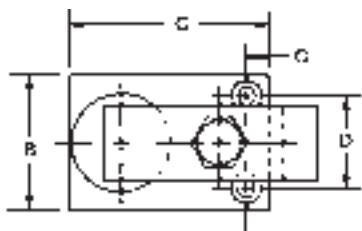
Mounting plates are subplates for Swing Clamps and are designed to save fixturing cost and allow versatility in set-ups. Mounting Plates may be bolted directly to your machine table and moved to any location on the table. Each mounting plate has pre-drilled mounting holes or can be easily adapted to your machine table or application.



Retracting Clamps



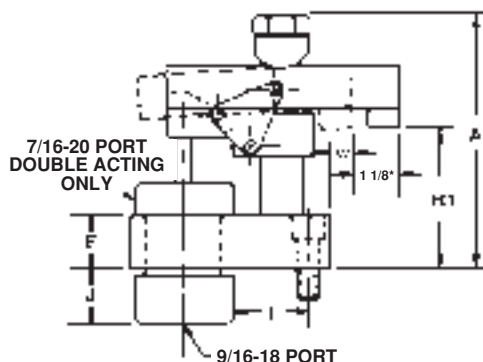
Patent Number
3,337,210



Retracting Clamps lift, then pull back over one inch, to allow easy access for insertion or removal of the workpiece. The clamps are available in single acting (spring return) and double acting (air or hydraulic return) styles. The clamp strap is supplied with a removable steel pad. See page 5.6 for replacement steel or brass pads.

Specifications

Part Number	60601	60602	60650	60651
Operating Volume (cu. in.)	1.11	2.85	1.00	2.85
Effective Piston Area (sq. in.)	1.22	3.14	1.10	3.14
Minimum Operating Pressure (psi)	25	25	25	25
Maximum Operating Pressure (psi)	3000	3000	3000	3000
Maximum Output Force (lbs.)	3600	9300	3300	9300
Weight (lbs.)	8.5	10	9.5	12.5



- Available in FixturePro™ Design Software

Single Acting Style*

Part Number	A	B	C	D	E	F	G	H†	J	Clamp Strap Size	Mounting Bolt Size
60601	5 1/8	3 1/8	4	2 1/8	1 1/4	1 3/4	1/2	2 5/8 ± 1/16	1 1/8	1 x 1 3/4 x 5	1/2-13 x 1 1/2
60602	5 1/8	4 3/8	4 1/2	3 1/4	1 1/4	1 3/16	9/16	2 5/8 ± 1/16	1 1/8	1 x 1 3/4 x 5	5/8-11 x 1 1/2

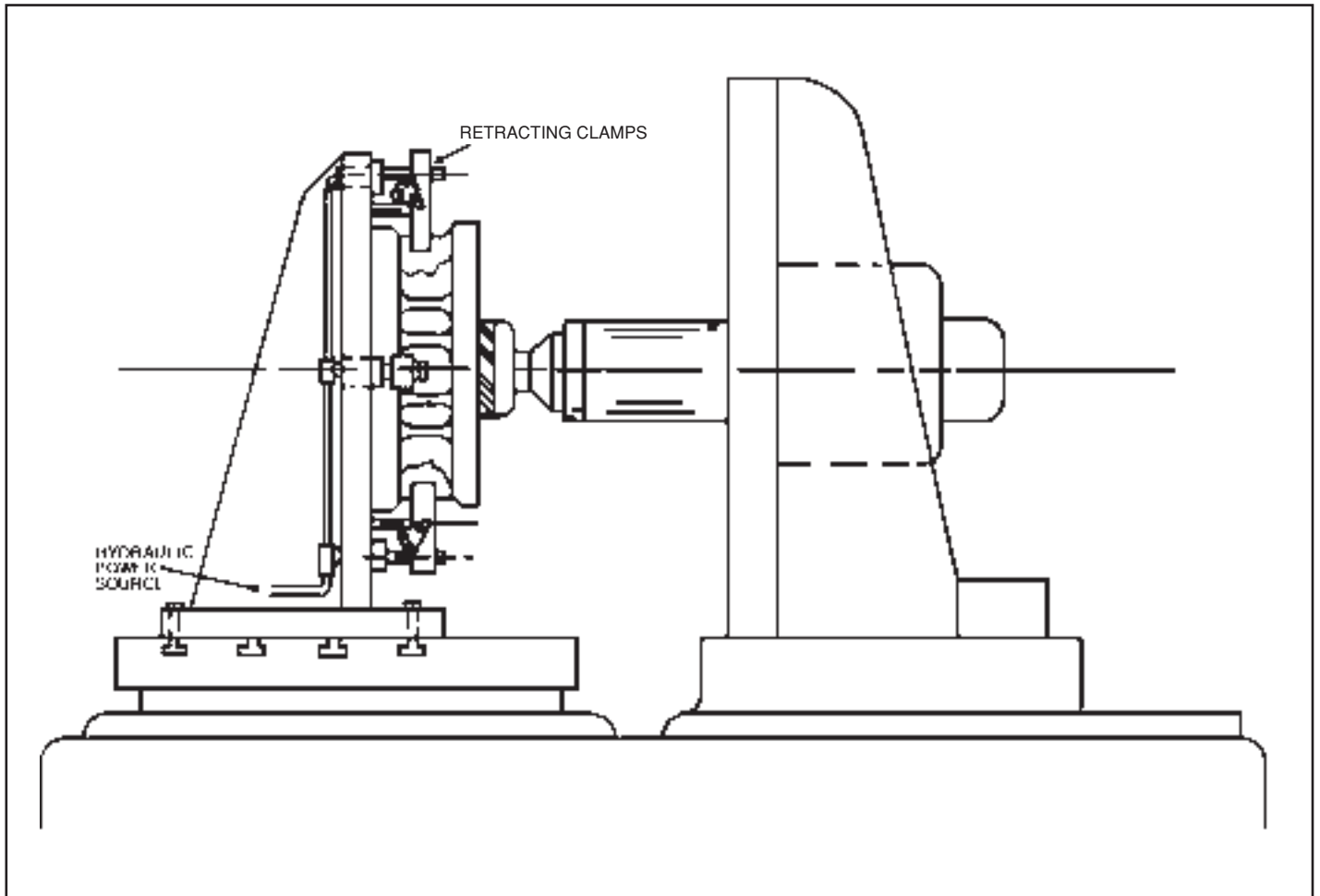
*Not recommended for applications where coolant or chips are prevalent. Use the double acting style for these applications.

Double Acting Style

Part Number	A	B	C	D	E	F	G	H†	J	Clamp Strap Size	Mounting Bolt Size
60650	5 5/8	3 1/8	4	2 1/8	1 1/4	1 1/4	1/2	3 1/8 ± 1/16	1 3/16	1 x 1 3/4 x 5	1/2-13 x 1 1/2
60651	5 5/8	4 3/8	4 1/2	3 1/4	1 1/4	15/16	9/16	3 1/8 ± 1/16	1 3/16	1 x 1 3/4 x 5	5/8-11 x 1 1/2

† Clamping Height Not Adjustable

Retracting Clamps Application



Boring Mill Application

The I.D. of the casting is located with a pilot locator on its vertical face. The Retracting Clamps move into a clamping position between the ribs in the casting. When it is time to change parts, the clamps retract out of the way for easier part removal. Jergens Swing Clamps or Swing Cylinders could also be used in this application.

Toe Clamps



Features

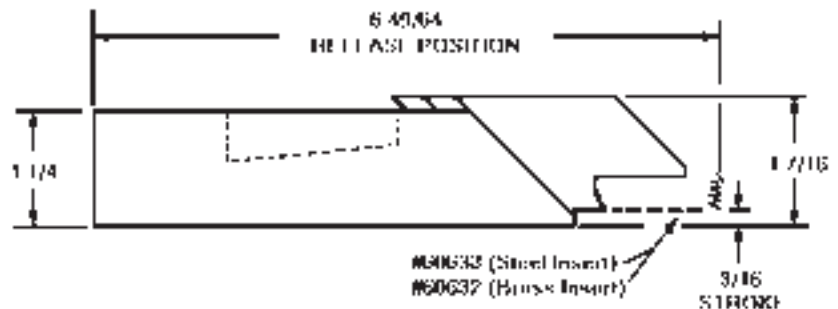
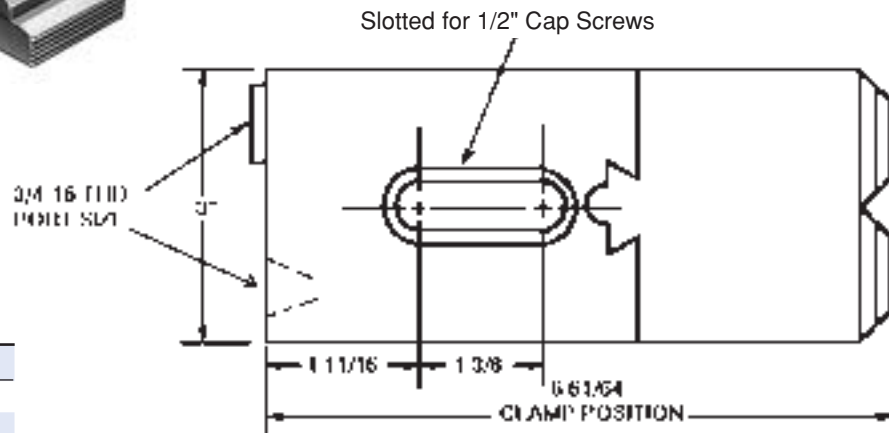
- Low Profile
- Direct Mounting
- 3/16" Stroke
- 3000 lbs. Force
- Steel or Brass Toe Insert Available
- Available in FixturePro™ Design Software

U.S. Patents:
No. 4406445

Specifications

Part Number	60631
Operating Volume (cu. in.)	.115
Minimum Operating Pressure (psi)	200
Maximum Output Force (lbs.)	3000
Overall Stroke	3/16

Toe Insert is not supplied with the Toe Clamp.
See below to order the Toe Inserts.

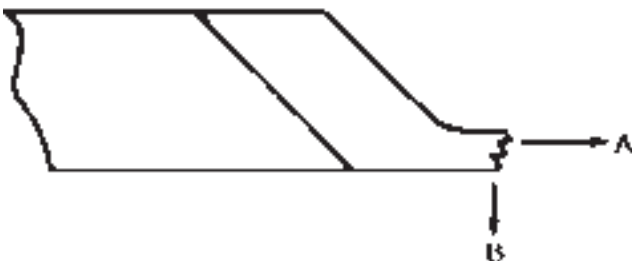


Toe Inserts

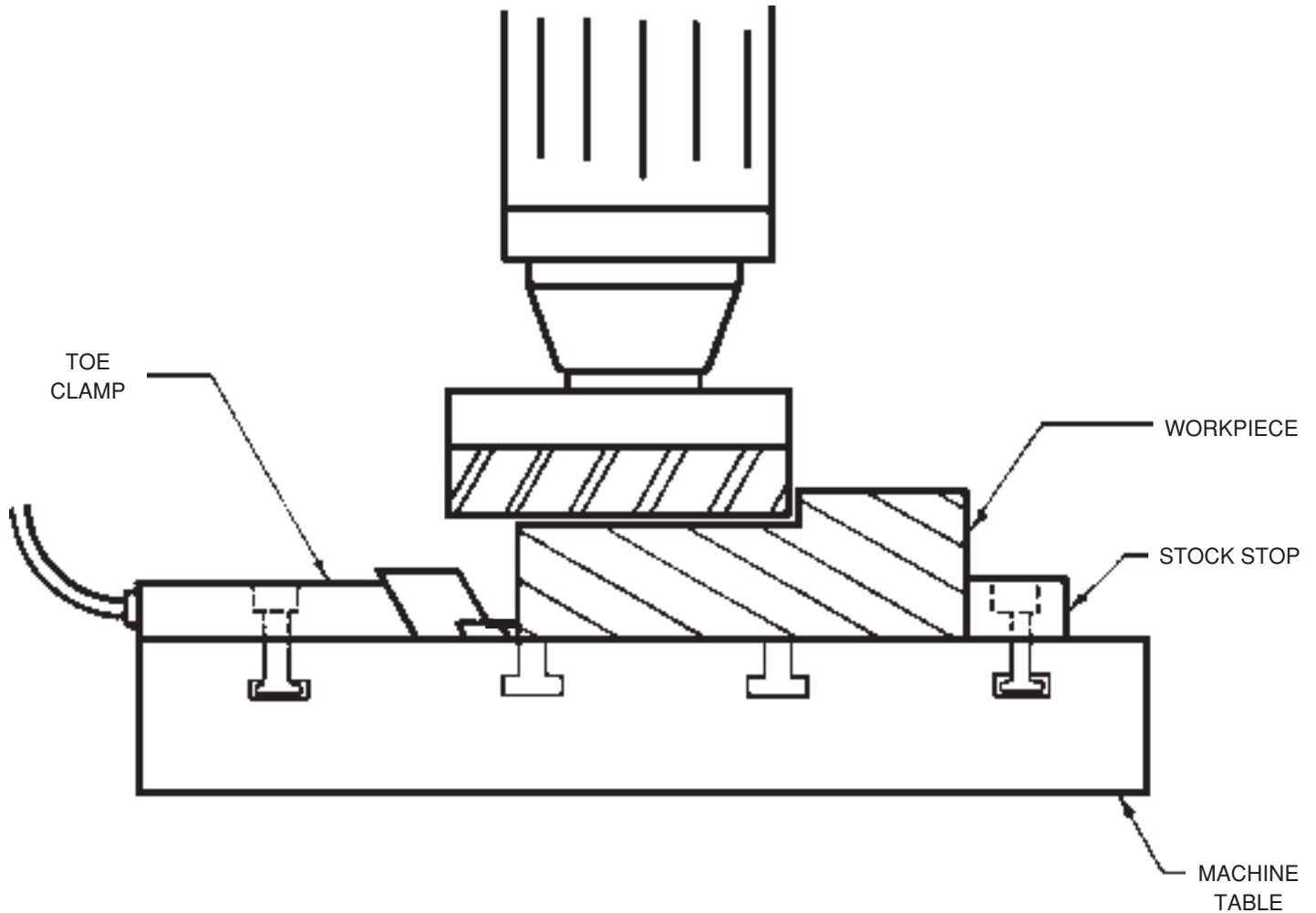
Part Number	Insert
60633	Steel
60632	Brass

A washer (60636), to prevent damage by the cap screw, is included with each clamp.

Hydraulic Pressure	Force in Pounds	
	A	B
1500	900	750
3000	1800	1500
5000	3000	2500

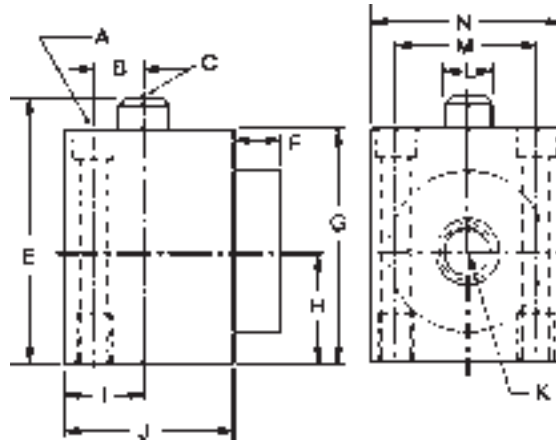


Toe Clamp Application



A Toe Clamp is used in applications where clamps cannot be on top of the workpiece due to the fact that the cutter must pass over that area. The clamp holds the workpiece against stop and down on the table. T-Slot mounting gives clamping versatility.

Work Supports



Part Number	Bolt Size		B	Tap C	Height E		F	G	H	I	J	Port K	L	M	N
	Thru A	Tapped A			Min	Max									
60513	1/4	5/16-24	.50	1/4-20	2.45	2.70	.49	2.36	1.12	.81	1.75	9/16-18	.5	1.5	2

Hydraulically-locked Work Supports differ from clamps and vises in that they do not actually exert force upon the workpiece. Rather, they are used to support the part being machined, offering resistance to any clamping forces acting counter to the direction of travel of the piston.

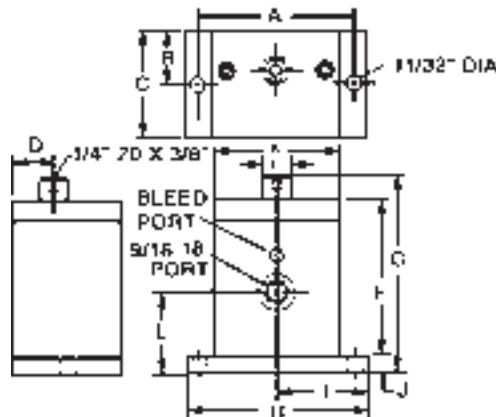
In a typical application, a large, thin casting is located on several tooling point pads for positioning. Work Supports will automatically adjust to support the delicate sections of the casting. When hydraulic pressure is applied, the floating pistons within the Work Support are locked in position and resist any downward movement exerted on the casting. After the casting is removed, the floating pistons return to their fully-raised position.

Specifications

Part Number	60513	60512
Operating Volume (cu. in.)	.04	.06
Support to Pressure Ratio	1.6:1	3.3:1
Minimum Operating Pressure (psi)	500	500
Maximum Operating Pressure (psi)	3000	3000
Maximum Support Capacity (lbs.)	5000	10000
Plunger Spring Start Force (lbs.)	2	14
Plunger Spring Finish Force (lbs.)	7	40
Weight (lbs.)	2.0	5.5

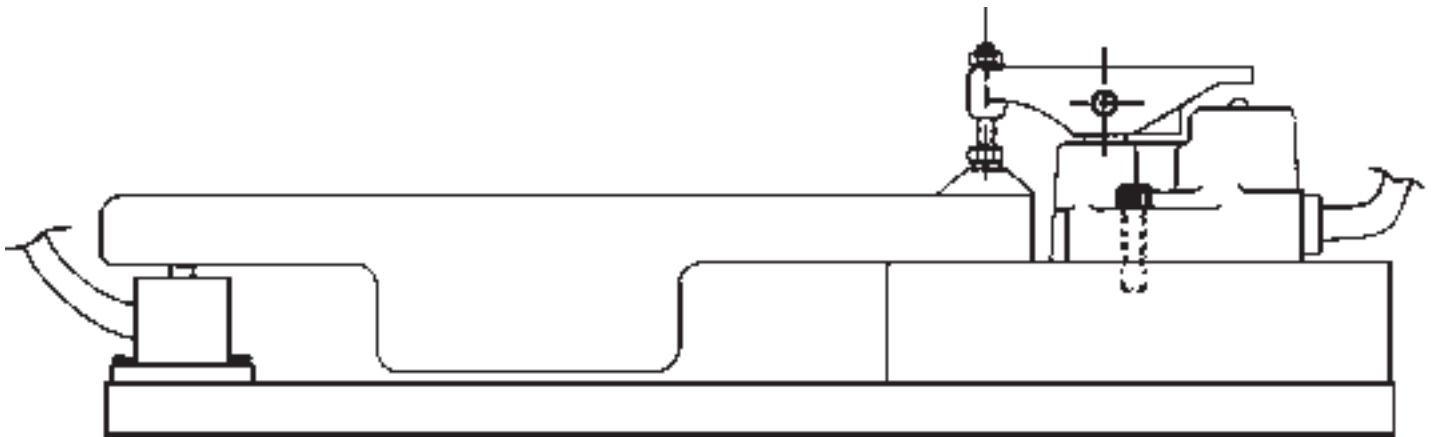


- Available in FixturePro™ Design Software

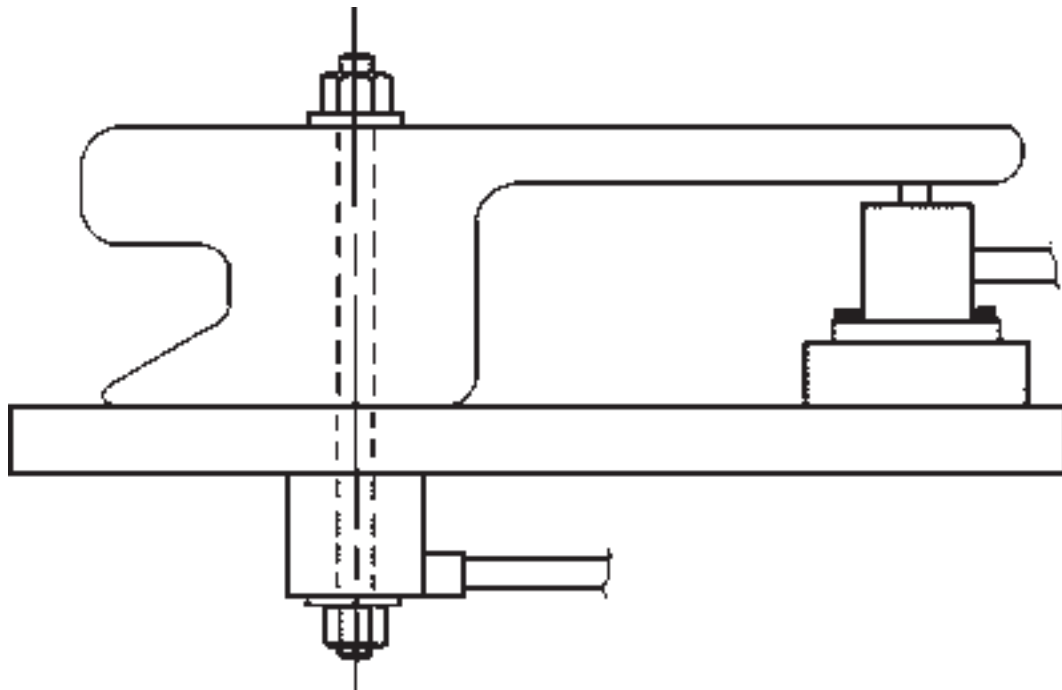


Part Number	A	B	C	D	E	F	G		H	I	J	K	L
							Min	Max					
60512	3 9/16	1 3/8	2 3/4	.990	5/8	3.69	4.15	4.65	4 3/16	2 3/32	3/8	3	1 7/8

Work Support Applications



The workpiece is located and clamped on the right end by a Jergens Swing Clamp. The Work Support resists the machining forces applied to the other end of the casting. Variations between castings are compensated for by the floating support plunger in the Work Support.



The top and bottom surfaces of the large casting must be machined to be flat, parallel, and at a fixed distance from each other. Jergens Work Supports eliminate deflection at the outer edge while compensating for variations between castings. A Jergens Hollow Rod Cylinder, stud and "C" washer are used to hold the casting.

Hollow Rod Cylinders



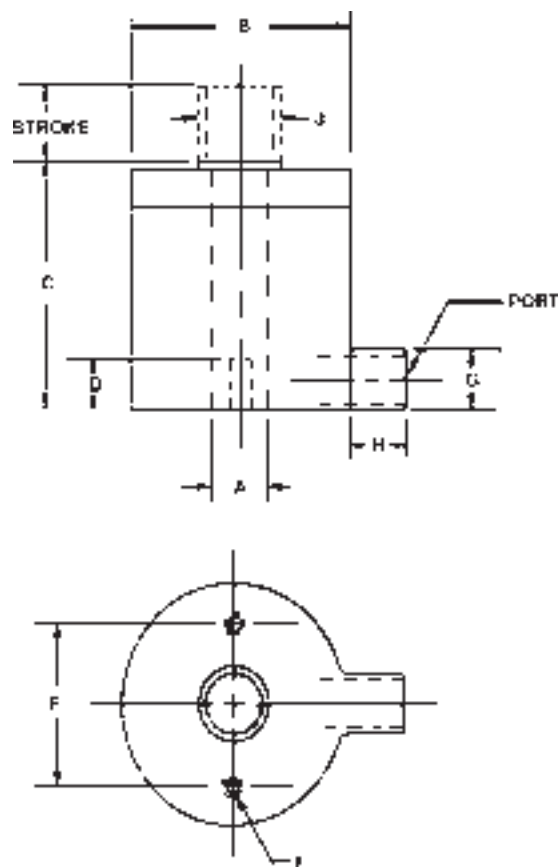
Hollow Rod Cylinders are ideal for converting existing fixtures to power clamping. Replaces clamps which use double cams, flange nuts, draw bars, or other mechanical devices. Generally, no special machining is required, just a longer stud.

Specifications

Part Number	60403 60404 60413 60414	60401 60402 60410 60411 60412	60405
Operating Stroke (in.)	.24	.31	.64
Operating Volume (cu. in.)	.3	.7	3.2
Effective Piston Area (sq. in.)	.96	1.9	5
Min. Oper. Pressure (psi)*	100	100	100
Max. Oper. Pressure (psi)	5000	5000	5000
Max Output Force (lbs.)	4800	9850	25000

* With Spring Installed

Hollow Rod Cylinders can either push or pull. Two styles are available, either Through Hole or Tapped Hole. In the Through Hole style, the piston rod is hollow to accept a bolt. The Tapped Hole cylinders accept a bolt threaded into the piston. Because of the piston design, the Tapped Hole style cannot gain stroke. Removing the return springs make the Hollow Rod Cylinders suitable for air operation.



Through Hole Cylinders

Part Number	A	B	C†	D	E	F	G	H	Rod Dia. J	Port Size	Wt. (lbs)
*60403	13/32	1 15/16	1 7/8	5/16	1 5/8	10-32	3/4	1/2	7/8	7/16-20	1.0
*60404	17/32	1 15/16	1 7/8	5/16	1 5/8	10-32	3/4	1/2	7/8	7/16-20	1.0
60401	21/32	2 1/2	2 3/16	5/16	2 7/32	10-32	7/8	3/8	1 1/4	9/16-18	2.5
60402	25/32	2 1/2	2 3/16	5/16	2 7/32	10-32	7/8	7/8	1 1/4	9/16-18	2.5
60405	1 1/64	4	3 9/16	5/8	3 1/2	1/4-28	No Boss		2 1/8	9/16-18	10.5

*Cannot increase stroke

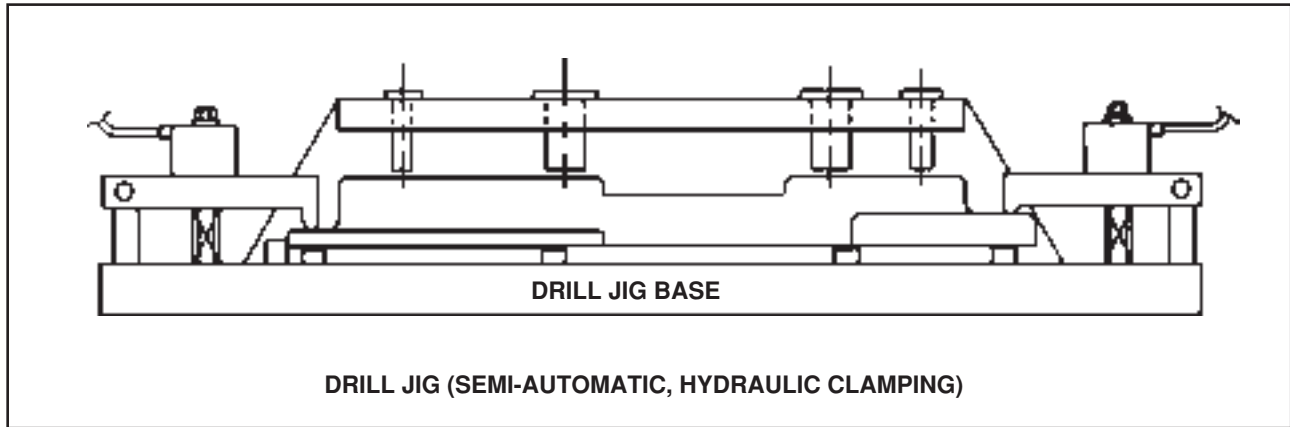
† Measured over piston in the retracted position.

- Available in FixturePro™ Design Software

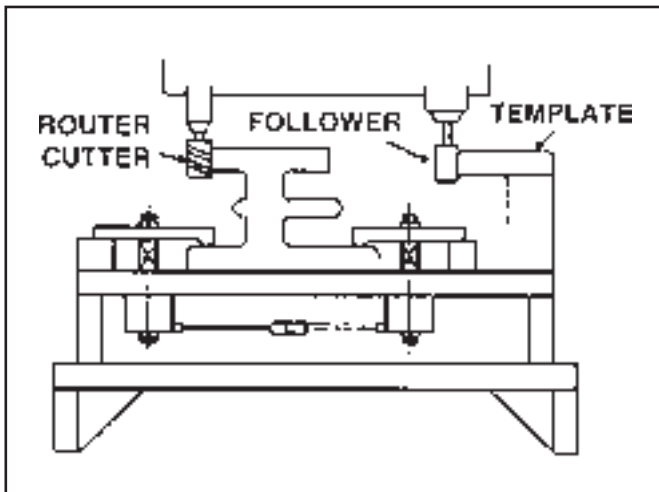
Tapped Hole Cylinders

Part Number	A	B	C	Thd. Depth D	E	F	G	H	J	Port Size	Wt. (lbs)
60413	3/8-16	1 15/16	1 13/16	5/16	1 5/8	10-32	3/4	1/2	7/8	7/16-20	1.0
60414	1/2-13	1 15/16	1 13/16	5/16	1 5/8	10-32	3/4	1/2	7/8	7/16-20	1.0
60410	1/2-13	2 1/2	2 3/16	5/16	2 7/32	10-32	7/8	7/8	1 1/4	9/16-18	2.5
60411	5/8-11	2 1/2	2 3/16	5/16	2 7/32	10-32	7/8	7/8	1 1/4	9/16-18	2.5
60412	3/4-10	2 1/2	2 3/16	5/16	2 7/32	10-32	7/8	7/8	1 1/4	9/16-18	2.5

Hollow Rod Cylinder Applications



Typical, low cost conversion from manual clamping to Hollow Rod Cylinders can be accomplished by using the existing drill jig clamps and changing the stud to a longer length. Besides clamping faster than the manual method, the Hollow Rod Cylinders allow for uniform clamping forces on all strap clamps.



The Hollow Rod Cylinder is ideal for "close to the machine base" strap clamping. By mounting the clamps under the work table, a manual clamping set-up can be easily and economically converted to hydraulic clamping.

Threaded Cylinders

Pressure Points

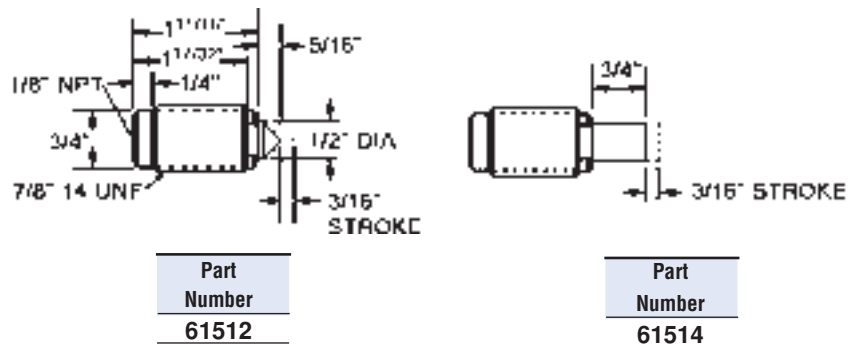


Jergens Pressure Points may be used with any power source and are designed to be used in restricted areas where space is at a minimum. Pressure Points can be used to eliminate part distortion during machining operations or to hold large diameter castings or rings in place while machining the upper surface. Pressure Points have hardened tool steel tips (50-60Rc). Jam nuts are included. Not suitable for air operation.

Specifications

- Available in FixturePro™ Design Software

Part Number	61512	61514
Operating Stroke (in.)	3/16	3/16
Operating Volume (cu. in.)	.037	.037
Effective Piston Area (sq. in.)	.20	.20
Minimum Operating Pressure (psi)	400	400
Maximum Operating Pressure (psi)	5000	5000
Maximum Output Force (lbs.)	1000	1000
Weight (lbs.)	.5	.6



Miniature Cylinders

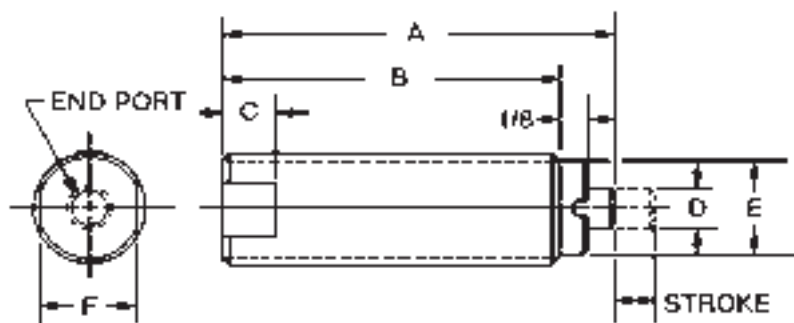


Small, fully-threaded bodies ensure easy mounting and simple length adjustments. Their small size provides high workholding forces in tight places. Threaded Cylinders have hardened piston rods, steel bodies, alloy springs and Teflon® back-up rings which ensure trouble-free operation and long life. Not suitable for air operation. For mounting, see brackets on page 11.17. Jam nuts are included.

Specifications

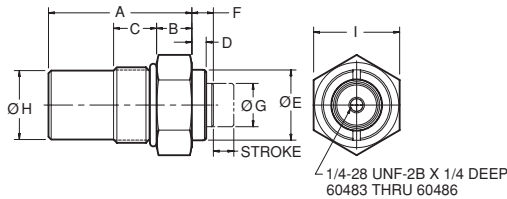
- Available in FixturePro™ Design Software

Part Number	60461	60462
Operating Stroke (in.)	3/16	1/2
Operating Volume (cu. in.)	.018	.049
Effective Piston Area (sq. in.)	.096	.196
Minimum Operating Pressure (psi)	200	300
Maximum Operating Pressure (psi)	10000	10000
Maximum Output Force (lbs.)	960	1960
Weight (lbs.)	.5	.7



Part Number	Stroke	Body Thread	A	B	C	D	E	F	End Port
60461	3/16	1/2-20	1 13/16	1 9/16	1/4	3/16	3/8	7/16	1/16-27 NPTF
60462	1/2	3/4-16	2 3/8	2	5/16	1/4	21/32	5/8	1/8-27 NPTF

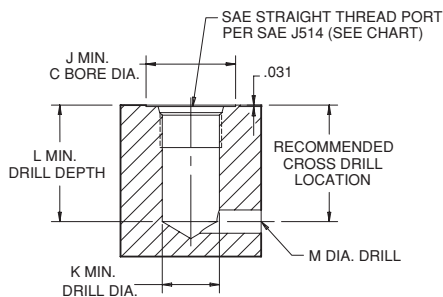
Manifold Mount Cylinders



Specifications

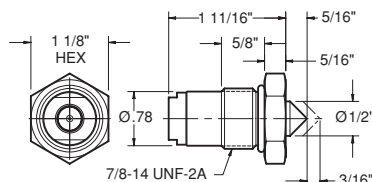
Part Number	60481	60482	60483	60484	60485	60486
Operating Stroke (in.)	3/16	1/2	1/2	1	1/2	1
Operating Volume (cu. in.)	0.017	0.098	0.393	0.785	0.884	1.767
Effective Piston Area (sq. in.)	0.093	0.196	0.785	0.785	1.767	1.767
Minimum Operating Pressure (psi)	200	200	200	200	200	200
Maximum Operating Pressure (psi)	5000	5000	5000	5000	5000	5000
Maximum Output Force (lbs.)	465	980	3925	3925	8835	8835
Weight (lbs.)	0.5	0.7	1	1.5	2	2.5

Part No.	Body Thread	Stroke	A	B	C	D	E Dia.	F	G Dia.	H Dia.	I Hex.
60481	9/16-18 UNF	3/16	1 13/32	.375	1/2	1/8	3/8	1/4	3/16	.48	3/4
60482	3/4-16 UNF-2A	1/2	1 23/32	.375	9/16	1/8	41/64	3/8	1/4	.66	7/8
60483	1 5/16-12 UN-2A	1/2	2 1/2	.615	3/4	1/4	1 7/32	5/16	3/4	1.19	1 1/2
60484	1 5/16-12 UN-2A	1"	3	.615	3/4	1/4	1 7/32	5/16	3/4	1.19	1 1/2
60485	1 7/8-12 UN-2A	1/2	2 1/2	.615	3/4	1/4	1 47/64	5/16	1 1/4	1.75	2 1/8
60486	1 7/8-12 UN-2A	1"	3	.615	3/4	1/4	1 47/64	5/16	1 1/4	1.75	2 1/8

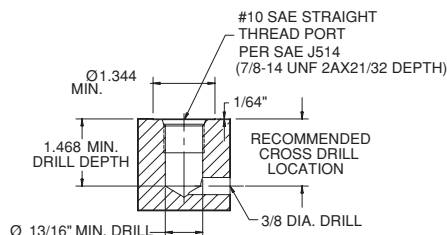


Part No.	SAE No.	Thread Size	Thread Depth	J	K	L	M
60481	6	9/16-18 UNF	1/2	.970	1/2	1.09	1/4
60482	8	3/4-16 UNF-2A	9/16	1.19	11/16	1.41	5/16
60483	16	1 5/16-12 UN-2A	3/4	1.91	1 7/32	2.00	1/2
60484	15	1 5/16-12 UN-2A	3/4	1.91	1 7/32	2.50	1/2
60485	24	1 7/8-12 UN-2A	3/4	2.56	1 13/16	2.00	9/16
60486	24	1 7/8-12 UN-2A	3/4	2.56	1 13/16	2.50	9/16

Pressure Points



61522



61524

Specifications

Part Number	61522	61524
Operating Stroke (in.)	3/16	3/16
Operating Volume (cu. in.)	0.049	0.049
Effective Piston Area (sq. in.)	0.261	0.261
Minimum Operating Pressure (psi)	400	400
Maximum Operating Pressure (psi)	5000	5000
Maximum Output Force (lbs.)	1305	1305
Weight (lbs.)	0.5	0.5

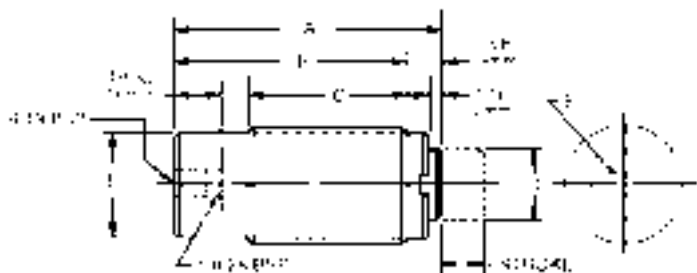
Threaded Cylinders

Heavy-Duty



Full-threaded bodies ensure easy mounting and simple length adjustments. Their small size provides high work holding forces in tight places. Threaded Cylinders have hardened piston rods, steel bodies, alloy springs and Teflon® back-up rings which ensure trouble-free operation and long life. Not suitable for air operation. For mounting, see bracket and jam nuts on page 11.17.

- Compact Design
- Easy Installation
- Side and Rear Ports
- Tapped Piston



Inch

Part Number	Stroke	Body Thread	A	B	C	D	E	F	Input Ports	
									End	Side
60463	1/2	1 5/16-16	3 1/4	2 7/8	2	3/4	1/4-28 x 1/4	1 7/32	7/16-20 SAE	1/8-NPT
60464	1	1 5/16-16	3 3/4	3 3/8	2 1/2	3/4	1/4-28 x 1/4	1 7/32	7/16-20 SAE	1/8-NPT
60465	1/2	1 7/8-16	3 1/4	2 7/8	2	1 1/4	1/4-28 x 1/4	1 25/32	7/16-20 SAE	1/8-NPT
60466	1	1 7/8-16	3 3/4	3 3/8	2 1/2	1 1/4	1/4-28 x 1/4	1 25/32	7/16-20 SAE	1/8-NPT

Cylinders are supplied with a plug installed in the side port.

To use side port, remove plug and install part number 61060 (7/16-20 pipe plug) to plug end port.

Metric

Part Number	Stroke	Body Thread	A	B	C	D	E	F	Input Ports	
									End	Side
63213	13	M36 x 1.5	82	73	51	19	M6 x 1.0 x 6	31	1/4 - 19 BSP	1/8 - 28 BSP
63214	25	M36 x 1.5	95	86	64	19	M6 x 1.0 x 6	31	1/4 - 19 BSP	1/8 - 28 BSP
63215	13	M48 x 1.5	82	73	51	32	M6 x 1.0 x 6	44	1/4 - 19 BSP	1/8 - 28 BSP
63216	25	M48 x 1.5	95	86	64	32	M6 x 1.0 x 6	44	1/4 - 19 BSP	1/8 - 28 BSP

Cylinders are supplied with a plug installed in the side port.

Specifications - Inch

Part Number	60463	60464	60465	60466
Operating Stroke (in.)	1/2	1	1/2	1
Operating Volume (cu. in.)	.392	.785	.883	1.767
Effective Piston Area (sq. in.)	.785	.785	1.767	1.767
Minimum Operating Pressure (psi)	200	200	200	200
Maximum Operating Pressure (psi)	5000	5000	5000	5000
Maximum Output Force (lbs.)	3925	3925	8835	8835
Weight (lbs.)	1.0	1.5	2.0	2.5

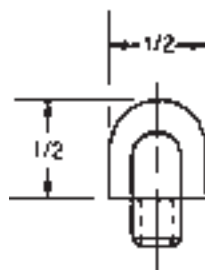
Specifications - Metric

Part Number	63213	63214	63215	63216
Operating Stroke (mm)	13	25	13	25
Operating Volume (cu. Cm.)	6.4	12.8	14.5	29
Effective Piston Area (cm ²)	5	5	29	29
Maximum Oper. Pressure (bars)	340	340	340	340
Minimum Oper. Pressure (bars)	14	14	14	14
Maximum Output Force (kg)	1780	1780	4007	4007
Weight (kg)	.45	.68	.90	1.13

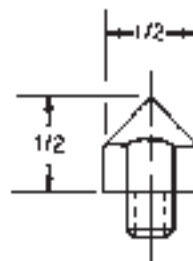
Threaded Cylinders Piston Buttons



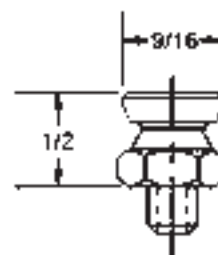
Hardened steel buttons for use on 60463 thru 60466 cylinders.



60471



60472

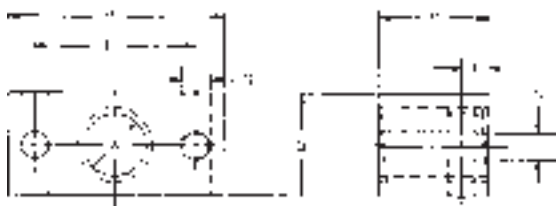


60473

Threaded Cylinders Block Mountings



- Material: Low Carbon Steel
- Finish: Black Oxide

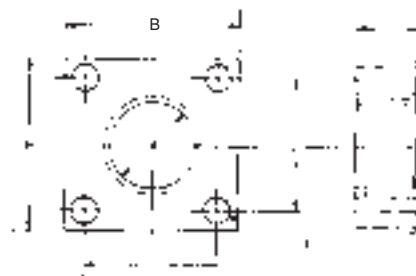


Part Number	A	B	C	D	E	F	G	Wt. (lbs)
60950	1/2-20	1 3/8	3/4	5/8	15/16	1/4	1/4	.125
60951	3/4-16	1 5/8	1 1/8	1	1 1/8	1/4	1/4	.375
60959	7/8-14	2	3/4	1 1/2	1 1/2	3/8	21/64	.40
60956	1 5/16-16	3	1 1/4	1 13/16	2 1/8	7/16	25/64	1.27
60957	1 9/16-16	3 1/4	1 1/2	2	2 7/16	7/16	25/64	1.95
60958	1 7/8-16	4	2	2 3/8	3	1/2	33/64	—

Flange Mountings



- Material: Low Carbon Steel
- Finish: Black Oxide



Part Number	A	B	C	D	E	Wt. (lbs)
60952	1 5/16-16	1 5/8	1/2	1 1/4	17/64	.18
60955	1 9/16-16	2	1	1 1/2	17/64	.56
60954	1 7/8-16	2 1/4	1	1 3/4	21/64	.625

Jam Nuts



Part Number	60961	60962	60963	60964	60965	60966	60967
Thread	1/2-20	3/4-16	7/8-14	1-12	1 5/16-16	1 9/16-16	1 7/8-16
Thickness	5/16	3/8	5/16	35/64	25/64	25/64	7/16
Width Across Flats	3/4	1 1/8	1 5/16	1 5/8	1 7/8	2 1/4	3

Standard Cylinders

Single Acting

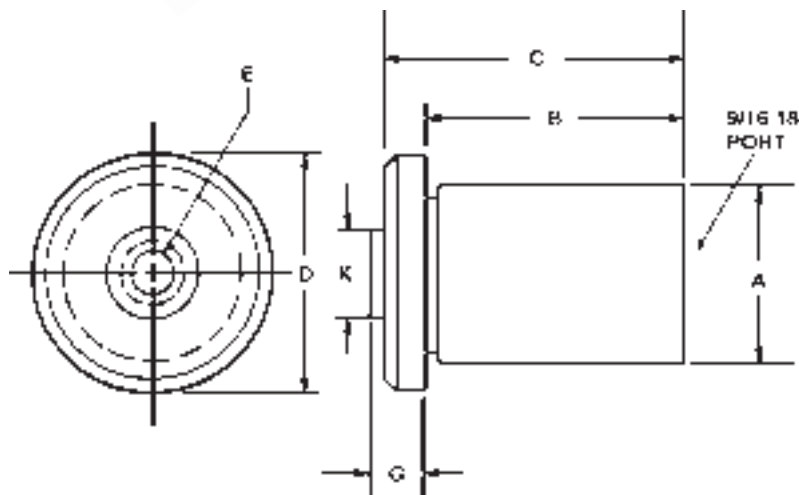


These single-acting, spring-return cylinders will operate on air or oil; all have a 1" stroke.

Single-acting cylinders are especially applicable to large circuits where cylinders are plumbed into the air side of the circuit and used to align parts in the fixture prior to hydraulic clamping. These applications are primarily pushing type operations where the cylinder return spring pulls only the piston rod.

- Available in FixturePro™ Design Software

NOTE: Not recommended for applications where coolant or chips are prevalent. Use double acting style (next page) for these applications



Specifications

Part Number	60301	60307	60303
Operating Stroke (in.)	1	1	1
Operating Volume (cu. in.)	.44	1.22	3.14
Effective Piston Area (sq. in.)	.44	1.22	3.14
Minimum Operating Pressure (psi)	32	25	25
Maximum Operating Pressure (psi)	3000	3000	3000
Maximum Output Force (lbs.)	1320	3660	9300
Weight (lbs.)	.5	1	3

Bore Tolerances: +.0005
-.0010

Dimensions

Part Number	A	B	C	D	Tap E	G	K
60301	1.000	2 3/8	2 5/8	1 15/64	1/4-20 x 1/2	7/16	3/8
60307	1.500	2 3/8	2 5/8	1 47/64	3/8-16 x 3/4	7/16	1/2
60303	2.500	2 3/8	2 5/8	2 47/64	3/8-16 x 3/4	7/16	3/4

Standard Cylinders

Double Acting

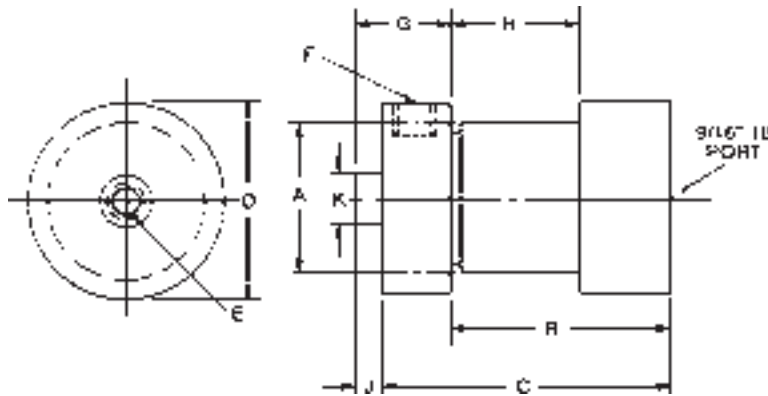


Double Acting Cylinders can be used for clamping, holding positioning, staking, punching...anywhere that a heavy duty cylinder is needed. If the cylinder is mounted in the fixture (as opposed to using mounting brackets), the fixture should be bored to between .0005 and .0010 over the "A" dimension. Doing so will prevent an out-of-round condition of the cylinder body which could damage the piston. They may be returned by air or by hydraulic pressure.

- Available in FixturePro™ Design Software

Specifications

Part Number	60345	60341	60350	60351	60360	60361
Operating Stroke (in.)	1	1	2	2	3	3
Operating Volume (cu. in.)	1.1	3.14	2.2	6.28	3.31	9.42
Effective Piston Area (sq. in.)	-Push 1.1 -Pull .912	3.14 2.699	1.1 .956	3.14 2.699	1.1 .956	3.14 2.699
Minimum Operating Pressure (psi)	20	20	20	20	20	20
Maximum Operating Pressure (psi)	3000	3000	3000	3000	3000	3000
Maximum Output Force (lbs.)	3300	9300	3300	9300	3300	9300
Weight (lbs.)	2.5	4.5	3.5	6.0	4.75	6.2



Dimensions

Part Number	A	B	C	D	Tap E	Return Port F	G	H	J	K
60345	1.500	2 7/16	3 1/8	2 15/32	3/8-16 x 3/4	7/16-20	31/32	1 9/32	1/4	1/2
60341	2.500	2 7/16	3 1/8	2 31/32	3/8-16 x 3/4	7/16-20	31/32	1 9/32	1/4	3/4
60350	1.500	3 1/2	4 1/2	2 15/32	1/4-20 x 1/2	9/16-18	1 7/32	2 11/32	1/4	7/16
60351	2.500	3 1/2	4 15/32	2 31/32	3/8-16 x 3/4	9/16-18	1 3/16	2 11/32	1/4	3/4
60360	1.500	4 1/2	5 1/2	2 15/32	1/4-20 x 1/2	9/16-18	1 7/32	3 11/32	1/4	7/16
60361	2.500	4 1/2	5 15/32	2 31/32	3/8-16 x 3/4	9/16-18	1 3/16	3 11/32	1/4	3/4

Standard Cylinders Mounting Brackets



Mounting Brackets are designed to save you time and money when laying out your fixture.

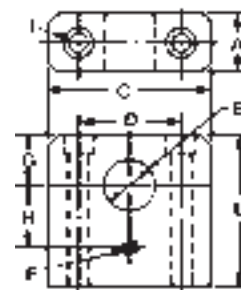
All Mounting Brackets are made of low carbon steel, which is not heat-treated. This allows you to custom fit or weld the brackets into your fixture. The cylinder clamping area is concentric to the OD of the various cylinders to avoid distortion of the cylinder walls which may cause damage to the piston.

Spacers may be used to add height to the cylinders when using Jergens Mounting Brackets.

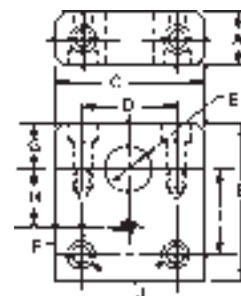
- Material: Low Carbon Steel
- Finish: Black Oxide
- Bore Tolerances: +.0005
-.0010
- Available in FixturePro™ Design Software



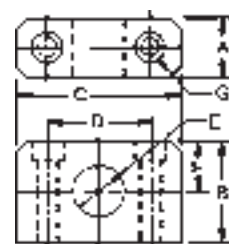
Part Number	A	B	C	D	E	Tap F	G	H	(2 Bolts Supplied) I	Wt. (lbs)
60901	1 1/4	3 3/4	2 3/8	1 1/2	1.00	1/2-13	3/4	2	3/8-16 x 4	2.75
60902	1 1/4	4	3 1/2	2 1/8	1.50	3/4-10	1	2	1/2-13 x 4 1/2	3.5
60903	1 1/4	4 1/2	4 3/8	3 1/4	2.50	3/4-10	1 1/2	2	5/8-11 x 5	4.75



Part Number	A	B	C	D	E	Tap F	G	H	I	(2 Bolts Supplied) J	Wt. (lbs)
60904	1 1/4	3 3/4	2 3/8	1 1/2	1.00	1/2-13	3/4	2	2 9/16	3/8-16 x 1 1/2	2.7
60905	1 1/4	4	3 1/8	2 1/8	1.50	3/4-10	1	2	2 1/2	1/2-13 x 1 1/2	3.5
60906	1 1/4	4 1/2	4 3/8	3 1/4	2.50	3/4-10	1 1/2	2	2 7/16	5/8-11 x 1 1/2	4.7



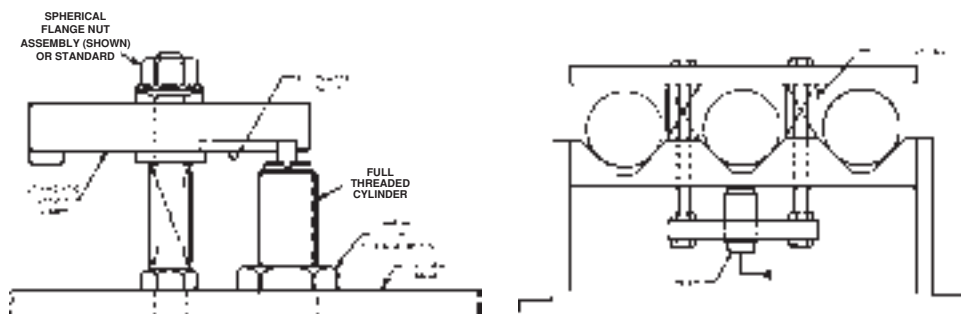
Part Number	A	B	C	D	E	F	(2 Bolts Supplied) G	Wt. (lbs)
60907	1 1/4	1 1/2	2 3/8	1 1/2	1.00	3/4	3/8-16 x 1 3/4	.95
60908	1 1/4	2	3 1/8	2 1/8	1.50	1	1/2-13 x 2 1/4	1.50
60909	1 1/4	3	4 3/8	3 1/4	2.50	1 1/2	5/8-11 x 3 1/4	2.75



Threaded Cylinder Applications

By replacing step blocks or similar mechanical devices with a threaded cylinder, manual clamping is easily adaptable into a more productive hydraulic clamping set-up.

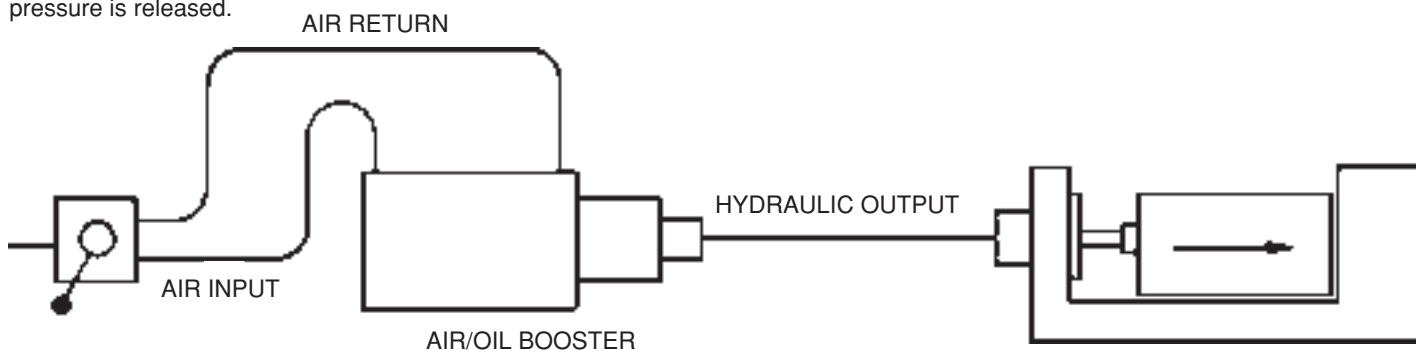
This principle of "building block" components can be combined with various Jergens cylinders, standard components and mounting blocks or strap clamps; thus allowing an almost infinite method of production clamping.



Standard Cylinder Applications

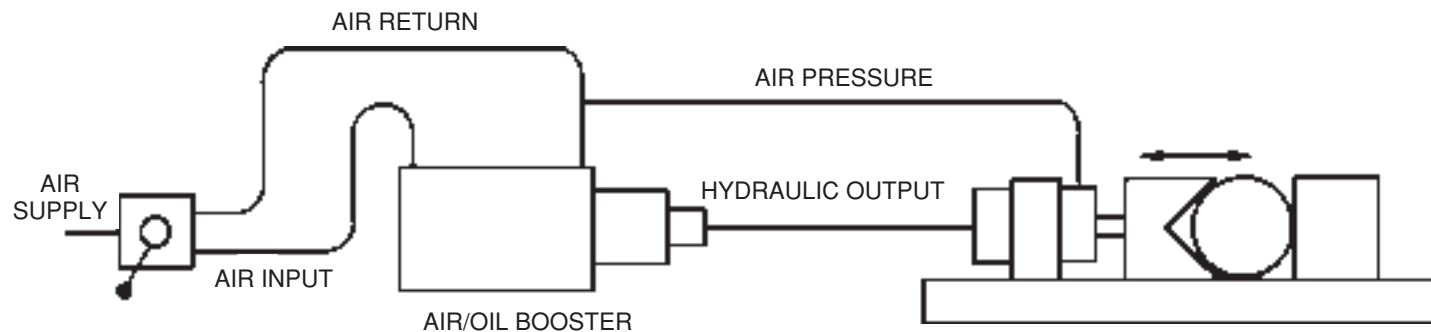
Holding Fixture

A Single Acting Cylinder is used to locate and clamp the workpiece in a channel fixture. The cylinder rod automatically returns when the booster pressure is released.



Vise Fixture

A Double Acting Cylinder is being used to operate a Vee Jaw in the above fixture. Hydraulic pressure is used to clamp and unclamp the jaw. Air pressure, used to return the Double Acting Cylinder, is connected to the air return line of the Booster. Jergens Double Acting Cylinders will operate with as little as 10 psi of air pressure or up to 3000 psi of hydraulic pressure.

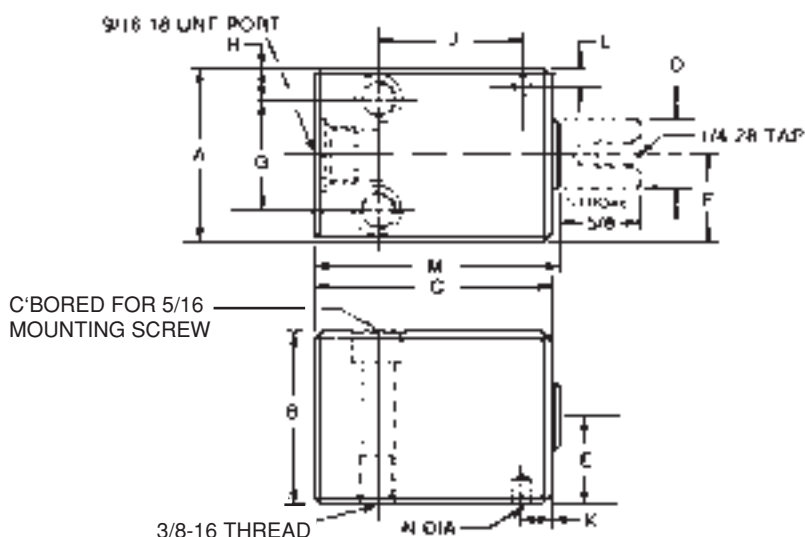


Block Cylinders

Single Acting Horizontal



- Vertical and Horizontal Styles
- Simple Mounting
- Compact Design



Dimensions (Horizontal Style)

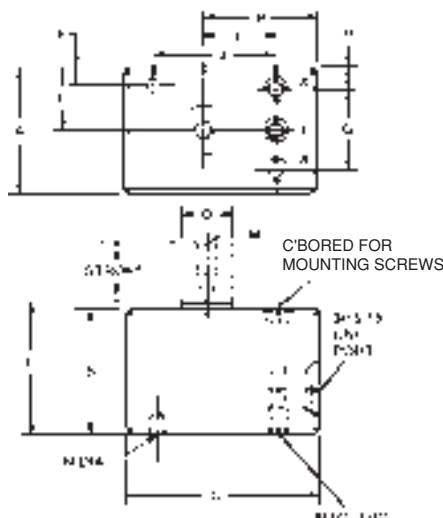
Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N
60372*	1 3/4	1 3/4	2 7/16	11/16	7/8	7/8	1	3/8	1 15/32	9/32	3/16	2 1/2	.194

Dimensions (Vertical Style)

Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Mtg. Screw Size	Mtg. Thread
60371*	1 3/4	1 3/4	2 1/2	11/16	1	7/8	1 1/8	5/16	1 11/16	1/4	1 13/16	1/4-28 UNF	.194	1 9/16	#10	1/4-20 UNC
60373	2 1/2	2 1/2	3 3/16	1 1/2	1 11/32	1 1/4	—	—	2 3/32	7/16	2 11/16	3/8-24 UNF	.257	1 15/16	5/16	3/8-16 UNC
60374	3 1/2	3	4	2	1 1/2	1 3/4	1 3/4	7/8	—	—	3 3/8	1/2-20 UNF	—	2 1/4	5/16	3/8-16 UNC

*Not recommended for applications where coolant or chips are prevalent.

Single Acting Vertical



Specifications (Both Styles)

Part Number	60371	60372	60373	60374
Operating Stroke (in.)	5/8	5/8	1/2	1/2
Operating Volume (cu. in.)	.77	.77	1.1	1.96
Effective Piston -Push	1.22	1.22	1.77	3.14
Area (sq. in) -Pull	Spring Return	Spring Return	Spring Return	Spring Return
Maximum Operating Pressure (psi)	5000	5000	5000	5000
Maximum Output Force (lbs.)	6100	6100	8850	15700
Weight (lbs.) Approx.	2	2	5	11
Mounting Location	X Position	As Shown	Y Position	X Position

"X" refers to double mounting hole style.

"Y" refers to single mounting hole style.

Block Cylinders

Heavy Duty Double Acting



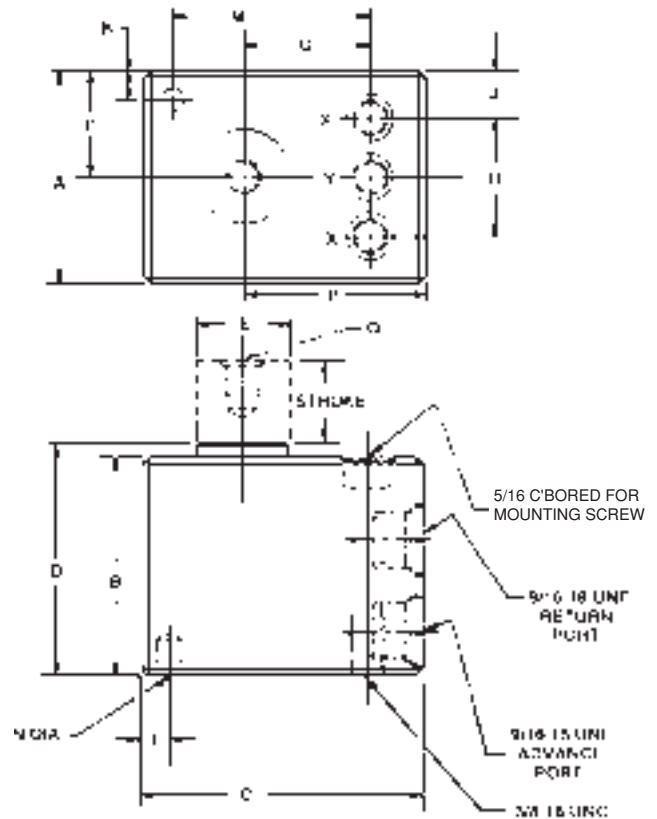
- Simple Mounting
- Compact Design
- High Output Forces

Specifications

Part Number	60381	60382	60383	60384
Operating Stroke (in.)	1/2	1	1/2	1
Operating Volume (cu. in.)	.88	1.77	1.57	3.14
Effective Piston -Push Area (sq. in.)	1.77	1.77	3.14	3.14
-Pull	.98	.98	1.37	1.37
Minimum Operating Pressure (psi)	20	20	20	20
Maximum Operating Pressure (psi)	5000	5000	5000	5000
Maximum Output Force (lbs.)	8850	8850	15700	15700
Weight (lbs.) Approx.	4	4.8	10.5	12.1
Mounting Location	Y Position		X Position	

"X" refers to double mounting hole style.

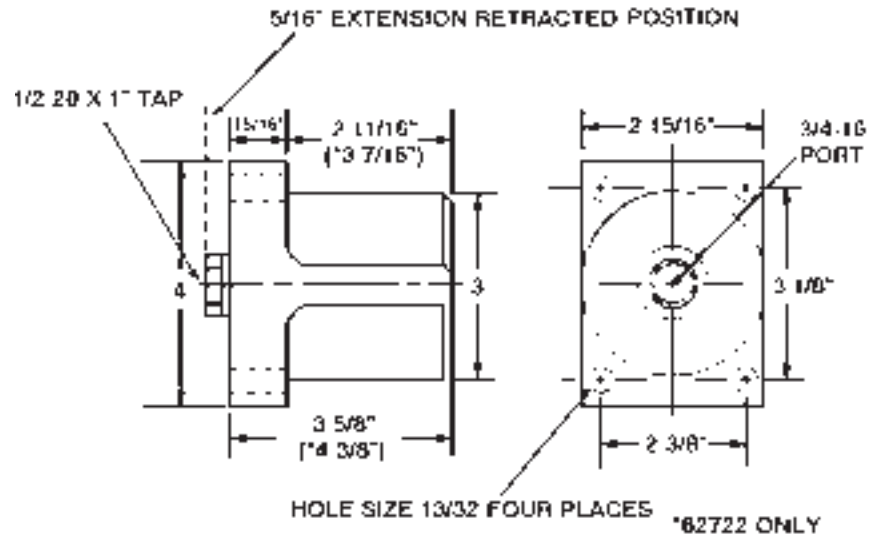
"Y" refers to single mounting hole style.



Dimensions

Part Number	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Stroke	Q
60381	2 1/4	2 5/16	3	2 7/16	1	1 1/8	1 11/32	—	—	5/16	5/16	2 3/32	.257	1 15/16	1/2	3/8-24 UNF-2B
60382	2 1/4	2 13/16	3	2 15/16	1	1 1/8	1 11/32	—	—	5/16	5/16	2 3/32	.257	1 15/16	1	3/8-24 UNF-2B
60383	3 1/4	3 1/4	3 3/4	3 3/8	1 1/2	1 5/8	1 1/2	1 3/4	3/4	—	—	—	—	2 1/4	1/2	1/2-20 UNF-2B
60384	3 1/4	3 3/4	3 3/4	3 7/8	1 1/2	1 5/8	1 1/2	1 3/4	3/4	—	—	—	—	2 1/4	1	1/2-20 UNF-2B

Flange Mount Cylinders



- Easy Mounting
- Heavy Duty
- High Output Forces
- Long Lasting
- Available in FixturePro™ Design Software

The Jergens Heavy Duty Flange Mount Cylinders mount through holes on the flange of the cylinder body. This feature eliminates the need for separate mounting brackets. The cylinders can provide high forces for clamping, lifting and pressing. Not recommended with flood coolant applications.

Specifications

Part Number	62721	62722
Operating Stroke (in.)	1/2	1
Operating Volume (cu. in.)	1.9	3.9
Effective Piston Area (sq. in.)	3.9	3.9
Minimum Operating Pressure (psi)	100	100
Maximum Operating Pressure (psi)	5000	5000
Maximum Output Force (lbs.)	19880	19880
Weight (lbs.)	5.0	6.5

Intensifier Cylinders



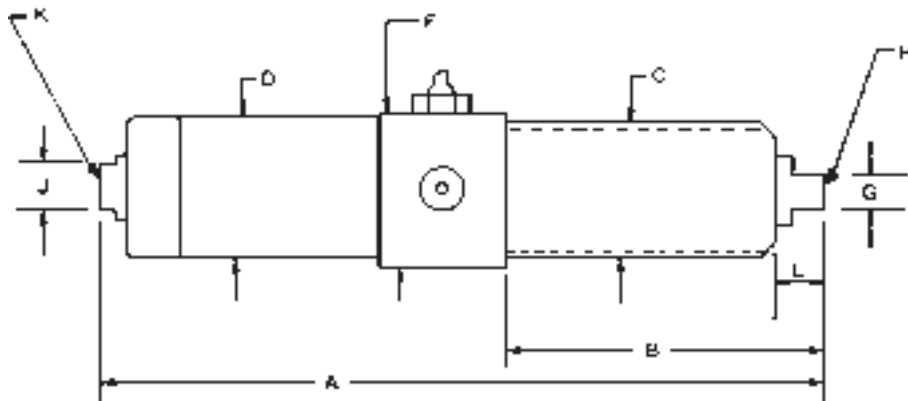
- 8:1 and 30:1 Boost Ratios
- Self-Contained
- Fast Acting
- Air Controlled
- Easy Recharge Without Disassembly
- Available in FixturePro™ Design Software

Intensifier Cylinders are combination air-hydraulic cylinders. An air powered cylinder is driven into a small oil reservoir which produces a nominal 8:1 or 30:1 power boost ratio, depending upon air pressure and the cylinder used. These miniature, self-contained power sources are ideal where fast action (100 operations per minute), a short stroke and high power are needed.

Specifications

Part Number	60596	60598
Operating Stroke (in.)	1/4	1/4
Force (lbs.) at Inlet Air Pressure 125 psi Max.		
100 psi	700	2900
75 psi	450	2100
50 psi	250	1300
25 psi Min.	50	450
Weight (lbs.)	2.2	4.5
Ratio	8:1	30:1

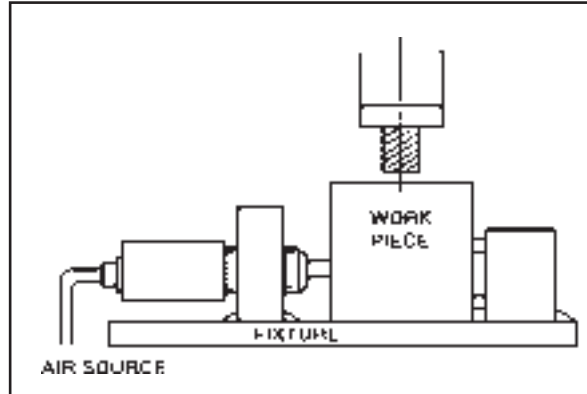
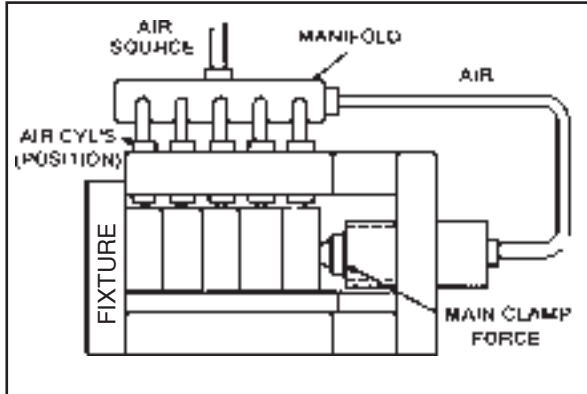
For Mounting Brackets see page 11.17.



Dimensions

Part Number	A	B	Thread C	D	E	F	Across Flats G	Tap H	Across Flats J	Port K
60596	7 1/4	2 13/16	1 9/16-16	1 3/4	23/32	2	3/4	5/16-24 x 1/2	7/8	9/16-18
60598	9 5/16	3 15/16	1 7/8-16	2 1/2	23/32	2 1/2	3/4	5/16-24 x 1/2	7/8	9/16-18

Intensifier Cylinder Applications

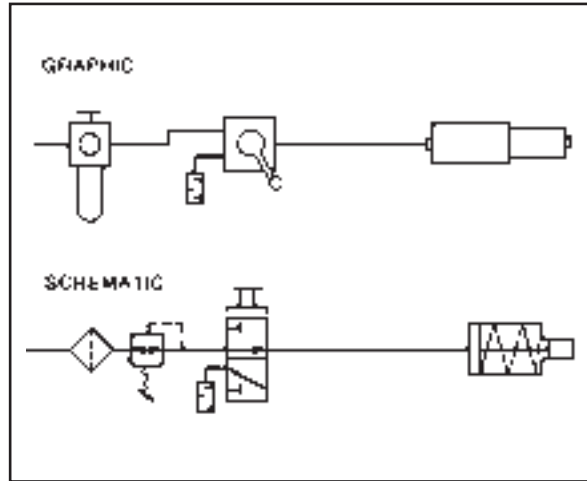
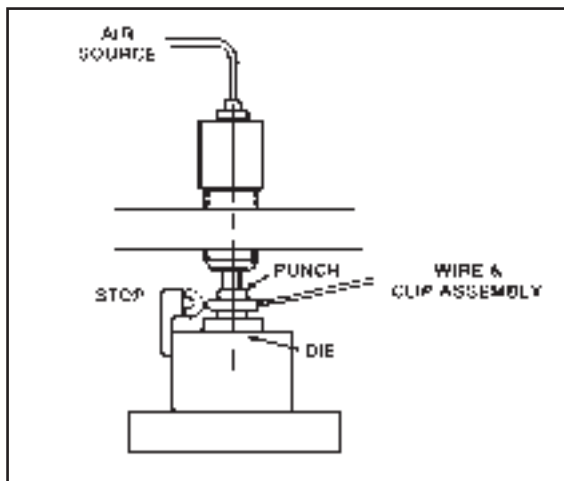


Positioning

A series of plates are gang loaded into the fixture. Air operation of the intensifier assures fast and positive positioning of the plates, after which the multiple hydraulic cylinders are used to clamp.

Clamping

Installed in a Jergens Mounting Bracket, the Intensifier Cylinder provides efficient, versatile, yet economical clamping.



Crimping

The intensifiers may be installed at any attitude. Mounted in a vertical attitude (as shown), up to 1 1/2 tons of force is available for crimping, punching, or notching.

Circuit Diagrams

A filter/regulator and a 3-way hand valve are all that is required to control an Intensifier Cylinder. Installation is as simple as an air cylinder but the resulting force is much greater.

How to Design Your Own Hydraulic System

1. Calculate the force used to hold the workpiece during machining.

To convert the torque applied to a fastener into holding force use the following formula:

$$P = \frac{T}{KD}$$

Where: P = Holding Force (lbs.)
T = Torque (in. lbs.)
D = Nominal Thread Diameter (in.)
K = Friction Factor
(K Varies with material, finish, and lubrication, .19 to .25)

Example: 1/2-13 bolt tightened to 30 ft. lbs
(360 in. lbs.) provides 3600 lbs. of force.

$$P = \frac{360}{(.2 \times .5)} = 3600$$

2. Calculate the force required at each work unit.

$$\frac{\text{Total Force}}{\text{Number of work units}} = \text{Force per unit}$$

3. Select the style of work unit to be used at each location. Select units which can be easily mounted and will allow access for loading and unloading of the workpiece.
4. Compare the force required by each work unit with the maximum force available from the unit selected. If the required force is greater than the available force, substitute larger work units or increase the number of work units to be used.
5. Calculate the hydraulic pressure required to provide the force needed at each work unit. To determine pressure, divide the force required at the work unit by the effective piston area of the unit selected.

$$\frac{\text{Force}}{\text{Area}} = \text{Pressure}$$

The unit requiring the highest pressure determines the requirement for the entire system.

6. Determine the total volume of oil required to operate all of the work units (Volume = Piston Area x Stroke).
Operating volume requirements for work units are listed in the specifications chart for the item.
7. Select a power source which will provide the required pressure, using the available air pressure. To determine if a power source will provide the required pressure from available air pressure, multiply the available air pressure by the boost ratio of the power source.

Example: (90 psi air pressure) (15:1 boost ratio) = 1350 psi hydraulic pressure

The power source must also provide the total volume of oil required by the system. When using a standard booster, the high pressure volume of the unit must exceed the system requirement.

8. If you need help, call Jergens Technical Sales at: 1-800-JERGENS (537-4367).

Installation Tips for Plumbing Hydraulic Systems

Hose

The use of hydraulic hose is only recommended when the need for flexibility exists. Generally, the only hydraulic hose in an application is that used to connect the power source to the fixture.

All hydraulic hoses expand under pressure. This uses costly energy as well as volume. Some hoses expand at a greater rate than others, even though size remains the same.

Generally speaking, an 8 foot length of hydraulic hose will expand at a rate absorbing one cubic inch of high pressure oil at 3000 p.s.i.

When applying hose, the following is recommended:

Do Not:

- Overextend bend radius of hose.
- Put unnecessary strain at fitting ends.
- Subject hose to abrasive conditions.
- Use hose that hasn't been identified.

Do:

- Use a minimum size of 3/8" I.D.
- Check with factory for alternate brands.
- Use firesleeve protective covering in applications where flame is present (like weld fixtures).
- Make sure power source has enough high pressure volume to compensate for hose expansion.

Tubing

Whenever possible use 3/8" diameter steel fluid line tubing for hydraulic lines. This is a low carbon, soft tube and readily available. Depending on the application, two types are recommended:

- 3/8" diameter x .049 wall thickness for pressures to 3000 p.s.i.
- 3/8" diameter x .065 wall thickness for pressures to 5000 p.s.i.

When rigid tubing is applied to air circuitry, use copper tube. This will reduce the corrosive effect of water most likely found in your air lines. Caution: Do not use copper in a high pressure hydraulic circuit!

Fittings

Pipe Thread Fittings

Upon installation, apply a good sealing compound on threads of fitting only. When Teflon tape is used, overlap threads 1-1/2 to two turns tightly in direction of thread. Be careful not to extend tape over end of fitting. Do not overtighten pipe threads as they may put unnecessary strain on pressure vessels.

Straight Thread Fittings (SAE J514)

These fittings require no sealing material as the built-in o-ring provides a positive seal. The threads are a Class 2 straight thread with no taper. Before installation, be sure to lubricate the o-ring. Tighten these fittings to approximately 50-150 ft./lbs.

The Tube Flare

Cut tube squarely and remove any burrs. Split flares may be caused by the tube being too hard, opening up of scratches and draw marks, or failure to deburr tube end.

Place nut, then sleeve onto tube with open end of nut and toe end of sleeve toward end of tube.

Flare to standard 37° angle (maximum diameter of flare is equal to maximum diameter of sleeve). A correct flare should extend beyond the inside diameter of toe on sleeve but not beyond outside diameter of toe on sleeve.

Never attempt to spring tube to force alignment using the fitting installed. This can damage the flare and wrinkle, kink or flatten the tube. This can be avoided by using the correct tools.

Work Sheet—Photocopy This Page

[illegible]

Description: _____

Notes:

Total Force Required _____ lbs.

Force Per Unit _____ lbs.

Unit Selected Part No. _____

Piston Area_____

Pressure Required _____ P.S.I.

(Pressure Must Not Exceed Limit of Unit!)

Total Volume Required _____ Cu. In.

Power Source Part No. _____

Available Air Pressure P.S.I.

Power Source Boost Ratio :1

*Output Pressure _____ P.S.I.

Output Volume	Cu. In.

*Must Exceed Pressure Required

Pre-Fill Boosters



- Self Bleeding
- Easy View Reservoir
- 15:1, 30:1, and 54:1 Boost Ratios

These units offer many more advantages than conventional boosters, while maintaining the same basic simplicity. The pre-fill booster has two automatic cycles. The first cycle pre-fills the work circuit using low pressure with a large reservoir to provide volume. The second cycle then automatically provides high pressure, as needed. These units also provide automatic bleeding of the work circuit. This self-bleeding feature negates the need to “bleed the lines” after it is set up.

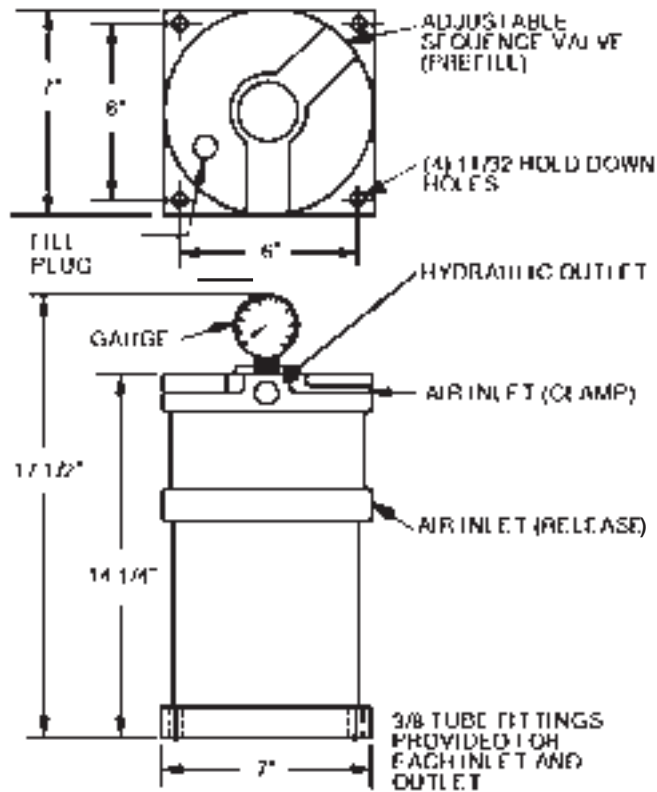
The pre-fill booster is ideal for any general use production system requiring maximum efficiency with minimum effort! Pre-fill boosters must be used in the upright (vertical) position.

- Installation Kits Available. See Page 11.34.
- See page 11.31 for Rapid Exhaust and Rapid Advance Kits, Handles, and Mounting Bases.

Patent No. 3839866

Specifications

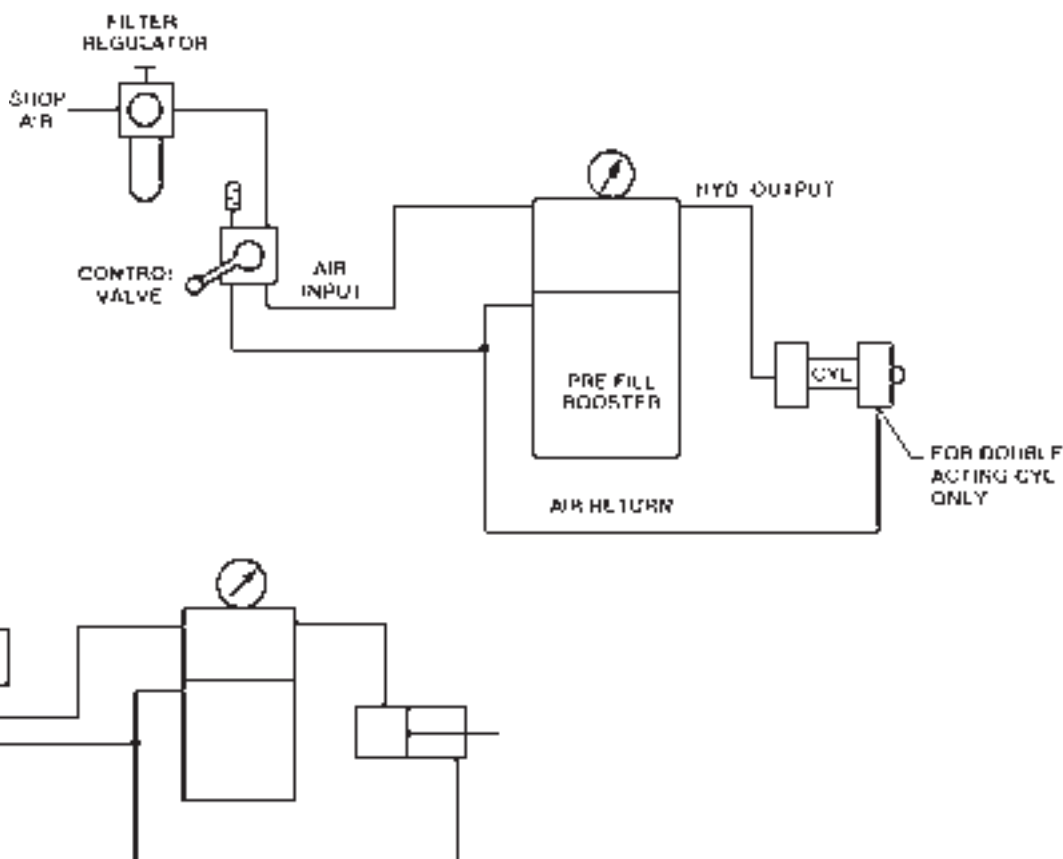
Part Number	61704	61705	61706
Reservoir Capacity (cu. in.)	50	50	55
High Pressure Volume (cu. in.)	7 1/2	3 3/4	2
Minimum Input (psi)	40	40	40
Maximum Input (psi)	125	125	75
Boost Ratio	15:1	30:1	54:1
Maximum Output (psi)	1875	3750	4100
Weight (lbs.)	28	28	28



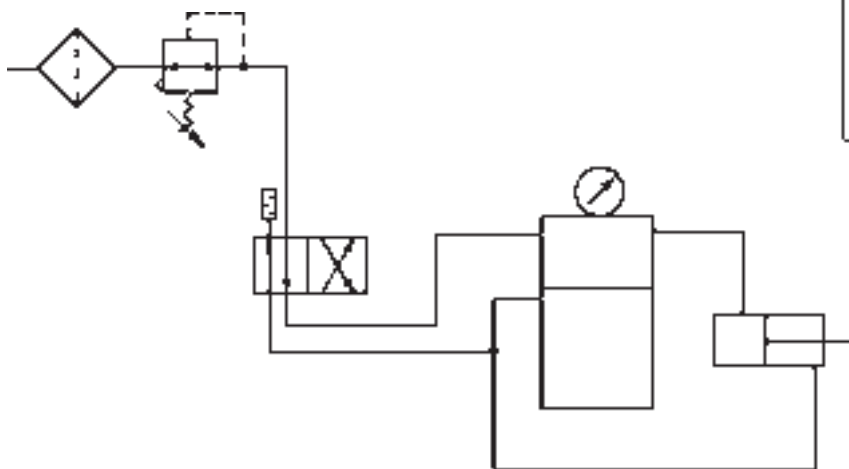
Boosters

Circuit Diagrams

Graphic



Schematic



Accessories

Rapid Exhaust and Advance Kits



Rapid
Exhaust
Part
Number

62214

Rapid
Advance
Part
Number

62215

These kits include everything needed to convert a standard Pre-Fill Booster to high speed operation. Fittings, pre-bent tubing, and the quick exhaust valve are included.

Valve Only

61641

Handle



Part
Number

62621

Convert your Pre-Fill Booster to a portable power source. The 62621 handle is for use when the hydraulic gage is mounted on the top of the booster.

Standard Boosters



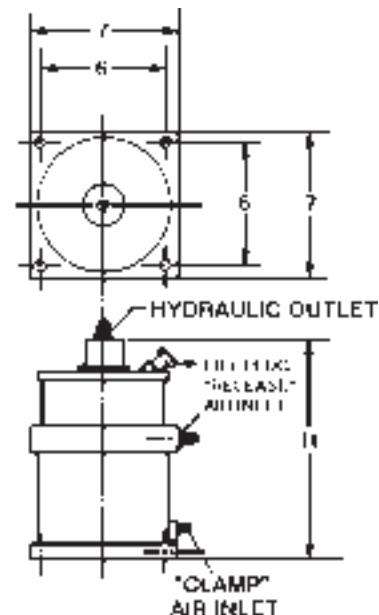
Standard Boosters are ideal for permanent fixtures, special machines or O.E.M. applications.

The volume of oil available to operate the work circuit depends upon the high pressure capacity of the booster. Work circuits using standard boosters require manual bleeding.

- Easy to view reservoir
- 15:1 and 30:1 boost ratios
- May be mounted vertically or horizontally

Specifications

Part Number	61709	61710	61711
Reservoir Capacity (cu. in.)	15	15	18
High Pressure Volume (cu. in.)	4	7 1/2	3 3/4
Minimum Input (psi)	20	20	20
Maximum Input (psi)	125	125	125
Boost Ratio	15:1	15:1	30:1
Maximum Output (psi)	1875	1875	3750
Weight (lbs.)	20	24	22
Height (H)	10 7/16	14 7/16	14 7/16



3/8" TUBE FITTING PROVIDED FOR EACH INLET AND OUTLET PORT.

Accessories

Mounting Bases



Part
Number
60973

Base 60973 can be used to mount Jergens Boosters 61709 thru 61711 in a horizontal position.

Rapid Exhaust Kit



Part
Number
62215

The Rapid Exhaust Kit includes a valve, muffler, and fittings needed to convert Booster numbers 61709 thru 61711 to high speed operation.

Installation Kits
See Page
11.34

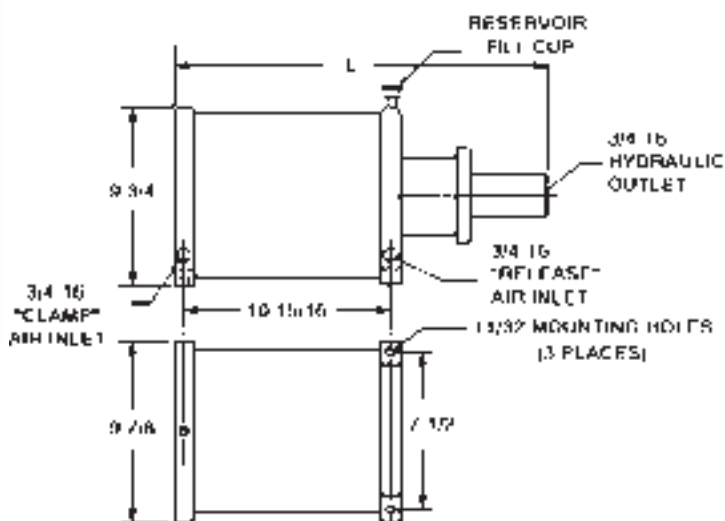
Valve Only
61641

High Pressure/Volume Boosters



- Available in 26:1, 37:1, and 64:1 boost ratios.
- High output pressure
- High pressure volume

Unit must be used only
in the horizontal position

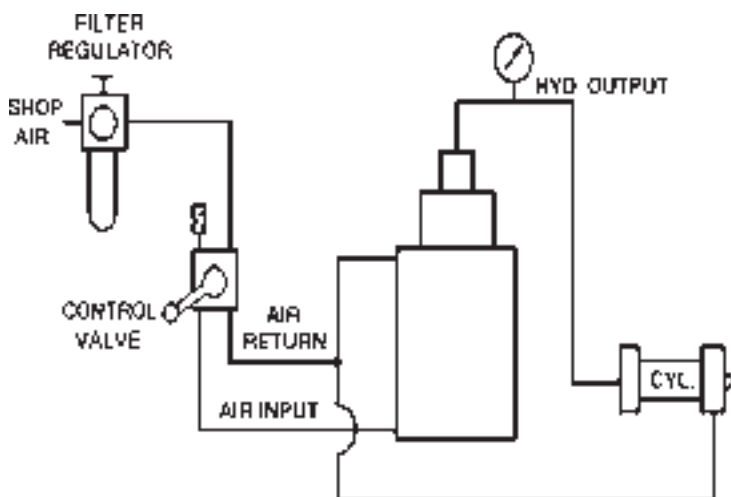


Specifications

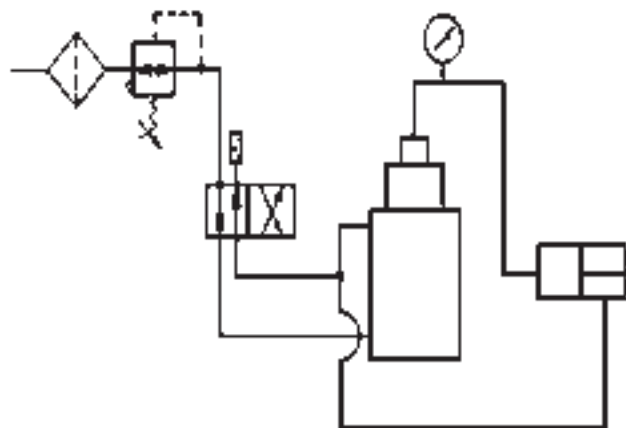
Part Number	61720	61721	61722
Reservoir Capacity (cu. in.)	17	17	17
High pressure Volume (cu. in.)	12.9	9.1	5.3
Minimum Input (psi)	10	10	10
Maximum Input (psi)	125	125	125
Boost Ratio	26:1	37:1	64:1
Maximum Output (psi)	3250	4625	8000
Length (L)	19 11/16	19 5/8	19 1/2
Weight (lbs.)	28	28	28

Circuit Diagrams

GRAPHIC



SCHEMATIC



Boosters Installation Kits

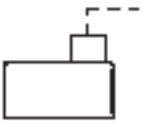
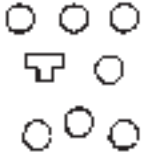
Jergens offers four kits to simplify the installation of your Jergens booster. The kits may be used with any Jergens booster.

62203 —This kit is recommended for most applications. The kit includes everything needed to connect your air line to the booster and everything needed to connect the booster to your fixture.

62204 —This kit should be used when the protection of a pilot check valve is not required, as in punching or staking applications.

62205 —This kit is the same as kit 62203 except the hand valve has been eliminated. Use this kit when the system will be activated by a foot valve, solenoid or pilot operated valve.

62206 —This kit should be used for punching or other applications where no check valve is required and the system will be activated by a foot valve.

							
Filter/ Regulator 61617 (1)	4-Way Hand Valve 61615 (2)	Muffler 62613 (3)	Air Hose (18 Ft.) 61108 (4)	Pilot Check Valve 61629 (5)	Hydraulic Hose (6 Ft.) 61205 (6)	Quick Disconnect Couplings 61915 61965 (7)	Fittings as Req'd. (8)

Selection Data

Part Number	Items Included In Kit
62203	1, 2, 3, 4, 5, 6, 7, 8
62204	1, 2, 3, 4, 6, 7, 8
62205	1, 3, 4, 5, 6, 7, 8
62206	1, 3, 4, 6, 8

Jergens recommends the use of a gage kit with any standard booster.



Gage Kit

Part Number	PSI
60711	3000 psi
60712	6000 psi
60713	10000 psi

3 SECOND Clamping Kit



To simplify the installation of Jergens power clamps, Jergens offers its 3 SECOND Clamping Kit. The Kits contain everything required to convert your shop air pressure to hydraulic power for your clamping fixture.

61717 —This kit contains a 61711 booster, control valve, gage, hoses and fittings. This kit should be used for fixtures which will remain on a machine for long periods of time, such as a vise on a milling machine.

61719 —This kit contains a 61705 booster, control valve, filter-regulator, pilot check valve, quick disconnects and all hose and fittings required. This kit should be used on machines where the fixture changes frequently. The 61705 booster eliminates the need to bleed each fixture after it is connected. To change the fixture, simply switch the hydraulic hose from one fixture to the other using quick disconnect fittings.

Selection Data

Part Number	Included in Kit	
	Booster	Accessories*
61717	61711	2, 3, 4, 6, 8, 9
61719	61705	1, 2, 3, 4, 5, 6, 7, 8
61716	61710	2, 3, 4, 6, 8, 9
61718	61704	1, 2, 3, 4, 5, 6, 7, 8

*As shown on page 11.34.

Pre-Fill Power Pacs



Jergens Pre-Fill Power Pacs provide a complete portable power source. Everything required to power and control your hydraulic fixture is included. Connect your shop air to the filter/regulator, and your fixture to the hydraulic hose. The self bleeding feature and the hydraulic quick disconnects (provided) make these units the ideal power sources for job shops and production lines.

- Completely Assembled
- Self Contained
- Portable
- Self Bleeding
- Fast Set-Up

Selection Data

Part Number	Included In Power Pac	
	Booster	Accessories*
61714	61704	1, 2, 3, 5, 6, 7, 8
61715	61705	1, 2, 3, 5, 6, 7, 8

*As shown on page 11.34.

Hydraulic Intensifier

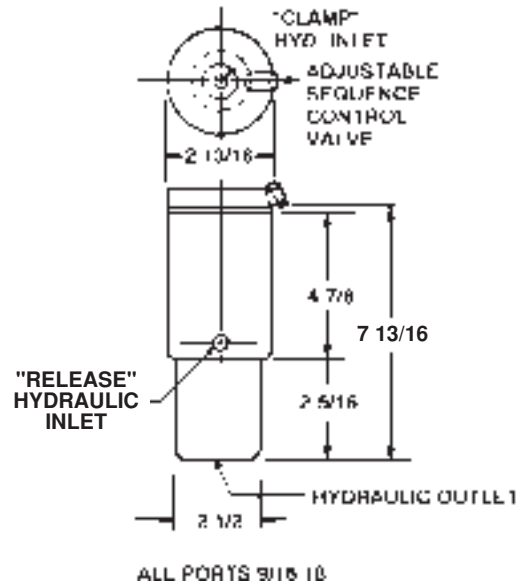


**Not recommended with
the High Volume Pump**

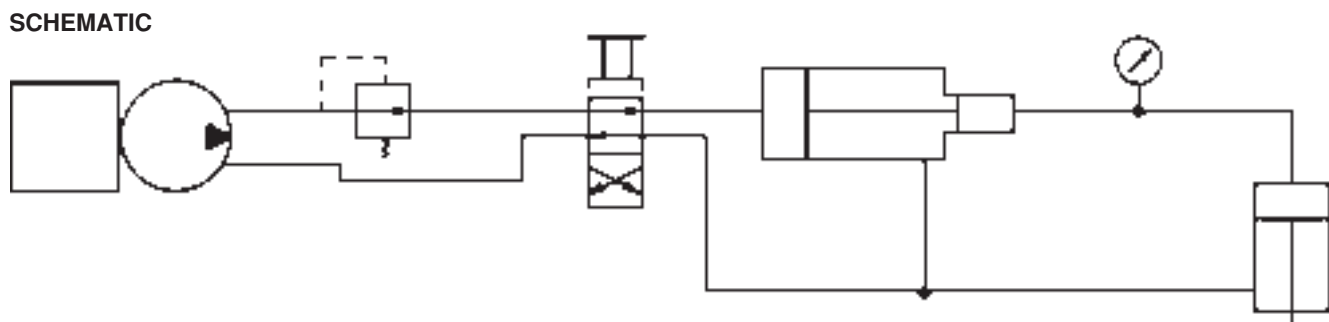
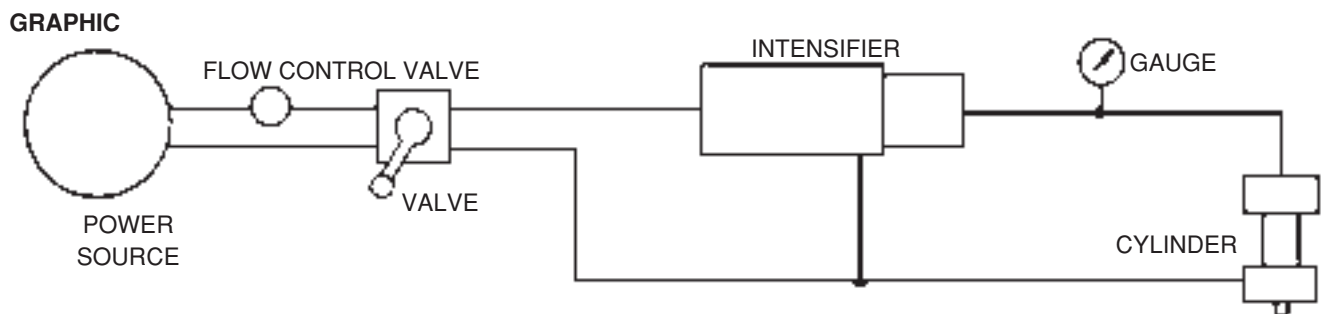
This unit is designed to be used on any machine tool with its own hydraulic system where higher pressures are needed. Jergens Intensifiers will pre-fill your circuit at approximately 200 psi maximum. Once the Intensifier sequences over to its high pressure mode, it will deliver one cubic inch of working oil at seven times the input pressure.

Specifications

Part Number	61701
High Pressure Volume (cu. in.)	1
Minimum Input (psi)	50
Maximum Input (psi)	710
Boost Ratio	7:1
Maximum Output (psi)	5000
Prefill (psi) Adjustments	50-200
Weight (lbs.)	4.4



Circuit Diagrams



Air-Powered Hydraulic Pumps Shoebox™ Pumps



The "Shoebox" Pump is a low cost, compact unit used on smaller hydraulic circuits. Its small size offers the versatility of mounting on wheels (such as a workcart) and moving the pump from workstation to workstation. Like the High Volume Pump, this pump allows independent control of multiple workstations.

Specifications

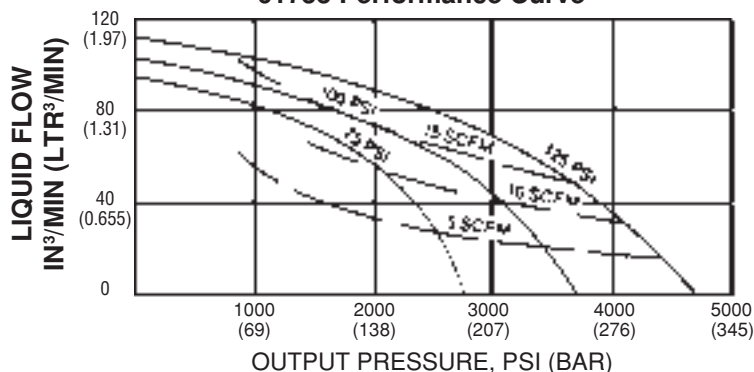
Part Number	61755	61756
Reservoir Capacity (cu.in.)	300	300
Minimum Input (psi)	25	25
Maximum Input (psi)	125	85
Boost Ratio	36:1	71:1
Maximum Output	4500	6000
Free Flow (psi)		
@ 100 psi (cu.in./min.)	100	50
Weight (lbs.)	24	24

A ten cubic inch accumulator (Part Number 62601) is available to increase the clamping speed if needed. Contact our Technical Sales Department for details.

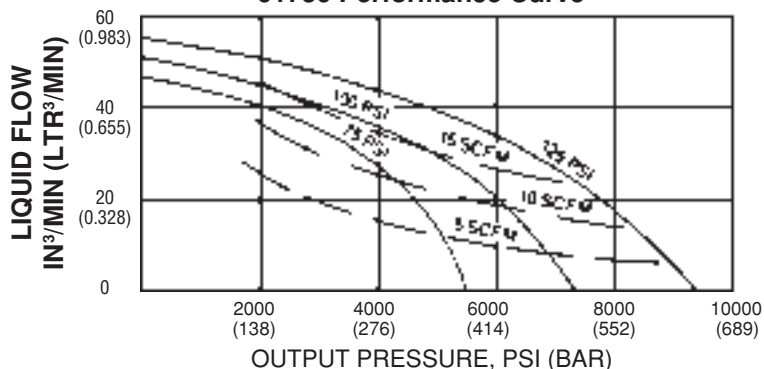
Jergens Air-Powered Hydraulic Pumps are used as a power source to activate Hydraulic Clamps. Shop air is introduced into the Filter/Regulator and converted to hydraulic pressure. These pumps are available in two styles: the High Volume Pump (61761 and 61762) with Boost Ratios of 20:1 and 50:1 and the standard, more compact "shoebox" pump (61755 and 61756) with Boost Ratios of 36:1 and 71:1. The Air-Powered Hydraulic Pumps are easy to use, energy efficient, versatile and affordable. They are completely self-contained and do not require any external reservoirs or motors.

NOTE: See page 12.15 for Valve and Subplate options.

61755 Performance Curve*



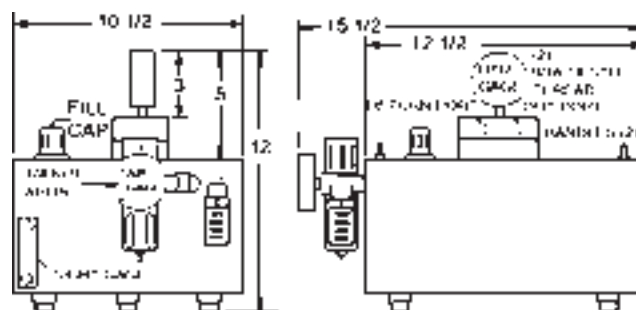
61756 Performance Curve*



* Air Drive Pressure (SOLID Lines) / Air Drive Flow (DASHED Lines)

Pump Performance

The maximum output pressure at no flow is somewhat above the nominal ratio times the air drive pressure. This relationship will fall off due to the increased effect of the air drive return spring force (equivalent to approximately 6 psi air drive at top of stroke, 8 psi at bottom of stroke). Data is based on standard muffler arrangement and on flooded suction.



Air-Powered Hydraulic Pumps

Breadbox™ Pumps



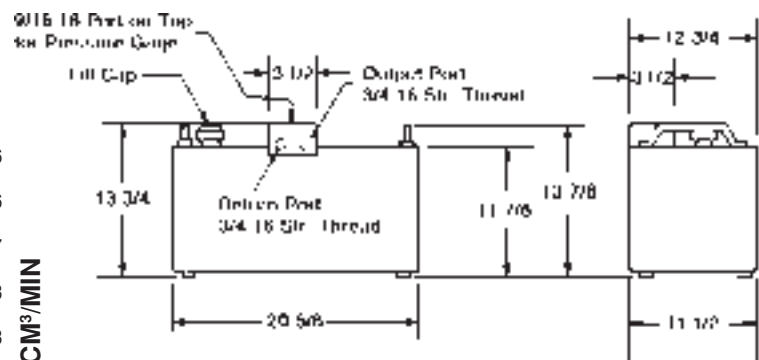
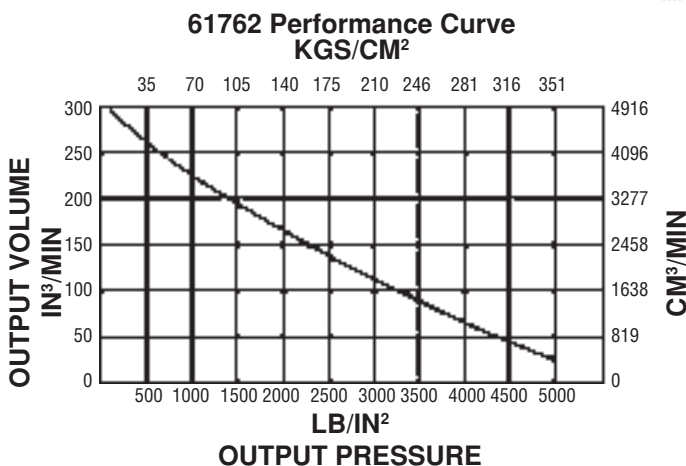
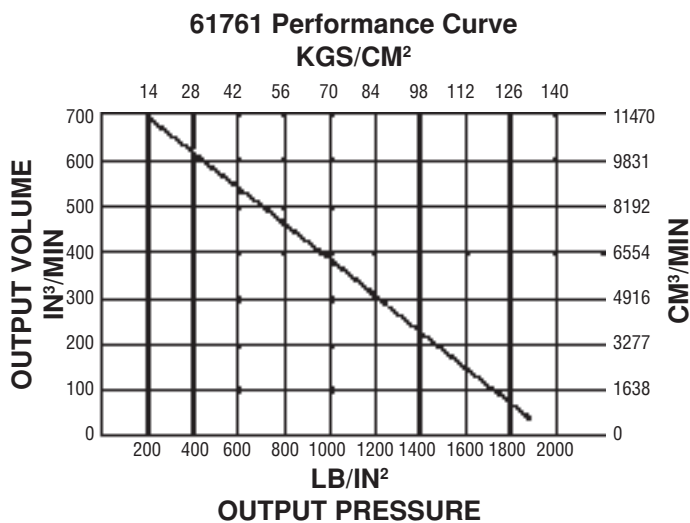
High Volume Air-Powered Hydraulic Pump

The Jergens High Volume Air-Powered Hydraulic Pump converts standard and accessible low pressure shop air to hydraulic pressure up to 5000 psi. These pumps offer large reservoir capacities and allow independent control of multiple work stations. They are designed to provide high volume output throughout the pump's entire pressure range.

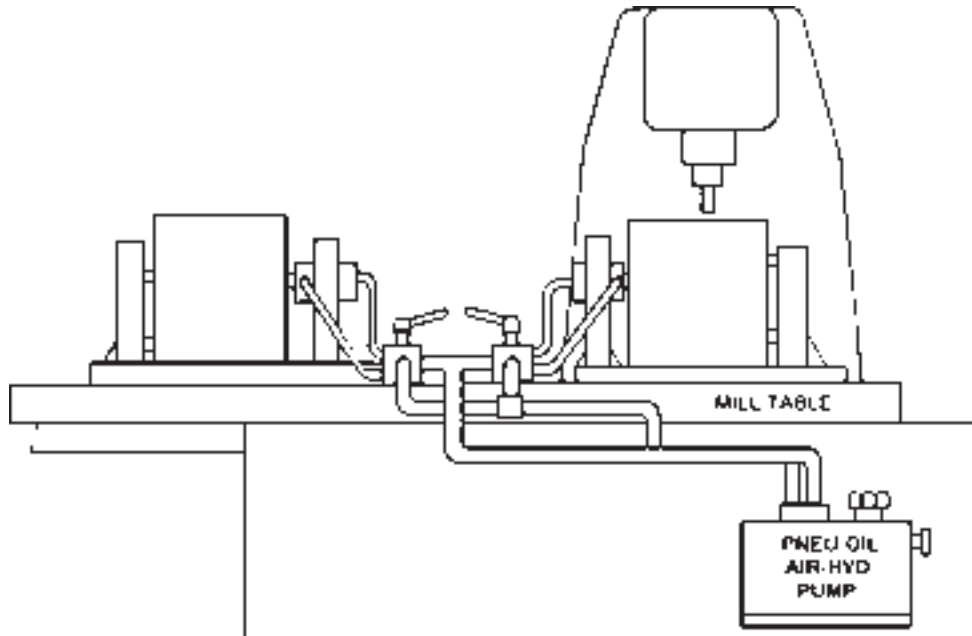
Specifications

Part Number	61761	61762
Reservoir Capacity (cu.in.)	440	440
Minimum Input (psi)	40	40
Maximum Input (psi)	125	100
Boost Ratio	20:1	50:1
Maximum Output (psi)	2500	5000
Free Flow @ 100 psi (cu.in./min.)	700	300
Weight (lbs)	100	100

A ten cubic inch accumulator (Part Number 62601) is available to increase the clamping speed if needed. Contact our Technical Sales Department for details.

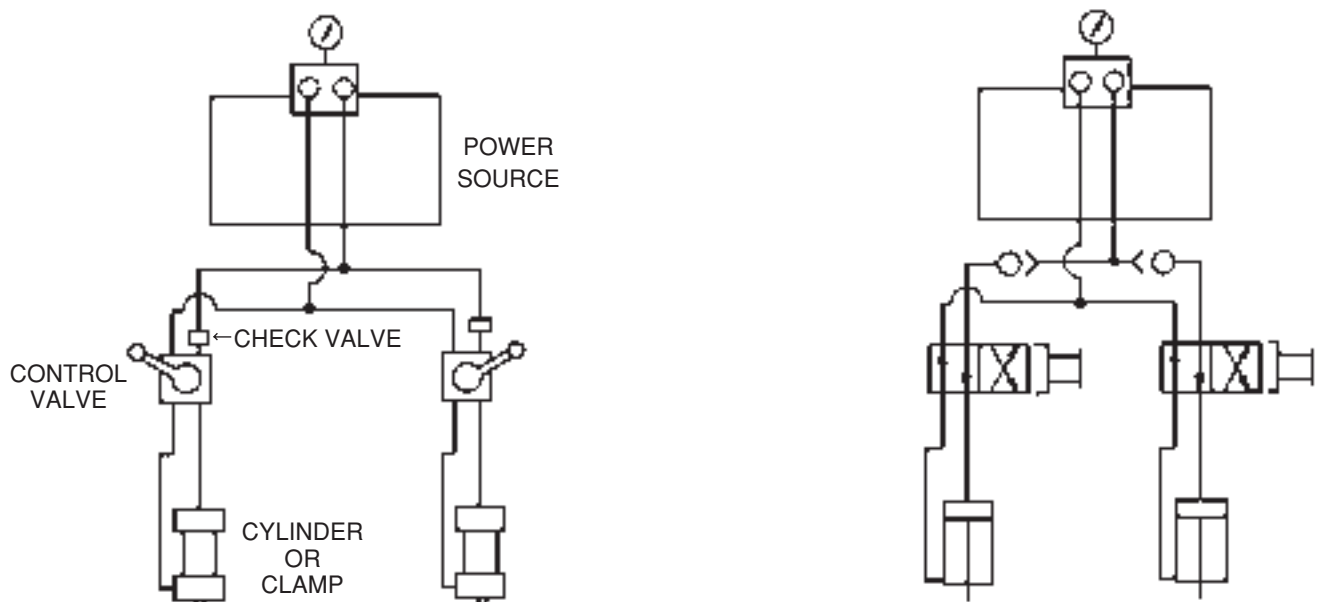


Typical Hydraulic Circuit Application



Typical Installation — Two Station Milling Operation

Circuit Diagram



Manual Pumps



A self-contained power source that can produce 3500 psi of oil pressure. Mounting holes on the side and on the base of the unit allow for mounting in any attitude. The handle easily slides which allows for maximum leverage.

Part Number	Maximum Oil Pressure	Displacement Revolution	Reservoir Capacity
61738	3500 psig	.177 cu. in.	6.18 cu. in.

Lever Type

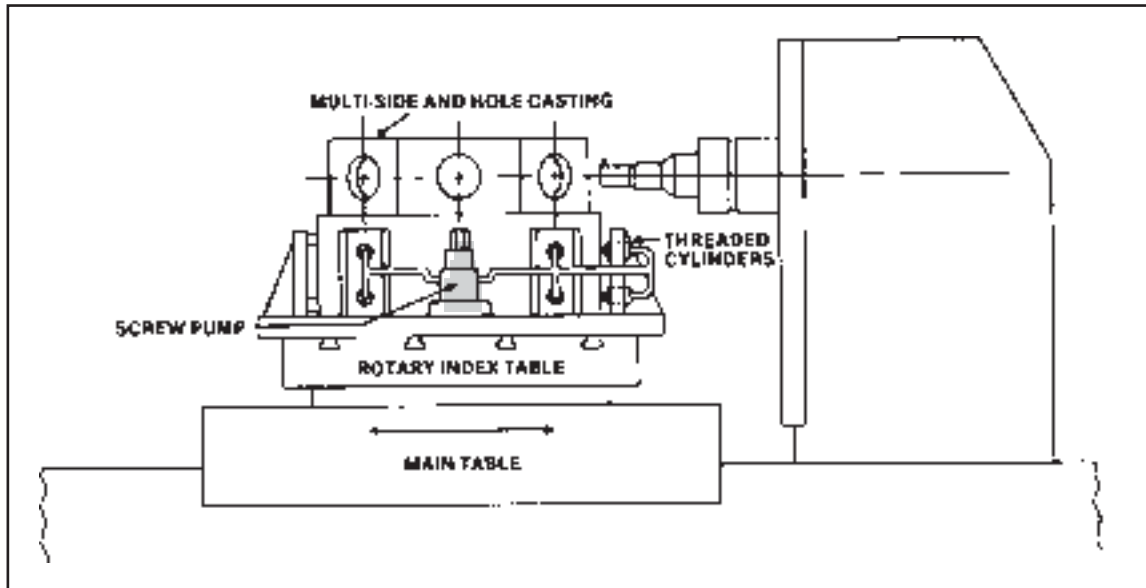


These units offer greater versatility than screw pumps. The pumps have a built-in reservoir check valve and control. Single and two stage models are available. Applications are the same as for the screw pump but allow for larger circuits. Circuits require manual bleeding.

Specifications

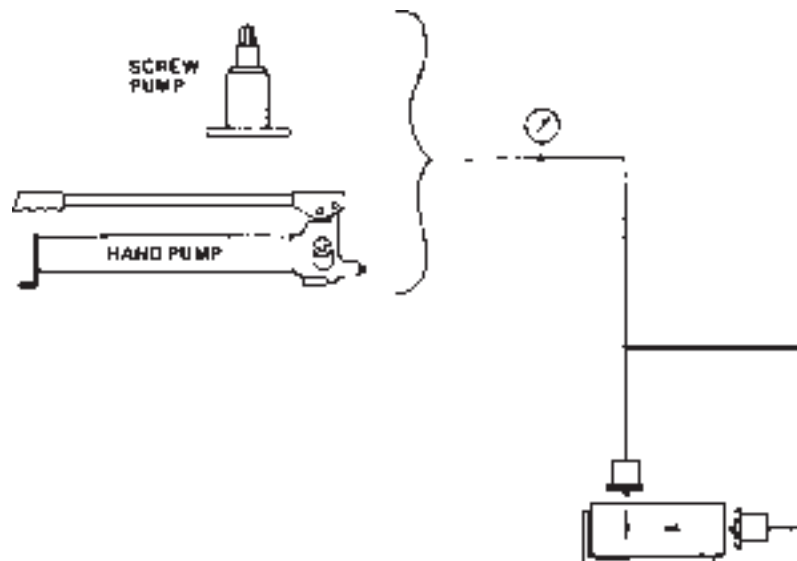
Pump Model No.	Usable Oil Cap (Cu. In.)	Max. Working Pressure (psi)	Pump Plunger Dia. (in.)	Pump Plunger Stroke (in.)	Pump Plunger Displacement (cu. in.)	Pump Delivery (Cu. In./Min.)	Low-Speed By-Pass Pressure (psi)	High-Speed By-Pass Pressure (psi)	Pipe Thread Conn. (in.)	Handle Length (in.)	Length (in.)	Width (in.)	Height (in.)	Weight (lbs)
61736	45	10000	1/2	1	.19	3.6	10500	-	3/8 NPTF	20	24 1/2	5 1/2	6 1/4	16
61737	143	10000	1/2	1	.19	3.6	10500	300	3/8 NPTF	20	23 5/16	7	7 3/8	29

Manual Pumps Application



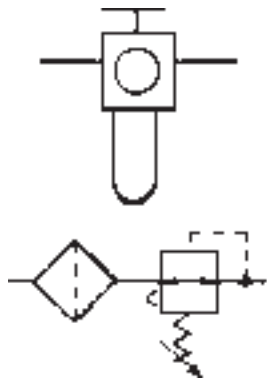
Typical Manual Pump application on a boring mill. The clamping is a self-contained set-up for rotary indexing for large multi-side castings.

Circuit Diagram



Air Circuit Controls

Filter/Regulators



The filter element removes the solid impurities and condensates before the compressed air enters the regulator. The regulator valve supplies a preset pressure regardless of main circuit pressure as long as pressure in the main circuit is higher than that in the secondary.

Specifications

Part Number	61616	61617
Port Size	1/4 NPT	3/8 NPT
SCFM Rating	53 SCFM	80 SCFM
Weight (lbs)	1.6	3.2

Gauges



When sizing a pressure gauge, the maximum output of the system should be approximately 2/3 of the gauge capacity.

Specifications

Part Number	160 PSI		
	60701	60702	60705
Thread Size	1/8 NPT	1/4 NPT	1/4 NPT
Location	Back	Bottom	Back
Weight (lbs)	.16	.25	.25

Mufflers

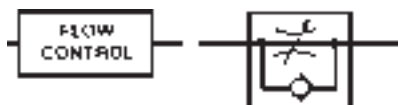


Used to reduce air flow noise. Installation is recommended at exhaust ports of Air Control Valves.

Specifications

Part Number	62612	62613
Thread Size	1/4 NPT	3/8 NPT
Weight (lbs)	.06	.22

Flow Control Valve



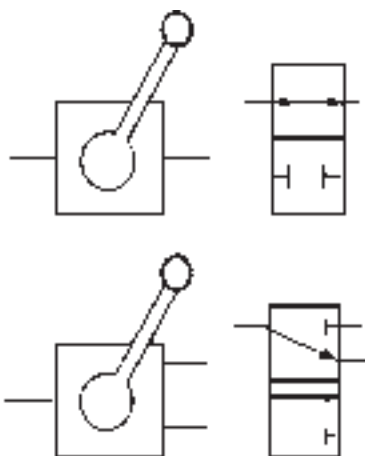
Manually adjusted control of input pressures. Allows the regulation of pressures into a work circuit. Reverse flow is unrestricted. Used for throttling or metering a circuit so that actuator speed meets work requirements.

Specifications

Part Number	61603
Port Size	1/4 NPT
Weight (lbs)	.31

Air Circuit Controls

2-Way and 3-Way Valves

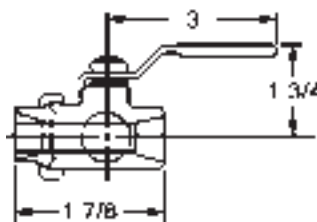


Specifications

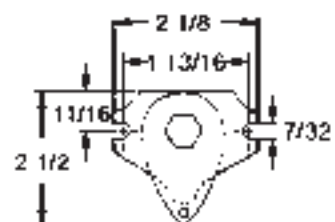
Part Number	61601	61634
Type	2-way	3-way
Port Size	3/8 NPT	1/8 NPT
Weight (lbs)	.81	.22

2-way valves are in-line ball valves. They are used as a shut-off valve in simple circuits.

3-way valves are similar to 2-way valves but have a third port which is generally used as a vent or exhaust.

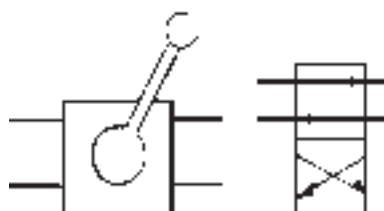


Part Number
61601



Part Number
61634

4-Way Valves

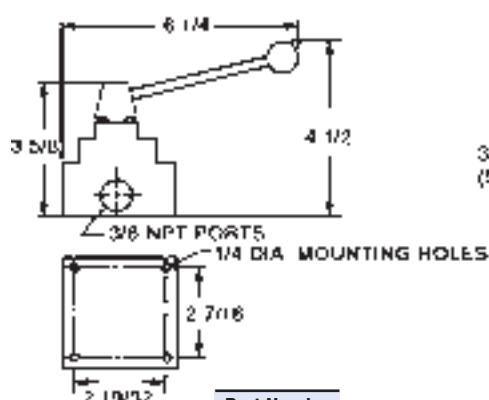


A variety of directional control valves are offered. Manual valves are normally two position, detented. Solenoid valves are 115V-60 Hz; other voltages are available.

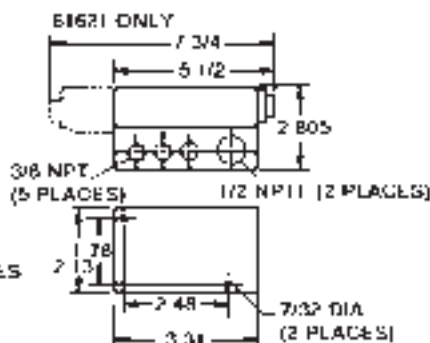
Specifications

Part Number	61615	61620	61621	61630	61631*
Actuator Type	Hand	Solenoid	Solenoid	Treadle	Pedal
Return Actuator	Hand	Spring	Solenoid	Treadle	Spring
Port Size	3/8 NPT	3/8 NPT	3/8 NPT	3/8 NPT	3/8 NPT
CV Rating	1.5	1.0	1.0	2.3	2.3
Weight (lbs)	2.75	5.0	5.5	4.0	3.5

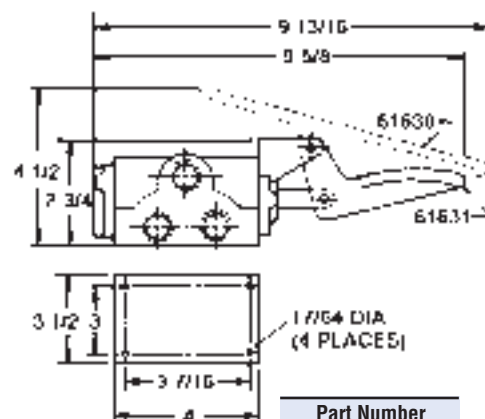
*Foot Guard for 61631 Valve; Part Number 61632



Part Number
61615



Part Number
61620 & 61621



Part Number
61630 & 61631

Air Circuit Controls

2-Hand No Tie Down

Requires the operator to use both hands when activating a work circuit. Two counterbored finger buttons are installed at a minimum center distance.

Specifications

Part Number	61304
Medium	Clean, dry compressed air only
Working Range	50 to 100 psi
Temperature Range	-30° to 180°F
Air Flow (with Modular Valves)	10 CFM at 100 psi
Exhaust	To atmosphere through holes in plate
Mounting	7/32 holes provided in subplate
Materials	Clear Acrylic, brass
Filtration	40 Micron required
Lubrication	Recommended

Hydraulic Circuit Controls

Gauges



Recommended as a visual pressurized monitoring gauge to be used on all pressuring systems.

When sizing a pressure gauge, the maximum output of the system should equal approximately 2/3 of the gauge capacity.

Gauges are filled with glycerine in order to dampen internal movement.

Gauge blocks facilitate the installation of pressure gauges on standard boosters.

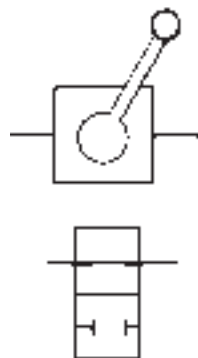
Selection Data

	Part Number		
	3000 Psi	6000 Psi	10000 Psi
Gauge Only	60704	60703	60706
Block Only	61055	61055	61055
Gauge Kit*	60711	60712	60713

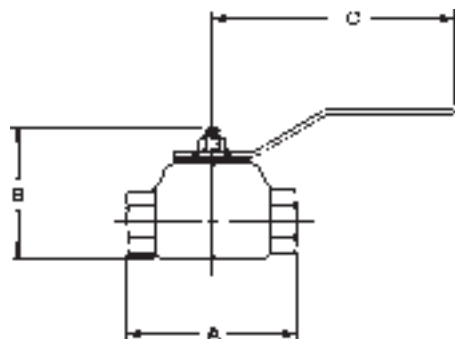
* Gauge, Block and Fittings included in kits. All Gauges 1/4" NPT, bottom ported.

Hydraulic Circuit Controls

2-Way Valves



2-way valves are in-line ball valves. They are used as a shut-off valve in simple circuits.



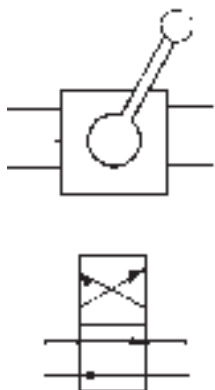
Specifications

Part Number	61610	61639
Port Size	1/4 NPT	3/8 NPT
Pressure Rating (psi)	3000	5000

Dimensions

Part Number	A	B	C
61610	2 11/16	2 5/8	5 1/4
61639	3	2	4 1/4

4-Way Valves

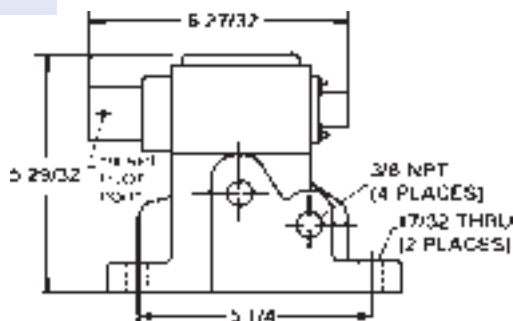


A variety of directional control valves are offered. Manual valves are normally two position, detented. Solenoid valves are 115V-60 Hz; other voltages are available.

Specifications

Part Number	61643	61636	61637	61638
Actuator Type	Hand	Solenoid (115 VAC)	Solenoid (115 VAC)	Air
Return Actuator	Hand	Spring	Solenoid (115 VAC)	Spring
Port Size	3/4-16	3/4-16	3/4-16	3/8 NPT
Flow Rating	5 GPM	5 GPM	5 GPM	12 GPM
Pressure Rating (psi)	5000	5000	5000	5000
Weight (lbs)	3.75	6.75	7.3	17.5

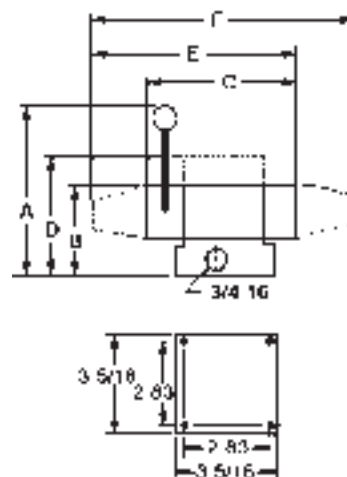
For 4-Way, Zero Leakage Valves, See Page 12.15



Part Number
61638

Dimensions

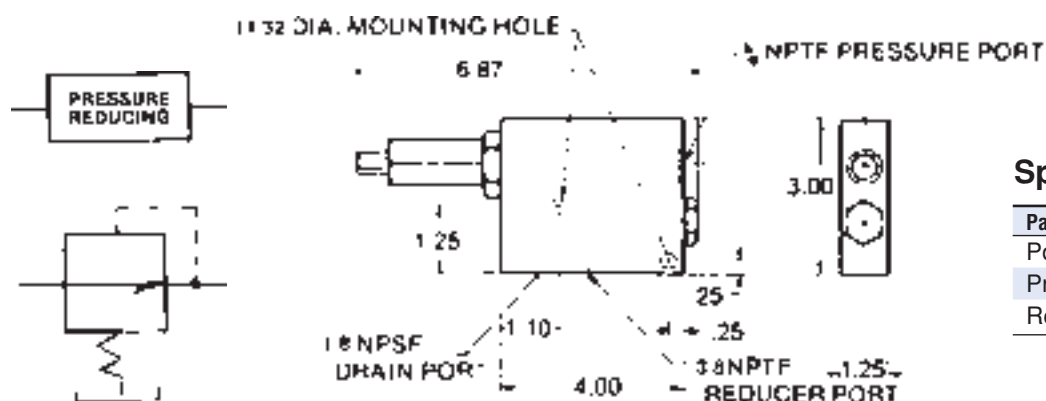
Part Number	A	B	C	D	E	F
61636	—	3 1/4	—	5 5/64	5 21/32	—
61637	—	3 1/4	—	5 5/64	—	8 3/8



Hydraulic Circuit Controls

Pressure Reducing Valve

Allow individual cylinders or clamps to operate at different pressures from the same power source.

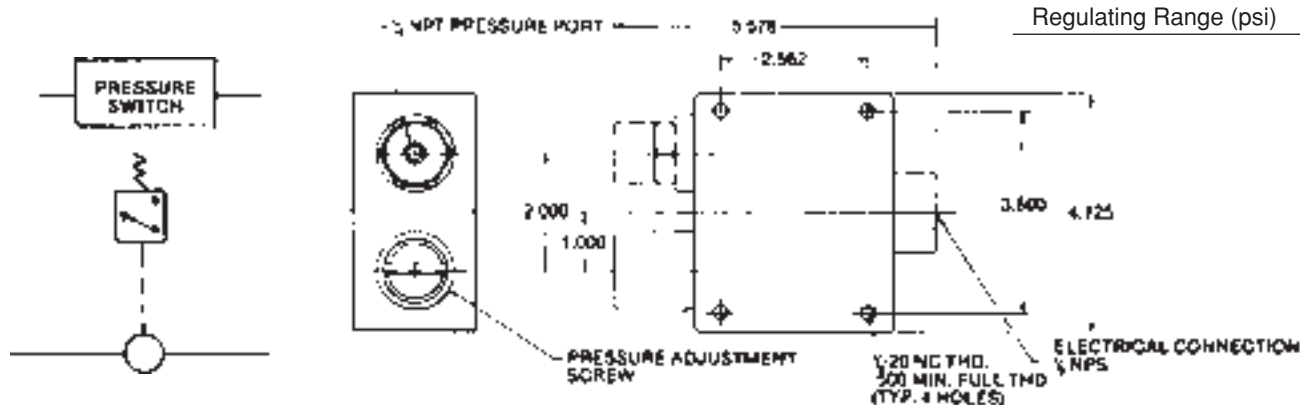


Specifications

Part Number	61619
Port Size	3/8 NPT
Pressure Rating (psi)	5000
Regulating Range (psi)	500-4500

Pressure Switch

Senses pressure in a circuit and may be used to start or shut down a system. A pressure switch can be used to remove the cutting tool and turn off machine in the event of loss of clamping pressure.

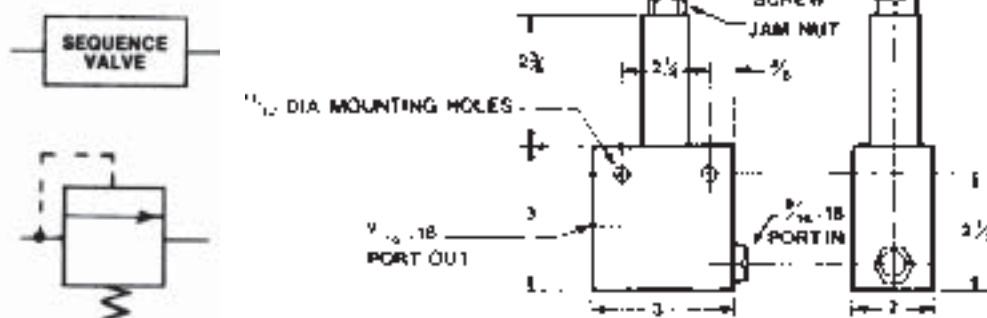


Specifications

Part Number	61633
Port Size	1/4 NPT
Pressure Rating (psi)	10000
Regulating Range (psi)	350-5000

Sequence Valve

With adjustable opening pressure, this valve may be used to control the sequence of work devices in a common circuit.



Specifications

Part Number	61640
Port Size	9/16-18
Pressure Rating (psi)	5000
Sequence Range* (psi)	500-3000

* Factory Adjusted to sequence at 1000 psi.

Hydraulic Circuit Controls

Pilot Operated Check Valve

Specifications

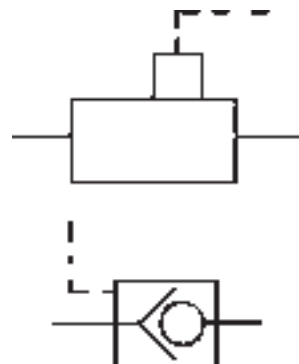
Part Number	61629
Hydraulic	
Ports	3/4-16
Pilot Port	7/16-20
Pressure	
Rating (psi)	5000

- Minimum operating pressure 500 psi
- 50:1 differential pressure
- Pilot not to exceed 125 psi

A two-way valve used to lock pressure in a working circuit. Automatic free return flow is provided via air pilot operation. Designed so that loss of shop air line pressure will have no effect on the hydraulic circuit in booster applications.

Specifications

	Part Number
Valve only	61629
Valve with Installation Kit	62211

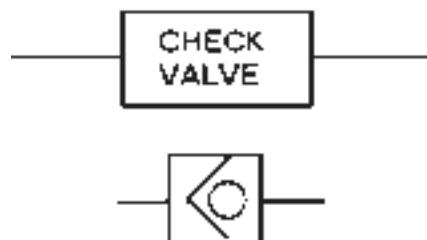


Check Valve

Specifications

Part Number	61607
Port Size	3/8 NPT
Pressure	
Rating (psi)	5000
Flow Rating	CV .83
Weight (lbs)	.63

Allows pressure flow in one direction only.



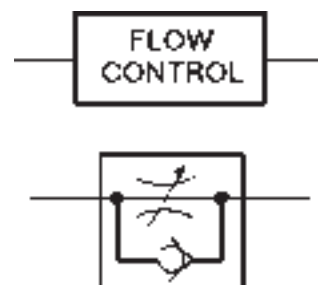
Flow Control Valve

Specifications

Part Number	61609
Port Size	3/8 NPT
Pressure	
Rating (psi)	5000
Flow Rating	CV .78
Weight (lbs)	.63

- Recommended for use with Jergens Swing Clamps

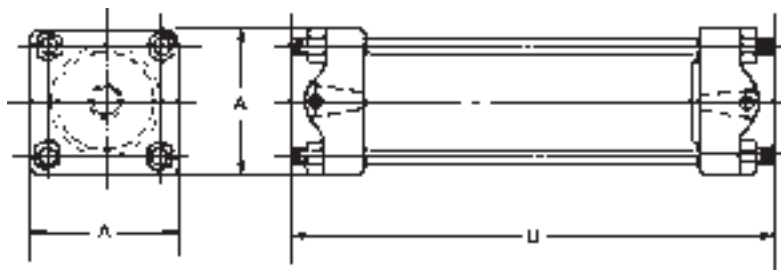
Used to control the flow of pressure in a system, to slow the movement of individual cylinders, or decrease shock.



Oil Reservoirs



Can be used with air pressure on top of oil to do work in your system, such as returning double acting cylinders with hydraulic pressure. The acrylic reservoir allows easy monitoring of oil level. Special baffle plates in the top of the reservoir distribute incoming air pressure evenly against the top surface of the oil.



Part Number	A	B	Capacity (Cu. In.)	Side Ports	End Ports	Wt (lbs)
61750	2 7/8	9 1/2	18	9/16-18	9/16-18	3.0
61751	4 13/16	8 1/2	55	NONE	9/16-18	6.8

• Maximum air operating pressure rating 125 PSI.

Hydraulic Fluids

Hydraulic Oil

Jergens Hydraulic Oil is specially formulated to minimize foaming and to protect metal parts from rust. It is an aircraft type oil with high wetting out and film strength characteristics.

Its viscosity is 170/190 at 100°F and it maintains functional characteristics down to 25°F below zero.

One Quart	60801
One Gallon	60802
Five Gallon	60803
55 Gallon Drum	60804

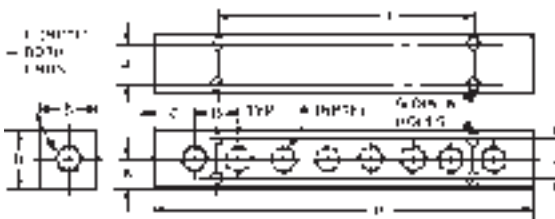
Food Grade Hydraulic Oil

Jergens Food Grade Hydraulic Oil is a blend of food grade lubricants designed for use as a hydraulic media in food packaging and other similar equipment. It is composed of 100% chemically produced synthetic lubricants and contains no petroleum hydrocarbons.

Its viscosity is 140 SUS at 100°F and 725 SUS at 35°F.

One Quart	60813
One Gallon	60812
55 Gallon Drum	60811

Manifold Strip

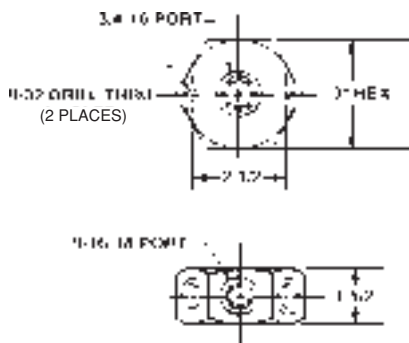


Dimensions

Part Number	Number Of Side Ports	Ports A	B	C	D	End Ports E	F	G	H	J	K	Wt. (lbs)
61801	4	1/4	1 1/2	5/8	7/8	3/8	1 3/4	13/64	3 7/8	1 1/64	3/4	.75
61802	8	1/4	1 1/2	5/8	7/8	3/8	5 1/4	13/64	7 3/8	1 1/64	3/4	1.50

NOTE: Maximum operating pressure is 3000 PSI for all manifolds.

Hex

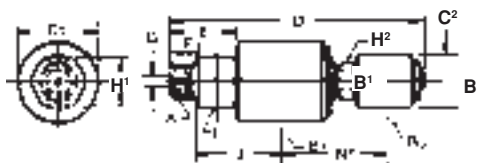


The six port hex manifold, with SAE straight thread ports, can be mounted in the center of several work units or used with a **61031** union to mount the manifold directly to the output port of your Jergens Booster.

- Material: Aluminum
- Finish: Black Anodize

Part Number
61805

Rotary Coupler Single and Dual Passage



*N on 61998 is 3 3/16

Specifications

Maximum Air Pressure (psi)	150
Maximum Vacuum (Hg.)	28"
Maximum Hydraulic Pressure (psi)	3000
Maximum Temperature	250°F
Maximum Speed (rpm)	250

Dimensions

Part Number	Rotor Thread A	Tap B1	Tap B2	C1	C2	D	E	F	Rotor Port G	Hex H1	Hex H2	Tap I	Lockup J	Wt. (lbs)
61997	3/8 NPT	1/4 NPT	—	1 1/2	—	3 1/4	1 1/8	5/8	5/16	7/8	—	—	1 25/32	.5
61998	3/4 NPT	1/2 NPT	1/4 NPT	2 3/4	1 1/2	7 11/16	1 15/16	7/8	1/4	1 3/8	7/8	1/4 NPT	2 7/8	3.0

Fittings

37° Flare



Sleeves	Nuts	Caps	Plugs	Reducer
1/4 Tube 61001	1/4 Tube 61002	1/4 Tube 61056	1/4 Tube 61058	1/4 Tube Male 3/8 Tube Female
3/8 Tube 61015	3/8 Tube 61016	3/8 Tube 61057	3/8 Tube 61059	61063
1/2 Tube 61049	1/2 Tube 61050			



Swivel Nut Branch Tees	Union Tee
1/4 Tube 61051	
3/8 Tube 61062	3/8 Tube 61023

Male Connectors



Male Elbows



Male Branch Tees



Pipe Thread	Straight Thread
1/8 NPT x 1/4 Tube 61007	7/16-20 x 1/4 Tube 61009
1/8 NPT x 3/8 Tube 61054	9/16-18 x 1/4 Tube 61030
1/4 NPT x 1/4 Tube 61008	9/16-18 x 3/8 Tube 61021
1/4 NPT x 3/8 Tube 61020	3/4-16 x 3/8 Tube 61046
3/8 NPT x 1/4 Tube 61028	3/4-16 x 1/2 Tube 61047
3/8 NPT x 3/8 Tube 61034	
3/8 NPT x 1/2 Tube 61048	

Pipe Thread	Straight Thread
1/8 NPT x 1/4 Tube 61003	7/16-20 x 1/4 Tube 61005
1/4 NPT x 1/4 Tube 61004	9/16-18 x 1/4 Tube 61029
1/4 NPT x 3/8 Tube 61017	9/16-18 x 3/8 Tube 61018
3/8 NPT x 3/8 Tube 61064	3/4-16 x 1/2 Tube 61044
3/8 NPT x 1/2 Tube 61045	
45° ELBOW	
3/8 NPT x 3/8 Tube 61072	

Pipe Thread	Straight Thread
1/8 NPT x 1/4 Tube 61014	7/16-20 x 1/4 Tube 61040
1/4 NPT x 3/8 Tube 61027	9/16-18 x 3/8 Tube 61041
3/8 NPT x 1/2 Tube 61043	3/4-16 x 1/2 Tube 61042
Male Run Tees	
7/16-20 x 1/4 Tube 61032	
9/16-18 x 3/8 Tube 61061	

Flareless Fittings



These fittings are the most common types needed to plumb Pressure Points and Screw Pumps. Use 1/8" Heavy Duty High Pressure, Fluid Line Steel Tube.

Ferrule 1/8 Tube	Nut 1/8 Tube	Male Connector 1/8 NPT x 1/8 Tube	Male Elbow 1/8 Tube	Union Tee 1/8 Tube
60201	60202	60204	60205	60207

Fittings

Elbows & Tees



Elbows	Tees
1/8 NPT Female 61095	1/8 NPT Female 61087
1/8 NPT Street 61070	
1/4 NPT Female 61096	1/4 NPT Female 61088
1/4 NPT Street 61071	
3/8 NPT Female 61097	3/8 NPT Female 61089
3/8 NPT Male 61066	
1/2 NPT Female 61098	1/2 NPT Female 61090

Nipples & Plugs



Nipples	Plugs
1/8 NPT 61083	1/8 NPT 61091
1/4 NPT 61084	1/4 NPT 61092
3/8 NPT 61085	3/8 NPT 61093
1/2 NPT 61086	1/2 NPT 61094
1/8 NPT x 3/8 NPT 61052	7/16-20 61060
1/4 NPT x 3/8 NPT 61053	9/16-18 61068
9/16-18 Union 60210	3/4-16 61069
3/4-16 Union 61031	

Reducers/Expanders



Pipe Thread	Straight Thread
1/4 NPT Male 1/8 NPT Female 61074	9/16-18 Male 7/16-20 Female 61033
3/8 NPT Male 1/4 NPT Female 61025	7/16-20 Male 9/16-18 Female 61080
1/2 NPT Male 3/8 NPT Female 61038	3/4-16 Male 9/16-18 Female 61037
3/4 NPT Male 3/8 NPT Female 61067	
3/4 NPT Male 1/2 NPT Female 61039	

Adapters



Pipe Thread	Mixed Thread		Metric
1/16 NPT Male 1/4 NPT Female 61075	1/4 Male NPT 1/4 Female BSP 60221	3/8 Tube Male 1/4 NPT Female 60217	7/16-20 Male 1/8 ISO Female 61077
1/8 NPT Male 1/4 NPT Female 61076	7/16-20 Male 1/4 NPT Female 61082	3/8 Male NPT 3/8 Female BSP 60222	9/16-18 Male 1/4 ISO Female 61078
	9/16-18 Male 1/4 NPT Female 61081	3/4-16 Male 1/4 NPT Female 61035	3/4-16 Male 3/8 ISO Female 61079
	9/16-18 Male 3/8 Tube Female 60211	3/4-16 Male 3/8 NPT Female 61036	

Elbow
3/4-16 Male 3/8 NPT Female 61065

Quick Disconnect Couplers

Hydraulic Coupler

Sleeve	Nipple
3/8 NPT Female 61915	3/8 NPT Female 61965
1/4 NPT Female 61916	1/4 NPT Male 61966

Hydraulic couplers have dual checks.

Air Couplers

Sleeve	Nipple
1/8 NPT Female 61904	1/8 NPT Male 61950
1/4 NPT Female 61905	1/4 NPT Male 61951
	1/4 NPT Female 61954

Air couplers have checks on sleeves only.

Flexible Hose

Low pressure air hose is sold by the foot in bulk lengths. Order the total footage and number of push-on fittings required by using the number to the right.

Low Pressure Air Hose

Hose I.D.	1/4	3/8	1/2
Hose			
Part Number	61106	61108	61110
Fitting			
Part Number	61107	61109	61111

Hydraulic Hose



High pressure hose is supplied assembled and to lengths indicated. Lengths are measured from end of coupling to end of coupling. Hose is 3/8" ID and available in 4000 psi or 7000 psi rating. 3/8" female tubing fittings on each end.

High Pressure Hydraulic Hose

Length	12"	18"	24"	36"	72"
Part Number					
4000 psi	61201	61202	61203	61204	61205
Part Number					
7000 psi	61211	61212	61213	61214	61215

*Also available in 5000 psi.

Hydraulic Hose (Build Your Own)

Length	25'	Hose Ends	Hose Ends
Part Number	61221	61226	61227
2750 psi	1/4 Hose	1/4 Npt Male	1/4 37° JIC Swivel Female

Steel Tubing

Whenever possible, 3/8" diameter steel tubing should be used for hydraulic lines. Jergens tubing is low carbon soft tube with .065 wall thickness. The tubing is rated at 5000 psi.

Steel Tubing

Part Number	Description
60209	3/8 DIA. X 5 FT.

Maintenance Kits

Part Number	Kit Number	Part Number	Kit Number	Part Number	Kit Number	Part Number	Kit Number	Part Number	Kit Number
60301	62101	60404	62195	60597	62178	61640	62164		62803
60302	62102	60405	62124	60598	62179	61701	62132		62804
60303	62103	60410	62106	60601	62102 (2)	61704	62107	62721	62161
60307	62102	60411	62106		62162 (3)	61705	62108	62722	62161
60340	62104	60412	62106	60602	62103 (2)	61709	62109	62801	62172
60341	62105	60413	62195		62162 (3)	61710	62109	62802	62172
60345	62189	60414	62195	60621	62154	61711	62110	62803	62172
60350	62120	60461	62125	60622	62155	61714	62107	62804	62172
60351	62121	60462	62126	60631	62156	61715	62108	62805	62301
60360	62120	60463	62127	60650	62104 (4)	61720	62173	62806	62302
60361	62121	60464	62128		62189 (5)	61721	62174	62811	62183
60371	62167	60465	62129		62162 (3)	61722	62175	62812	62183
60372	62167	60466	62130	60651	62105 (2)	61736	62159	62823	62184
60373	62168	60511	62139		62162 (3)	61737	62160	62824	62184
60374	62169	60512	62140	60680	62190	61755	62197	62831	62187
60381	62170	60513	62194	60681	62196	61756	62198	62841	62185
60382	62170	60554	62151	60685	62131	61761	62144	62842	62185
60383	62171	60555	62151	61501	62133	61762	62144	62845	62303
60384	62171	60593	62145 (1)	61612	62134	61997	62165	62846	62303
60401	62106	60594	62146 (1)	61514	62134	61998	62166	62852	62199
60402	62106	60595	62147 (1)	61623	62163	62176 (6)	62801		
60403	62195	60596	62177	61629	62123		62802		

(1) Special tools required: use 62148 tool for 60556, use 62149 tool for 60597 or 60598.

(2) Cylinder Kit (3) Mechanical Kit (4) Kit for cylinder with 3/8" piston (5) Kit for cylinder with 1/2" piston

(6) Tool kit required for 62801, 62802, 62803, 62804

Technical Assistance



Jergens maintains a qualified staff whose primary responsibility is to provide technical assistance to our distributors and customers.

Your direct connection number for dimensional questions, circuit assistance and troubleshooting is:

1-800-JERGENS

OR

E-mail: info@jergensinc.com

Pallet Decoupler Valve

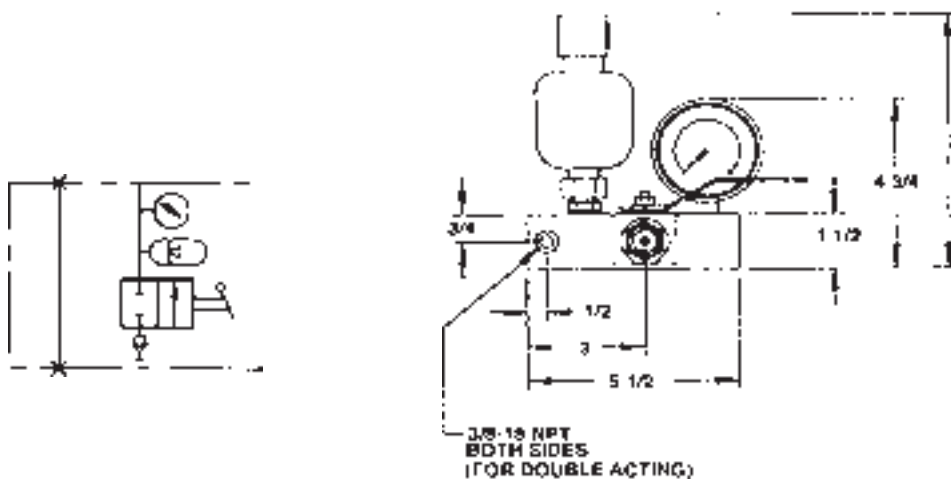
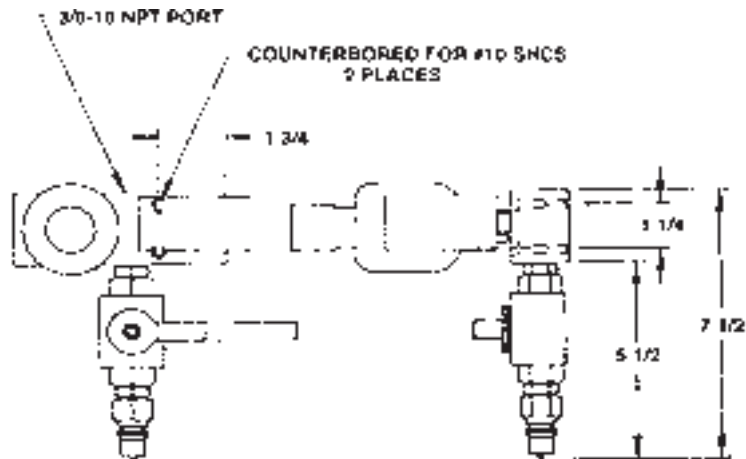


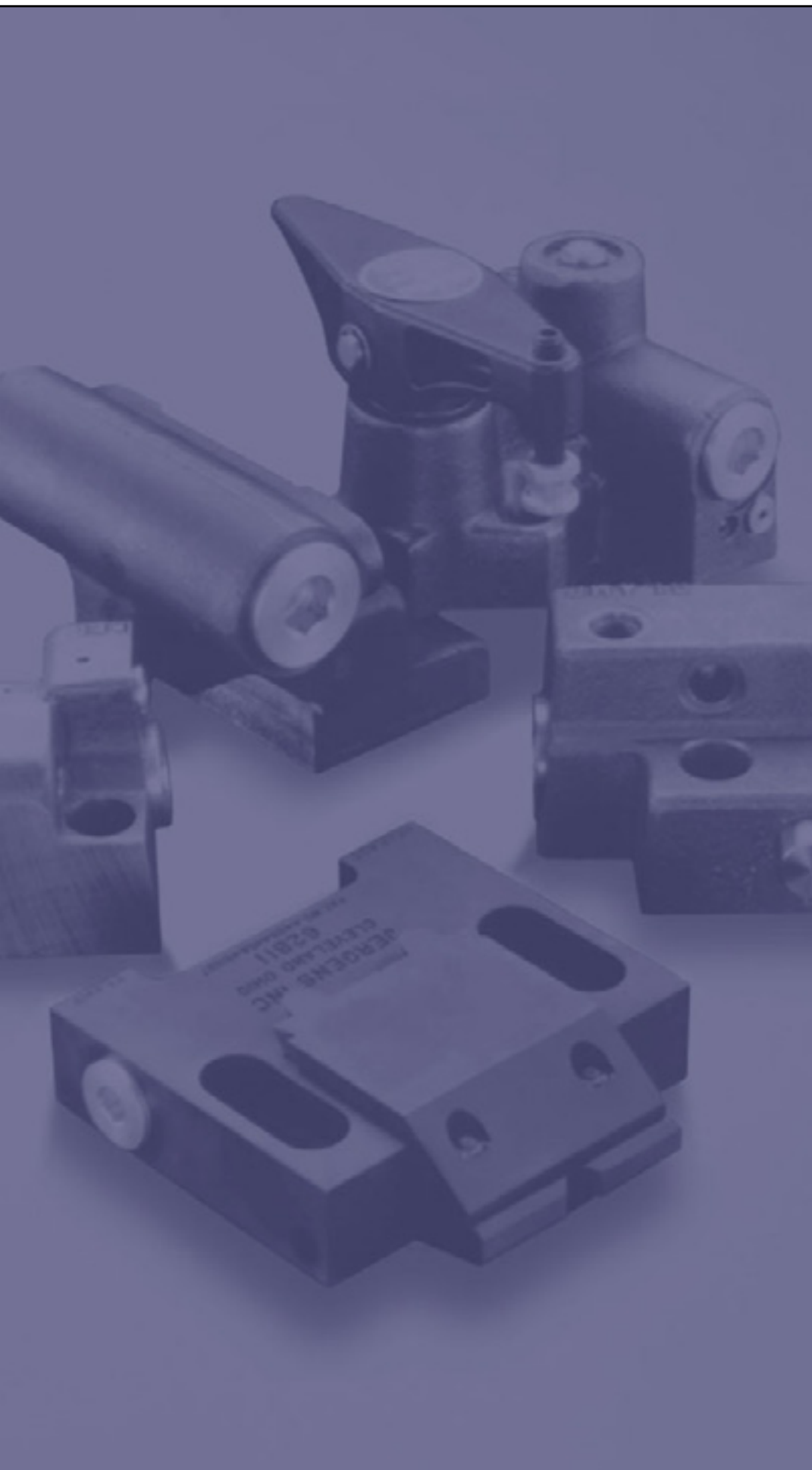
The Pallet Decoupler Valve allows hydraulically clamped tooling fixtures to maintain pressure when disconnected from their power source. The built-in pre-charged accumulator maintains pressure within a hydraulic system, compensating for slow leaks. The Pallet Decoupler Valve adds a level of security to fixtures that must be disconnected from a power source while being moved. Ideal for use with palletized fixtures and machining centers.

- Manifold
- Accumulator
- Hydraulic Connections
- Hydraulic Gauge
- Manual Ball Valve

Part
Number
62605

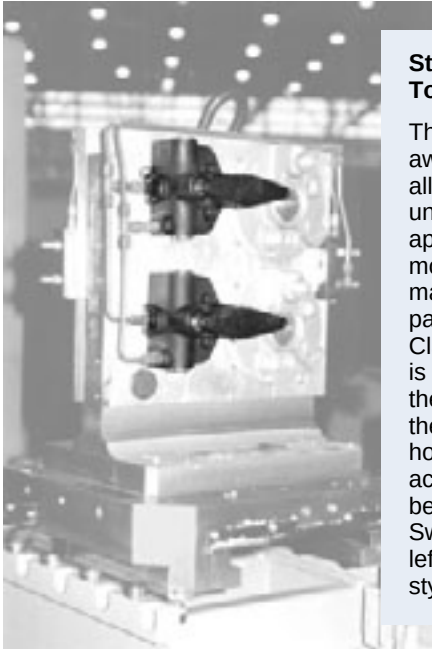
Includes 61965 Male Quick Disconnect





Air-Powered Hydraulic Pumps ..	12.13-12.14
Block Clamp	12.10
Breadbox™ Pump	12.13
Commonly Asked Questions about Staylock Clamps	12.3
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Large Capacity Mold Clamp	12.6
Mini-Rocker Clamps	12.9
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Pump Kits and Accessories	12.14-12.15
Retractable Clamp	12.7
Rocker Clamp	12.8
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Toe Clamps	12.11
Valves, Flow Limit	12.12
Valves and Subplates for Air Powered Hydraulic Pumps	12.15

Stays Mechanically Locked— Even When Disconnected from Hydraulic Pressure



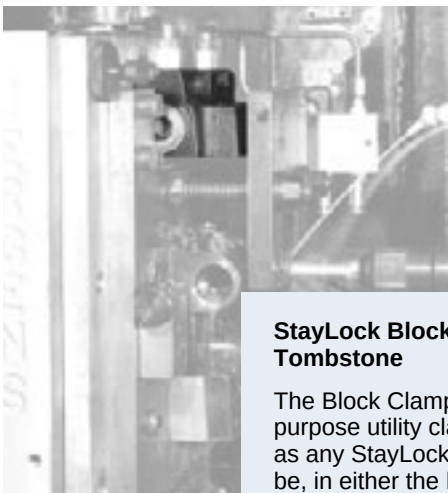
StayLock Swing Clamp on a Tombstone Fixture

The Swing Clamp rotates 80° away from the workpiece, allowing easy loading and unloading of the part. In this application, the tombstone is mounted on a double pallet machining center. When the pallet rotates, the StayLock Clamp remains clamped. There is no need for an accumulator in the hydraulic system. Nor is there a chance of hydraulic hoses getting tangled or accidentally cut while the part is being machined. StayLock Swing Clamps are available in left-hand or right-hand swing styles.

StayLock Clamps ...the Hydraulic clamp with the mechanical advantage! With conventional power clamping, when pressure is put to the clamp, it clamps...take the pressure away (on purpose or not), it unclamps. With the StayLock Clamp's patented internal locking mechanism, hydraulic pressure is needed to clamp...and to unclamp!

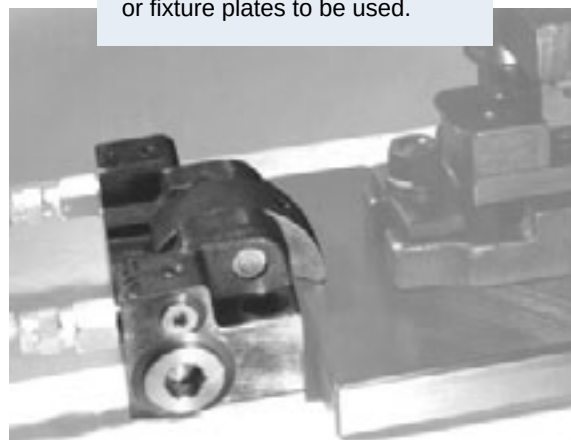
StayLock Rocker Clamp Holding a Die

The Rocker Clamp is ideal for quick change clamping on dies, molds, and fixture plates where a standard height subplate is employed. Because of the unique body design of the Rocker Clamp, it can easily be adapted with a T-slot nut mounted on the bottom. This enables the Rocker Clamp to slide in and out, making part removal easier, plus it allows for various widths of subplates or fixture plates to be used.



StayLock Block Clamp on a Tombstone

The Block Clamp is a multi-purpose utility clamp, utilized, as any StayLock Clamp can be, in either the horizontal or vertical clamping positions. In this application, the Block Clamp (at the top of the tombstone) is replacing step blocks and tedious manual clamping.





Positive Mechanical Lock

Jergens StayLock Clamps offer a breakthrough in clamping flexibility! These mechanically locked clamps are activated and released by hydraulic pressure. Once activated, the clamps automatically lock and will not release until hydraulic pressure is applied to the release port.

Once clamped, you can:

- disconnect your hydraulic power source
- move the fixture, with the part still clamped, to other machines
- not worry about your part unclamping due to hydraulic power failure, a cut line, or leaks in the hydraulic system

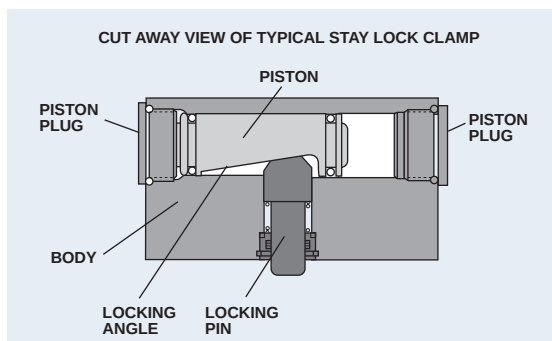
Patented positive mechanical lock minimizes:

- reclamping
- set-up costs
- parts accidentally becoming unclamped

Jergens StayLock Clamps can provide solutions to many clamping problems. They are designed for use on:

- palletized fixtures
- transfer machines
- machining centers
- any power clamping application
- quick change on molds and dies

Use the StayLock Clamps with Jergens Air-Operated Hydraulic Pumps (described on page 12.13-12.14). One Hydraulic Pump can service several machines because there is no need to maintain hydraulic pressure when clamping StayLock Clamps. Once StayLock Clamps are in a clamping position, the hydraulic hoses can be disconnected, and the part will remain clamped indefinitely. Once the machining cycle is completed, applying hydraulic pressure to the release port unclamps the part.



Most Commonly Asked Questions

Q. Does the StayLock Clamp lose pressure?

- A. No, it does not. Because of a patented mechanical lock, a positive locking wedge is activated when pressure is applied to the clamp port. There is no need to maintain hydraulic pressure; therefore, the power source can be disconnected. There is no pressure to lose.

Q. How do I lock StayLock Clamps in place?

- A. Applying hydraulic pressure to the clamp port of a StayLock Clamp drives two internal wedges together. The two wedges form a mechanical lock and will not retract until hydraulic pressure is applied to the release port.

Q. Can these clamps be used with air?

- A. No. Air pressure does not apply enough force to lock or unlock the internal wedge mechanism.

Q. How much hydraulic pressure is needed to activate the clamps?

- A. The minimum pressure required on most of the StayLock Clamps is 500 psi. The minimum and maximum pressure requirements are specified for each clamp on the following pages.

Q. What is needed to set up a hydraulic system using StayLock Clamps?

- A. Typically, a system includes several clamps (depending on individual requirements); a power source; a four-way, three-position, zero-leakage control valve (see page 12.15); and hydraulic hose and fittings. There is no need for an accumulator in the system.

Q. Can an air/oil booster be used with StayLock Clamps?

- A. No. Boosters typically are used with standard hydraulic clamps because pressure is needed to activate and maintain the clamp in the clamping position. With a Booster set-up, there is only one hydraulic line that provides the pressure needed. StayLock Clamps need pressure to clamp and unclamp; therefore, a Booster would not provide the needed pressure to the release port to unclamp the part.

Q. Can I get technical assistance from Jergens when designing a StayLock Clamping system?

- A. Yes. Jergens will assist you by providing a CAD schematic drawing of your system, including all of the part numbers needed to order the system.

For assistance, call 1-800-JERGENS (537-4367).

Die/Mold Clamps

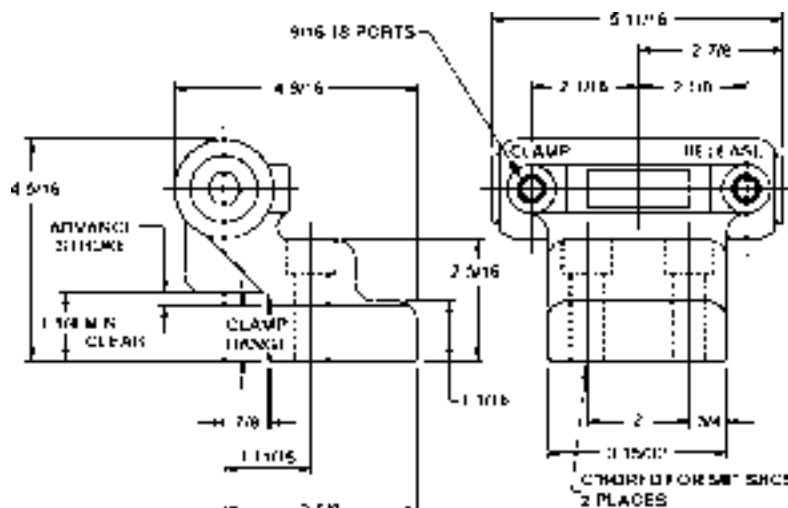
Four models of Die/Mold Clamps are available. Part number 62801 provides 4000 lbs. of output pressure. It is only available in the T-Slot mounting style. The T-Slot mount allows the clamp to be mounted on a machine base via a T-Slot nut, thus allowing the clamp to slide to and from the workpiece. Part number 62802 provides 10,000 lbs. of clamping force. It employs standard mounting bolts for permanent mounting to the machine base, subplate, or fixture plate. Part number 62803 also provides 10,000 lbs. of clamping force. This clamp is provided with a Sensor

Interlock which, when wired to a control panel, indicates whether the clamp is locked or not. Sensor Interlocks are available as an accessory for part numbers 62801 and 62802. Part number 62804 is similar to part number 62802, except it has a greater clamping range. It does not have mounting holes for the Sensor Interlock. Die/Mold Clamps are available with Viton® seals for high temperature applications. Ideal for:

- Injection molding machines
- Die casting machines
- Punch presses
- Machining centers



U.S. Patents:
No. 4,511,127
No. 4,471,293



Part Number
62802

Part Number
62803 with Sensor Interlock

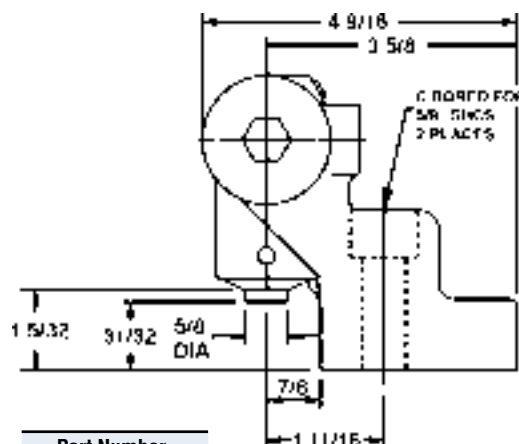
Specifications

Part Number	62801	62802	62803	62804
Operating Volume (cu. in.)	1	1	1	1
Min Operating Pressure (psi)	500	500	500	500
Max Operating Pressure (psi)	2000	5000	5000	5000
Force to Pressure Ratio	2:1	2:1	2:1	2:1
Clamping Range (in.)	1.03/.95	1.03/.95	1.03/.95	1.15/.97
Max Output Force (lbs)	4000	10000	10000	10000
Weight (lbs)	9.5	9.5	9.5	9.5

- Available in FixturePro™ Design Software



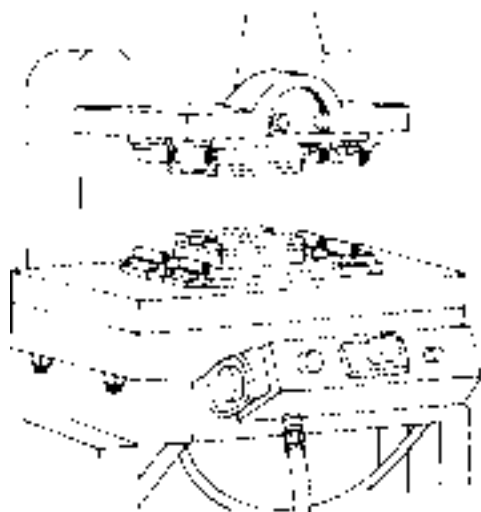
Part Number
62801 T-Slot Style



Part Number
62804

Die/Mold StayLock® Clamp Applications

Punch Press



The Die/Mold Clamp is mounted (either permanently, or by using T-Slots) on the injection molding machine platen. The mold is mounted on subplates with the same height and width, several different molds can be used on one injection molding machine. The mold is lowered into the machine, the Die/Mold Clamps are activated, hydraulic connections are removed, and the job is run. A Sensor Interlock can be added to indicate to the operator that the Die/Mold Clamp is clamping. If molds are used that have a clamping slot, either a StayLock Retractable Clamp or a StayLock Rocker Clamp can be used.

Die/Mold Clamps are mounted on the Punch Press table either permanently or by using T-Slots. The top and bottom dies are slid into place, hydraulic connections are removed and the job is run.

At changeover time, the hydraulic quick disconnect fittings are reconnected, the die is removed and replaced with the next die, and the process is repeated. In some applications on punch presses, the Die/Mold Clamp may create a shut height problem. If this is the case, the StayLock Rocker Clamp is an excellent substitute.

Injection Molding Press



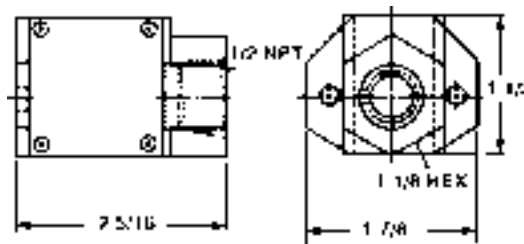
Sensor Interlock



- Available in FixturePro™ Design Software

The Sensor Interlock (62816) can be mounted on the Die/Mold Clamp and is used to indicate that the clamping piston is engaged or disengaged. Because of the minimal movement of the clamping piston, some applications may require more than a visual method of determining if the Die/Mold Clamp is in the clamping position. The Sensor Interlock is a normally open, 110 volt, 6 amp switch. It is supplied with a six foot long wire and mounting hardware to mount in the control panel of a machine. The switch contacts on the Sensor Interlock will only close when the clamping piston is within the clamping range of the Die/Mold Clamp. It is included with Part Number 62803.

Part Number
62816



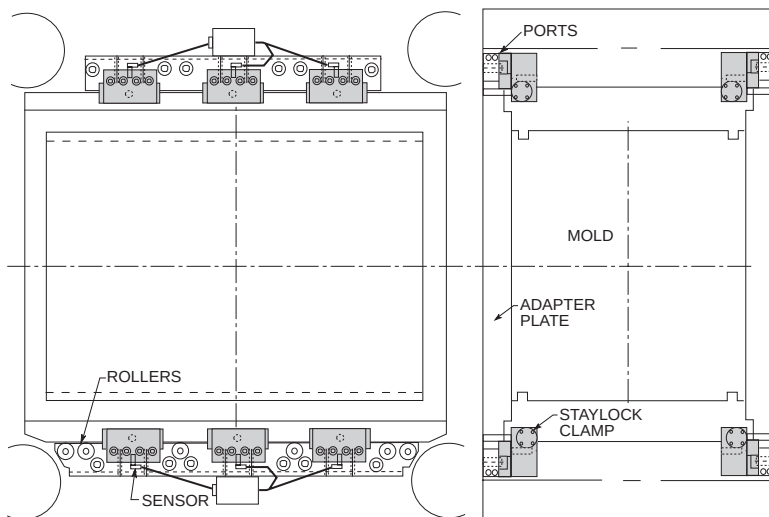
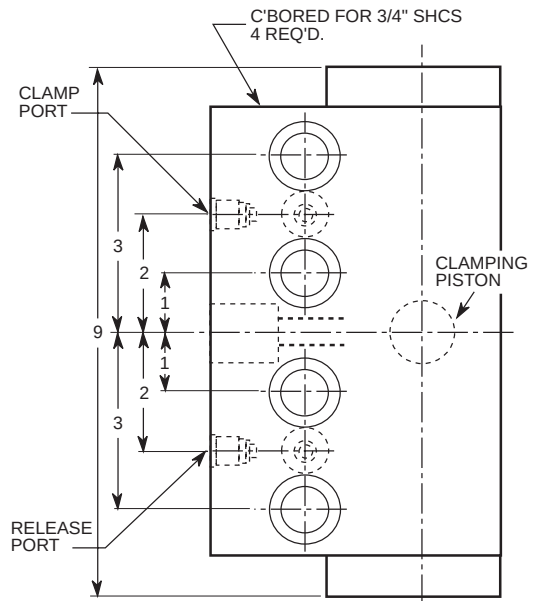
Large Capacity Mold Clamp



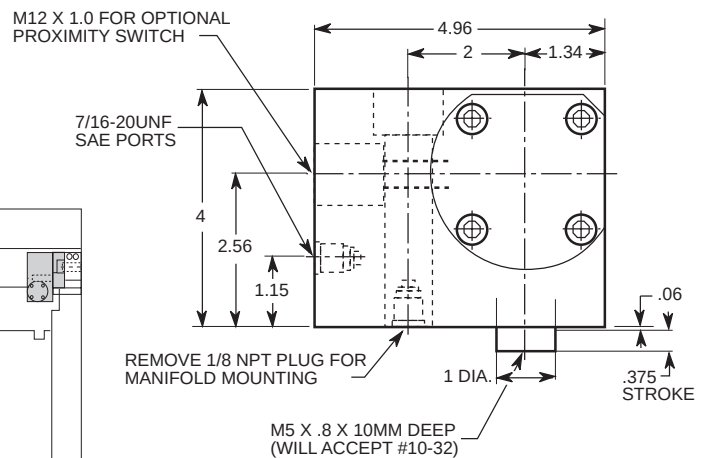
The Jergens Large Capacity Mold Clamp is used on molding machines and wherever heavy clamping forces are required. It has a clamping force of 28,000 lbs. The clamp can be mounted either individually or in series on a manifold.

Specifications

Part Number	62806
Operating Volume (cu. in.)	7
Minimum Operating Pressure (psi)	500
Maximum Operating Pressure (psi)	3500
Force to Pressure Ratio	8:1
Clamping Stroke	.38
Maximum Output Force (lbs.)	28,000
Weight (lbs.)	43



Typical StayLock Manifold Layout on Injection Molding Machine



Part Number
62817

Proximity Switch

The Proximity Switch indicates the clamp's piston position. A single switch is required for each Large Capacity Clamp. Stainless steel construction with 16' cord, 10-30 VDC.

Retractable Clamps



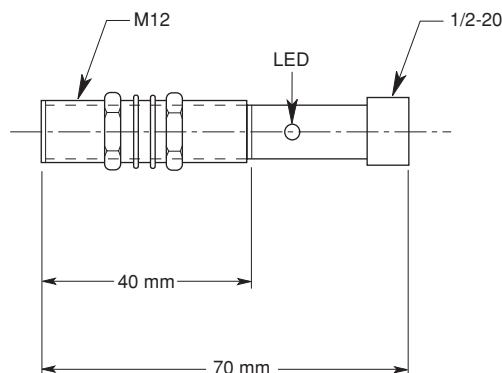
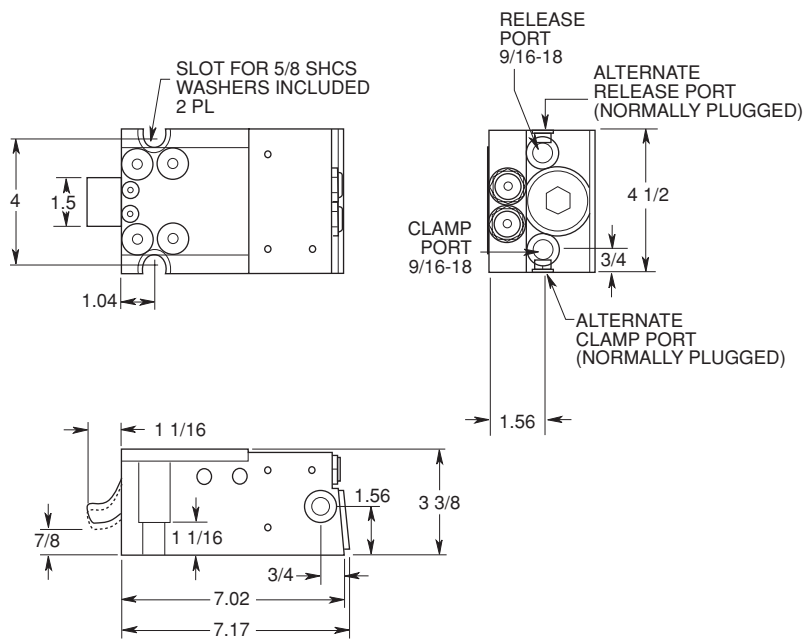
U.S. Patents:
No. 4,511,127
No. 4,471,293

Jergens StayLock Retractable Clamps are designed to allow quick change of molds in injection molding machines and die casting machines. The locking arm, which retracts into the clamp body for easy loading and unloading of a mold, is adaptable to clamp many standard mold slots. The Retractable Clamp is double acting and includes alternate clamp and release ports for easier hydraulic plumbing set-up. A Proximity Switch, which indicates the Retractable Clamp is in the extended or retracted position, is also available (see below).

High temperature version available, contact Technical Sales for more information

Specifications

Part Number	62852
Operating Volume (in ³)	1.6
Minimum Operating Pressure (psi)	500
Maximum Operating Pressure (psi)	2500
Force to Pressure Ratio	2:1
Clamping Stroke	.13
Maximum Output Force (lbs.) @ 2500 (psi)	5000
Weight (lbs.)	23



Part Number
62857

Proximity Switch

The Proximity Switch senses the position of the clamping arm within the Retractable Clamp. Two Proximity Switches are required for each clamp. They have a stainless steel housing and are mounted in the Retractable Clamp. One Switch senses the arm extended; the other, the arm retracted. A sixteen foot cord is included with each Proximity Switch, 35-250 VAC.

Rocker Clamps



Part Number
62841

U.S. Patents:
No. 4,511,127
No. 4,471,293



Part Number
62842

Compact design and dual mounting capability make the Jergens StayLock Rocker Clamp versatile for many applications. The Rocker Clamps come in two styles. Part number 62841 is typically used with standard height subplates upon which the die, mold, or fixture plate is mounted. Part number 62842 has an adjustable spindle which adapts to the height of the workpiece. Both styles of Rocker Clamps have drilled and tapped holes on the bottom of the clamp for mounting T-Slot nuts for use on slotted tables. This method of mounting allows the operator to slide the clamp to and from the workpiece for easier part loading and unloading. Bolt down mounting holes are also provided. For mounting applications, contact the Jergens Technical Sales Department.

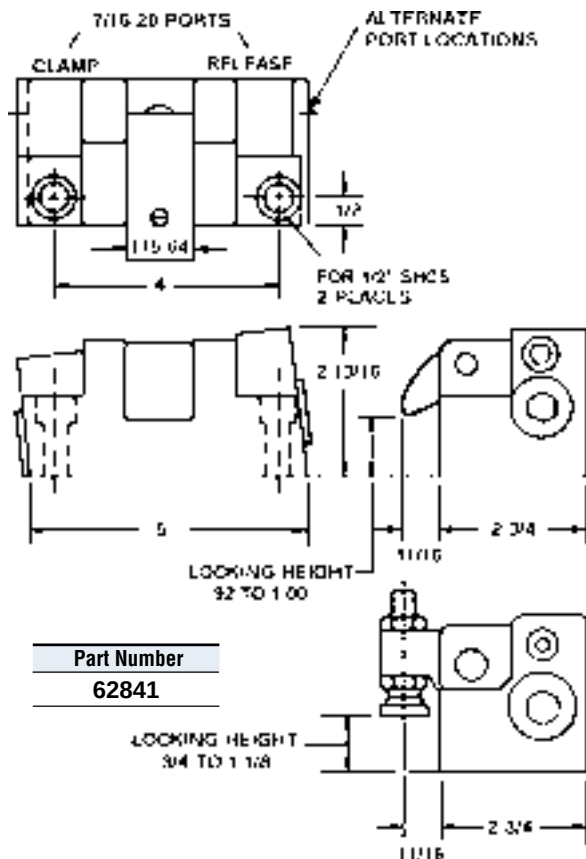
Ideal for:

- Holding dies on punch presses
- Molds on injection molding machines
- Dies on die casting machines
- Use on hydraulic fixtures
- Available in FixturePro™ Design Software

Specifications

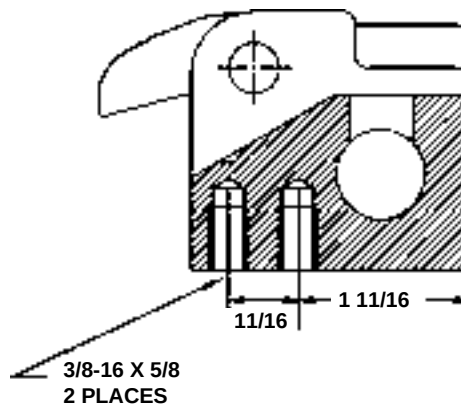
Part Number	62841	62842
Operating Volume (cu. in.)	.67	.67
Minimum Operating Pressure (psi)	500	500
Maximum Operating Pressure (psi)	2,000	2,000
Force to Pressure Ratio	1.9:1	1.9:1
Clamping Range (in.)	.92 to 1.00	.10*
Maximum Output Force (lbs.) @2,000 psi	3,800	3,800
Weight (lbs.)	7.5	7.6

*After adjustment for height.



Part Number
62841

Part Number
62842



Mounting holes for T-Slot applications.

Mini-Rocker Clamps



The StayLock Mini-Rocker Clamp is designed for small parts workholding. Like the other StayLock Clamps, the Mini-Rocker can be mounted at any angle. Clamping forces range from 200 lbs. to 700 lbs. The Mini-Rocker can be used as a single clamp; or because of its unique port arrangement, it can be manifold mounted.

Socket Toggle Screw

Part Number

33302

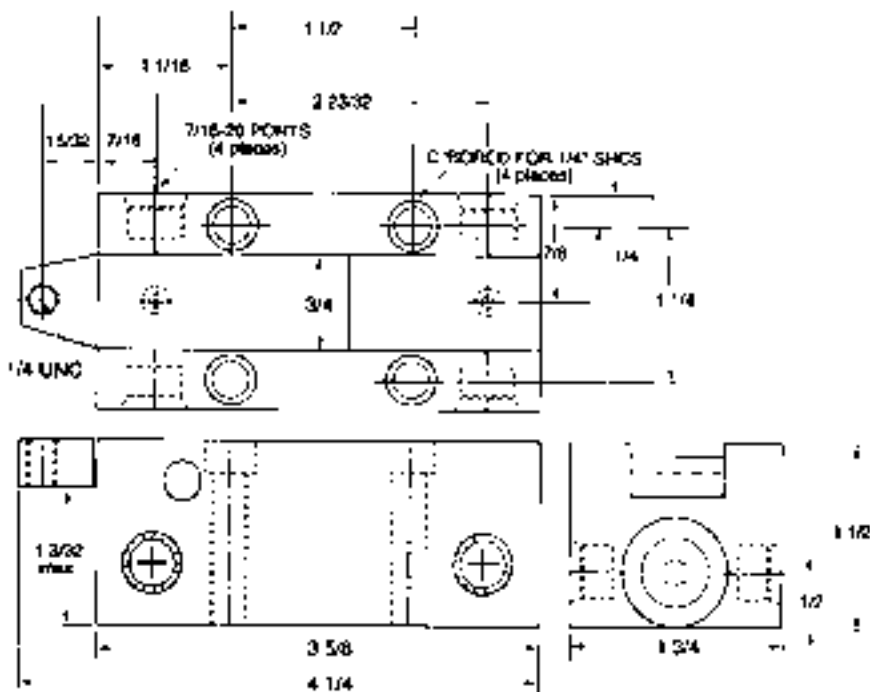
Set Screw/Jam Nut not included

Optional Toggle Pad

(Shown in picture)

Part Number

43502



Specifications

Part Number	62845*	62846**
Operating Volume (cu. in.)	.08	.08
Minimum Operating Pressure (psi)	500	500
Maximum Operating Pressure (psi)	3,500	3,500
Force to Pressure Ratio	.2:1	.2:1
Clamping Range	.09	.09
Clamping Force @ 3500 psi	700 lbs	700 lbs
Clamping Force @ 1000 psi	200 lbs	200 lbs
Weight (lbs.)	2.1	2.1

* Includes four plugs & two O-Rings, SAE style, for manifold mounting

** Includes two plugs

Block Clamps



U.S. Patents:
 No. 4,511,127
 No. 4,471,293

Specifications

Inch

Part Number	62831
Operating Volume (cu. in.)	1.1
Minimum Operating Pressure (psi)	500
Maximum Operating Pressure (psi)	5,000
Force to Pressure Ratio	2:1
Clamping Stroke (in.)	.18
Maximum Output Force (lbs.) @ 5,000 psi	10,000
Weight (lbs.)	6.5

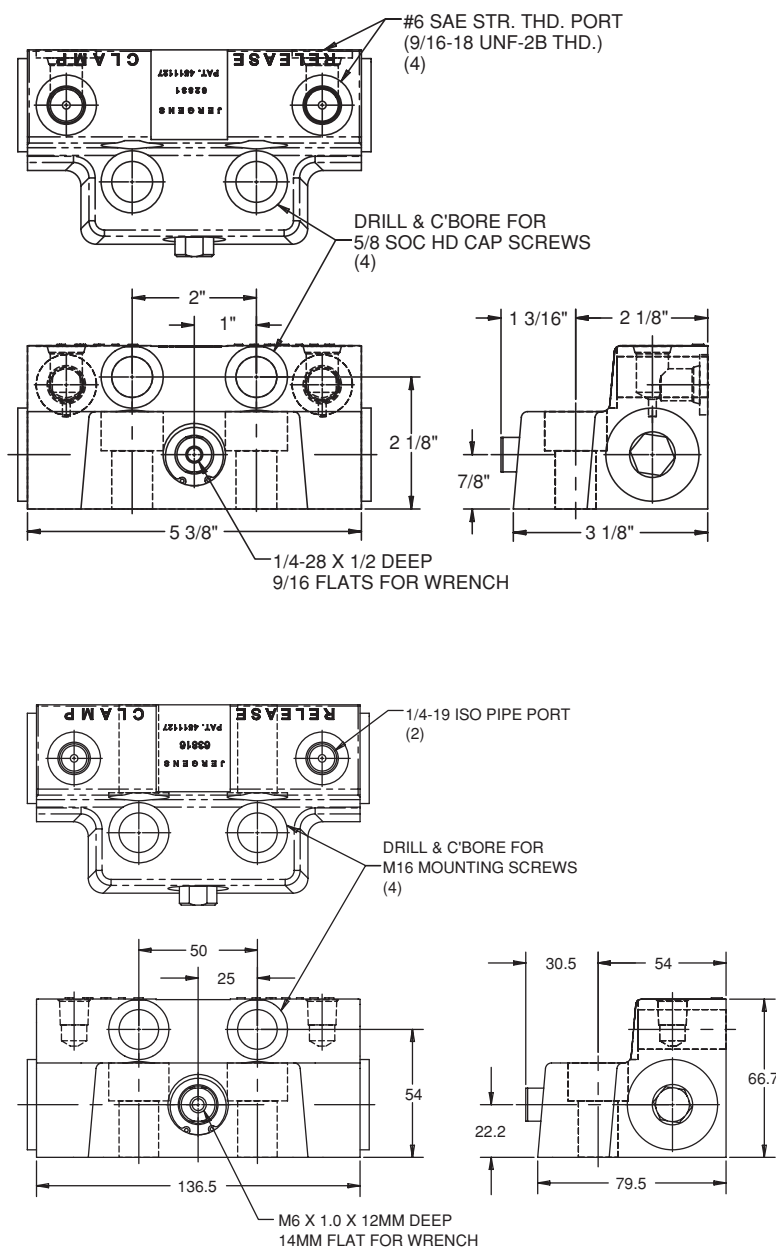
Specifications

Metric

Part Number	63816
Operating Volume (cu. cm)	18
Minimum Operating Pressure (kg/cm ²)	14
Maximum Operating Pressure (kg/cm ²)	350
Force to Pressure Ratio	12.8:1
Clamping Stroke (mm)	4.7
Maximum Output Force (kg) @ 351(kg/cm ²)	4,500
Weight (kg)	2.93

Jergens StayLock Block Clamps are multi-purpose utility clamps designed for many versatile applications. Block Clamps may be mounted for either vertical or horizontal clamping. They may be used with strap clamps or similar workholding devices for maximum adaptability (see illustration below). The Block Clamp plunger has a 1/4 - 28 thread on the I.D. for use with various contact points.

- Available in FixturePro™ Design Software



U.S. Patent

Part Number
62811

Technical drawing of a mechanical assembly with dimensions and labels:

- 17/32 SLOTS FOR 1/2" SHCS
- 1/16 20 DEPT 12
- CLAMP
- RELEASE
- 2 21/32
- 3 5/16
- 2
- 1 1/8
- 5 1/2
- 1 1/8
- 1 7/8
- CH STROKE
- A

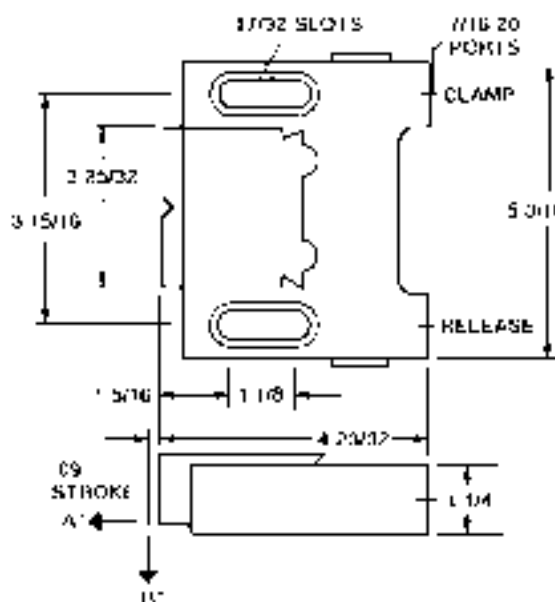
Part Number	62811
Part Number	62812
Operating Volume (cu. in.)	.5
Minimum Operating Pressure (psi)	500
Maximum Operating Pressure (psi)	3,000
Hydraulic Force in Pounds	
Pressure (psi) A* B*	
1,500 1,200	800
3,000 2,500	1,800
Clamping Stroke	.09
Maximum Output Force (lbs.) @3,000 psi	2,500
Weight (lbs.)	6.7

- IMPORTANT: Jergens 62811 Toe Clamp is supplied without toe insert. Please order one of the inserts below.**

Part Number	Insert
60633	Steel
60632	Brass



Part Number
62812



Swing Clamps



U.S. Patents:
 No. 4,511,127
 No. 4,471,293

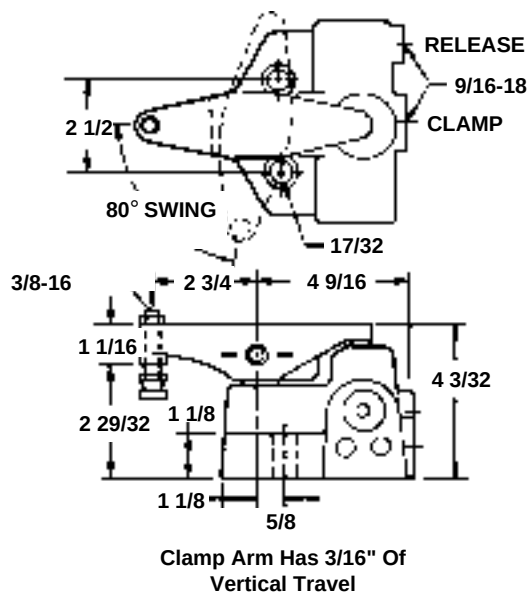
Specifications

Part Number (Right Swing)	62823
Part Number (Left Swing)	62824
Operating Volume (cu. in.)	1
Minimum Operating Pressure (psi)	80*/300
Maximum Operating Pressure (psi)	3,000
Force to Pressure Ratio	1.3:1
Clamping Stroke (in.)	.18
Maximum Output Force (lbs.) @ 3,000 psi	3,900
Weight (lbs.)	11

*80 psi to swing, 300 psi to clamp.

Jergens StayLock Swing Clamps are designed to be used when accessible loading and unloading of a workpiece is required. The clamping arm rotates 80° away from the workpiece. The Swing Clamp operates in any position and is sealed so it can be used with coolant applications.

Important: When using the High Volume Air-Powered Hydraulic Pumps (61761 and 61762), the Flow Limit Valve (shown below) must be used to limit the flow of hydraulic oil going to the clamp port of the Swing Clamp. This will extend the life of the clamp by minimizing the clamp arm from slamming into the clamping position.

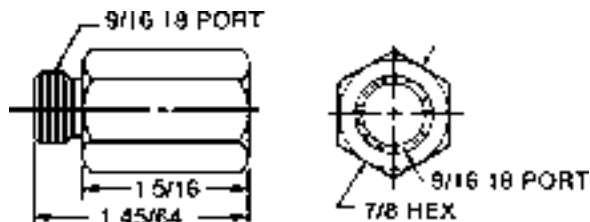


The Flow Limit Valve restricts the flow of oil to dampen the rotating action of the Swing Clamp. It is recommended that the Flow Limit Valve be used with the High Volume Air-Powered Hydraulic Pump (61761 or 61762). It is not needed with the lower volume "Shoebox" Pumps (61755 or 61756).

Flow Limit Valves



Part Number
61648



• Available in FixturePro™ Design Software

Air-Powered Hydraulic Pumps Breadbox™ High Volume Pump



Jergens Air-Powered Hydraulic Pumps are used as a power source to activate StayLock Clamps. Shop air is introduced into the Filter/Regulator and converted to hydraulic pressure. These pumps are available in two styles: the High Volume Pump (61761 and 61762) with Boost Ratios of 20:1 and 50:1 and the standard, more compact "Shoebox" pump (61755 and 61756) with Boost Ratios of 36:1 and 71:1. (See page 12.14) The Air-Powered Hydraulic Pumps are easy to use, energy efficient, versatile and affordable. They are completely self-contained and do not require any external reservoirs or motors.

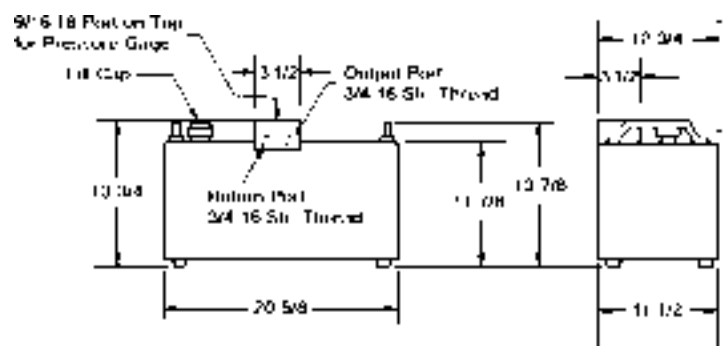
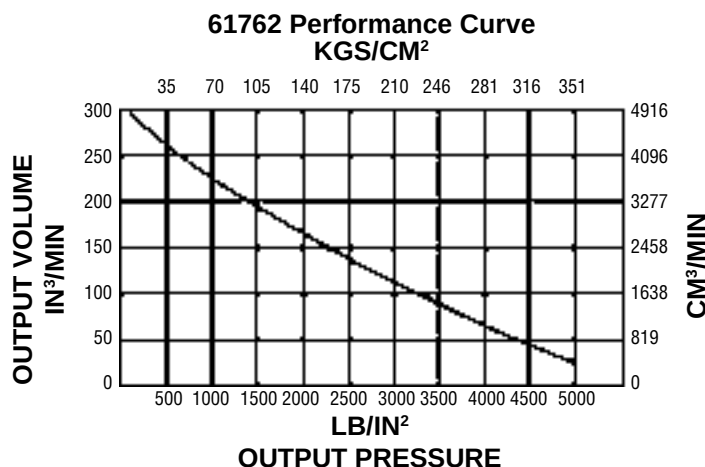
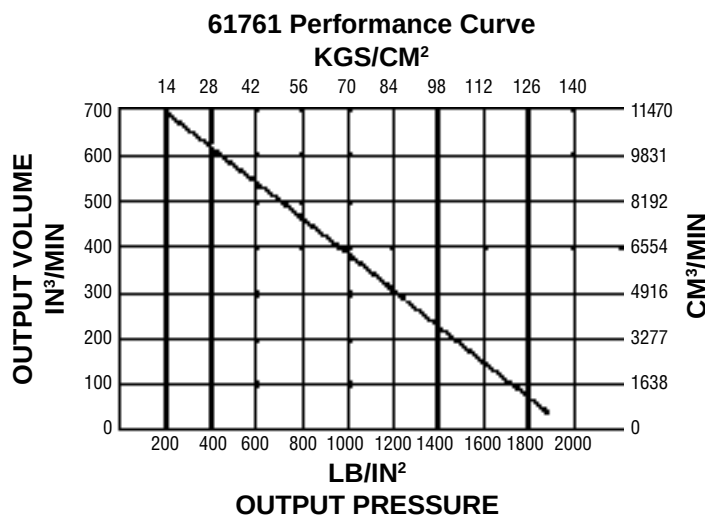
High Volume Air-Powered Hydraulic Pump

The Jergens High Volume Air-Powered Hydraulic Pump converts standard and accessible low pressure shop air to hydraulic pressure up to 5000 psi. These pumps offer large reservoir capacities and allow independent control of multiple work stations. They are designed to provide high volume output throughout the pump's entire pressure range.

Specifications

Part Number	61761	61762
Reservoir Capacity (cu.in.)	440	440
Minimum Input (psi)	40	40
Maximum Input (psi)	125	100
Boost Ratio	20:1	50:1
Maximum Output (psi)		
Free Flow	2500	5000
@ 100 psi (cu.in./min.)	700	300
Weight (lbs.)	80	80

A ten cubic inch accumulator (Part Number 62601) is available to increase the clamping speed if needed. Contact our Technical Sales Department for details.



Recommended Hydraulic Hand Valve and Subplate P/N 61643 - See page 12.15

Air-Powered Hydraulic Pumps

Shoebox™ Pumps



The “Shoebox” Pump is a low cost, compact unit used on smaller hydraulic circuits. Its small size offers the versatility of mounting on wheels (such as a workcart) and moving the pump from workstation to workstation. Because StayLock Clamps do not need constant hydraulic pressure, the “Shoebox” is an ideal power source for StayLock Clamp applications. Like the High Volume Pump, this pump allows independent control of multiple workstations.

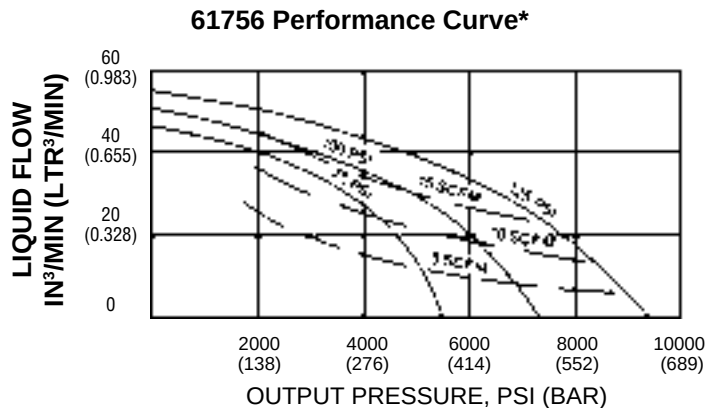
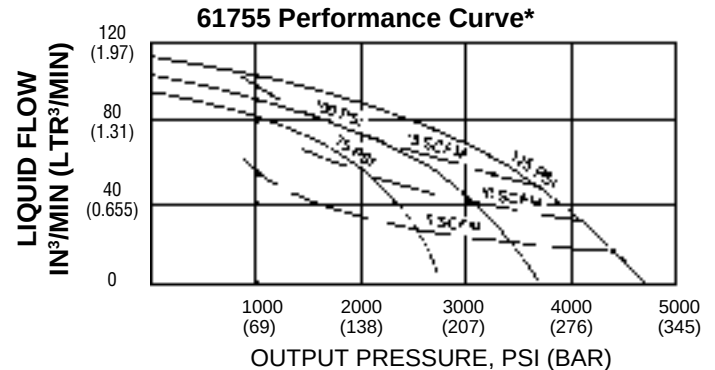
Specifications

Part Number	61755	61756
Reservoir Capacity (cu.in.)	300	300
Minimum Input (psi)	25	25
Maximum Input (psi)	125	85
Boost Ratio	36:1	71:1
Maximum Output (psi)	4500	6000
Free Flow @ 100 psi (cu.in./min.)	100	50
Weight (lbs.)	24	24

A ten cubic inch accumulator (Part Number 62601) is available to increase the clamping speed if needed. Contact our Technical Sales Department for details.

Pump Performance

The maximum output pressure at no flow is somewhat above the nominal ratio times the air drive pressure. This relationship will fall off due to the increased effect of the air drive return spring force (equivalent to approximately 6 psi air drive at top of stroke, 8 psi at bottom of stroke). Data is based on standard muffler arrangement and on flooded suction.



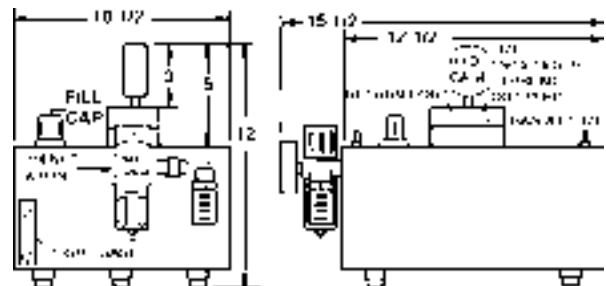
* Air Drive Pressure (SOLID Lines)
Air Drive Flow (DASHED Lines)

Pump Kits

The 61757 Pump Kit includes a 61755 Pump (36:1 Ratio), a 61642 Four-Way, Zero-Leakage Valve, a 61647 Subplate, and a 60703 gauge (6000 psi). The valve, subplate and gauge are supplied mounted on the pump.

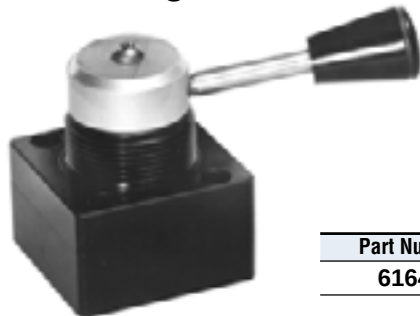
The 61758 Pump Kit includes a 61756 Pump (71:1 Ratio), a 61642 Four-Way, Zero-Leakage Valve, a 61647 Subplate, and a 60706 gauge (10,000 psi). The valve, subplate and gauge are supplied mounted on the pump.

Part Number 61757 includes:	Part Number 61758 includes:
61755 36:1 Pump	61756 71:1 Pump
61642 Four-way, zero-leakage valve	61642 Four-way, zero-leakage valve
61647 Subplate	61647 Subplate
60703 6000 psi gauge	60706 10,000 psi gauge



Valves and Subplates for Air Powered Hydraulic Pumps

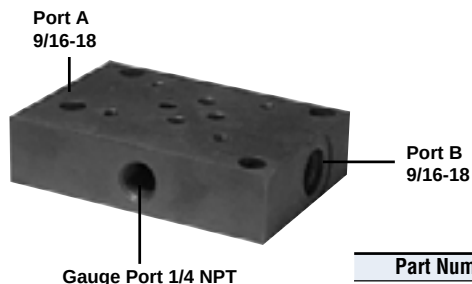
Zero-Leakage Valve



Part Number
61642

For inline applications, use the 61642 Valve mounted on a 61646 Subplate (Order Part Number 61643). This set-up is also recommended for use with High Volume Air-Powered Hydraulic Pumps (61761, 61762) in StayLock and standard applications. For manifold mounting, directly on the pump, the 61647 Subplate and 61642 Valve are recommended. Because the Jergens Air-Powered Hydraulic Pump provides only the necessary hydraulic pressure to clamp and unclamp the StayLock Clamps, the Four-Way, Zero-Leakage Valve is recommended to prevent the unnecessary running of the pump, thus minimizing pump maintenance and wear.

Subplate for Shoebox Pump

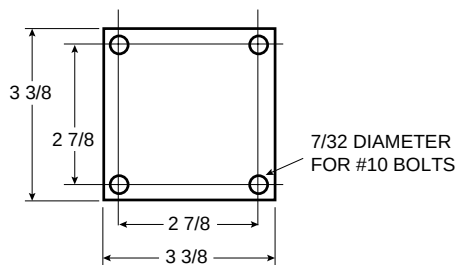


Part Number
61647

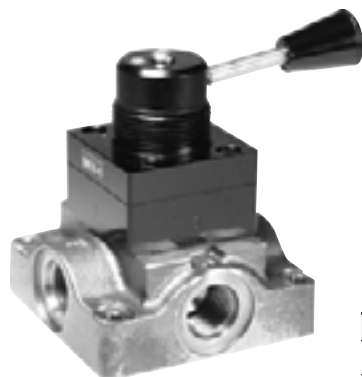
Inline Subplate



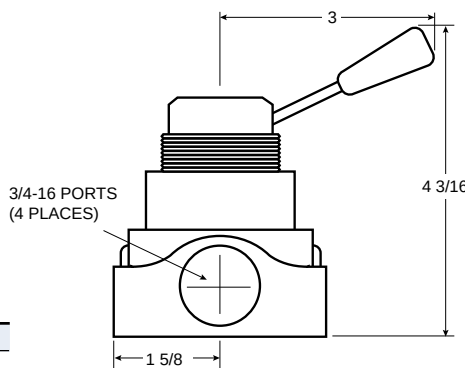
Part Number
61646



Valve and Subplate



Part Number
61643



Converting Manual Power to Hydraulic Pressure

If you are currently using bolts, nuts, straps, etc. to hold a part on a fixture, use this chart to help decide how much hydraulic holding force would be needed to convert the set-up to hydraulic clamping.

Torque (ft. lbs)	Holding Force (lbs) Thread Size			
	1/2-13	5/8-11	3/4-10	1- 8
10	1090	870	730	550
20	2180	1750	1450	1090
*30	3270	2600	2120	1640
*40	4360	3490	2900	2180
*50	5450	4360	3640	2730
*60	6550	5240	4360	3270
80	8730	6980	5820	4360
100	—	8730	7270	5450
120	—	10470	8730	6540
140	—	12200	10180	7640
160	—	13950	11640	8730

* Bold type represents the average torque generated by the operator with a 12" wrench.

$$P = \frac{T}{KD}$$

P = Induced Tension (lbs.)

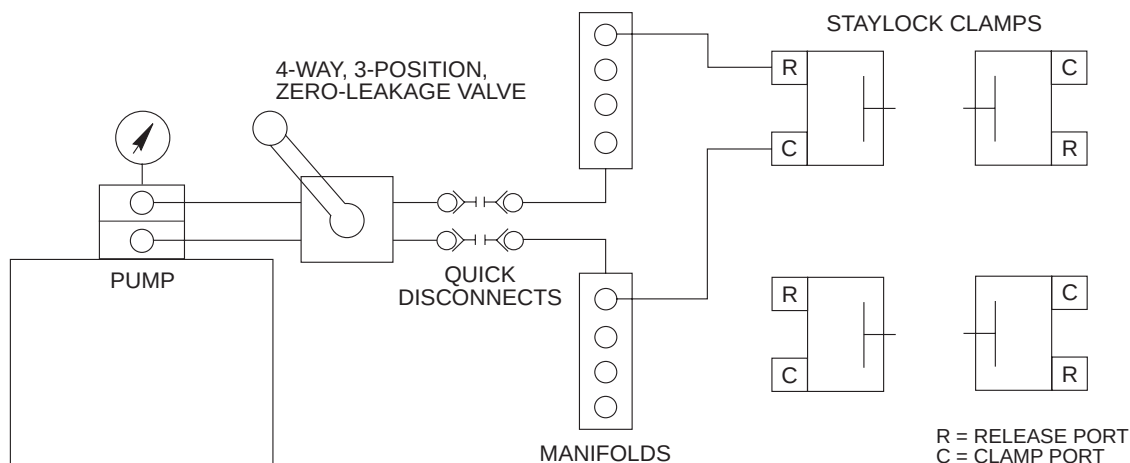
T = Torque (in.lbs.)

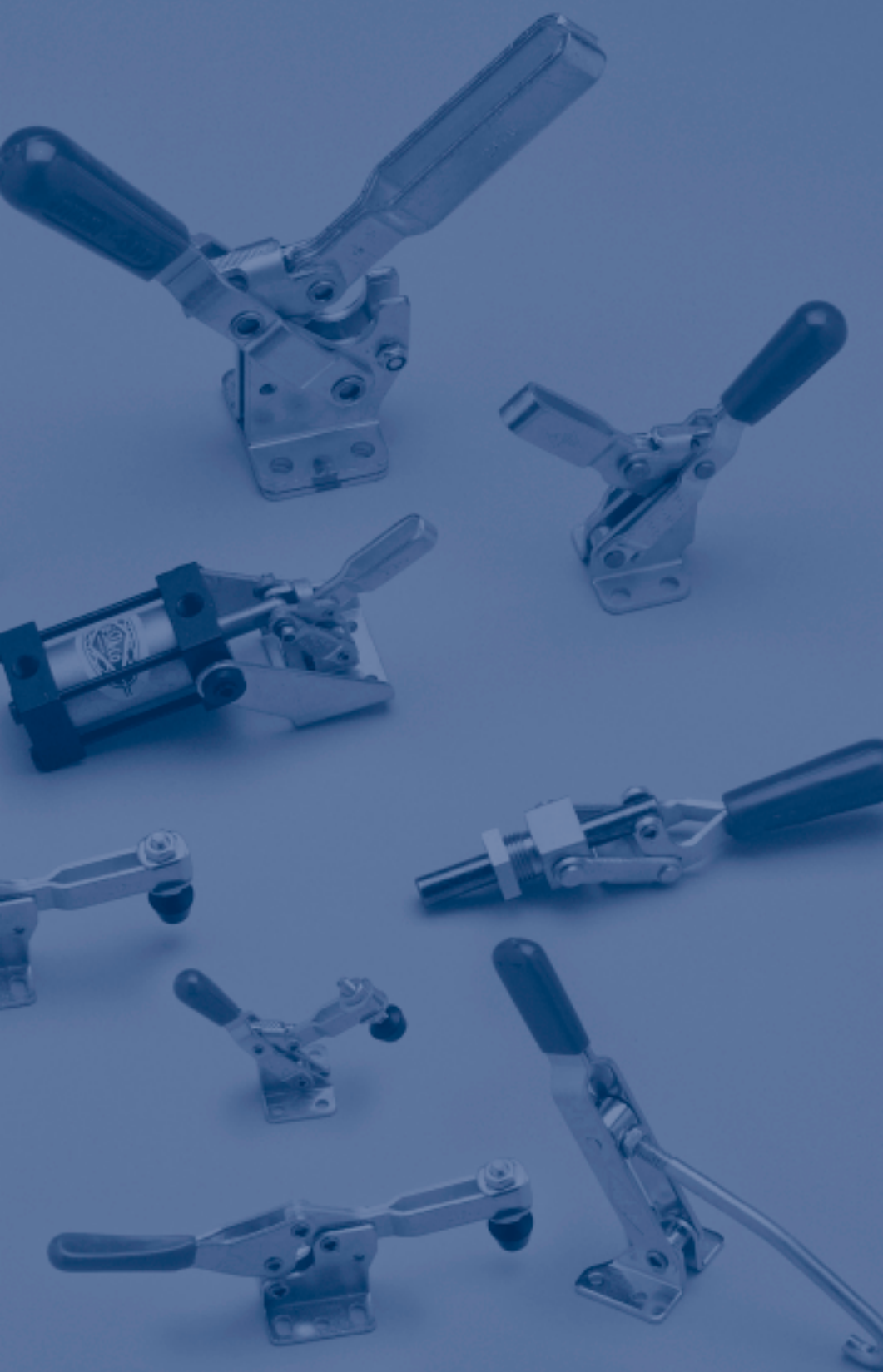
D = Nominal Screw Diameter (in.)

K* = Friction, varies with material, finish, & lubricity (.19 to .25)

*Above values based on K equaling .22

Typical Circuit Diagram of a StayLock Clamping System





DE-STA-CO

Adjustment Spindle Assemblies	13.28
Horizontal Handle Hold-Down Action Clamps	13.8-13.10
Mounting Blocks	13.27
Pneumatic Clamps	13.22-13.26
Pull Action Clamps	13.14-13.16
Squeeze Action Clamps	13.17-13.19
Straight Line Action Clamps ..	13.11-13.13
Toggle Lock Clamp Plus	13.20-13.21
Vertical Handle Hold-Down Action Clamps	13.2-13.7

JERGENS

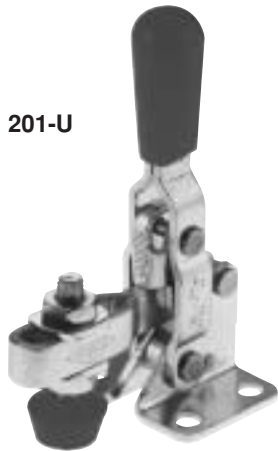
Adjustable Spindle Assemblies	13.46
Conversion Chart	13.70
Flush Mount	13.38
Hold Down Horizontal	13.35-13.37
Hold Down Vertical	13.29-13.34
Pull Action	13.38-13.40
Squeeze Action	13.45
Straight Line	13.41-13.44

JERGENS HEAVY DUTY CLAMPS

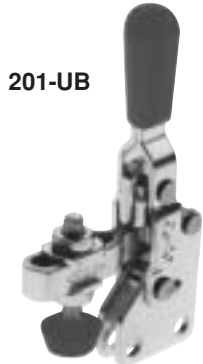
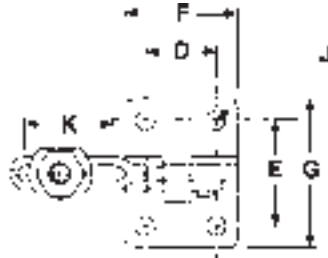
Heavy Duty Cam Push Clamps (HDC Series)	13.68-13.70
Heavy Duty Cam Swing Clamps (HDC Series)	13.67-13.68
Heavy Duty Magna Force Cam Clamps (HDC Series)	13.65-13.69
Heavy Duty Push-Pull Clamps (HDP Series)	13.58-13.62
Heavy Duty Vertical Clamps (HDV Series)	13.47-13.55
Horizontal Latch Clamps (HDL Series)	13.63-13.64
Vertical Cam Clamps (JCV Series)	13.56-13.57

Vertical Handle Hold-Down Action Clamps

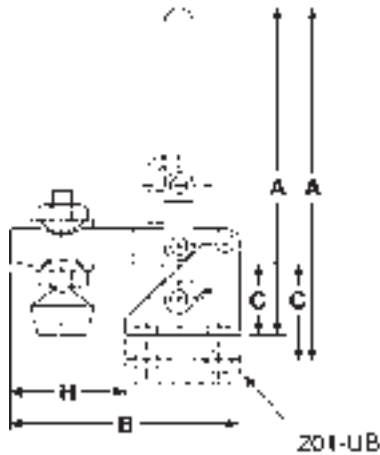
Series 201



201-U



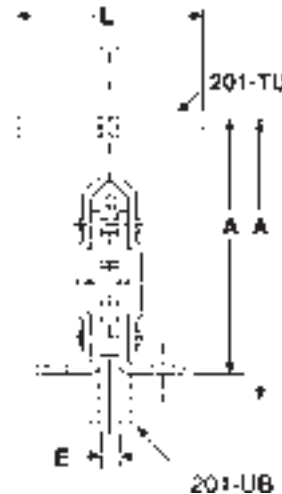
201-UB



201-UB



201-TU



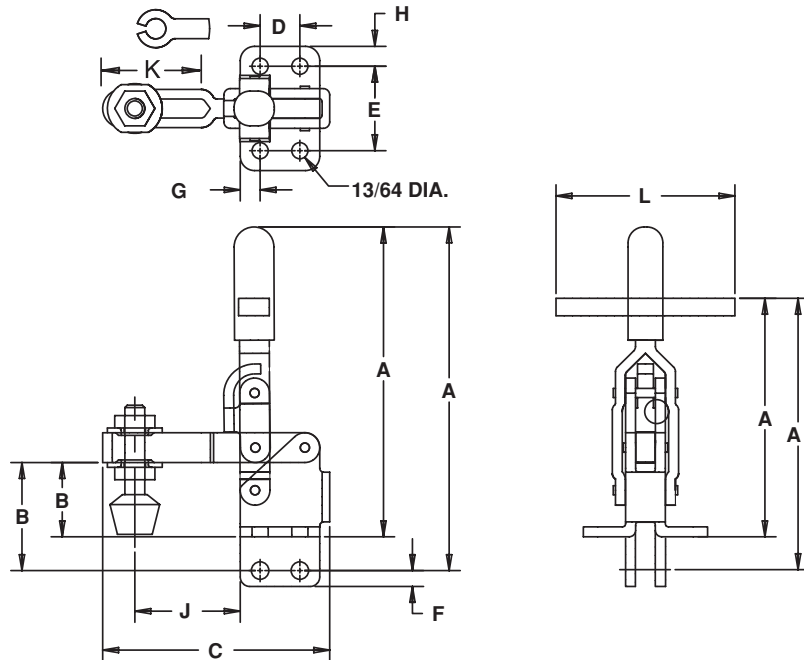
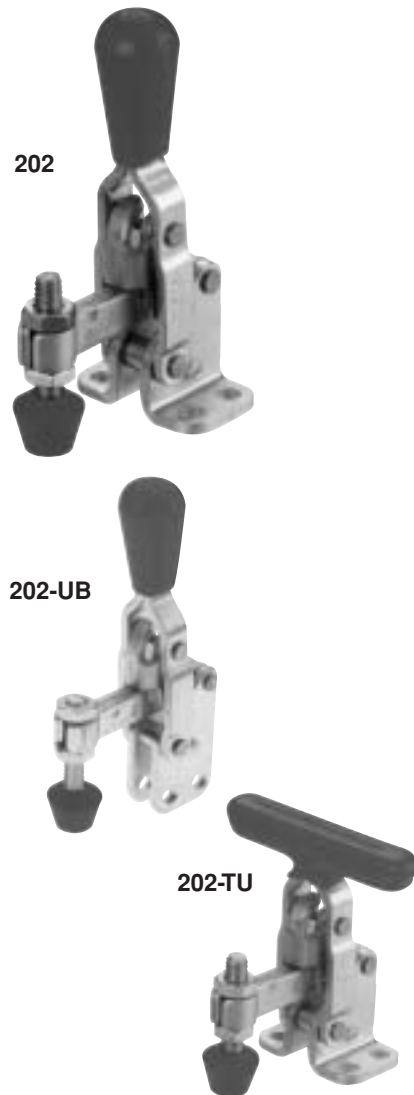
201-TU

This is the smallest series in the vertical handle hold-down clamping series. "U" shaped hold-down bar furnished with bonded neoprene-tipped M5 spindle assembly (305208-M) and flanged washers (102111). Ergonomic handle grip included for greater operator comfort. Stainless steel models supplied with hex-head spindle (201943). To order without spindle, include a -LS suffix.

Jergens Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Dimensions											Handle Type	Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K	L					
52010	100 lbs.	60°	110°	3.03	2.02	0.63	0.63	0.94	1.00	1.31	1.02	0.17	0.73	-	Vertical	U-Bar	Flanged	.15	201-U
52019*	125 lbs.	60°	110°	3.03	2.02	0.63	0.63	0.94	1.00	1.31	1.02	0.17	0.73	-	Vertical	U-Bar	Flanged	.15	201-USS
52015	100 lbs.	60°	110°	3.13	2.02	0.88	0.63	0.16	1.00	-	1.02	0.17	0.73	-	Vertical	U-Bar	Straight	.17	201-UB
52012	100 lbs.	60°	100°	2.25	2.02	0.63	0.63	0.94	1.00	1.31	1.02	0.17	0.73	1.92	Tee	U-Bar	Flanged	.17	201-TU

*Stainless Steel

Vertical Handle Hold-Down Action Clamps Series 202



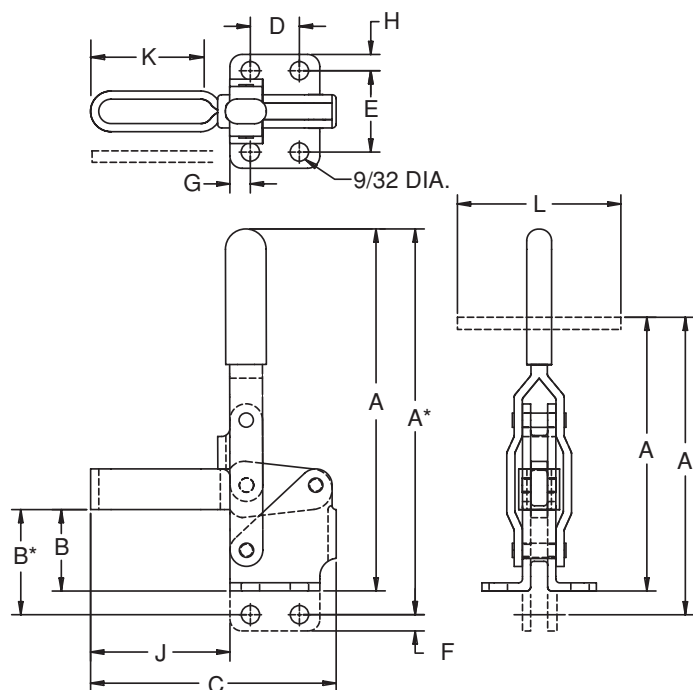
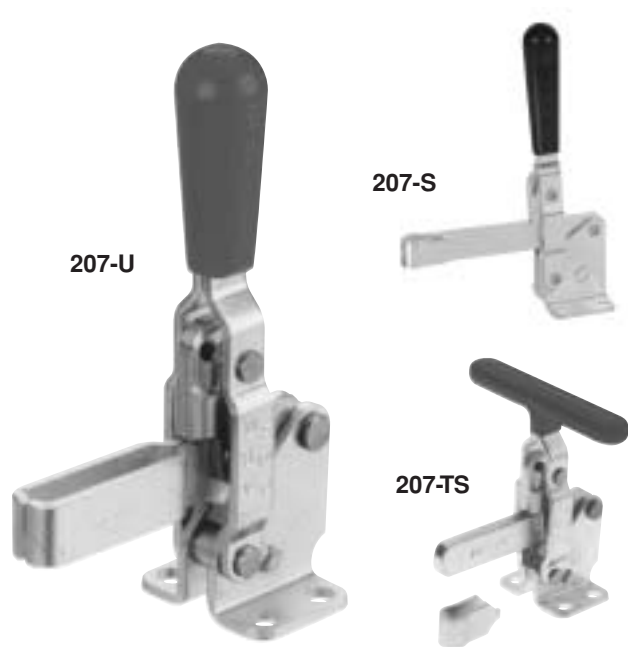
Two bar styles available making the spindle position fixed (Models 202) or adjustable (Models 202-U). Furnished with bonded neoprene-tipped M6 spindle assembly (202208-M) and lock nuts. Ergonomic "U" bar models also include flanged washers (215105). Ergonomic handle grip included for greater operator comfort. Stainless steel models supplied with hex-head spindle only (202943). To order without spindle, include a -LS suffix.

Jergens Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Dimensions											Handle Type	Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K	L					
52020	200 lbs.	64°	104°	4.21	2.31	0.94	0.50	1.06	1.00	1.56	1.31	0.22	-	-	Vertical	Solid	Flanged	.33	202
52029*	250 lbs.	64°	104°	4.21	2.31	0.94	0.50	1.06	1.00	1.56	1.31	0.22	-	-	Vertical	Solid	Flanged	.33	202-SS
52025	200 lbs.	64°	104°	4.40	2.31	1.13	0.50	0.25	1.00	-	1.31	0.22	-	-	Vertical	Solid	Straight	.33	202-B
52022	200 lbs.	64°	104°	2.81	2.31	0.94	0.50	1.06	1.00	1.56	1.31	0.22	-	3.56	Tee	Solid	Flanged	.36	202-T
52021	200 lbs.	64°	104°	2.81	2.73	0.94	0.50	1.06	1.00	1.56	1.73	0.22	0.98	3.56	Tee	U-Bar	Flanged	.38	202-TU
52026	200 lbs.	64°	104°	4.21	2.73	0.94	0.50	1.06	1.00	1.56	1.73	0.22	0.98	-	Vertical	U-Bar	Flanged	.35	202-U
52024	200 lbs.	64°	104°	4.40	2.73	1.13	0.50	0.25	1.00	-	1.73	0.22	0.98	-	Vertical	U-Bar	Straight	.35	202-UB
52120	200 lbs.	64°	104°	4.21	3.27	0.94	0.50	1.06	1.00	1.56	2.27	0.22	1.54	-	Vertical	U-Bar	Flanged	.36	202-UL
52039	250 lbs.	64°	104°	4.21	2.72	0.94	0.50	1.06	1.00	1.56	1.72	0.22	0.98	-	Vertical	U-Bar	Flanged	.35	202-USS

*Stainless Steel

Vertical Handle Hold-Down Action Clamps

Series 207

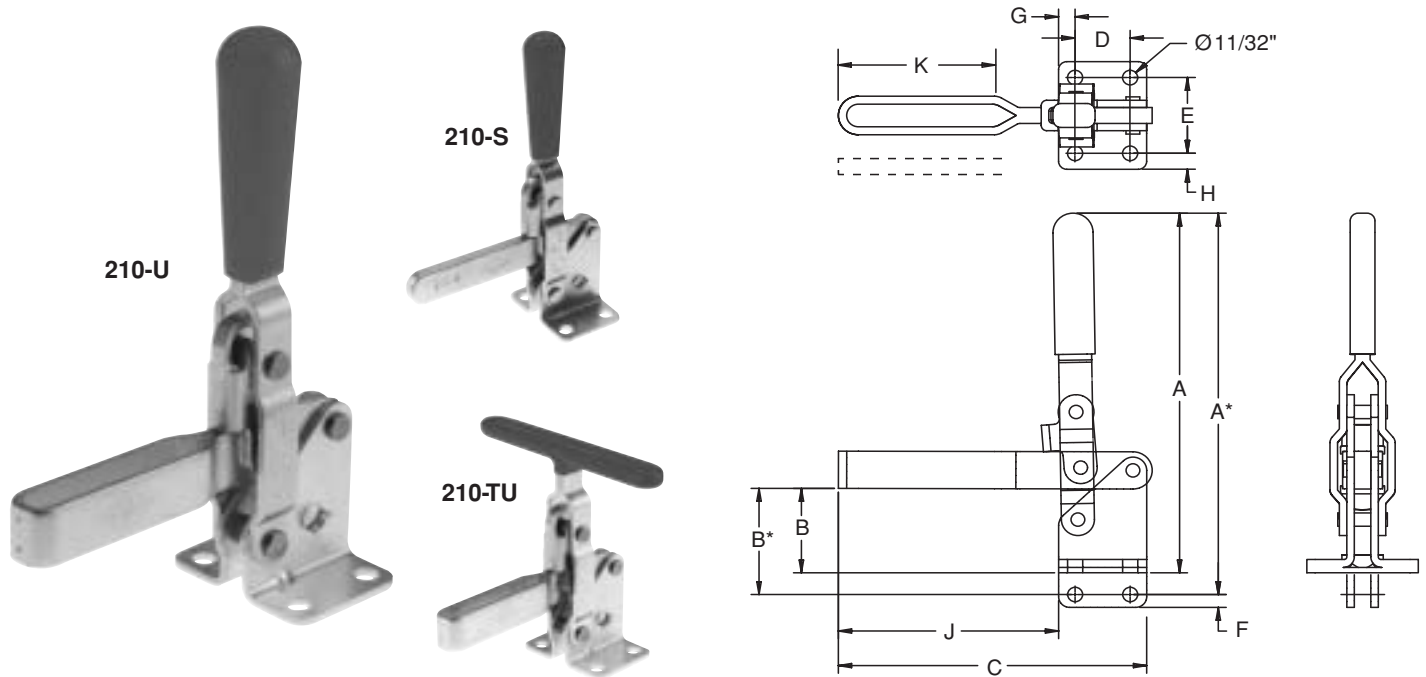


This series has more models than any other in the line. There are bar, handle and base variations and two stainless steel models. Bolt retainer (207105) is furnished with solid bar models, and two flanged washers (507107) with "U" bar models. All "U" bar models supplied with 225208-M spindle assembly, except for T-handle models. T-handle and solid bar models accommodate any 5/16" or M8 spindle assembly.

Jergens Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Dimensions												Handle Type	Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K	L						
52084	500 lbs.	62°	115°	6.89	5.02	1.25	0.75	1.25	1.38	1.75	3.45	0.28	-	-	Vertical	Solid	Flanged	.74	207-L	
52086	500 lbs.	62°	115°	7.48	5.02	1.55	0.75	0.25	1.38	-	3.45	0.28	-	-	Vertical	Solid	Straight	.74	207-LB	
52080	500 lbs.	62°	115°	6.89	3.75	1.25	0.75	1.25	1.38	1.75	2.19	0.28	-	-	Vertical	Solid	Flanged	.69	207-S	
52085	500 lbs.	62°	115°	7.48	3.75	1.55	0.75	0.25	1.38	-	2.19	0.28	-	-	Vertical	Solid	Straight	.69	207-SB	
52082	500 lbs.	62°	115°	4.36	3.75	1.25	0.75	1.25	1.38	1.75	2.19	0.28	-	3.00	Tee	Solid	Flanged	.74.	207-TS	
52072	375 lbs.	62°	115°	4.36	3.75	1.25	0.75	1.25	1.38	1.75	2.15	0.28	1.30	3.00	Tee	U-Bar	Flanged	.72	207-TU	
52077	375 lbs.	62°	115°	4.36	5.41	1.25	0.75	1.25	1.38	1.75	3.85	0.28	2.75	3.00	Tee	U-Bar	Flanged	.80	207-TUL	
52070	375 lbs.	62°	115°	6.89	3.68	1.25	0.75	1.25	1.38	1.75	2.15	0.28	1.30	-	Vertical	U-Bar	Flanged	.67	207-U	
52075	375 lbs.	62°	115°	7.48	3.68	1.55	0.75	0.25	1.38	-	2.15	0.28	1.30	-	Vertical	U-Bar	Straight	.67	207-UB	
52074	375 lbs.	62°	115°	6.89	5.41	1.25	0.75	1.25	1.38	1.75	3.85	0.28	2.75	-	Vertical	U-Bar	Flanged	.75	207-UL	
52076	375 lbs.	62°	115°	7.48	5.41	1.55	0.75	0.25	1.38	-	3.85	0.28	2.75	-	Vertical	U-Bar	Straight	.75	207-ULB	
52079*	450 lbs.	62°	115°	5.63	4.38	1.25	0.75	1.25	1.38	1.75	3.06	0.28	2.13	-	Vertical	U-Bar	Flanged	.70	207-USS	

*Stainless Steel

Vertical Handle Hold-Down Action Clamps Series 210



Popular because of its size and holding capacity. Ergonomic handle grips are included for greater operator comfort. Two flanged washers (235106) included with "U" bar models, and bolt retainer (210114) supplied with solid bar models. Accommodates any 3/8" or M10 spindle. "U" bar models supplied with 240208-M spindle assembly (except "T" handle models).

Jergens Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Dimensions											Handle Type	Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K	L					
52101	750 lbs.	58°	106°	8.00	5.53	1.67	1.25	1.78	1.91	2.53	3.63	0.33	-	-	Vertical	Solid	Flanged	1.29	210-S
52106	750 lbs.	58°	106°	8.16	5.53	2.19	1.25	0.31	1.91	-	3.63	0.33	-	-	Vertical	Solid	Straight	1.29	210-SB
52102	600 lbs.	58°	106°	5.38	5.53	1.67	1.25	1.78	1.91	2.53	3.63	0.33	2.40	6.02	Tee	U-Bar	Flanged	1.36	210-TU
52100	600 lbs.	58°	106°	8.00	5.53	1.67	1.25	1.78	1.91	2.53	3.63	0.33	2.40	-	Vertical	U-Bar	Flanged	1.29	210-U
52105	600 lbs.	58°	106°	8.16	5.53	2.19	1.25	0.31	1.91	-	3.63	0.33	2.40	-	Vertical	U-Bar	Straight	1.29	210-UB
52109*	750 lbs.	58°	106°	8.00	5.53	1.67	1.25	1.78	1.91	2.53	3.63	0.33	2.40	-	Vertical	U-Bar	Flanged	1.29	210-USS

*Stainless Steel

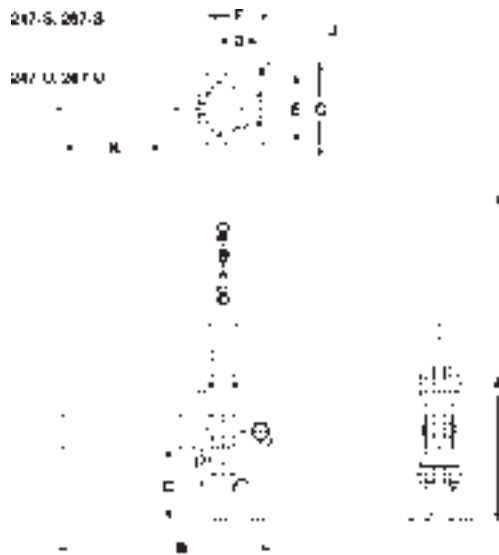
Vertical Handle Hold-Down Action Clamps

Series 247, 267



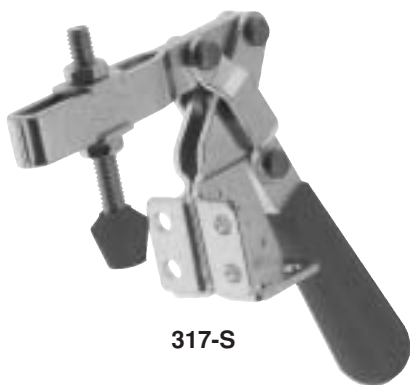
247-U

Series 247 are compact heavy-duty models utilizing the bar guide feature for stability. Bolt retainer (247110) furnished with solid bar models, and flanged washers (247109) with "U" bar models. Model 247-U is supplied with 247208-M spindle assembly. Series 267 clamps are identical except for the base. Models are available with "U" bar or solid bar. Bolt retainer (110122) furnished with solid bar models. Accommodates all 5/8" spindles. Model 267-U is supplied with 267203-M hex-head spindle assembly. All clamps are equipped with a red vinyl handle grip.



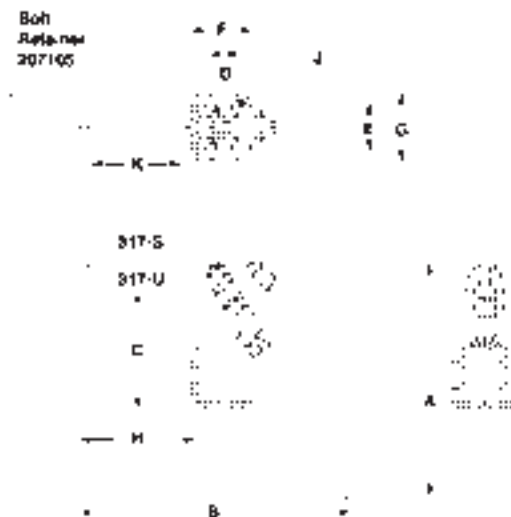
Jergens Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Dimensions												Handle Type	Bar Type	Base Type	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K	L					
52471	1000 lbs.	2.39 lbs.	75°	136°	8.69	6.87	2.00	1.25	1.78	2.00	2.53	4.87	0.34	-	Vertical	Solid	Flanged	247-S	
52470	1000 lbs.	2.36 lbs.	75°	136°	8.69	6.87	2.00	1.25	1.78	2.00	2.53	4.87	0.34	3.00	Vertical	U-Bar	Flanged	247-U	
52671	1200 lbs.	4.36 lbs.	70°	140°	11.88	8.88	3.08	2.00	2.75	3.00	3.75	5.88	0.48	-	Vertical	Solid	Flanged	267-S	
52670	1200 lbs.	4.80 lbs.	70°	140°	11.88	8.92	3.08	2.00	2.75	3.00	3.75	5.92	0.48	4.25	Vertical	U-Bar	Flanged	267-U	

Series 317



317-S

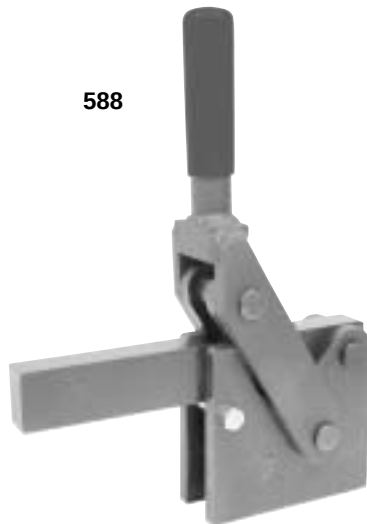
Low silhouette and mounting flexibility provides maximum ease of part loading and unloading. When opened, the bar completely clears work area. In addition, solid bar Model 317-S is supplied with a bolt retainer (207105), and accommodates any 5/16" spindle assembly (not included). Model 317-U with "U" bar, bonded neoprene-tipped M8 spindle assembly (507208-M), and flanged washers (507107) is also available. To order without a spindle, include a -LS suffix. Ergonomic handle grips are provided for greater operator comfort.



Jergens Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Dimensions											Bar Type	Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K				
53171	375 lbs.	60°	185°	5.62	6.44	2.67	0.60	1.00	1.38	1.50	3.19	0.27	-	Solid	.75	317-S	
53170	375 lbs.	60°	185°	5.62	6.07	2.67	0.60	1.00	1.38	1.50	2.53	0.27	2.00	U-Bar	.75	317-U	

Vertical Handle Hold-Down Action Clamps

Series 548, 578, 588



These are the largest capacity hold-down units, designed for fast cycling and accurate repeatability. They incorporate the patented "bar-guide" feature which gives lateral support to the hold-down bar at the front of the base. This extra support improves rigidity and repeatability. The clamps can be welded in place, attached by side mounting or clevis mounted. All models are supplied with red vinyl handle grip. Hold-down bar can be machined to meet the application requirements.



Jergens Part Number	Max Holding Capacity	Handle Moves	Bar Opens	Dimensions									Weight (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	K		
55480	2500 lbs.	129°	199°	9.44	7.50	0.75	1.78	.75	3.25	1.00	4.25	2.00	5.30	548
55780	4000 lbs.	129°	199°	11.00	8.63	0.88	1.78	.88	4.00	1.25	4.63	2.38	9.12	578
55880	6000 lbs.	129°	199°	12.75	9.75	2.00	1.00	1.00	5.00	1.50	4.75	2.75	14.75	588

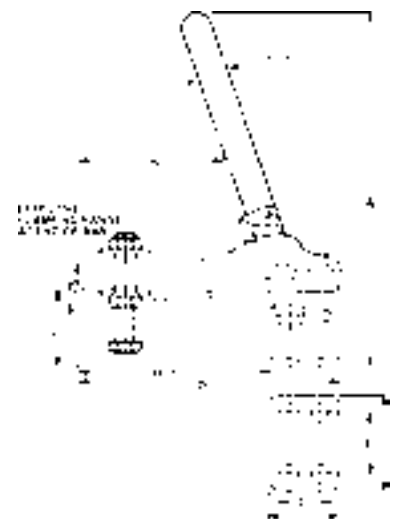
Cam Action Toggle Clamps

Manual



Featuring a unique cam action, this clamp will hold workpieces of inconsistent height. Ideal for castings or forgings, because once set for the nominal or average piece height, the clamp will allow for deviations of 5/32" in either direction. The overall clamping range is 11/32". This clamp will accommodate any 1/2" spindle.

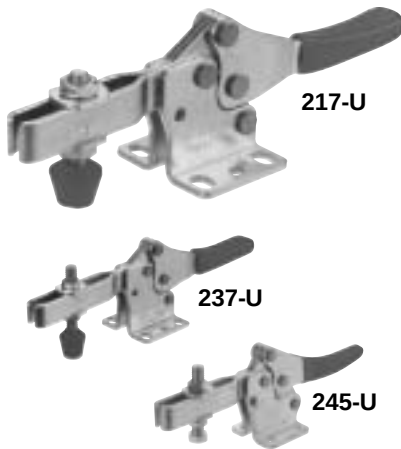
- Holding Capacity: 1500 lbs. max.
- Weight: 2 lbs., 11 oz.
- Handle moves 180°, Bar moves 15°



Jergens Part Number	Max Holding Capacity	Handle Moves	Bar Opens	Dimensions										Weight (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K		
52290	1000 lbs.	180°	115°	9.94	7.13	2.05	.88	2.00	1.88	2.75	5.25	.33	2.75	2.59	229

Horizontal Handle Hold-Down Action Clamps

Series 213, 217, 227, 237, 245



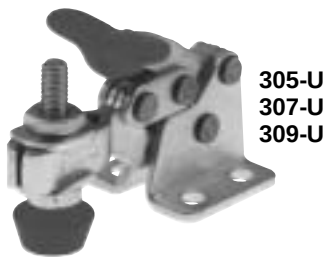
These models offer a combination of safety design and a patented bar guide feature. The bar guide gives extra lateral support and rigidity to the hold-down bar at the front of the base. The units are designed to give more hand clearance between the bar and handle when the clamps are in the full open position. Models 213 through 237 are supplied with bonded neoprene-tipped spindle assemblies, flanged washers, and ergonomic handle grips. Model 245-U and stainless steel models are supplied with a hex-head spindle assembly.



Jergens Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Flanged Washers	Spindel Assembly	Dimensions										Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
						A	B	C	D	E	F	G	H	J	K				
52130	150 lbs.	60°	90°	102111	213208-M	1.53	5.50	1.03	1.00	0.88	1.44	1.37	2.31	0.20	-	Solid	Flanged	.17	213-U
52139*	150 lbs.	60°	90°	102911	201943	1.53	5.50	1.00	1.00	0.88	1.44	1.37	2.25	0.20	1.25	U-Bar	Flanged	.17	213-USS
52170	200 lbs.	76°	92°	215105	202208-M	1.78	5.50	1.28	1.00	0.19	1.44	-	2.25	0.20	1.25	U-Bar	Straight	.40	217-U
52179*	250 lbs.	76°	92°	215905	202943	1.53	5.50	1.00	1.00	0.88	1.44	1.37	2.25	0.20	1.25	U-Bar	Flanged	.40	217-USS
52270	500 lbs.	62°	92°	507107	225208-M	1.84	6.70	1.32	1.00	0.88	1.50	1.38	2.72	0.27	1.39	U-Bar	Flanged	.68	227-U
52279*	600 lbs.	62°	92°	507907	207943	2.13	6.70	1.63	1.00	-	1.50	-	2.72	0.27	1.39	U-Bar	Straight	.68	227-USS
52370	750 lbs.	63°	92°	235106	240208-M	1.84	6.70	1.32	1.00	0.88	1.50	1.38	2.72	0.27	1.39	U-Bar	Flanged	1.60	237-U
52379*	850 lbs.	63°	92°	235906	237943	2.55	10.87	1.75	1.63	1.63	2.25	2.25	4.16	0.33	2.28	U-Bar	Flanged	1.60	237-USS
52450	1000 lbs.	67°	105°	247109	220203	2.91	10.87	2.16	1.63	0.31	2.25	-	4.16	0.33	2.28	U-Bar	Straight	2.90	245-U

*Stainless Steel

Series 305, 307, 309



These low silhouette hold-down clamps feature an unusual handle that can be operated from either side or from behind. These small, compact units provide considerable holding capacity in a small package size. Models 305-U and 307-U are supplied with bonded neoprene-tipped spindle assemblies. Model 309-U and all stainless steel models are provided with hex-head spindle assemblies. Model 309-U provided with slip-on-neoprene cap (235119).



Part Number	Max. Holding Capacity	Wt. (lbs)	Handle Moves	Bar Opens	Flanged Washers	Spindel Assembly	Dimensions											De-Sta-Co Part Number
							A	B	C	D	E	F	G	H	J	K	L	
53050	150 lbs.	.13	175°	92°	102111	305208-M	1.38	2.22	0.50	0.53	0.63	1.03	1.00	1.19	0.18	0.50	1.06	305-U
53059*	200 lbs.	.13	175°	92°	102911	201943	1.38	2.22	0.50	0.53	0.63	1.03	1.00	1.19	0.18	0.50	1.06	305-USS
53070	350 lbs.	.54	175°	92°	507107	307208-M	2.40	3.60	0.87	0.91	1.16	1.72	1.80	1.88	0.28	0.80	2.00	307-U
53079*	350 lbs.	.54	175°	92°	507907	207943	2.40	3.60	0.87	0.91	1.16	1.72	1.80	1.88	0.28	0.80	2.00	307-USS
53090	750 lbs.	1.30	160°	88°	235106	309208	3.55	5.18	1.30	1.38	1.50	2.52	2.47	2.66	0.33	1.06	2.78	309-U
53099*	750 lbs.	1.30	160°	88°	235906	237943	3.55	5.18	1.30	1.38	1.50	2.52	2.47	2.66	0.33	1.06	2.78	309-USS

*Stainless Steel

Horizontal Handle Hold-Down Action Clamps Series 205



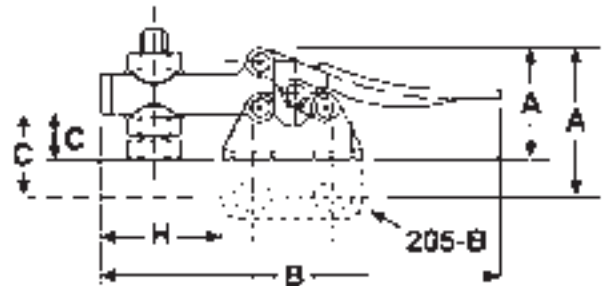
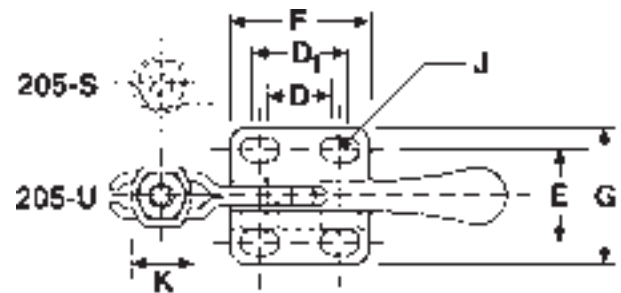
205-S



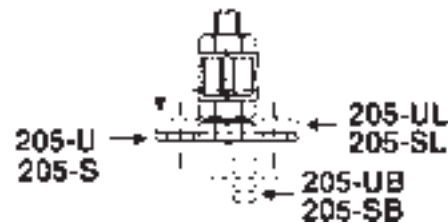
205-U



205-UB



205-UR
205-SR



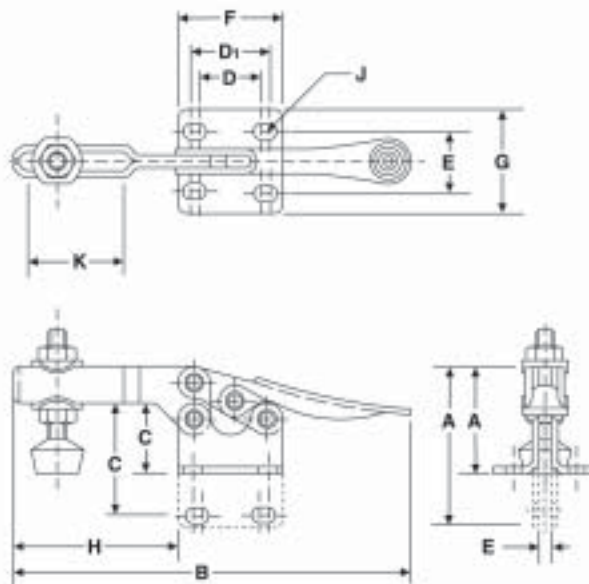
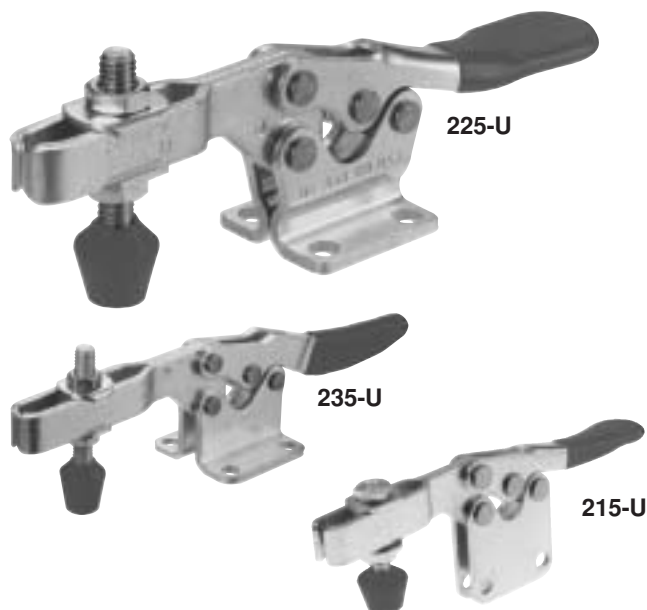
The smallest of the horizontal handle, horizontal bar clamps. Supplied with bonded neoprene-tipped M4 spindle assembly (205208-M). Flanged washers (105106) supplied with "U" bar models. Stainless steel models supplied with stainless steel hex-head spindle assembly (205943). Handle grip supplied on the non-stainless clamps only.

Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Dimensions												Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	D ₁	E	F	G	H	J/Slot	K					
52060	60 lbs.	80°	90°	0.67	2.78	0.37	0.44	0.63	0.62	0.94	0.93	0.88	.17 X .27	-	Solid	Flanged	.06	205-S	
52062	60 lbs.	80°	90°	0.84	2.78	0.63	0.44	0.63	-	0.94	-	0.88	.17 X .27	-	Solid	Straight	.06	205-SB	
52066	60 lbs.	80°	90°	0.67	2.78	0.37	0.44	0.63	-	0.94	-	0.88	.17 X .27	-	Solid	1/2 Flange-Left	.06	205-SL	
52065	60 lbs.	80°	90°	0.67	2.78	0.37	0.44	0.63	-	0.94	-	0.88	.17 X .27	-	Solid	1/2 Flange-Right	.06	205-SR	
52069*	75 lbs.	80°	90°	0.67	2.78	0.37	0.44	0.63	0.62	0.94	0.93	0.88	.17 X .27	-	Solid	Flanged	.06	205-SSS	
52050	60 lbs.	80°	90°	0.67	2.65	0.31	0.44	0.63	0.62	0.94	0.93	0.74	.17 X .27	0.37	U-Bar	Flanged	.06	205-U	
52052	60 lbs.	80°	90°	0.84	2.65	0.53	0.44	0.63	-	0.94	-	0.74	.17 X .27	0.37	U-Bar	Straight	.06	205-UB	
52056	60 lbs.	80°	90°	0.67	2.65	0.31	0.44	0.63	-	0.94	-	0.74	.17 X .27	0.37	U-Bar	1/2 Flange-Left	.06	205-UL	
52055	60 lbs.	80°	90°	0.67	2.65	0.31	0.44	0.63	-	0.94	-	0.74	.17 X .27	0.37	U-Bar	1/2 Flange-Right	.06	205-UR	
52059*	75 lbs.	80°	90°	0.67	2.65	0.31	0.44	0.63	0.62	0.94	0.93	0.74	.17 X .27	0.37	U-Bar	Flanged	.06	205-USS	

*Stainless Steel

Horizontal Handle Hold-Down Action Clamps

Series 215, 225, 235



Minimum overhead clearance is required by these low silhouette series. All models furnished with bonded neoprene-tipped spindles, washers for "U" bar models, or bolt retainer for solid bar models. Red vinyl handle grip provided on non-stainless steel models. Stainless steel models supplied with hex-head spindle assembly. Model 215-S supplied with bolt retainer (205105).

Part Number	Max. Holding Capacity	Handle Moves	Bar Opens	Dimensions											Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	D ₁	E	F	G	H	J/Slot	K				
52151	200 lbs.	70°	90°	1.53	5.50	1.03	1.00	1.06	0.88	1.44	1.37	2.31	0.20	-	Solid	Flanged	.34	215-S
52150	200 lbs.	70°	90°	1.53	5.50	1.00	1.00	1.06	0.88	1.44	1.37	2.25	0.20	1.25	U-Bar	Flanged	.32	215-U
52155	200 lbs.	70°	90°	1.78	5.50	1.28	1.00	1.06	0.19	1.44	-	2.25	0.20	1.25	U-Bar	Straight	.32	215-UB
52159*	250 lbs.	70°	90°	1.53	5.50	1.00	1.00	1.06	0.88	1.44	1.37	2.25	0.20	1.25	U-Bar	Flanged	.32	215-USS
52250	500 lbs.	70°	90°	1.84	6.70	1.32	1.00	-	0.88	1.50	1.38	2.72	0.27	1.39	U-Bar	Flanged	.55	255-U
52255	500 lbs.	70°	90°	2.13	6.70	1.63	1.00	-	-	1.50	-	2.72	0.27	1.39	U-Bar	Straight	.55	255-UB
52259*	600 lbs.	70°	90°	1.84	6.70	1.32	1.00	-	0.88	1.50	1.38	2.72	0.27	1.39	U-Bar	Flanged	.55	225-USS
52350	750 lbs.	55°	90°	2.55	10.87	1.75	1.63	-	1.63	2.25	2.25	4.16	0.33	2.28	U-Bar	Flanged	1.47	235-U
52355	750 lbs.	55°	90°	2.91	10.87	2.16	1.63	-	0.31	2.25	-	4.16	0.33	2.28	U-Bar	Straight	1.47	235-UB
52359*	850 lbs.	55°	90°	2.55	10.87	1.75	1.63	-	1.63	2.25	2.25	4.16	0.33	2.28	U-Bar	Flanged	1.47	235-USS

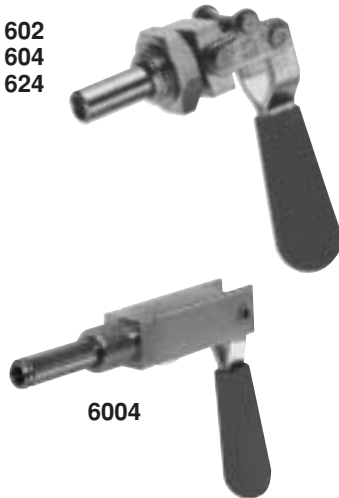
*Stainless Steel

Series Number	Spindle Assembly	
	Carbon	Stainless
215	202208-M	202943
225	225208-M	207943
235	240208-M	237943

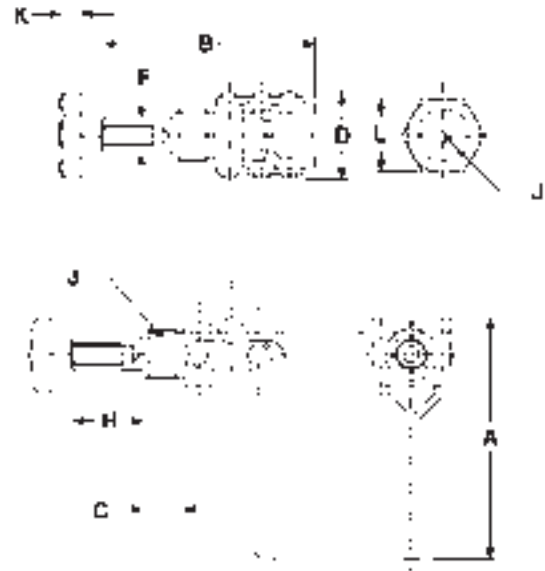
Straight Line Action Clamps

Series S 602, 604, 6004, 624

602
604
624



Fully retractable, these models mount directly through a member by a jam nut (supplied) on the work side or flush by drilling and tapping the member. Locks in extended or retracted position. When flush mounted, plunger completely retracts from work area. All models provided with an ergonomic handle grip.

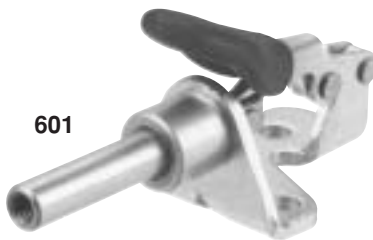


Jergens Part Number	Max. Holding Capacity	Plunger Travel	Plunger Thread	Dimensions									Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	F	H	J	K	L		
56020	200 lbs.	.75"	1/4-20	3.14	2.44	0.50	0.94	0.37	0.81	5/8-18	0.25	0.88	.25	602
56029*	200 lbs.	.75"	1/4-20	3.14	2.44	0.50	0.94	0.37	0.81	5/8-18	0.25	0.88	.25	602-SS
56040	300 lbs.	1.50"	5/16-18	4.16	4.78	0.63	1.25	0.44	1.56	3/4-16	0.25	1.00	.44	604
56049*	400 lbs.	1.50"	5/16-18	4.16	4.78	0.63	1.25	0.44	1.56	3/4-16	0.25	1.00	.44	604-SS
56043	450 lbs.	1.50"	5/16-18	4.12	5.63	0.75	0.87	0.50	1.59	3/4-16	-	-	.81	6004
56240	700 lbs.	2.63"	3/8-16	5.62	6.69	0.88	1.56	0.62	2.73	1-14	0.25	1.50	1.63	624
56249*	700 lbs.	2.63"	3/8-16	5.62	6.69	0.88	1.56	0.62	2.73	1-14	0.25	1.50	1.63	624-SS

*Stainless Steel

Series 601

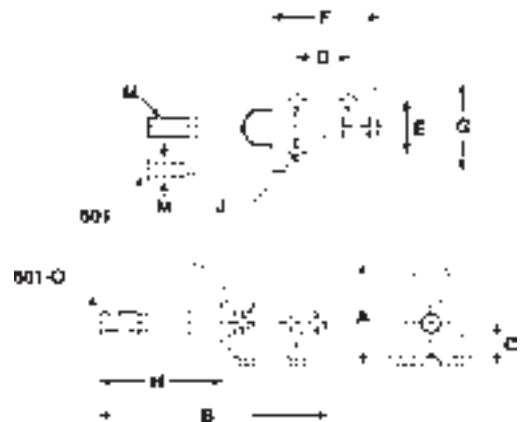
601



601-O



Smallest of the straight-line toggle clamps. Ideal for electronic applications and similar small fixturing. Model 601 has an 8-32 nylon spindle assembly (105203). Model 601-O has externally threaded 1/4-20 plunger tip. Red handle grip is supplied on all non-stainless steel models. All models lock in both the extended and retracted position. The handle must be free to move 180° to lock in both positions.

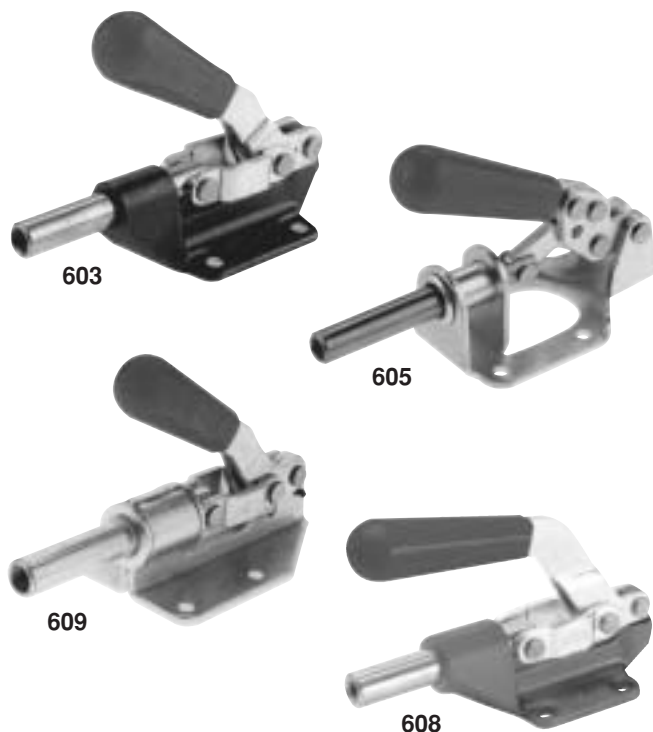


Jergens Part Number	Max. Holding Capacity	Plunger Travel	Plunger Thread	Dimensions										Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	M		
56010	100 lbs.	.63"	8-32	1.19	2.62	0.50	0.63	0.63	1.33	1.05	1.29	0.17	0.25	.09	601
56019*	100 lbs.	.63"	8-32	1.19	2.62	0.50	0.63	0.63	1.33	1.05	1.29	0.17	0.25	.09	601-SS
56016	100 lbs.	.63"	1/4-20	1.19	2.86	0.50	0.63	0.63	1.33	1.05	1.53	0.17	1/4-20	.09	601-O

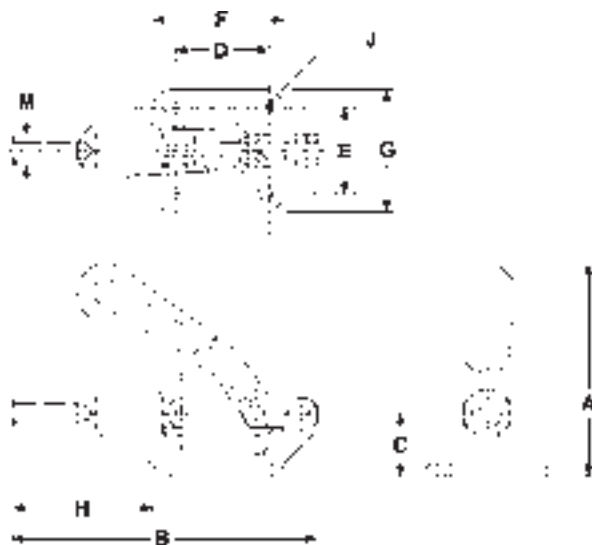
*Stainless Steel

Straight Line Action Clamps

Models 603, 605, 608, 609



These clamps have a large holding capacity for their size, and are well suited for use in confined areas. All clamps are furnished with an ergonomic grip for greater operator comfort. Locks in both the extended and retracted positions. The handle must be free to move 180° to lock in both positions.

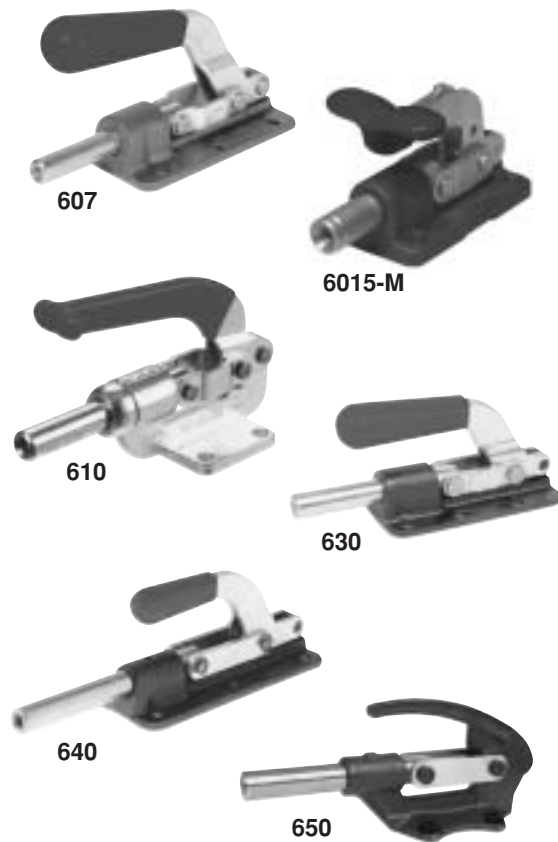


Jergens Part Number	Max. Holding Capacity	Plunger Travel	Plunger Thread	Dimensions										Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	M		
56030	600 lbs.	1.25"	5/16-18	3.28	4.71	0.97	1.44	1.31	2.00	1.88	2.16	.27	0.44	.83	603
56039*	840 lbs.	1.25"	5/16-18	3.28	4.71	0.97	1.44	1.31	2.00	1.88	2.16	.27	0.44	.83	603-SS
56050	300 lbs.	1.25"	5/16-18	3.16	5.47	0.97	1.38	1.63	3.53	2.19	1.94	.22	.44	.69	605
56080	850 lbs.	1.63"	3/8-16	4.04	6.13	1.25	1.63	1.63	2.31	2.25	3.00	0.33	0.62	1.25	608
56090	300 lbs.	1.25"	5/16-18	3.25	5.48	0.97	1.38	1.62	3.60	2.19	1.88	0.27	0.50	.88	609

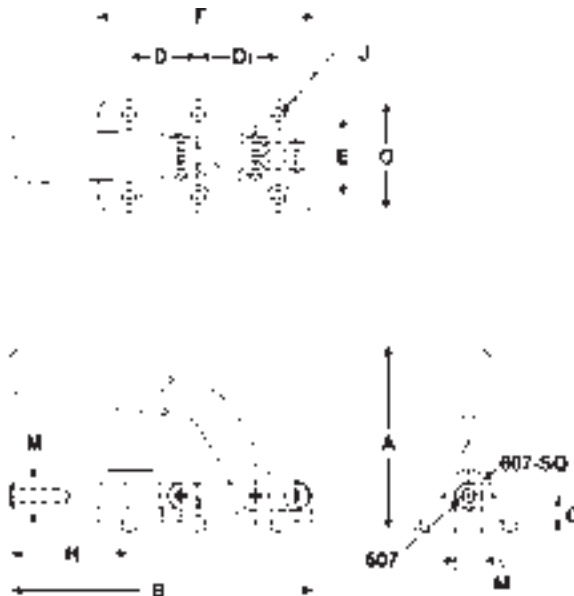
*Stainless Steel

Straight Line Action Clamps

Models 607, 610, 630, 640, 650, 6015-M, 6015-MS



Compact models feature DE-STA-CO balanced construction for durability and rigid holding ability. All models lock in both the extended and retracted position. The handle must be free to move 180° to lock in both positions.



Jergens Part Number	Max. Holding Capacity	Plunger Travel	Plunger Thread	Dimensions											Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	D ₁	E	F	G	H	J	M		
56015	560 lbs.	.70"	M6X1.0	1.60	2.95	0.50	1.75	-	0.88	2.25	1.25	0.70	0.22	0.38	.34	6015-M
56013*	630 lbs.	.70"	M6X1.0	1.60	2.95	0.50	1.75	-	0.88	2.25	1.25	0.70	0.22	0.38	.34	6015-MSS
56070	800 lbs.	1.63"	5/16-18	3.59	6.02	0.69	1.38	1.63	1.63	4.26	2.19	2.38	0.28	0.50	1.63	607
56100	800 lbs.	1.63"	3/8-16	4.38	6.72	1.70	1.63	-	1.63	2.25	2.25	4.16	0.34	0.63	1.69	610
56300	2500 lbs.	2.00"	3/8-16	3.09	7.03	0.81	1.38	1.63	1.63	5.03	2.30	2.00	0.34	0.63	1.90	630
56400	7500 lbs.	4.00"	1/2-13	4.38	12.66	1.25	3.56	-	2.12	8.53	3.00	4.13	0.41	0.87	6.71	640
56500	16000 lbs.	3.00"	5/8-11	4.88	11.25	2.25	2.75	-	2.25	-	3.13	6.25	0.41	1.00	5.59	650

*Stainless Steel

Pull Action Clamps

Models 301, 311



301



Latch-type action clamps with red vinyl handle for comfortable operation. A fixed stop automatically limits handle travel at various clamping positions once the clamp is installed, removing the need to adjust a manual stop. Model 301 has 4" drawing movement and the larger Model 311 has 3 3/8".

Jergens Part Number	Max. Holding Capacity	Drawing Movement	Dimensions										Wt. (lbs)	De-Sta-Co Part Number
			A	B	D	E	F	G	J	K	N	O		
53010	375 lbs.	4.00"	1.91	8.40	0.75	1.25	1.38	1.75	0.28	0.56	0.12	1.63	.70	301
53019*	375 lbs.	4.00"	1.91	8.40	0.75	1.25	1.38	1.75	0.28	0.56	0.12	1.63	.70	301-SS
53110	1200 lbs.	3.38"	2.44	9.52	1.25	1.78	1.91	2.53	0.33	0.56	0.13	2.06	1.16	311

*Stainless Steel

Pull Action Clamps

Models 323, 331, 341



The over-center toggle locking action of these clamps suits them ideally for holding against heavy forces such as those generated in plastic molding operations. These models are ideal for quick clamping of doors, lids, or access covers onto drums, containers, or other vessels. The threaded U-bolts permit easy adjustment and provide a positive connection with the supplied latch plate. All models are supplied with ergonomic handle grip.



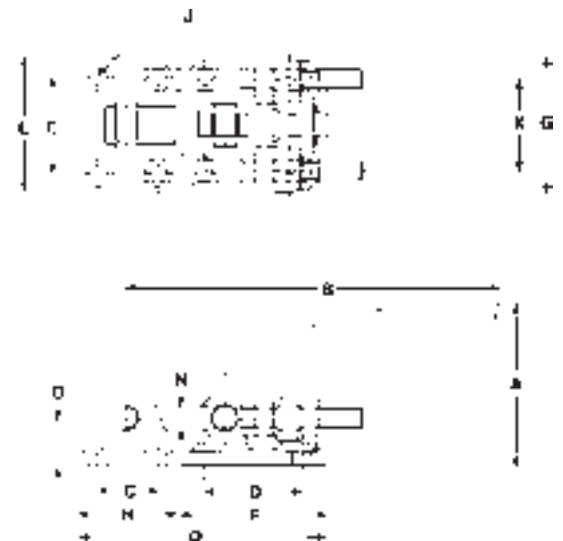
Jergens Part Number	Holding Capacity	Drawing Movement	Dimensions																Wt. (lbs)	De-Sta-Co Part Number
			A	B	C	D	E	F	G	H	J	J ₁	K	L	N	O	Q Min	Q Max		
53230	360 lbs.	1.81"	1.13	4.00	0.39	0.63	0.75	1.02	1.11	0.79	0.17	0.17	0.75	0.52	0.13	0.47	1.85	2.34	0.15	323
53239	360 lbs.	1.81"	1.13	4.00	0.39	0.63	0.75	1.02	1.11	0.79	0.17	0.17	0.75	0.52	0.13	0.47	1.85	2.34	0.15	323-SS
53310	700 lbs.	1.75"	1.96	5.97	0.56	0.75	1.25	1.56	1.75	1.00	0.27	0.27	1.00	0.68	0.17	0.66	2.56	3.15	0.56	331
53319	700 lbs.	1.75"	1.96	5.97	0.56	0.75	1.25	1.56	1.75	1.00	0.27	0.27	1.00	0.68	0.17	0.66	2.56	3.15	0.56	331-SS
53410	2000 lbs.	2.50"	2.89	7.50	0.75	1.63	1.50	2.38	2.13	1.50	0.33	0.33	1.75	1.19	0.31	0.94	3.88	4.64	1.43	341
53419	2000 lbs.	2.50"	2.89	7.50	0.75	1.63	1.50	2.38	2.13	1.50	0.33	0.33	1.75	1.19	0.31	0.94	3.88	4.64	1.43	341-SS

*Stainless Steel

Models 375, 385



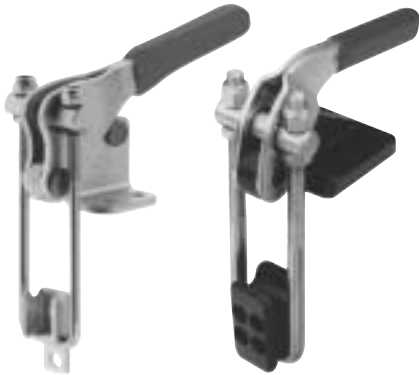
Models 375 and 385 combine maximum holding capability with easy operation and simple adjusting. Both use threaded U-bolts for adjustment. A cast latch plate is available for both models as an optional accessory. The latch plate is useful in applications such as two piece molds. The holding capacities of both clamps are sufficient to handle the high pressures generated by expanding rigid urethane.



Jergens Part Number	Holding Capacity	Drawing Movement	Dimensions																Wt. (lbs)	De-Sta-Co Part Number
			A	B	C	D	E	F	G	H	J	K	L	N	O	Q Min	Q Max			
53750	4000 lbs.	3.50"	4.19	9.63	1.38	2.25	2.25	3.44	3.19	2.25	0.41	1.75	3.13	0.39	1.13	5.63	6.32	2.75	375	
53850	7500 lbs.	2.19"	3.63	8.75	1.38	2.25	2.25	3.44	3.19	2.25	0.41	2.13	3.13	0.47	1.13	5.63	6.70	3.62	385	

Pull Action Clamps

Series 324, 334, 344, 374



324, 334, 344

374

The over-center toggle locking action of these clamps suits them ideally for holding against heavy forces such as those generated in plastic molding operations. These models are ideal for installations where it is preferable to mount the clamp on the lid and the latch plate on the vessel. The threaded U-bolts permit easy adjustment and provide a positive connection with the latch plate. Series 324, 334, and 344 are supplied with latch plate and ergonomic handle grip.

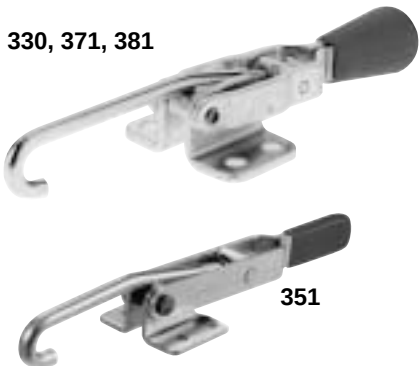


Jergens Part Number	Holding Capacity	Drawing Movement	Dimensions																	Min Q	Max Q	Wt. (lbs)	De-Sta-Co Part Number
			A	B	C	D	E	F	G	H	J	J ₁	K	L	M	N	O	P					
53240	500 lbs.	1.53"	2.00	3.35	0.56	0.50	0.88	1.00	1.38	1.00	0.20	0.17	0.81	0.53	2.69	0.14	0.19	0.63	0.48	0.98	0.25	324	
53249*	500 lbs.	1.53"	2.00	3.35	0.56	0.50	0.88	1.00	1.38	1.00	0.20	0.17	0.81	0.53	2.69	0.14	0.19	0.63	0.48	0.98	0.25	324-SS	
53340	1000 lbs.	2.00"	2.44	4.25	0.81	0.75	1.00	1.31	1.56	1.50	0.28	0.22	1.13	0.68	3.69	0.25	0.35	0.69	0.62	1.42	0.60	334	
53349*	1000 lbs.	2.00"	2.44	4.25	0.81	0.75	1.00	1.31	1.56	1.50	0.28	0.22	1.13	0.68	3.69	0.25	0.35	0.69	0.62	1.42	0.60	334-SS	
53440	2000 lbs.	2.50"	3.25	5.35	1.06	1.25	1.44	1.94	2.13	2.13	0.34	0.34	1.75	1.19	5.31	0.31	0.50	1.25	0.78	2.04	1.50	344	
53449*	2000 lbs.	2.50"	3.25	5.35	1.06	1.25	1.44	1.94	2.13	2.13	0.34	0.34	1.75	1.19	5.31	0.31	0.50	1.25	0.78	2.04	1.50	344-SS	
53740	4000 lbs.	1.75"	2.67	5.69	0.56	1.25	1.50	2.50	2.50	2.72	0.41	0.25	1.63	1.13	4.94	0.39	0.56	0.75	0.37	2.40	2.10	374	

*Stainless Steel

Series 330, 351, 371, 381

330, 371, 381



351

Models 375 and 385 combine maximum holding capability with easy operation and simple adjusting. Both use threaded U-bolts for adjustment. A cast latch plate is available for both models as an optional accessory. The latch plate is useful in applications such as two piece molds. The holding capacities of both clamps are sufficient to handle the high pressures generated by expanding rigid urethane.



Jergens Part Number	Holding Capacity	Drawing Movement	Dimensions												Wt. (lbs)	De-Sta-Co Part Number
			A	B*	C	D	E	F	G	J	K	N	Q Min	Q Max		
53300	200 lbs.	2.31"	0.90	5.64	0.56	0.50	1.23	1.00	1.69	0.22	0.31	0.19	1.60	1.85	0.24	330
53309*	200 lbs.	2.31"	0.90	5.64	0.56	0.50	1.23	1.00	1.69	0.22	0.31	0.19	1.60	1.85	0.24	330-SS
53510	375 lbs.	4.00"	1.34	8.56	0.75	0.75	1.38	1.50	1.94	0.20	0.38	0.31	1.75	2.18	0.61	351
53519*	375 lbs.	4.00"	1.34	8.56	0.75	0.75	1.38	1.50	1.94	0.20	0.38	0.31	1.75	2.18	0.61	351-SS
53710	750 lbs.	5.38"	2.23	12.00	1.42	1.25	1.94	1.94	2.62	0.34	0.50	0.39	2.02	2.83	1.53	371
53719*	750 lbs.	5.38"	2.23	12.00	1.42	1.25	1.94	1.94	2.62	0.34	0.50	0.39	2.02	2.83	1.53	371-SS
53810	1000 lbs.	6.13"	2.71	13.28	1.81	1.13	2.38	2.13	3.38	0.41	0.63	0.47	2.17	3.10	2.56	381

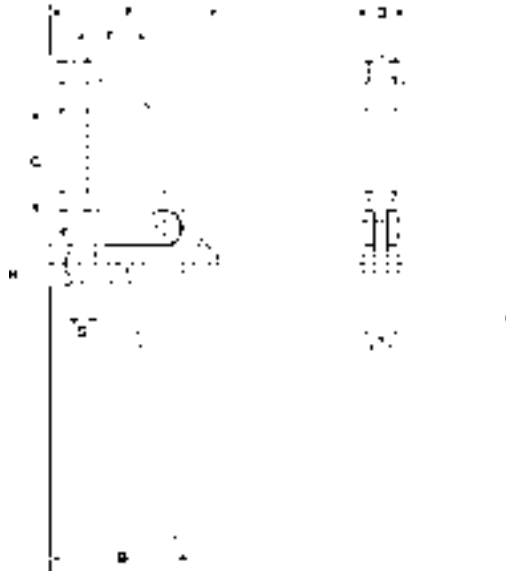
*Stainless Steel

Squeeze Action Clamps Series 325



325

Designed for attachment by welding front or top of base to container or cover. Forged alloy steel jaw moves 90° to clear completely. Ergonomic handle grip provides easy operation and good looking appearance. Furnished with M12 X 1.75 hex-head spindle assembly (325903-M).



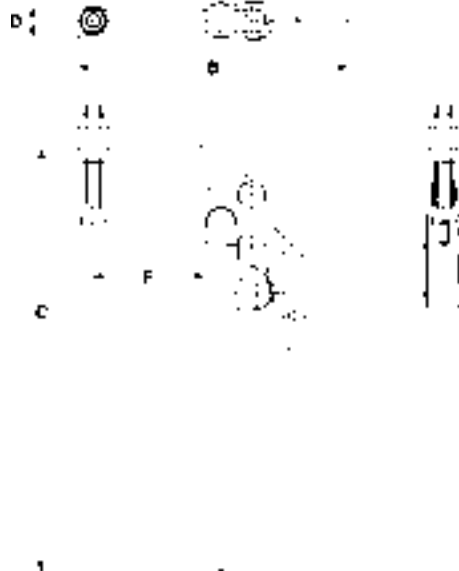
Jergens Part Number	Holding Capacity	Max. Mechanical Advantage	Jaw Opens	Handle Moves	Dimensions								Wt. (lbs)	De-Sta-Co Part Number
					A	B	C	D	E	F	G	H		
53250	800 lbs.	4:1	90°	50°	8.68	2.62	1.78	0.75	2.94	1.25	0.50	0.27	1.18	325.00

Series 345



345

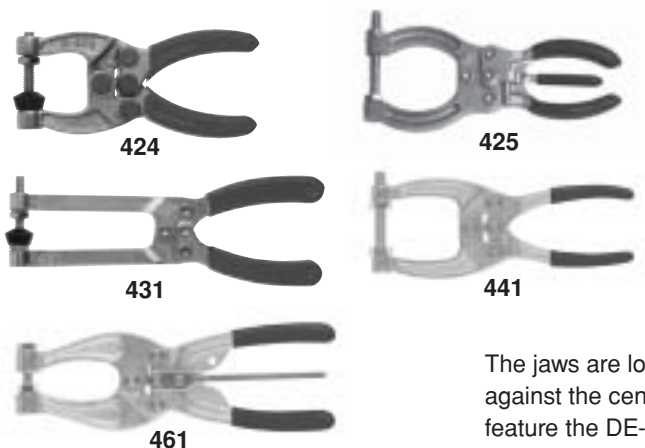
Designed for bolting or welding to a fixture at any point along base. Or base can be cut off for end-welding. Model 345 has forged steel jaw with M10 x 1.5 swivel foot spindle assembly (468206-M).



Jergens Part Number	Max Mechanical Advantage (M.A.)	Max Holding Capacity	Jaw Opens	Handle Moves	Dimensions				Weight (lbs)	De-Sta-Co Part Number
					B	C	D	F		
53450	7:1	800 lbs.	86°	60°	6.56	10.12	.69	2.69	2.52	345

Squeeze Action Clamps

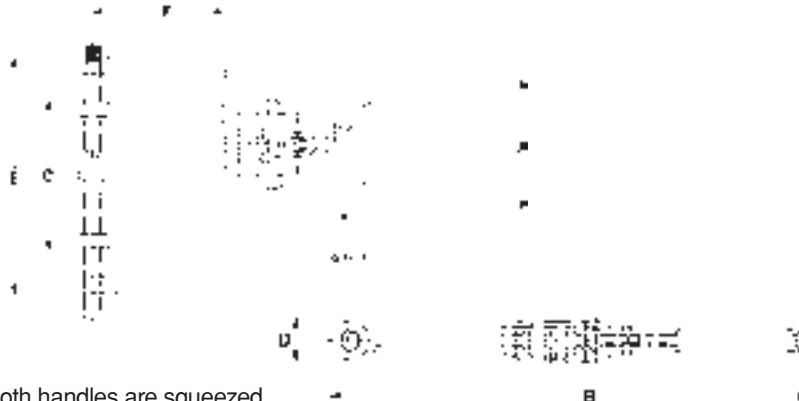
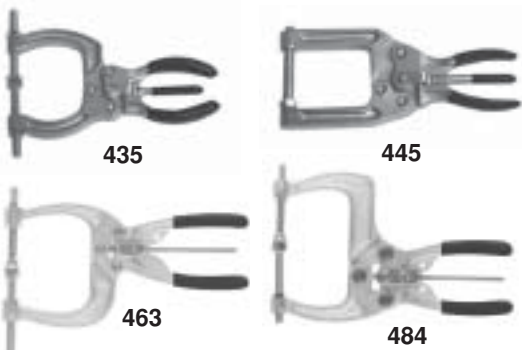
Models 424, 425, 431, 441, 461, 462, 482



The jaws are locked automatically when closing, as one or both handles are squeezed against the central position. Most medium and heavy-duty squeeze action plier clamps feature the DE-STA-CO trigger release for easy one-handed opening. All forged models are heat-treated alloy steel, machined to close tolerances.

Jergens Part Number	Holding Capacity	Max. Exerting Force	Spindle Assembly	Dimensions						Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F		
54240	200 lbs.	200 lbs.	424208-M	1.94	4.75	1.00	0.50	2.06	1.08	.31	424
92250	500 lbs.	-	205203-M	1.63	5.55	1.10	0.39	2.56	1.83	.40	425
54310	100 lbs.	100 lbs.	424208-M	2.41	6.88	0.75	0.50	3.06	2.92	.30	431
54410	350 lbs.	275 lbs.	441203-M	1.97	6.06	1.25	0.50	2.86	1.77	.63	441
54610	700 lbs.	460 lbs.	461203-M	2.63	8.06	0.50	0.69	2.69	2.28	1.18	461
54620	700 lbs.	375 lbs.	468206-M	2.69	8.50	1.75	0.69	4.10	2.72	1.13	462
54820	1200 lbs.	420 lbs.	468206-M	2.80	9.19	1.70	0.69	4.06	2.56	1.75	482

Models 435, 445, 463, 484



The jaws are locked automatically when closing, as one or both handles are squeezed against the central position. Most medium and heavy-duty squeeze action plier clamps feature the DE-STA-CO trigger release for easy one-handed opening. All forged models are heat-treated alloy steel, machined to close tolerances. Models 463 and 484 are supplied with two spindles (468206-M and 210203-M).

Jergens Part Number	Holding Capacity	Max. Exerting Force	Spindle Assembly	Dimensions						Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F		
92350	500 lbs.	-	205203-M (2)	1.63	5.55	1.77	0.39	3.23	1.83	.50	435
92450	2000 lbs.	-	210203-M	2.00	8.27	2.09	0.63	4.41	2.76	1.60	445
54630	700 lbs.	315 lbs.	205203-M	2.69	8.50	3.00	0.69	4.75	2.72	1.19	463
54840	1200 lbs.	380 lbs.	210203-M	2.69	9.06	3.83	0.69	6.00	2.56	2.00	484

Squeeze Action Clamps

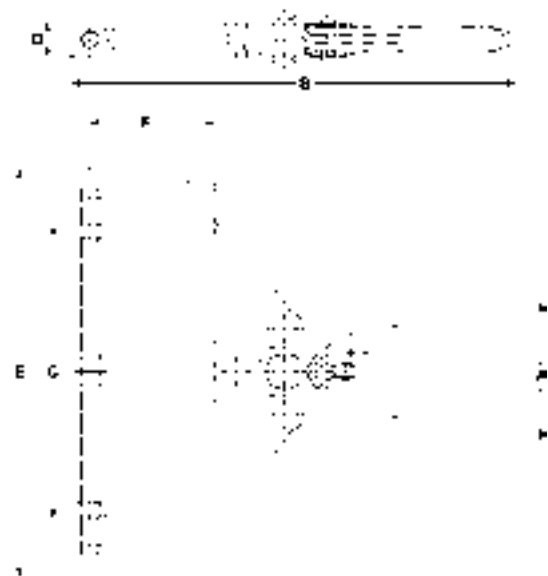
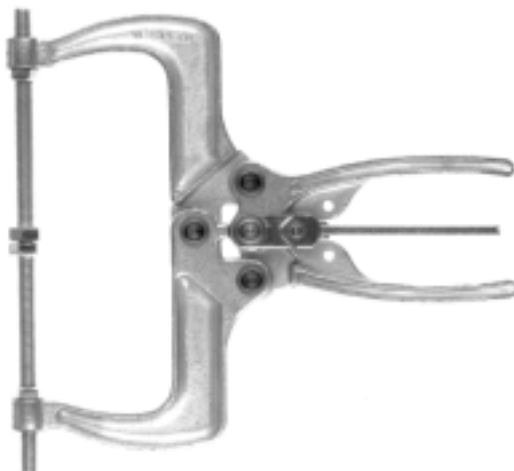
Model 453



Features a special action to provide full 88° clearance in the open position. This is particularly suited for clamping parts and assemblies where fast action and maximum jaw clearance are essential. With two-way trigger release. Clamp supplied with one M10 x 1.5 swivel foot assembly (468206-M) and one M10 x 1.5 hex-head spindle assembly (491203-M). Components are made of forged alloy steel.

Jergens Part Number	Max Exerting Force	Max Holding Capacity	Dimensions					Weight (lbs)	De-Sta-Co Part Number
			A	B	C	D	F		
54530	215 lbs	1,000 lbs.	2.77	8.60	3.00	.69	2.50	1.87	453

Model 486

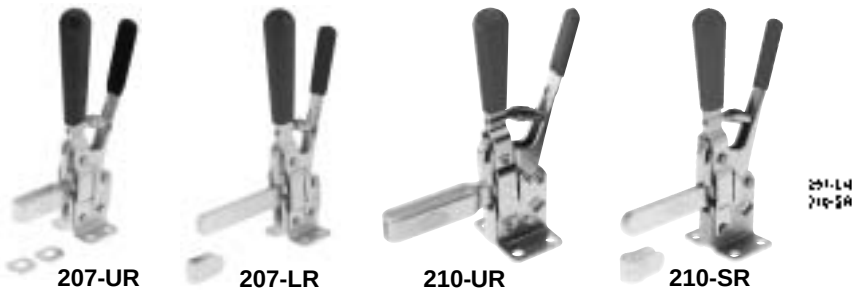


Full 6" jaw span. Furnished with two-way trigger release and two M10 x 1.5 hex-head assemblies (240203-M).

Jergens Part Number	Max Exerting Force	Max Holding Capacity	Dimensions						Weight (lbs)	De-Sta-Co Part Number
			A	B	C	D	E	F		
54860	460 lbs	1,000 lbs.	2.88	9.22	6.00	.69	8.00	2.56	2.31	486

Toggle Lock Clamp Plus

Vertical Style 207-R, 210-R

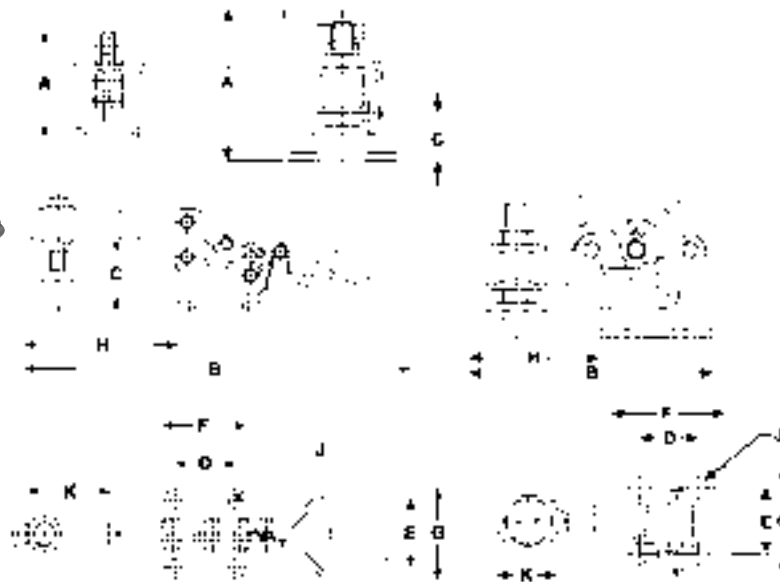
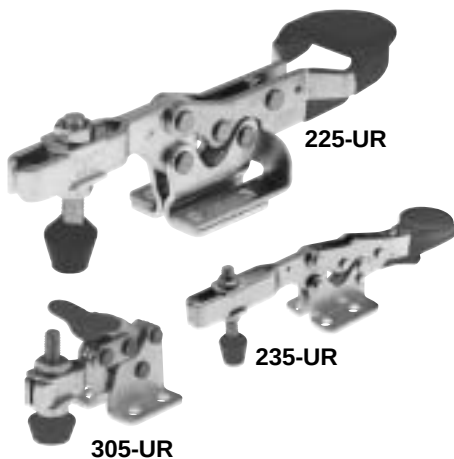


These clamps are unique in that they lock with the aid of the release lever in both the clamped and unclamped position. Bolt retainer supplied with solid bar Models 207-LR and 210-SR. Spindle assembly and flanged washers supplied with "U" bar Models 207-UR and 210-UR.



Jergens Part Number	Max. Holding Capacity	Bar Opens	Dimensions										Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
			A	B	C	D	E	F	G	H	J	K				
52071	500 lbs.	110°	6.90	4.58	1.25	0.75	1.28	1.38	1.70	3.45	0.25	-	Solid	Flanged	1	207-LR
52078	375 lbs.	110°	6.90	4.58	1.25	0.75	1.28	1.38	1.70	2.09	0.25	1.30	U-Bar	Flanged	1	207-UR
52104	750 lbs.	103°	8.00	6.61	1.68	1.25	1.75	1.89	2.50	3.56	0.33	-	Solid	Flanged	1.6	210-SR
52108	600 lbs.	103°	8.00	6.68	1.68	1.25	1.75	1.89	2.50	3.66	0.33	2.41	U-Bar	Flanged	1.6	210-UR

Horizontal Style 225-R, 235-R, 305-R, 307-R, 309-R



Equipped with a release lever which locks in the clamped position only. Clamps are supplied with bonded neoprene-tipped spindle assemblies and flanged washers.

Jergens Part Number	Max. Holding Capacity	Bar Opens	Dimensions											Bar Type	Base Type	Wt. (lbs)	De-Sta-Co Part Number
			A	B	C	D	E	F	G	H	J	K	L				
52251	500 lbs.	90°	1.92	7.14	1.32	1.00	0.88	1.50	1.38	2.69	0.27	1.35	-	U-Bar	Flanged	0.69	225-UR
52351	750 lbs.	90°	2.55	10.53	1.70	1.63	1.63	2.25	2.25	4.16	0.33	2.28	-	U-Bar	Flanged	1.64	235-UR
53051	150 lbs.	92°	1.44	2.25	0.50	0.53	0.63	1.03	1.00	1.22	0.17	0.50	1.12	U-Bar	Flanged	0.13	305-UR
53071	350 lbs.	92°	2.44	3.61	0.88	0.91	1.16	1.72	1.81	1.89	0.28	0.75	2.00	U-Bar	Flanged	0.54	307-UR
53091	750 lbs.	88°	3.59	5.19	1.31	1.38	1.50	2.52	2.47	2.66	0.33	1.06	3.59	U-Bar	Flanged	1.3	309-UR

Toggle Lock Plus Clamps Latch Style



Supplied with a release lever catch accessory which allows the clamp to lock in the closed position only. Latch plates are supplied with Models 331-R and 341-R. Models 375-R and 385-R have an optional latch plate (385102) that is not included.



Jergens Part Number	Holding Capacity	Drawing Movement	Dimensions																Wt. (lbs)	De-Sta-Co Part Number
			A	B	C	D	E	F	G	H	J	K	L	N	O	Q Min	Q Max			
53311	700 lbs.	1.75"	2.08	5.97	0.56	0.75	1.25	1.56	1.75	1.00	0.27	1.00	0.68	0.17	0.66	2.56	3.15	0.56	331-R	
53411	2000 lbs.	2.50"	2.89	7.50	0.75	1.63	1.50	2.38	2.12	1.50	0.33	1.75	1.19	0.31	0.94	3.88	4.64	1.57	341-R	
53751	4000 lbs.	3.50"	4.19	9.63	1.38	2.25	2.25	3.44	3.13	2.25	0.41	1.75	3.13	0.39	1.13	5.63	6.32	2.1	375-R	
53854	7500 lbs.	2.19"	3.63	8.75	1.38	2.25	2.25	3.44	3.19	2.25	0.41	2.13	3.13	0.47	1.13	5.63	6.70	3.39	385-R	

Plunger Style

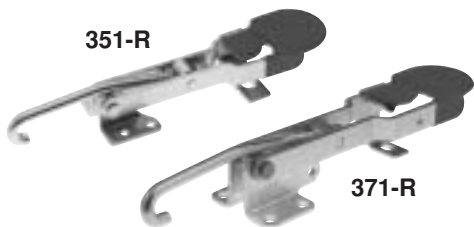


Patented design locks the release lever into the forged steel base to prevent accidental opening. Clamps lock in both the extended and retracted positions while the release lever secures the clamp.



Jergens Part Number	Max. Holding Capacity	Plunger Travel	Plunger Thread	Dimensions												Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	D ₁	E	F	G	H	J	M			
56014	560 lbs.	.70"	M6x1.0	1.60	2.95	0.50	1.75	-	0.88	2.25	1.25	0.70	0.22	0.38	0.34	6015-M-R	
56032	600 lbs.	1.25"	5/16-18	3.42	4.69	0.97	1.44	-	1.31	2.00	1.86	2.16	0.27	0.44	0.83	603-R	
56301	2500 lbs.	2.00"	3/8-16	3.06	7.03	0.81	1.38	1.63	1.63	5.03	2.30	2.00	.34	0.62	2.33	630-R	

Hook Style



Supplied with a release lever catch accessory which allows the clamp to lock in the closed position only. Large handle pad improves operability of the clamp.



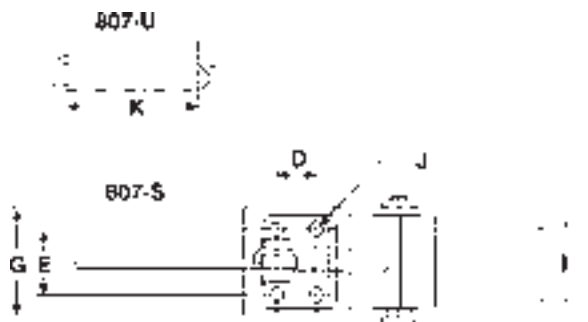
Jergens Part Number	Holding Capacity	Drawing Movement	Dimensions												Wt. (lbs)	De-Sta-Co Part Number
			A	B*	C	D	E	F	G	J	K	N	Q Min	Q Max		
53511	375 lbs.	4.00"	1.42	9.10	0.75	0.75	1.38	1.50	1.94	0.22	0.38	0.31	1.75	2.18	0.84	351-R
53712	750 lbs.	5.38"	2.25	12.88	1.42	1.25	1.94	1.94	2.62	0.34	0.50	0.39	2.02	2.83	1.77	371-R

Pneumatic Clamps

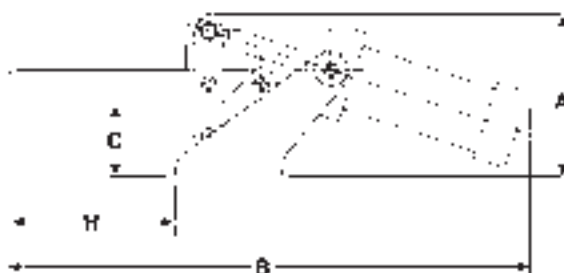
Horizontal Hold-Down Action



812



802-U, 807-U, 810-U, 847-U



DE-STA-CO over-center toggle action linkage combined with pneumatic cylinder provides an economical holding device, easily adapted to a wide variety of applications. Units are completely assembled and ready to operate. Flanged washers are supplied with U-Bar models and on solid bar models a bolt retainer is supplied. Models 812 (305208-M) and 802-U (202208-M) are furnished with spindle assemblies.

807-S, 810-S, 847-S

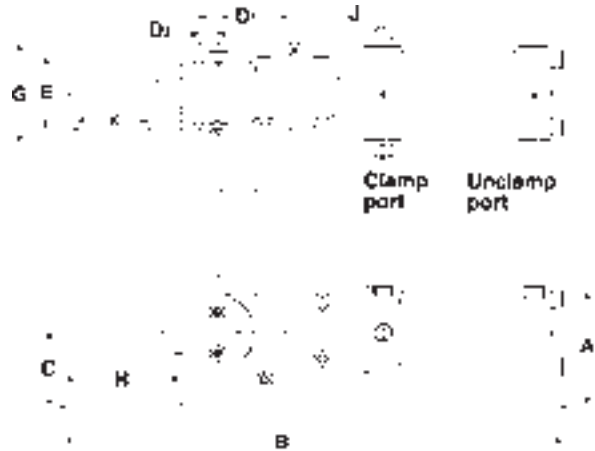
Jergens Part Number	Max. Holding Capacity	Weight (lbs)	Bar Opens	Dimensions									Port Size	Spindle Size	De-Sta-Co Part Number
				A	B	C	D	E	G	H	J	K			
58120	150 lbs.	.46	90°	1.56	5.60	0.69	0.63	0.94	1.50	1.02	0.17	0.73	10-32 NF	M5x0.8	812
58020	200 lbs.	1.00	95°	2.34	7.39	1.06	0.50	1.06	2.20	1.72	0.22	1.00	1/8 NPT	M6x1.0	802-U
58071	500 lbs.	1.66	92°	3.00	9.96	1.38	0.75	1.25	2.20	3.13	0.28	-	1/8 NPT	5/16-18	807-S
58070	350 lbs.	1.66	92°	3.00	9.21	1.38	0.75	1.25	2.20	2.50	0.28	1.94	1/8 NPT	5/16-18	807-U
58101	750 lbs.	4.07	95°	3.79	12.13	1.80	1.25	1.78	2.88	3.48	0.33	-	1/8 NPT	3/8-16	810-S
58100	600 lbs.	4.07	95°	3.79	12.28	1.80	1.25	1.78	2.88	3.58	0.33	2.39	1/8 NPT	3/8-16	810-U
58471	1000 lbs.	8.91	95°	4.34	16.00	2.25	1.25	1.78	3.59	4.85	0.34	-	1/8 NPT	1/2-13	847-S
58470	800 lbs.	8.91	95°	4.34	16.00	2.25	1.25	1.78	3.59	4.85	0.34	3.18	1/8 NPT	1/2-13	847-U

Pneumatic Clamps Enclosed Hold-Down



8021

DE-STA-CO's newest family of pneumatic workholding power hold-down clamps is ideal for idrty environments such as spot and MIG welding. Holding capacities exceed that of clamp Models 802-U, 807-U, and 810-U. These models also feature an enclosed, protected cylinder rod and linkages, as well as a lower and narrower mounting profile. Clamps come with magnetic ring for sensing switches as a standard feature. Flanged washers are included with each clamp. Spindles assemblies are optional.



Jergens Part Number	Max. Holding Capacity	Weight (lbs)	Bar Opens	Dimensions											Port Size	Spindle Size	De-Sta-Co Part Number
				A	B	C	D ₁	D ₂	E	G	H	J	K				
58025	390 lbs.	2.3	90°	2.19	9.31	1.56	0.79	—	1.50	1.95	2.25	0.21	0.75	1/8 NPT	1/4 or M6	8021	
58080	450 lbs.	2.8	90°	2.59	10.93	1.66	1.97	0.39	1.58	2.12	2.75	0.28	1.00	1/8 NPT	5/16 or M8	8071	
58105	700 lbs.	7.3	90°	3.50	15.30	2.50	3.54	—	2.20	2.87	4.00	0.34	1.60	1/4 NPT	3/8 or M10	8101	

Pneumatic Clamps



817-U, 827-U



817-S, 827-S



Many times it is desirable to use a right angle model where space dictates. Applications such as rotary indexing tables and injection molding operations are examples. All three models can be mounted on the side of the fixture and Models 817 and 827

can also be top mounted. Model 817 is the pneumatic version of Model 317, and it accommodates any 5/16-18 or M8 spindle assembly (not included). Model 827 can accept any 3/8-16 or M10 spindle accessory (not included).

Jergens Part Number	Max. Holding Capacity	Weight (lbs)	Bar Opens	Dimensions												Wt. (lbs)	De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K	L			
58171	450 lbs.	2.31	90°	7.42	6.75	2.68	0.63	1.00	0.63	2.41	3.06	0.27	-	0.63	1/8 NPT	817-S	
58170	350 lbs.	2.31	90°	7.42	6.18	2.68	0.63	1.00	0.63	2.41	2.44	0.27	1.94	0.63	1/8 NPT	817-U	
58271	600 lbs.	4.71	88°	9.66	8.64	3.88	1.25	1.75	1.25	2.94	3.19	0.34	-	0.79	1/8 NPT	827-S	
58270	400 lbs.	4.71	88°	9.66	8.75	3.88	1.25	1.75	1.25	2.94	3.26	0.34	2.39	0.79	1/8 NPT	827-U	

Straight Line Action



816



803



830



850



Air powered straight-line action clamps provide an economical holding device suited to a wide variety of uses. Model 816 is supplied with an 8-32 spindle (105203). All other models are not supplied with spindle assemblies.

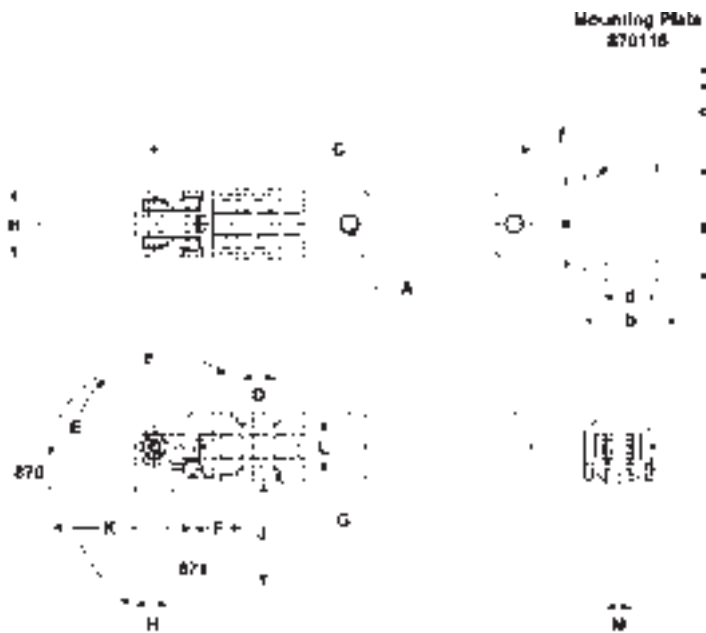
Jergens Part Number	Max. Holding Capacity	Weight (lbs)	Plunger Travel	Plunger Thread	Dimensions										Port Size	De-Sta-Co Part Number
					A	B	C	D	D1	E	F	G	H	J		
58160	200 lbs.	.43	.44"	8-32	1.58	6.22	0.56	0.63	-	0.63	0.25	1.31	1.28	0.17	10-32 NF	816
58030	600 lbs.	1.86	.75"	5/16-18	2.72	9.82	1.09	1.44	-	1.31	0.44	2.38	2.14	0.23	1/8 NPT	803
58300	2500 lbs.	6.14	1.25"	3/8-16	3.26	14.08	1.06	1.38	1.62	1.62	0.62	3.00	2.00	0.34	1/8 NPT	830
58500	16000 lbs.	16.66	2.00"	5/8-11	7.17	21.17	2.63	2.75	-	2.25	1.00	4.00	4.54	0.41	1/8 NPT	850

Pneumatic Clamps



870 (Clamp shown
in closed position)

871 (Clamp shown
in closed position)



These models use a roller and cam principle that allow the clamp to clamp work of inconsistent thickness and still maintain a locked condition. Four-way mounting surface offers full mounting flexibility. Clamp arms can be altered by welding, drilling, or machining to suit the application. Standard mounting plate included.

Mounting Plate

EDP. NO	a	b	c	d	e	f
870116	2.19	1.75	0.12	1.00	1.75	1/4 bolt

Jergens Part Number	Max. Holding Capacity	Weight (lbs)	Cylinder Bore	Dimensions												De-Sta-Co Part Number
				A	B	C	D	E	F	G	H	J	K	L	M	
58700	2000 lbs.	7.00	1.50"	1/4 NPT	2.13	11.41	1.00	112°	1.50	0.25	1.00	-	4.25	1.75	0.78	870
58710	2000 lbs.	7.00	1.50"	1/4 NPT	2.13	11.75	1.00	126°	1.50	0.25	1.00	3.13	-	1.75	0.78	871

Pneumatic Clamps

Swing Cylinders

Series

**8000, 8100, 8200,
8300, 8400**

These versatile pneumatic clamps provide a quick swing-and-clamp movement while exerting just the force your operation requires... without deforming delicate parts. All pneumatic swing clamps are equipped with sensing capabilities as a standard feature. Multiple mounting options allow the clamp to be adapted to the fixture for the best use of space and to minimize installation time.



8000, 8200, 8400



8100, 8300

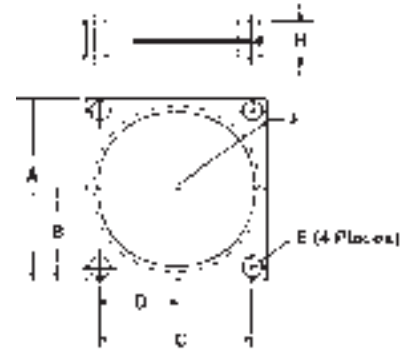


Jergens Part Number	Swing	Arm Supplied	Spindle Supplied	Travel Duration Rotation	Vertical Clamp Strokes	Maximum Arm Length	Weight (lbs)	Clamping Force @ 80 PSI	De-Sta-Co Part Number
58015	RH	801528	305203	0.47	0.38	2.25	1	22 lbs.	8015
58016	LH	801528	305203	0.47	0.38	2.25	1	22 lbs.	8016
58115	RH	801528	305203	0.47	0.38	2.25	1	22 lbs.	8115
58116	LH	801528	305203	0.47	0.38	2.25	1	22 lbs.	8116
58215	RH	821512	485203-AL	0.75	0.50	3.00	2.2	80 lbs.	8215
58216	LH	821512	485203-AL	0.75	0.50	3.00	2.2	80 lbs.	8216
58315	RH	821512	485203-AL	0.75	0.50	3.00	2.2	80 lbs.	8315
58316	LH	821512	485203-AL	0.75	0.50	3.00	2.2	80 lbs.	8316
58415	RH	841512	485203-AL	0.75	0.50	2.31	1.5	62 lbs.	8415
58416	LH	841512	485203-AL	0.75	0.50	2.31	1.5	62 lbs.	8416

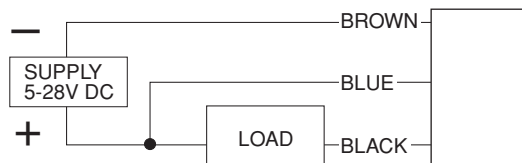
Jergens Part Number	Body Style	Dimensions																	Port Size	De-Sta-Co Part Number	
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S			T
58015	Threaded Body	4.88	2.87	0.62	1 1/8-16	1.25	-	-	-	-	1.44	-	-	-	-	-	-	-	0.31	#10-32	8000
58016																					
58115	Block Style	4.88	3.50	1.25	1.25	0.62	0.47	0.47	1.00	1.12	1.00	0.25	1.00	1.57	0.35	0.20	#10	1.44	0.31	#10-32	8100
58116																					
58215	Threaded Body	6.36	3.36	0.87	2 1/4-12	3.00	1.16	0.25	2.66	-	2.38	-	-	-	-	-	-	-	0.38	1/8 NPT	8200
58216																					
58315	Block Style	6.36	4.27	3.00	2.00	1.00	0.72	1.22	2.25	0.53	2.37	0.44	2.25	1.16	0.65	0.40	0.33	2.38	0.38	1/8 NPT	8300
58316																					
58415	Threaded Body	6.14	3.17	0.88	1 3/4-12	2.13	0.98	-	-	-	1.94	-	-	-	-	-	-	-	0.38	1/8 NPT	8400
58416																					

Mounting Blocks

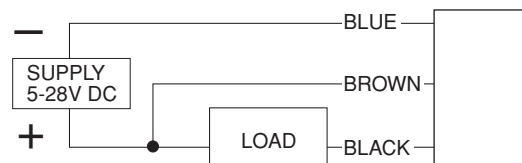
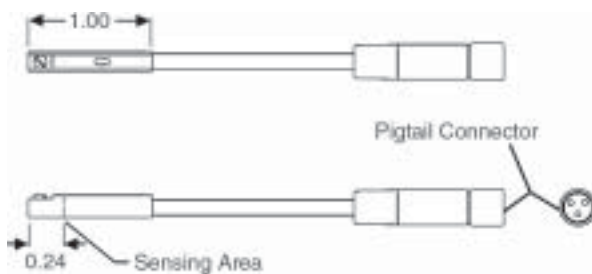
Jergens Part Number	Uses With Series No.	A	B	C	D	E	F	H	De-Sta-Co Part Number
58033	8000	1.38	0.69	1.08	0.54	0.20	1 1/8-16	0.50	801553
58233	8200	2.50	1.25	2.12	1.06	0.28	2 1/4-12	0.50	821553
58418	8400	2.00	1.00	1.60	0.80	0.28	1 3/4-12	0.50	841550



Switch Information



8215-SO-25 & 27



8215-SO-26 & 28

Switching Logic	Normally Open
Operating Voltage	5~28 VDC
Switching Current	50 mA max
Power Rating	1.5 Watts - WARNING: Never exceed rating (Watt=Voltage X Amperage). Permanent damage to sensor will occur.
Voltage Drop	0.5V@25 mA max (8215-SO-26 & 28) 1.2V@25 mA max (8215-SO-25 & 27)
Current Consumption	7 mA@24 VDC max (8215-SO-26 & 28) 9 mA@24 VDC max (8215-SO-25 & 27)
Leakage Current	0.01 mA max
LED Indicator	Red (8215-SO-26 & 28) Green (8215-SO-25 & 27)
Cable	Robotic Grade, abrasion resistant polyurethane (PUR) jacket, PVC insulation
Operating Frequency	1000 Hz
Magnet Requirement	50 Gauss parallel
Temperature Range	14 to 158°F (-10 to +70°C)
Enclosure Classification	IP 67 (NEMA 6)
Protection Circuit	Reverse Polarity, Surge Suppression

Jergens Part Number	NPN/PNP	Lead Length	De-Sta-Co Part Number
58407	PNP	3 Meters (118 inch cable)	8215-SO-25
58423	PNP	6" with pigtail connector	8215-SO-27
58408	NPN	3 Meters (118 inch cable)	8215-SO-26
58424	NPN	6" with pigtail connector	8215-SO-28

Adjustment Spindle Assemblies



Part Number	Description	De-Sta-Co Part Number
59301	Nylon 8-32 x 27/32	105203
59302	1/4-20 x 1 7/8	205203
59303	1/4-20 x 3 1/8	202203
59312	5/16-18 x 1 15/16	441203
59304	5/16-18 x 2 3/4	207203
59305	3/8-16 x 3	210203
59307	3/8-16 x 4 1/4	240203
59311	3/8-16 x 5 1/4	527203
59317	1/2-13 x 2 3/4	325203
59306	1/2-13 x 3 5/16	220203
59308	5/8-11 x 4 3/8	250203

Adjustment Spindle Assemblies

(flat-tip bonded neoprene cap)



Part Number	Description	De-Sta-Co Part Number
59816	10-32 x 1 1/8	201208
59803	1/4-20 x 1 3/4	202208
59805	1/4-20 x 2 3/16	215208
59807	5/16-18 x 2 1/4	225208
59812	5/16-18 x 3	507208
59809	3/8-16 x 3 1/4	240208
59815	3/8-16 x 3 1/2	527208
59808	3/8-16 X 5 3/4	235208

Adjustment Spindle Assemblies

(cone-tip bonded neoprene cap)



Part Number	Description	De-Sta-Co Part Number
59817	10-32 x 1 1/8	305208
59818	1/4-28 x 1 3/4	211208
59819	1/4-20 x 1 3/4	213208
59813	5/16-18 x 3	509208
59814	5/16-18 x 5 1/2	519208
59806	3/8-16 x 3	220208
59804	3/8-16 x 3 1/2	210208

Swivel Foot Adjustment Spindle Assemblies



Part Number	Description	De-Sta-Co Part Number
59601	1/4-20 x 2 3/8	207206
59605	5/16-18 x 2 3/4	507206
59604	3/8-16 x 3	468206
59602	3/8-16 x 3 3/8	210206
59603	1/2-13 x 4 5/8	250206

Flanged Washers for U-Bar Clamps Only



Part Number	Description	De-Sta-Co Part Number
59121	For No. 10 Spindle	102111
59122	For No. 8 Spindle	105106
59123	For 1/4" Spindle	215105
59125	For 5/16" Spindle	507107
59124	For 3/8" Spindle	235106
59126	For 1/2" Spindle	247109
59127	For 5/8" Spindle	267102

Neoprene Caps for Hex Head Spindles



Part Number	Description	De-Sta-Co Part Number
59102	For 1/4" Spindle	215119
59103	For 5/16" Spindle	225119
59105	For 3/8" Spindle	235119

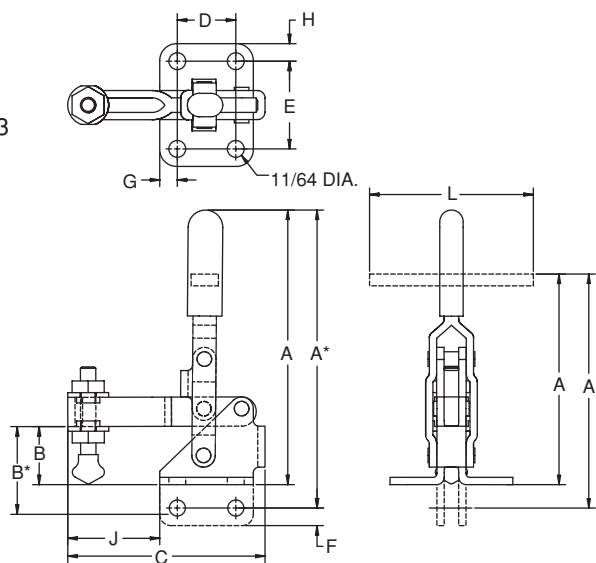
Hold Down Vertical



70310

This light duty U-Bar clamp accepts all 8-32 diameter spindles. It is supplied with a 70963 vinyl coated spindle assembly and washers. The vertical handle type is supplied with a blue vinyl handle.

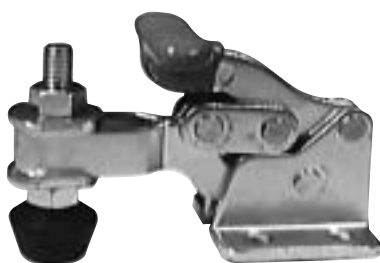
- Holding capacity: 100 lbs. max.
- Weight: 2.5 oz.
- Handle moves 62°, bar 116°
- U-Bar: 5/16" height, 3/16" inside width
- Horizontal spindle adjustment: 11/16"
- Spindle Thread: 8-32



Part Number	S.S. Part No.	A	B	C	D	E	F	G	H	J	Handle Type	Bar Type	Base Type
70310	71012	2 7/8	5/8	2 1/8	5/8	15/16	—	3/16	3/16	1	Vertical	U-Bar	Flange
70315	71013	3 1/16	7/8	2 1/8	5/8	—	3/16	3/16	3/16	1	Vertical	U-Bar	Straight
70320	—	2 1/4	5/8	2 1/8	5/8	15/16	—	3/16	3/16	1	Tee	U-Bar	Flange
71014	—	2 11/16	7/8	2 1/8	5/8	—	3/16	3/16	3/16	1	Tee	U-Bar	Straight

*Straight base type dimension

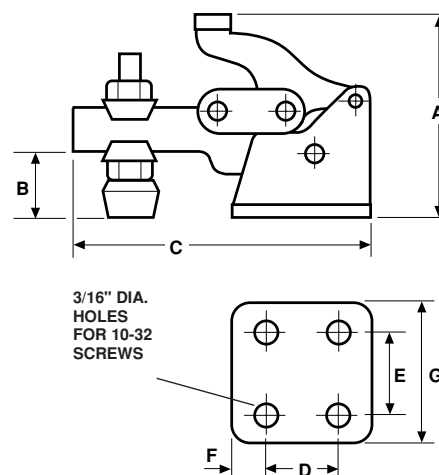
Note: Width of tee handle is 1 5/8"



70280

This small compact clamp is equipped with a blue vinyl T-shaped grip handle; ideal for moderate to light duty clamping. It is supplied with a 70917 vinyl coated spindle assembly with washer.

- Holding capacity: 150 lbs.
- Weight: 2 oz.
- Handle moves 175°, bar 92°
- U-Bar: 5/16" height, 7/32" inside width
- Horizontal spindle adjustment: 5/8"
- Spindle Thread: M5 X .8
- Spindle Number: 70917



Part Number	S.S. Part No.	A	B	C	D	E	F	G
70280	71015	1 13/32	17/32	2 1/4	17/32	5/8	1/4	1 1/32

Note: Width of tee handle is 1 1/16"

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

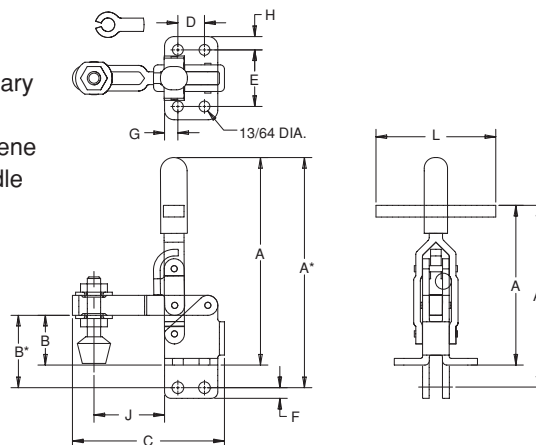
Hold Down Vertical



70330

This clamp has a narrow bar with a stationary spindle that accepts all 1/4-20 diameter spindles. It is supplied with a 70926 neoprene tipped spindle assembly. The vertical handle type is supplied with a blue vinyl handle.

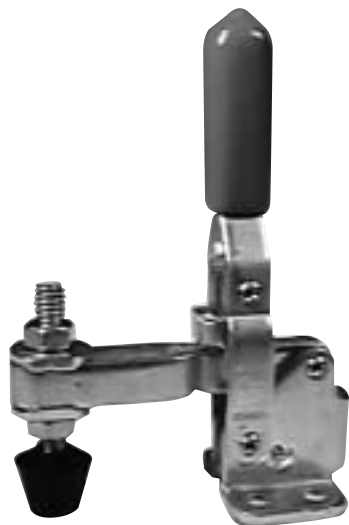
- Holding capacity: 200 lbs. max.
- Weight: 6 oz.
- Handle moves 60°, bar 117°
- Solid Bar: 3/8" height, 7/32" wide
- Spindle Thread: 1/4-20



Part Number	A	B	C	D	E	F	G	H	J	Handle Type	Bar Type	Base Type
70330	3 3/4	15/16	2 9/16	1/2	1 1/16	—	1/4	1/4	1 1/16	Vertical	Solid	Flange
70335	3 15/16	1 1/8	2 9/16	1/2	—	1/4	1/4	1/4	1 1/16	Vertical	Solid	Straight
70340	2 13/16	15/16	2 9/16	1/2	1 1/16	—	1/4	1/4	1 1/16	Tee	Solid	Flange
71016	2 13/16	1 1/8	2 9/16	1/2	—	1/4	1/4	1/4	1 1/16	Tee	Solid	Straight

*Straight base type dimension

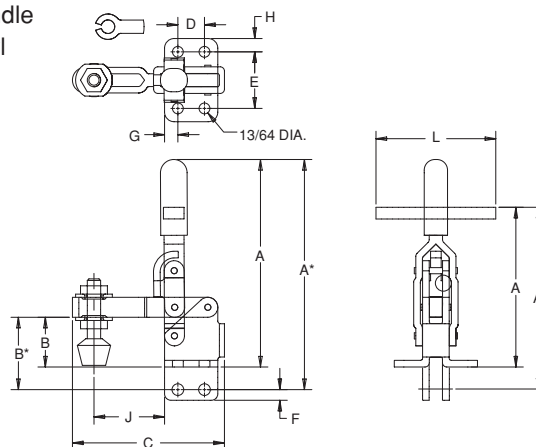
Note: Width of tee handle is 2 9/16"



70342

This vertical clamp is equipped with a 1/4-20 spindle which has a tip, washers, and locknut for easy clamping. A blue vinyl handle is included. It is supplied with a 70926 vinyl coated spindle assembly with washer.

- Holding capacity: 250 lbs.
- Weight: 6 oz.
- Handle moves 64°, bar 104°
- U-Bar: 3/8" height, 1/4" inside width
- Horizontal spindle adjustment: 1 1/8"
- Spindle Thread: 1/4-20
- Spindle Number: 70926



Part Number	A	B	C	D	E	F	G	H	J	Handle Type	Bar Type	Base Type
70342	4	15/16	3	1/2	1 1/16	—	1/4	1/4	1 3/4	Vertical	U-Bar	Flange
71017	4	1 1/8	3	1/2	—	9/32	1/4	1/4	1 3/4	Vertical	U-Bar	Straight
71018	2 13/16	1 1/8	3	1/2	—	9/32	1/4	1/4	1 3/4	Tee	U-Bar	Straight
71019	2 13/16	15/16	3	1/2	1 1/16	—	1/4	1/4	1 3/4	Tee	U-Bar	Flange

*Straight base type dimension

Note: Width of tee handle is 2 9/16"

For accessories see pages 13.46.
For interchangeability with other toggle clamps, see page 13.70.

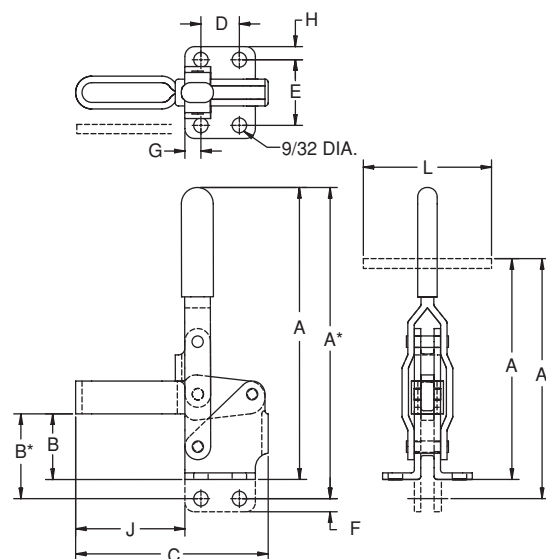
Hold Down Vertical



70350

This popular style of clamp includes solid bar and U-Bar construction. Each clamp accepts all 5/16-18 diameter spindles and is supplied with a 70947 neoprene tipped spindle assembly. The vertical handle type is supplied with a blue vinyl handle.

- Holding capacity: 500 lbs. max.
- Weight: 11 oz.
- Handle moves 60°, bar 100°
- Solid Bar: 5/8" height, 1/4" wide
- U-Bar: 5/8" height, 21/64" inside width
- Horizontal spindle adjustment: 1 1/2"
- Spindle Thread: 5/16-18



Part Number	A	B	C	D	E	F	G	H	J	Handle Type	Bar Type	Base Type
70350	5 5/8	1 1/4	4	3/4	1.25	-	5/16	1/4	2.25	Vertical	Solid	Flange
70355	5 15/16	1 9/16	4	3/4	-	1/4	5/16	-	2.25	Vertical	Solid	Straight
70360	4 1/16	1 1/4	4	3/4	1.25	-	5/16	1/4	2.25	Tee	Solid	Flange
70365	5 5/8	1 1/4	5 1/4	3/4	1.25	-	5/16	1/4	3.4375	Vertical	Solid	Flange
71020	4 1/16	1 9/16	3 3/4	3/4	-	1/4	5/16	1/4	2 1/4	Tee	Solid	Straight
71021	5 5/8	1 9/16	4 1/8	3/4	-	1/4	5/16	1/4	3 7/16	Vertical	Solid	Straight
71022	4 1/16	1 9/16	4 1/8	3/4	-	1/4	5/16	1/4	3 7/16	Tee	Solid	Straight
71023	4 1/16	1 1/4	4 1/8	3/4	1.25	1/4	5/16	1/4	3 7/16	Tee	Solid	Flange
70380	5 5/8	1 1/4	4	3/4	1.25	-	5/16	1/4	2.25	Vertical	U-Bar	Flange
70385	6 5/16	1 9/16	4	3/4	-	1/4	5/16	-	2.25	Vertical	U-Bar	Straight
70390	4 1/16	1 1/4	4	3/4	1.25	-	5/16	1/4	2.25	Tee	U-Bar	Flange
70395	5 5/8	1 1/4	5 1/2	3/4	1.25	-	5/16	1/4	3.75	Vertical	U-Bar	Flange
71024	4 5/8	1 9/16	3 3/4	3/4	-	1/8	5/16	1/4	2 1/4	Tee	U-Bar	Straight
71025	6 5/16	1 9/16	4 7/16	3/4	-	1/8	5/16	1/4	3 3/4	Vertical	U-Bar	Straight
71026	4 5/8	1 9/16	4 7/16	3/4	-	1/8	5/16	1/4	3 3/4	Tee	U-Bar	Straight
71027	4 1/16	1 1/4	4 7/16	3/4	1.25	-	5/16	1/4	3 3/4	Tee	U-Bar	Flange

*Straight base type dimension. Note: Width of tee handle is 3 5/8".

For accessories see pages 13.46.
For interchangeability with other
toggle clamps, see page 13.70.

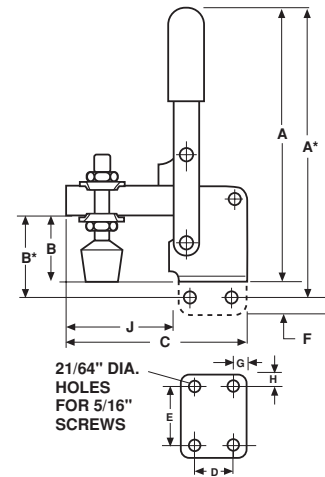
Hold Down Vertical



70440

This large capacity clamp is available in solid bar and U-Bar construction. It accepts all 3/8-16 diameter spindles. The bar type clamp is supplied with a 70910 bolt retainer and 70915 neoprene tipped spindle assembly. The U-Bar style is supplied with 70911 flanged washers and the 70915 spindle assembly. The vertical handle type is supplied with a blue vinyl handle.

- Holding capacity: 750 lbs. max.
- Weight: 1 lb., 5 oz.
- Handle moves 58°, bar 106°
- Solid Bar: 3/4" height, 5/16" wide
- U-Bar: 3/4" height, 7/16" inside width
- Horizontal spindle adjustment: 2 9/16"
- Spindle Thread: 3/8-16



Part Number	A	B	C	D	E	F	G	H	J	Handle Type	Bar Type	Base Type
70420	7 3/4	1 11/16	5 1/2	1 1/4	1 25/32	—	21/64	3/8	3 19/32	Vertical	Solid	Flange
70425	8 1/4	2 3/16	5 1/2	1 1/4	—	3/8	21/64	—	3 19/32	Vertical	Solid	Straight
70430	5 1/4	1 11/16	5 1/2	1 1/4	1 25/32	—	21/64	3/8	3 19/32	Tee	Solid	Flange
71028	6 1/8	2 3/16	5 1/2	1 1/4	—	3/8	21/64	—	3 19/32	Tee	Solid	Straight
70440	7 3/4	1 11/16	5 1/2	1 1/4	1 25/32	—	21/64	3/8	3 17/32	Vertical	U-Bar	Flange
70445	8 1/4	2 3/16	5 1/2	1 1/4	—	3/8	21/64	—	3 17/32	Vertical	U-Bar	Straight
70450	5 1/4	1 11/16	5 1/2	1 1/4	1 25/32	—	21/64	3/8	3 17/32	Tee	U-Bar	Flange
71029	6 1/8	2 3/16	5 1/2	1 1/4	—	3/8	21/64	—	3 17/32	Tee	U-Bar	Straight

*Straight base type dimension. Note: Width of tee handle is 5".

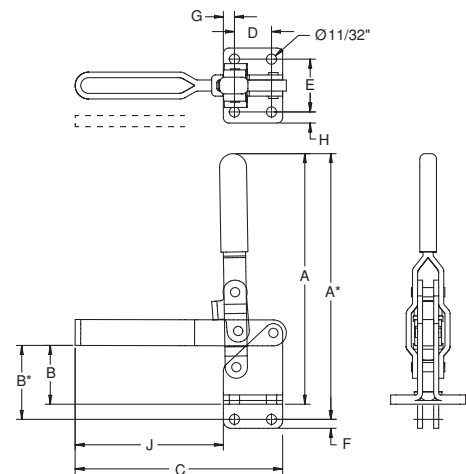
For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.



70470

This heavy duty clamp is available with solid bar and U-Bar construction. It accepts all 1/2-13 diameter spindles. The solid bar model is supplied with a 70901 bolt retainer. The U-Bar model is supplied with 70902 flanged washers. Spindle assembly 70903 must be ordered separately for both models.

- Holding capacity: 1000 lbs. max.
- Weight: 2 lbs., 7 oz.
- Handle moves 67°, bar 120°
- Solid Bar: 7/8" height, 3/8" wide
- U-Bar: 7/8" height, 17/32" inside width
- Horizontal spindle adjustment: 3 1/8"
- Spindle Thread: 1/2-13



Part Number	A	B	C	D	E	F	G	H	J	Handle Type	Bar Type	Base Type
70460	9	2	7	1 1/4	1 25/32	—	3/8	3/8	5	Vertical	Solid	Flange
71030	9 1/2	2 1/4	7	1 1/4	—	3/8	3/8	—	5	Vertical	Solid	Straight
70470	9	2	7	1 1/4	1 25/32	—	3/8	3/8	5	Vertical	U-Bar	Flange
71031	9 1/2	2 1/4	7	1 1/4	—	3/8	3/8	—	5	Vertical	U-Bar	Straight

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

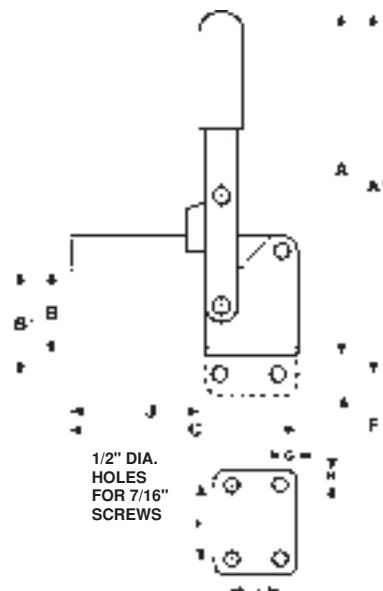
Hold Down Vertical



70480

This is the largest capacity vertical style clamp. It's available in solid bar or U-Bar construction and accepts all 5/8-11 diameter spindles. The solid bar is supplied with a 70940 bolt retainer. The U-Bar is supplied with 70941 flanged washers. Spindle assembly 70942 must be ordered separately. Each model is supplied with a blue vinyl handle.

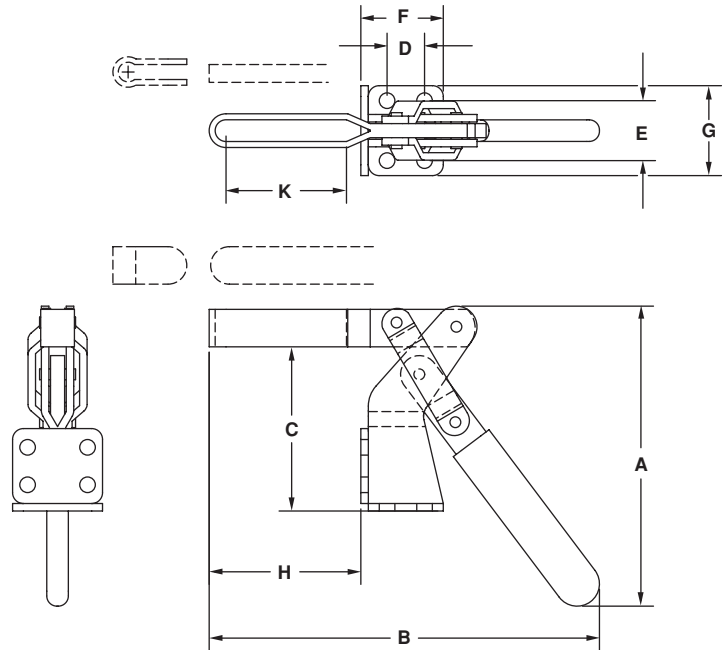
- Holding capacity: 1200 lbs. max.
- Weight: 5 lbs., 2 oz.
- Handle moves 70°, bar 140°
- Solid Bar: 1 1/4" height, 3/8" wide
- U-Bar: 1 1/4" height, 21/32" inside width
- Horizontal spindle adjustment: 4"
- Spindle Thread: 5/8-11



Part Number	A	B	C	D	E	F	G	H	J	Handle Type	Bar Type	Base Type
70480	12 1/8	3 1/4	9	2	2 3/4	—	1/2	1/2	5 7/8	Vertical	Solid	Flange
71032	13 3/8	4	9	2	—	1 1/4	1/2	—	5 7/8	Vertical	Solid	Straight
70490	12 1/8	3 1/4	9	2	2 3/4	—	1/2	1/2	5 7/8	Vertical	U-Bar	Flange
71033	13 3/8	4	9	2	—	1 1/4	1/2	—	5 7/8	Vertical	Solid	Straight

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

Hold Down Vertical



This clamp is available with a solid or U-Bar model. It features both a horizontal and vertical mounting surface. A neoprene tipped spindle assembly is included with both models. A bolt retainer is furnished with the solid bar model.

- Holding capacity: 220 lbs. max.
- U-Bar: 5/8" height, 1 1/32" inside width
- Spindle Thread: 5/16-18

Part Number	A	B	C	D	E	F	G	H	K	Bar Type	Wt (oz.)
70285	5 1/2	6 1/16	2 3/4	5/8	1	1 3/8	1 1/2	2 1/2	2	U-Bar	15
71037	5 1/2	6 7/16	2 3/4	5/8	1	1 3/8	1 1/2	2 1/2	—	Solid	16

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

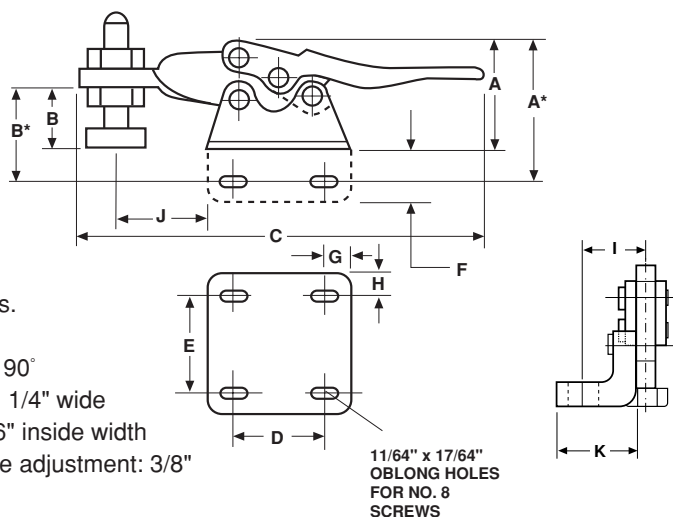
Hold Down Horizontal



70210

The small size of this clamp is ideal for jobs requiring minimal hold down force. Available in solid or U-Bar construction. All models are supplied with 70962 nylon spindle assemblies and blue vinyl handles.

- Holding capacity: 60 lbs.
- Weight: 1 oz.
- Handle moves 80°, bar 90°
- Solid Bar: 3/32" height, 1/4" wide
- U-Bar: 1/4" height, 3/16" inside width
- U-Bar horizontal spindle adjustment: 3/8"
- Spindle Thread: 8-32



Part Number	S.S. Part No.	A	B	C	D	E	F	G	H	J	I	K	Bar Type	Base Type
70210	—	3/4	13/32	2 3/4	5/8	5/8	—	5/32	5/32	11/16	—	—	Solid	Flange
70211	—	3/4	13/32	2 3/4	5/8	—	—	5/32	5/32	21/32	3/8	1/2	Solid	1/2 Flange-Left
71001	—	3/4	13/32	2 3/4	5/8	—	—	5/32	5/32	21/32	3/8	1/2	Solid	1/2 Flange-Right
70215	—	15/16	19/32	2 3/4	5/8	—	11/32	5/32	5/32	11/16	—	—	Solid	Straight
70230	71002	3/4	5/16	2 21/32	5/8	5/8	—	5/32	5/32	11/16	—	—	U-Bar	Flange
70231	—	3/4	5/16	2 3/4	5/8	—	—	5/32	5/32	21/32	3/8	1/2	U-Bar	1/2 Flange-Left
71003	—	3/4	5/16	2 3/4	5/8	—	—	5/32	5/32	21/32	3/8	1/2	U-Bar	1/2 Flange-Right
70235	—	15/16	1/2	2 21/32	5/8	—	11/32	5/32	5/32	11/16	—	—	U-Bar	Straight

*Straight base type dimension

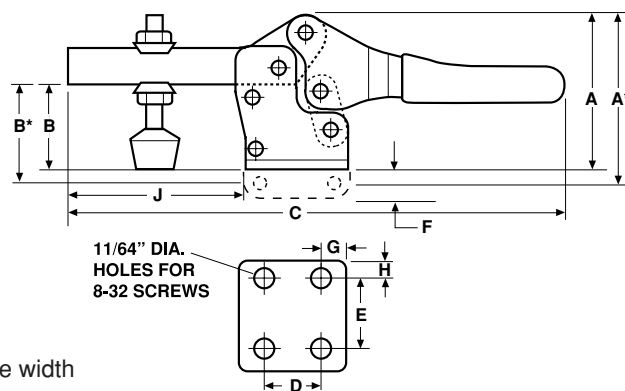
Note: J dimension goes all the way to end of the U-Bar models



70260

This light duty clamp is designed with a large clearance area between the bar and handle when the clamps are in the full open position. A blue vinyl handle is included. Includes vinyl coated spindle assembly.

- Holding capacity: 150 lbs.
- Weight: 3 oz.
- Handle moves 60°, bar 90°
- U-Bar: 3/8" height, 7/32" inside width
- Horizontal spindle adjustment: 1 1/8"
- Spindle Thread: 10-32



Part Number	S.S. Part No.	A	B	C	D	E	F	G	H	J	Base Type
70260	71004	1 13/32	3/4	4 3/8	17/32	11/16	—	5/32	1/8	1 5/8	Flange
71005	—	1 3/4	13/16	4 3/8	17/32	—	3/8	5/32	1/8	1 5/8	Straight

*Straight base type dimension

Note: J dimension goes all the way to end of the U-Bar models

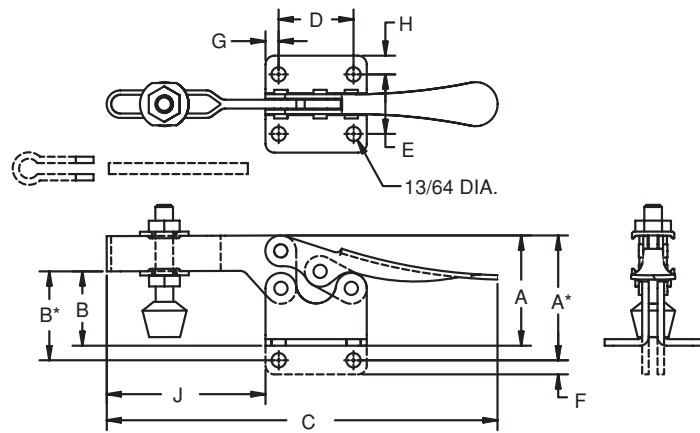
For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

Hold Down Horizontal

**70240**

This medium duty clamp is ideal for limited space applications. It is supplied with a 70926 neoprene tipped spindle assembly.

- Holding capacity: 200 lbs.
- Weight: 5 oz.
- Handle moves 60°, bar 90°
- U-Bar: 1/2" height, 17/64" inside width
- Horizontal spindle adjustment: 1 1/4"
- Spindle Thread: 1/4-20



Part Number	S.S. Part No.	A	B	C	D	E	F	G	H	J	Bar Type	Base Type
70240	71006	1 1/2	1	5 7/16	1 1/16	7/8	—	3/16	17/64	2 1/4	U-Bar	Flange
70245	71007	1 45/64	1 1/4	5 7/16	1 1/16	—	15/32	3/16	17/64	2 1/4	U-Bar	Straight
71008	—	1 1/2	1	5 7/16	1 1/16	7/8	—	3/16	17/64	2 1/4	Solid	Flange
71009	—	1 45/64	1 1/4	5 7/16	1 1/16	—	15/32	3/16	17/64	2 1/4	Solid	Straight

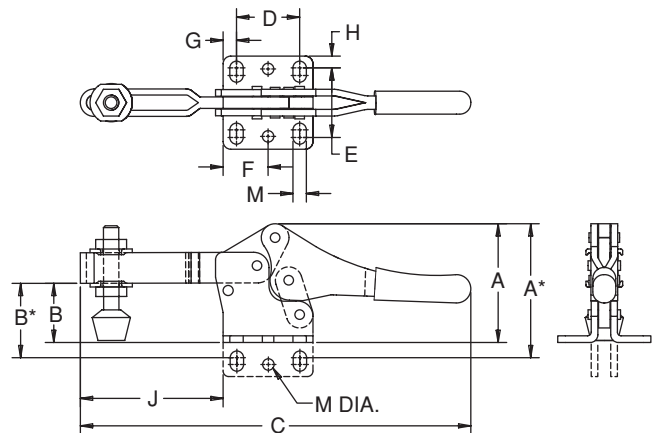
*Straight base type dimension

**70262**

These medium and large capacity clamps have a large clearance area between the bar and the handle when the clamps are in the fully open position. A blue vinyl handle is included.

- For 70262
- Holding capacity: 200 lbs.
- Weight: 7 oz.
- Handle moves 76°, bar 92°
- U-Bar: 1/2" height, 1/4" inside width
- Horizontal spindle adjustment: 1 21/32"
- Spindle Number: 70926

- For 70264
- Holding capacity: 500 lbs.
- Weight: 16 oz.
- Handle moves 62°, bar 92°
- U-Bar: 9/16" height, 11/32" inside width
- Horizontal spindle adjustment: 1 13/32"
- Spindle Number: 70947



Part Number	A	B	C	D	E	F	G	H	J	K	M	Base Type
70262	2	15/16	6 15/32	1 1/32	1 3/32	23/32	7/32	3/32	2 3/8	1/4-20	7/32	Flange
70264	2 7/16	1 11/32	7 13/32	1 1/32	1 7/32	13/16	9/32	3/32	2 9/16	5/16-18	1/4	Flange
71010	2 9/16	1 3/16	6 15/32	1 1/32	—	23/32	7/32	3/32	2 3/8	1/4-20	7/32	Straight
71011	2 7/8	1 1/2	7 13/32	1 1/32	—	13/16	9/32	3/32	2 9/16	5/16-18	1/4	Straight

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

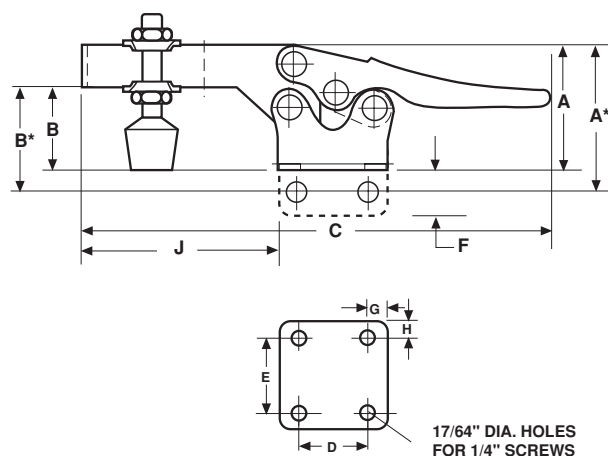
Hold Down Horizontal



70250

Similar to model 70240, except larger in overall size and capacity. Supplied with a 70947 neoprene tipped spindle assembly.

- Holding capacity: 500 lbs. max.
- Weight: 9 oz.
- Handle moves 65°, bar 90°
- U-Bar: 1/2" height, 21/64" inside width
- Horizontal spindle adjustment: 1 3/8"
- Spindle Thread: 5/16-18



Part Number	A	B	C	D	E	F	G	H	J	Bar Type	Base Type
70250	1 7/8	1 3/8	6 5/8	1	7/8	—	1/4	1/4	2 3/4	U-Bar	Flange
70255	2 1/8	1 5/8	6 5/8	1	—	1/2	1/4	1/4	2 3/4	U-Bar	Straight

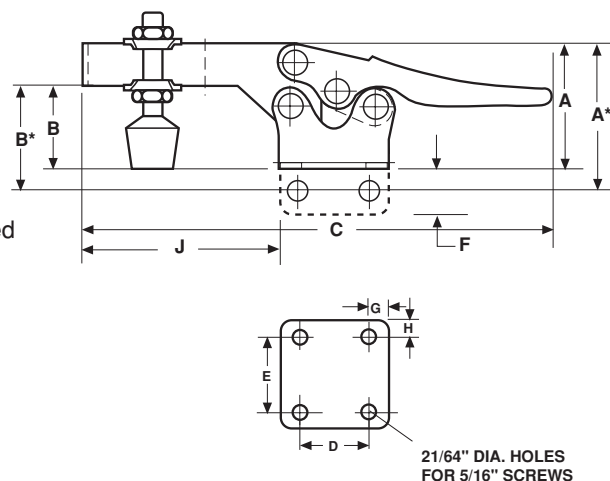
*Straight base type dimension



70270

This horizontal clamp is available with U-Bar construction in a flanged or straight base. Supplied with a 70915 neoprene tipped spindle assembly. Both models supplied with a blue vinyl handle.

- Holding capacity: 750 lbs. max.
- Weight: 1 lb., 8 oz.
- Handle moves 55°, bar 90°
- U-Bar: 3/4" height, 7/16" inside width
- Horizontal spindle adjustment: 2 1/4"
- Spindle Thread: 3/8-16



Part Number	A	B	C	D	E	F	G	H	J	Bar Type	Base Type
70270	2 1/2	1 3/4	10 1/4	1 5/8	1 5/8	—	5/16	5/16	4 1/8	U-Bar	Flange
70275	3 1/16	2 3/8	10 1/4	1 5/8	—	7/8	5/16	5/16	4 1/8	U-Bar	Straight

*Straight base type dimension

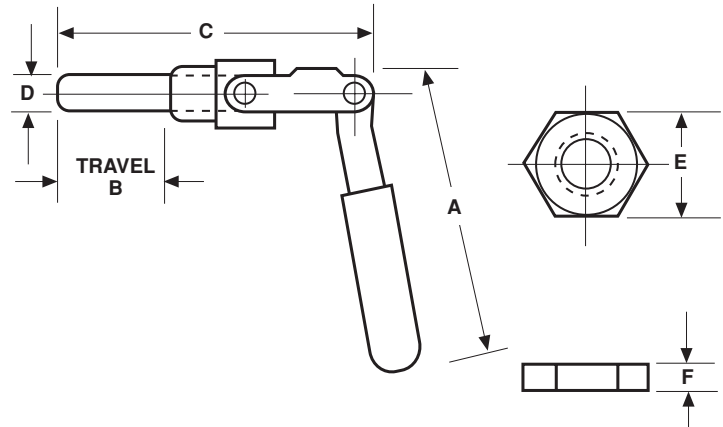
For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

Flush Mount



70120

This clamp can be flush mounted using the hex locknut or it can be mounted directly into tapped hole. Either mounting allows 360° clamp rotation. The clamp locks in forward or reverse position. It is furnished with the hex locknut and a blue vinyl handle.

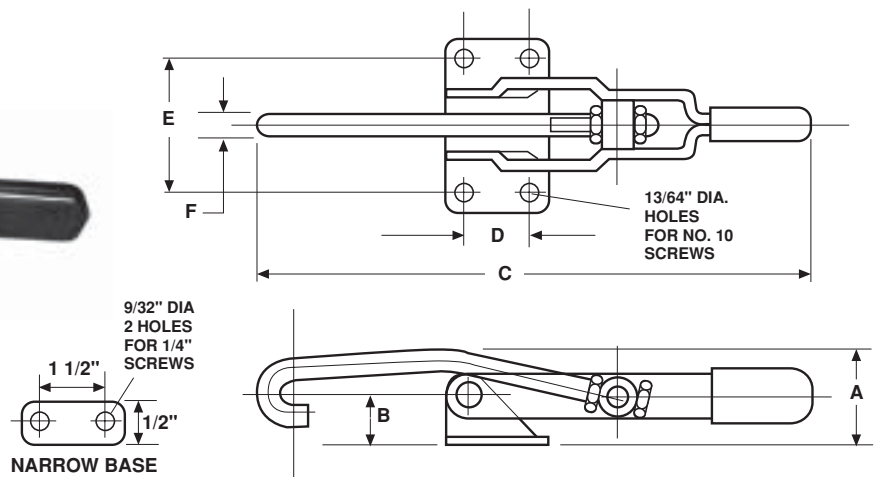


Part Number	A	Travel B	C	D	E	F	Thread	Holding Capacity (lbs)	Wt. (oz.)	Plunger Tapped
70118	2 7/8	3/4	2 7/16	3/8	15/16	1/4	5/8-18	200	3.5	1/4-20 x 19/32
70120	4	1 1/2	4 3/4	7/16	1	1/4	3/4-16 x 5/8	300	9	5/16-18 x 1
70140	5 1/4	2 5/8	6 11/16	5/8	1 1/2	1/4	1-14 x 7/8	700	27	3/8-16 x 1 1/4

Pull Action



70570



The adjustable hook is ideal for latching, locking or fastening doors, fixtures, pressure vessels, covers, and hatches on storage tanks. The hook bar has a 4" pull and is threaded for convenient adjustment. This clamp is furnished with a blue vinyl handle.

Note: Longer Hook Lengths Available Upon Request

Part Number	A	B	C	D	E	F	Drawing Movement	Holding Capacity (lbs)	Wt. (oz.)
70570	1 7/16	3/4	8 5/16	3/4	1 3/8	5/16	4	375	10
70580	1 7/16	3/4	8 5/16	1 1/2	—	5/16	4	375	10
71039	2 5/8	1 13/16	13 1/4	1 1/8	2 3/8	1/2	6 1/8	990	16

Note: 70580 is a narrow base 1/2" wide

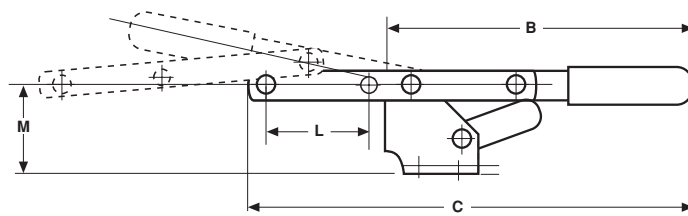
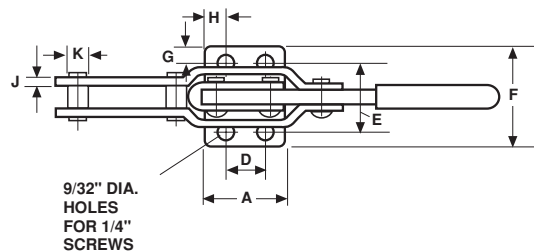
For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

Pull Action



70550

Ideal for locking and fastening on fixtures. Adjustable stop permits positioning of handle to limit travel once the clamp is installed. 4" drawing movement valuable for a wide range of applications.

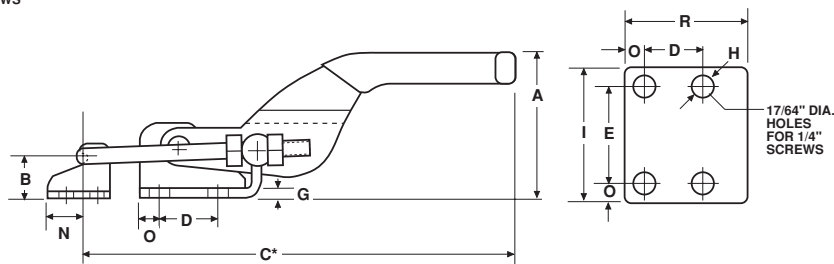
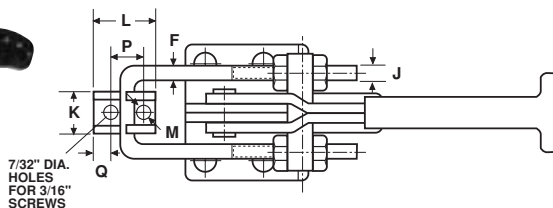


Part Number	A	B	C	D	E	F	G	H	J	K	L	M	Holding Capacity (lbs)	Wt. (oz.)
70550	1 3/8	5 11/16	8 5/16	3/4	1 1/4	1 3/4	1/4	5/16	1/8	3/8	1 7/8	1 5/8	375	12
70555	1 7/8	4 5/8	9 5/8	1 1/4	1 25/32	2 1/2	3/8	11/32	1/8	3/8	1 7/8	2 1/16	1,200	18



70560

The Jergens Latch Clamp is ideal for closure/release applications on covers, lids, doors, guards, and containers. The clamp's unique versatility is attributed to its adjustable U-Bar design. The clamp is supplied with a T-Handle vinyl grip and Latch Plate.

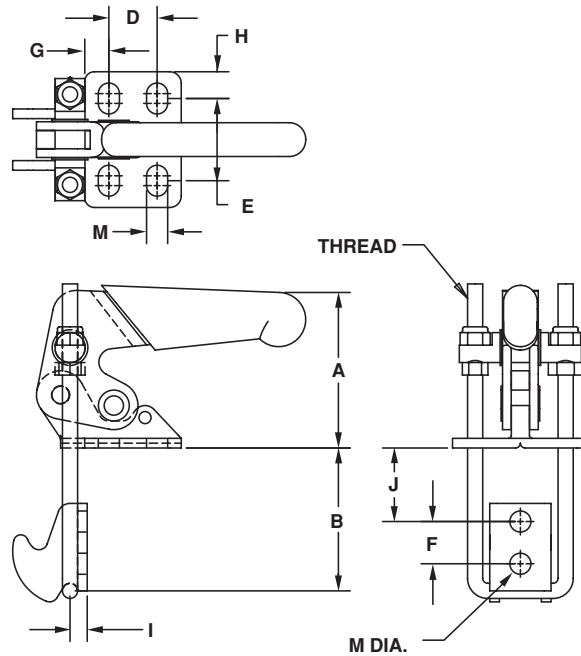


Part Number	S.S. Part No.	A	B	C*	D	E	F	G	H (Dia.)	I	J	K	L	M (Dia.)	N	O	P	Q	R	Holding Capacity (lbs)	Wt (oz.)
70558	71040	1 5/32	15/32	3 15/32	5/8	3/4	3/16	1/16	3/16	1 3/32	M4 x .7	17/32	25/32	3/16	7/16	7/32	13/32	1/4	1 1/32	360	2.5
70560	—	1 3/4	21/32	5 5/8	3/4	1 1/4	3/16	1/8	17/64	1 3/4	10-32	11/16	1 1/64	7/32	1/2	1/4	9/16	7/32	1 9/16	700	7
70562	—	2 3/4	15/16	6 3/4	1 5/8	1 1/2	5/16	5/32	11/32	2 1/8	M8 x 1.25	13/16	1 1/2	11/32	3/4	3/8	3/4	3/8	2 3/8	2000	21

*Adjusts 1/2"

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

Vertical Pull Action



This clamp is for vertical locking applications, where it is preferable to mount the clamp on a lid. The U-bolt allows for easy adjustment and provide a positive connection with the latch plate (included).

- Handle moves 145°

Part Number	A	U-Bolt Range B	C	D	E	F	G	H	I	U-Bolt Range J	M
71041	1 5/8	1-1 7/8	15/16	1/2	7/8	7/16	1/4	1/4	3/16	3/16-1 3/32	7/32
71042	2 7/16	1 5/16-2 13/32	1 7/32	3/4	1 1/8	9/16	5/16	3/8	1/4	9/32-1 3/8	1/4
70565	3 7/32	1 25/32-3 3/16	1 21/32	1/4	19/32	3/4	3/8	1/2	5/16	11/32-1 25/32	11/32

Part Number	Thread Size	Holding Capacity (lbs)	Wt. (oz.)
71041	M4 x 0.7	305	4
71042	M6 x 1.0	550	11
70565	M8 x 1.25	990	25

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

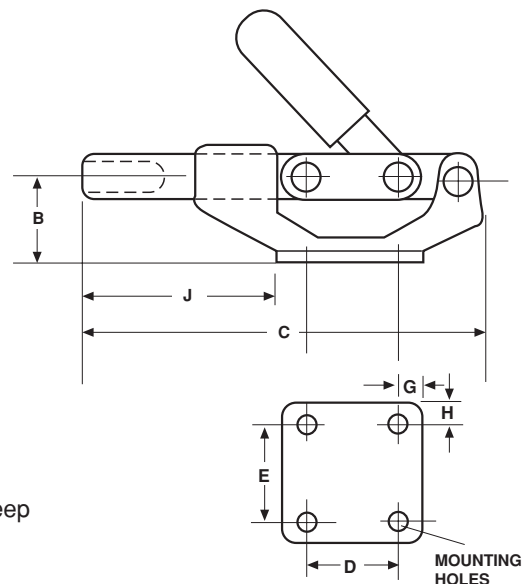
Straight Line



70810

This straight-line extra heavy duty clamp is constructed of malleable iron castings and cold rolled steel. The pivot joints are stainless steel. The mounting base is precision machined for flatness. A blue vinyl handle is included.

- Holding capacity: 500 lbs.
- Weight: 14 oz.
- Plunger travel: 1 3/16"
- Plunger tapped: 5/16-18 X 1 1/8" deep



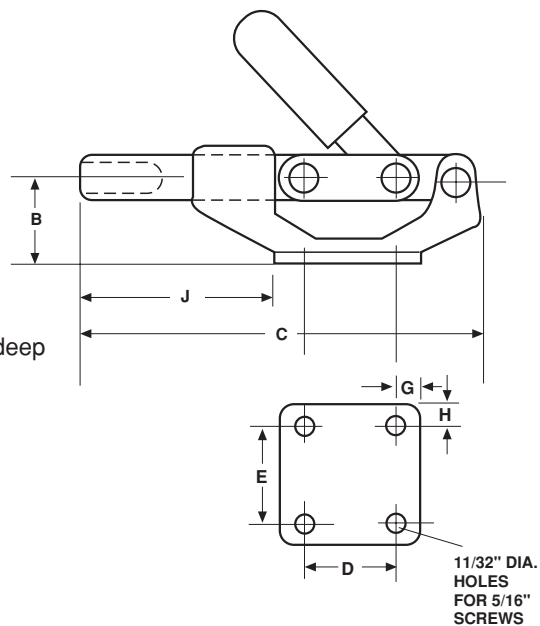
Part Number	B	C	D	E	G	H	J	Mounting Holes
70810	1	4 3/4	1 3/8	1 5/8	5/16	5/16	2 1/4	9/32
70815	1	4 3/4	1 7/16	1 5/16	5/16	5/16	2 1/4	7/32



70830

Same construction as 70810 with larger capacity. The base has 11/32" diameter holes for 5/16" screws. A blue vinyl handle is included.

- Holding capacity: 850 lbs.
- Weight: 1 lb., 4 oz.
- Plunger travel: 1 5/8"
- Plunger tapped: 3/8-16 X 1 1/8" deep



Part Number	B	C	D	E	G	H	J
70830	1 1/4	6 1/4	1 5/8	1 5/8	5/16	5/16	3

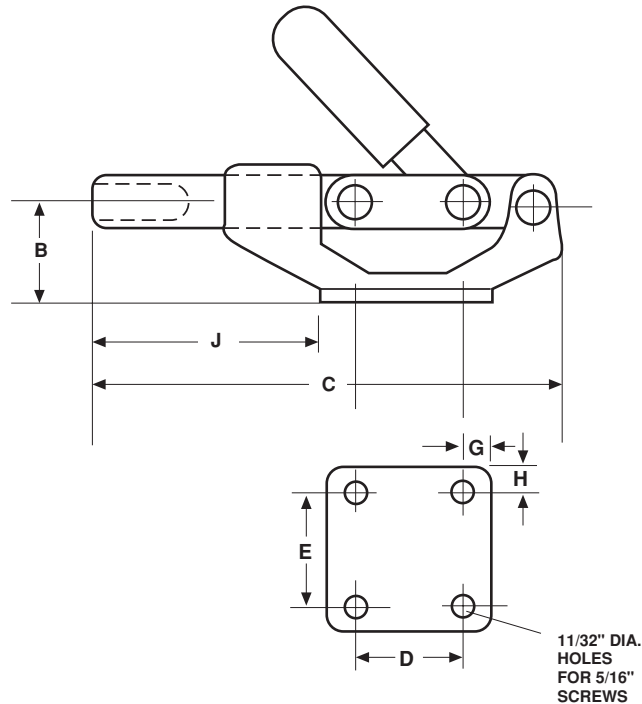
For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

Straight Line

**70850**

Same construction as 70810 with three times the holding capacity. Our most powerful straight line action toggle clamp. A blue vinyl handle is included.

- Holding capacity: 1500 lbs.
- Weight: 3 lb.
- Plunger travel: 2 11/32"
- Plunger tapped: 1/2-13 X 1 1/2" deep

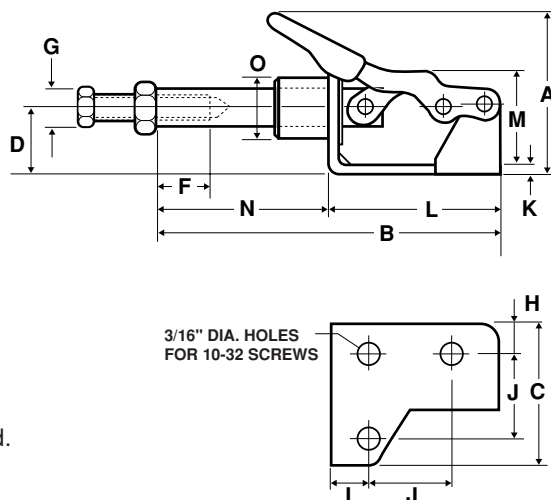


Part Number	B	C	D	E	G	H	J
70850	1 3/4	9 1/2	2	2	3/8	3/8	4 5/8

**70818**

This light duty clamp is equipped with an 8-32 tapped plunger. A blue vinyl handle is included.

- Holding capacity: 90 lbs.
- Weight: 1.5 oz.
- Plunger travel: 5/8"
- Plunger tapped: 8-32 X 15/32" deep



Part Number	A	B	C	D	F	G	H	I	J	K	L	M	N	O
70818	1 7/32	2 21/32	1 1/16	1/2	15/32	1/4	7/32	5/16	5/8	3/32	1 11/32	13/16	1 9/32	7/16

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

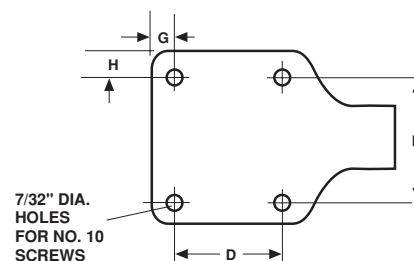
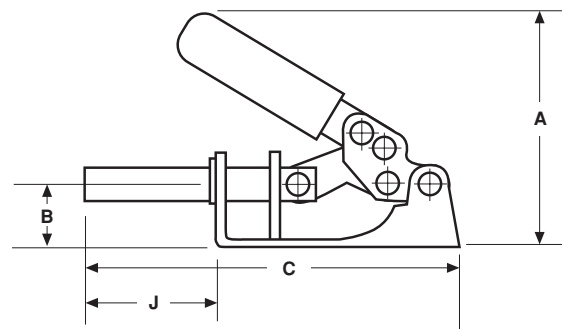
Straight Line



70820

This popular plunger style clamp can be used for push and pull clamping. The rivet in the handle can be removed allowing the clamp to be set in either the push or pull position. A blue vinyl handle is included.

- Holding capacity: 300 lbs.
- Weight: 10 oz.
- Plunger travel: 1 1/4"
- Plunger tapped: 5/16-18 X 1" deep



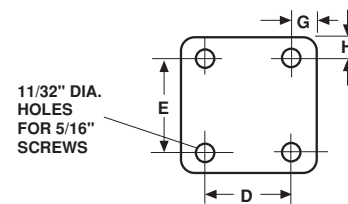
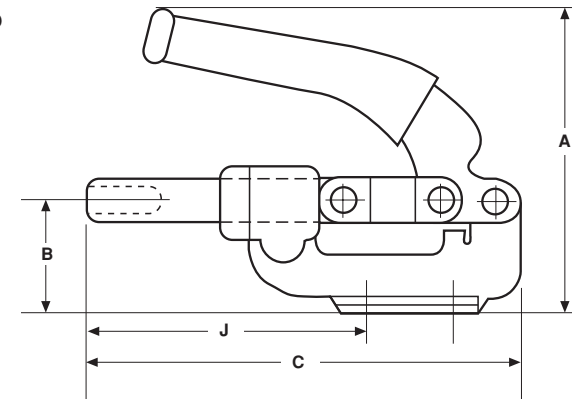
Part Number	A	B	C	D	E	G	H	J
70820	3 5/16	31/32	5 7/16	1 3/8	1 5/8	9/32	9/32	1 15/16



70840

The heavy duty construction of the clamp is ideal for hard to hold applications. The plunger locks in both push and pull positions with maximum pressure. A blue vinyl handle is included.

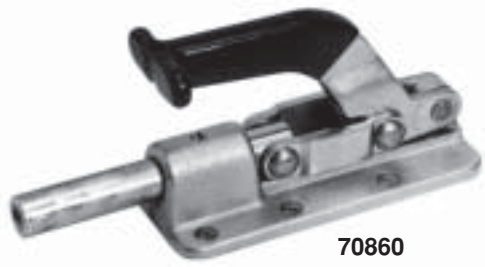
- Holding capacity: 800 lbs.
- Weight: 1 lb., 12 oz.
- Plunger travel: 1 5/8"
- Plunger tapped: 3/8-16 X 1" deep



Part Number	A	B	C	D	E	G	H	J	Base Type
70840	4 9/16	1 3/4	6 3/4	1 5/8	1 5/8	5/16	5/16	4 3/16	Flange

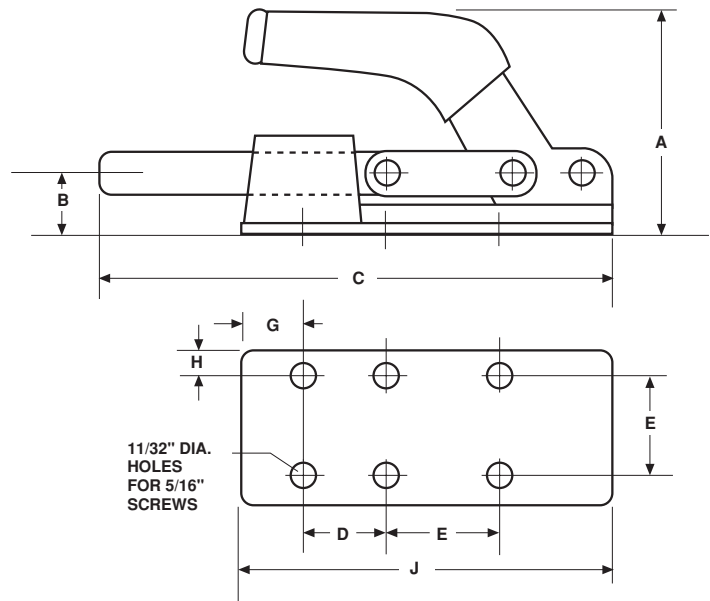
For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

Straight Line


70860

The forged steel construction enables this powerful plunger-style clamp to perform on rugged, heavy duty applications. Handle locks in both push and pull positions. A blue vinyl handle is included.

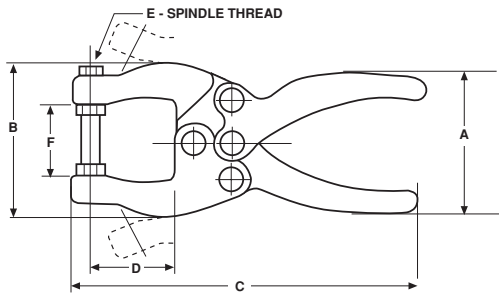
- Holding capacity: 2500 lbs.
- Weight: 2 lbs., 2 oz.
- Plunger travel: 2"
- Plunger tapped: 3/8-16 X 1 1/4" deep



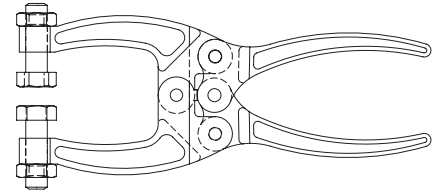
Part Number	A	B	C	D	E	G	H	J	Base Type
70860	2 7/8	13/16	7 1/16	1 3/8	1 5/8	1/2	5/16	5 1/16	Flange

For accessories see pages 13.46. For interchangeability with other toggle clamps, see page 13.70.

Squeeze Action — Forged Jaws



These forged steel, squeeze action, plier clamps can be used in a wide range of applications. Ideal for clamping, fixturing, holding, processing, or positioning. All models are supplied with spindle assemblies.



2 Spindle Version

Part Number	2 Spindle Part Number	A	B	C	D	E	F	Holding Capacity (lbs.)	Spindle Type	Trigger Release	Wt. (oz.)
70710	71049	1 15/16	2 1/16	4 1/2	1 1/8	1/4-20	1	200	Standard	No	5
70720	71050	1 7/8	2 13/16	6	1 3/4	5/16-18	1 1/4	350	Standard	No	8
70730	—	2 11/16	2 7/8	8 1/16	2 9/32	5/16-18	1/2	700	Standard	Yes	16
70740	70745	2 11/16	4 1/4	8 1/2	2 3/4	3/8-16	1 3/4	700	Standard	Yes	19
70750	—	2 11/16	4 3/4	8 1/2	2 3/4	3/8-16	3	700	Standard	Yes	22

Note: F dimension will be less if spindle and locknut are used.



70710

Supplied with 70927 Spindle Assembly



70720

Supplied with 70946 Spindle Assembly



70730

Supplied with 70945 Spindle Assembly

71049 Supplied with 2 Spindle Assemblies (Not Shown)

71050 Supplied with 2 Spindle Assemblies (Not Shown)



70740

Supplied with 70913 Spindle Assembly



70745 (not shown)

Supplied with (2) 70912 Spindle Assembly



70750

Supplied with 70913 and 70914 Spindle Assemblies

Adjustable Spindle Assemblies

Hex Head Adjustable Spindle Assemblies



Vinyl Coated Hex Head Adjustable Spindle Assemblies



Neoprene Cap-Flat Tipped Adjustable Spindle Assemblies



Swivel Foot Adjustable Spindle Assemblies



Part Number	Description
70962	8-32 x 27/32 Nylon Hex Head
70916	8-32 x 3/4 Hex Head*
70945	5/16-18 x 1 1/8 Hex Head
70946	5/16-18 x 1 3/4 Hex Head
70912	3/8-16 x 1 1/4 Hex Head
70913	3/8-16 x 3 Hex Head
70903	1/2-13 x 3 Hex Head
70942	5/8-11 x 4 1/2 Hex Head
70963	8-32 x 1 1/4 Vinyl Coated Hex Head
70927	1/4-20 x 1 1/2 Vinyl Coated Hex Head
70926	1/4-20 x 1 3/4 Neoprene Cap Flat Tipped
70918	1/4-20 x 1 5/8 Neoprene Cap Flat Tipped
70947	5/16-18 x 2 1/4 Neoprene Cap Flat Tipped
70949	5/16-18 x 3 Neoprene Cap Flat Tipped
70915	3/8-16 x 3 1/4 Neoprene Cap Flat Tipped
70917	10-32 x 1 3/8 Neoprene Cap Flat Tipped
70948	5/16-18 x 2 3/4 Swivel Foot
70914	3/8-16 x 3 Swivel Foot

*Nuts not included

Flanged Washers for U-Bar Clamps Only

Flanged Washers for U-Bar Clamps



Part Number	Description
70960	#8 For Vertical Handle Models
70925	1/4
70944	5/16
70911	3/8
70902	1/2
70941	5/8

Bolt Retainer

Bolt Retainers For Solid Bar Clamps



Part Number	Description
70943	5/16
70910	3/8
70901	1/2
70940	5/8

HDV Series Heavy Duty Vertical Clamps



Features:

All **HDV** series clamps are designed to be adaptable and durable, and to withstand abuse in heavy duty applications.

The **HDV** series have a phosphated corrosion resistant finish.

Models HDV660WW, HDV1500WW, HDV2600WW and HDV5200WW comprise a basic toggle mechanism onto which can be welded at the desired angle the clamping arm and handle which can be specified as accessories. These models feature a swivel base which is welded at the desired angle to the mechanism, and then welded either directly to a fixture, or alternatively to a base which is offered as an accessory for bolt mounting.

Models HDV660SW, HDV1500SW, HDV2600SW and HDV5200SW share all the features of the above models, but with a straight base which can be directly bolt mounted or welded to a fixture, or alternatively to the accessory base for bolt mounting.

Models HDV660SS, HDV1500SS, HDV2600SS and HDV5200SS are similar to the type 'T' models, but with a handle with a PVC grip fitted vertically, and a longer stub clamping arm which can be modified and the spindle retainer supplied welded in the desired position.

Models HDV660FA, HDV1500FA, HDV2600FA and HDV5200FA feature a flanged base with holes for bolt mounting, a handle with PVC grip fitted vertically, and a fixed spindle or setscrew position which does not require welding.

Specifications:

The main components are of steel, the forked lower handles being precision alloy steel castings, and all axles of hardened steel running in either hardened bushes or directly in the close-toleranced holes of hardened parts. The clamps are finished chemi-black.

Installation:

When welding the swivel base of the 'Stub Nose' models to the clamp mechanism ensure that the full length of the adjoining surfaces are welded. Ensure that welding spatter does not enter the slots which form the forward stop of the mechanism.

The handle pivot bolt may be adjusted if required to remove excess free play from the mechanism.

Frequent lubrication will extend the life of the clamp.



Hold Down Vertical



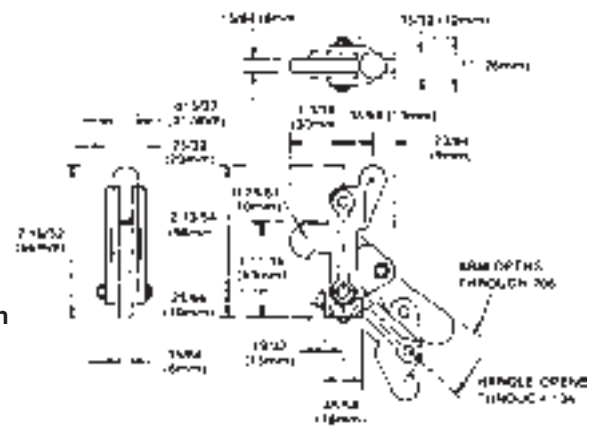
Part Number
72120

Model HDV660/WW

Arm: Stub nose for welded extension
Base: Swivel for welding in the desired position
Nominal Holding Force: 660 lbs.
Weight: 6 oz.

See “Features and Installation Information” on page 13.47 for Installation Instructions.

See page 13.50 for accessories and handles.



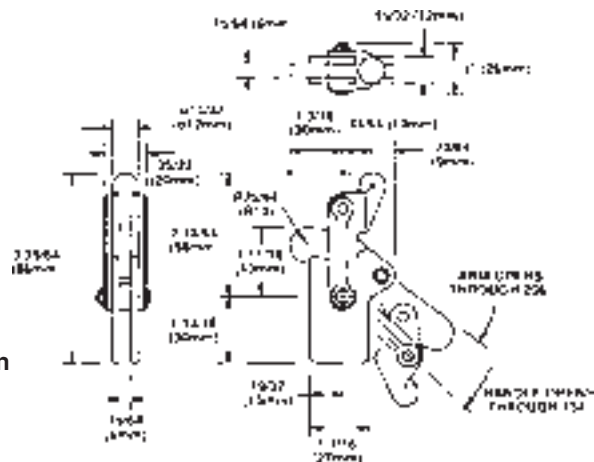
Part Number
72101

Model HDV660/SW

Arm: Stub nose for welded extension
Base: Straight
Nominal Holding Force: 660 lbs.
Weight: 6 oz.

See “Features and Installation Information” on page 13.47 for Installation Instructions.

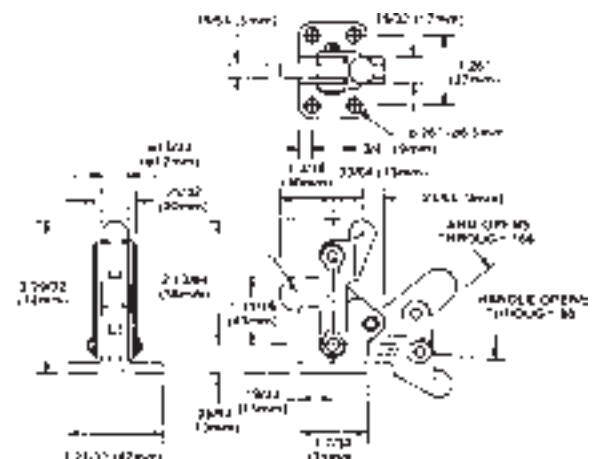
See page 13.50 for accessories and handles.

Part Number
72102

Model HDV660/FW

Arm: Stub nose for welded extension
Base: Flanged
Nominal Holding Force: 660 lbs.
Weight: 7 oz.

See page 13.50 for accessories and handles.



Hold Down Vertical



Part Number
72103

Model HDV660/SA

Arm: The spindle is adjustable along the arm

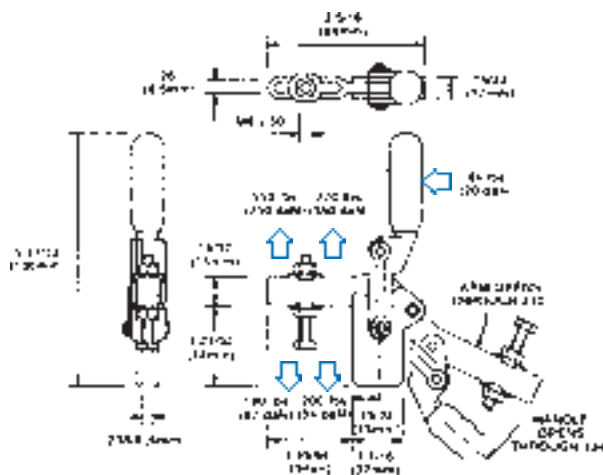
Base: Straight

Nominal Holding Force: 660 lbs.

Weight: 9 oz.

Supplied complete with: Set screw & nuts,
Flanged washer

See page 13.50 for accessories and handles.

Part Number
72104

Model HDV660/FA

Arm: The spindle is adjustable along the arm

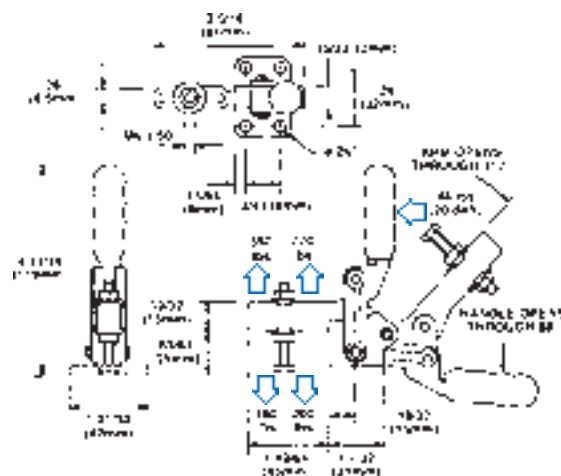
Base: Flanged

Nominal Holding Force: 660 lbs.

Weight: 9 oz.

Supplied complete with: Set screw & nuts,
Flanged washer

See page 13.50 for accessories and handles.



Part Number	72105

Model HDV660/FA2

Arm: The spindle is adjustable along the arm

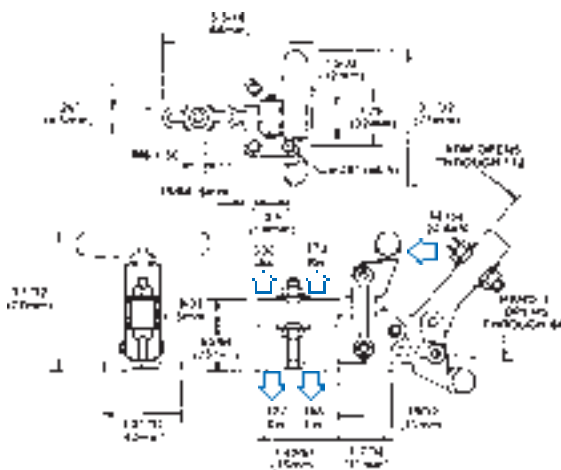
Base: Flanged

Nominal Holding Force: 660 lbs.

Weight: 9 oz.

Supplied complete with: Set screw & nuts,
Flanged washer

See page 13.50 for accessories and handles.



Hold Down Vertical

HDV660 Series Accessories

Part No. 72130

Handle: For welding at the desired angle to HDV660/WW & HDV660/SW
 Weight: 2 oz.

Part No. 72131

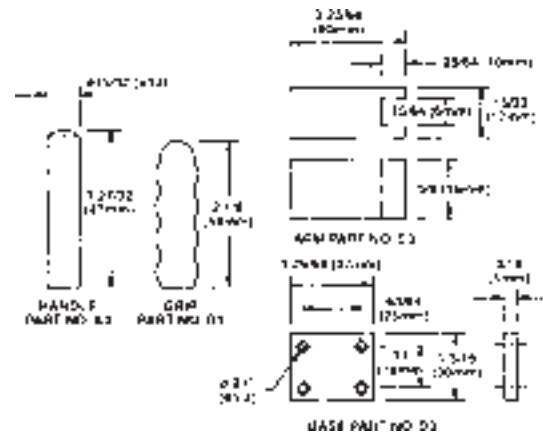
Grip: To fit Part No. 72130 handle
 Weight: 0.5 oz.

Part No. 72132

Arm: For extending the stub arms of HDV660/WW & HDV660/SW
 Weight: 3 oz.

Part No. 72133

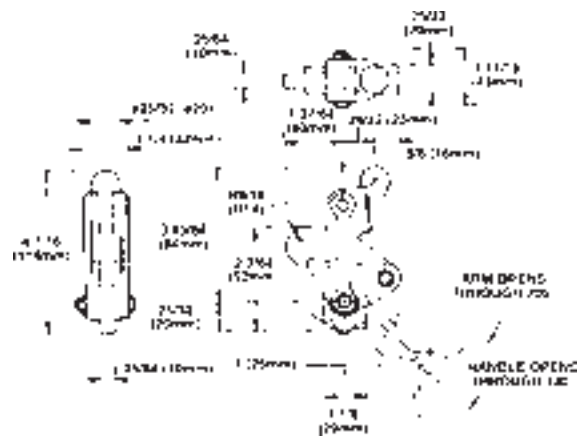
Base: For bolt mounting
 HDV660/WW & HDV660/SW
 Weight: 2 oz.


Model HDV1500/WW

Arm: Stub nose for welded extensions
 Base: Swivel for welding in the desired position
 Nominal Holding Force: 1,543 lbs.
 Weight: 1lb 7 oz.

See "Features and Installation Information" on page 13.47 for installation instructions

See page 13.51 for accessories and handles.



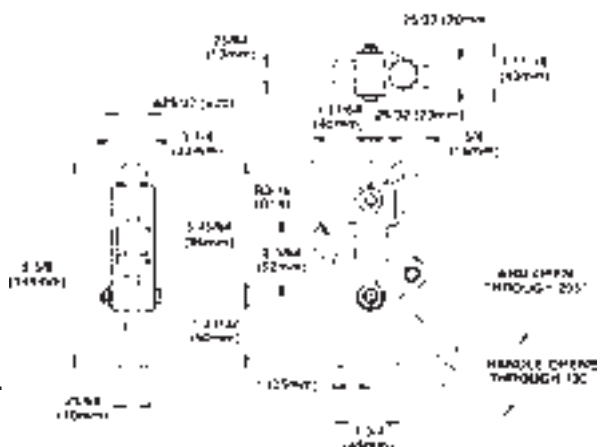
Part Number
72121


Model HDV1500/SW

Arm: Stub nose for welded extensions
 Base: Straight
 Nominal Holding Force: 1,543 lbs.
 Weight: 1lb 9 oz.

See "Features and Installation Information" on page 13.47 for installation instructions

See page 13.51 for accessories and handles.



Part Number
72106

Hold Down Vertical

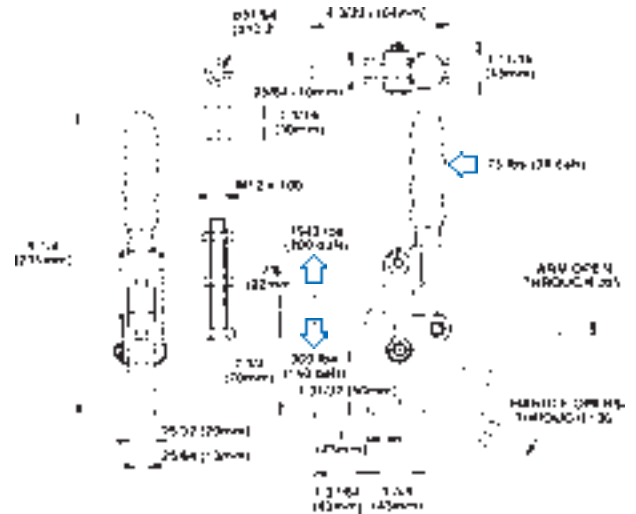


Part Number
72107

Model HDV1500/SS

Arm: Solid arm
Base: Straight
Nominal Holding Force: 1,543 lbs.
Weight: 2 lbs 5 oz.
Supplied complete with: Spindle retainer,
Setscrew & nuts

See below for accessories and handles.

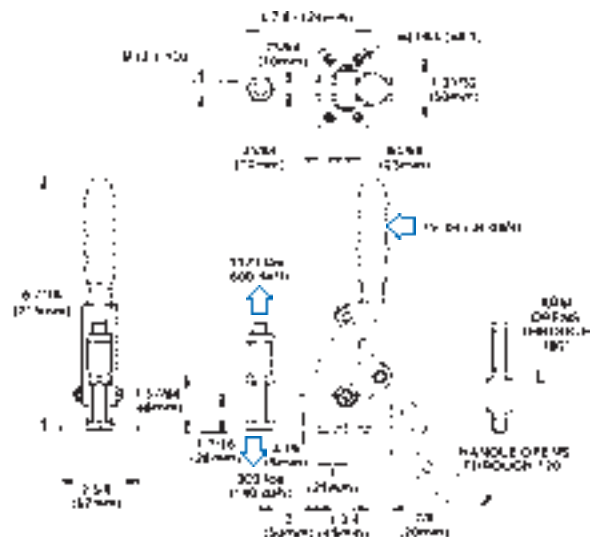


Part Number
72108

Model HDV1500/FA

Arm: The spindle is in a fixed position
Base: Flanged
Nominal Holding Force: 1,543 lbs.
Weight: 2 lbs 9 oz.
Supplied complete with: Setscrew & nuts

See below for accessories and handles.



HDV1500 Series Accessories

Part No. 72140

Handle: For welding at the desired angle to HDV1500/WW & HDV1500/SW
Weight: 5.3 oz.

Part No. 72141

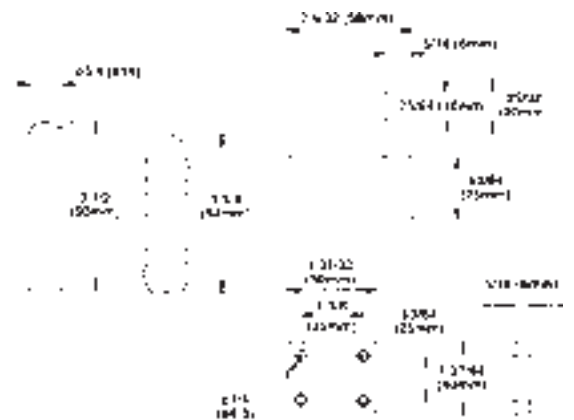
Grip: To fit Part No. 72140 handle
Weight: 0.3 oz.

Part No. 72142

Arm: For extending the stub arms of HDV1500/WW & HDV1500/SW
Weight: 5.5 oz.

Part No. 72143

Base: For bolt mounting
VHDV1500/WW & HDV1500/SW
Weight: 3 oz.



Hold Down Vertical



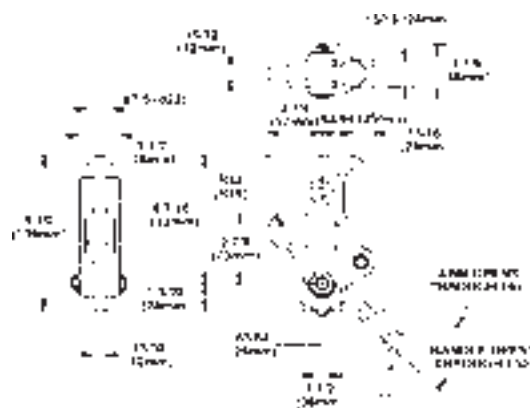
Part Number	72122

Model HDV2600/WW

Arm: Stub nose for welded extensions
Base: Swivel for welding in the desired position
Nominal Holding Force: 2,646 lbs.
Weight: 2 lbs 10 oz.

See “Features and Installation Information” on page 13.47 for Installation Instructions.

See page 13.53 for accessories and handles.



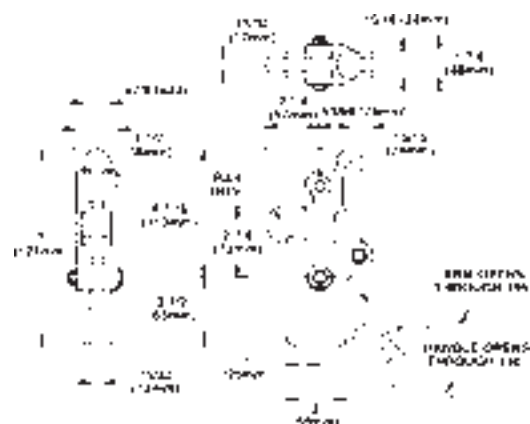
Part Number	72109

Model HDV2600/SW

Arm: Stub nose for welded extensions
Base: Straight
Nominal Holding Force: 2,646 lbs.
Weight: 3 lbs 2 oz.

See “Features and Installation Information” on page 13.47 for Installation Instructions.

See page 13.53 for accessories and handles.

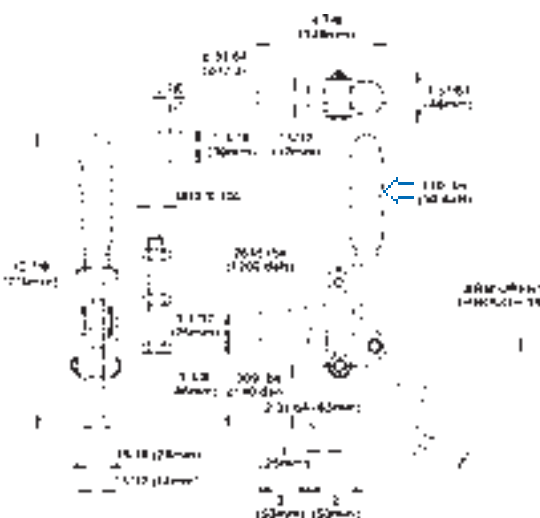


Part Number
72110

Model HDV2600/SS

Arm: Solid arm
Base: Straight
Nominal Holding Force: 2,646 lbs.
Weight: 4 lbs.
Supplied complete with: Spindle retainer,
Setscrew & nuts

See page 13.53 for accessories and handles.



Hold Down Vertical

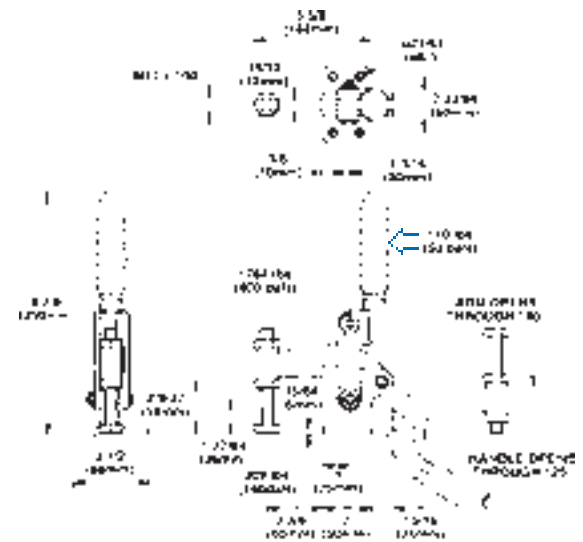


Part Number
72111

Model HDV2600/FA

Arm: The spindle is in a fixed position
Base: Flanged
Nominal Holding Force: 2,646 lbs.
Weight: 4 lbs 4 oz.
Supplied complete with: Setscrew & nuts

See below for accessories and handles.



HDV2600 Series Accessories

Part No. 72150

Handle: For welding at the desired angle to HDV2600/WW & HDV2600/SW
Weight: 8 oz.

Part No. 72151

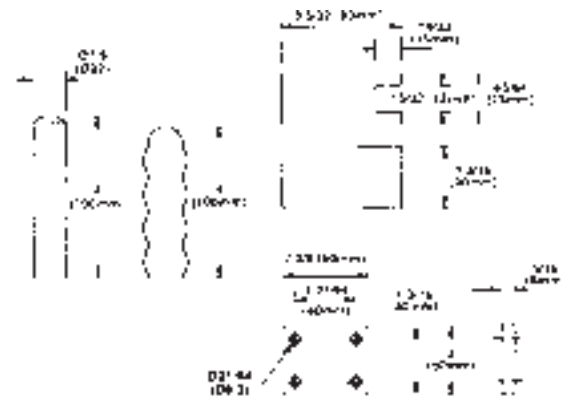
Grip: To fit Part No. 72150 handle
Weight: 0.3 oz.

Part No. 72152

Arm: For extending the stub arms of HDV2600/WW & HDV2600/SW
Weight: 11 oz.

Part No. 72153

Base: For bolt mounting
HDV2600/WW & HDV2600/SW
Weight: 4 oz.



Hold Down Vertical



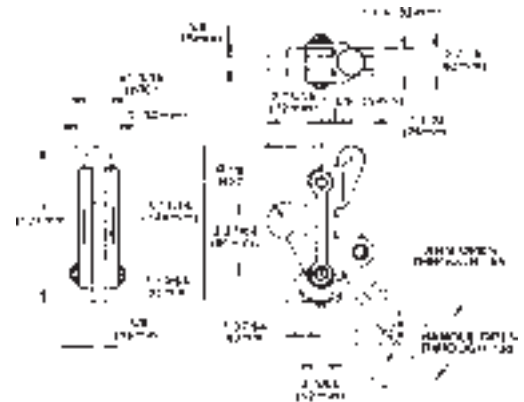
Part Number
72123

Model HDV5200/WW

Arm: Stub nose for welded extensions
 Base: Swivel for welding in the desired position
 Nominal Holding Force: 5,291 lbs.
 Weight: 6 lbs 4 oz.

See "Features and Installation Information" on page 13.47 for Installation Instructions.

See page 13.55 for accessories and handles.



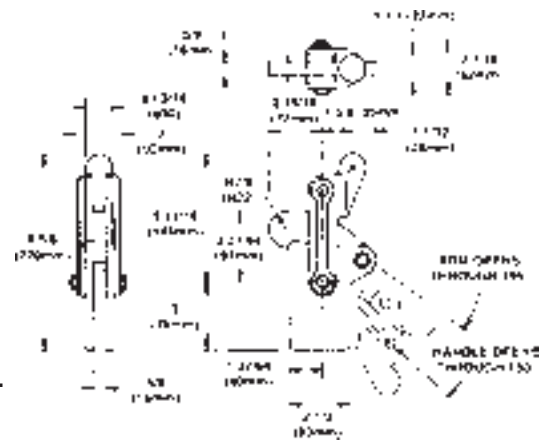
Part Number
72112

Model HDV5200/SW

Arm: Stub nose for welded extensions
 Base: Straight
 Nominal Holding Force: 5,291 lbs.
 Weight: 7 lbs 1 oz.

See "Features and Installation Information" on page 13.47 for Installation Instructions.

See page 13.55 for accessories and handles.

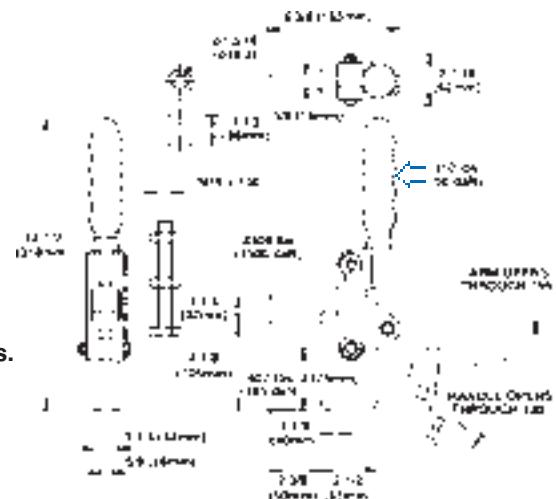


Part Number
72113

Model HDV5200/SS

Arm: Solid arm
 Base: Straight
 Nominal Holding Force: 5,286 lbs.
 Weight: 8 lbs 3 oz.
 Supplied complete with: Spindle retainer, Setscrew & nuts

See page 13.55 for accessories and handles.



Hold Down Vertical

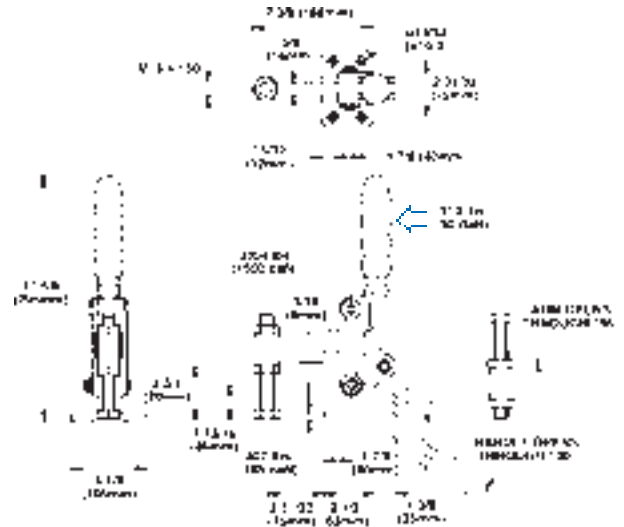


Model HDV5200/FA

Arm: The spindle is in a fixed position
Base: Flanged
Nominal Holding Force: 5,286 lbs
Weight: 9 lbs.
Supplied complete with: Setscrew & nuts

See below for accessories and handles.

Part Number
72114



HDV5200 Series Accessories

Part No. 72170

Handle: For welding at the desired angle to HDV5200/WW & HDV5200/SW
Weight: 10.3 oz.

Part No. 72171

Grip: To fit Part No. 72170 handle
Weight: 4 oz.

Part No. 72172

Arm: For extending the stub arms of HDV5200/WW & HDV5200/SW
Weight: 1 lb 8 oz.

Part No. 72173

Base: For bolt mounting
HDV5200/WW & HDV5200/SW
Weight: 7 oz.



Vertical Cam Clamps



Features:

Cam clamps are similar to vertical clamps but the clamping force is generated not by a toggle linkage, but by the action of a roller on a cam.

The cam action allows components of differing thickness to be clamped without readjustment of the clamping spindle.

Model JCV155/FF can clamp parts with thickness varying by up to 1/16", and models JCV550/FF and JCV770/FF thickness varying by up to 5/64".

A comfortable, cushioned PVC handle grip is fitted to all three models of cam clamp.

Specifications:

The main components are of zinc plated and passivated steel, the cam and its roller being case hardened to resist wear.

Rivets are of stainless steel, which burnishes and work-hardens with use, the rivets of models JCV550/FF and JCV770/FF rotating in hardened bushes. The setscrews are made of steel.

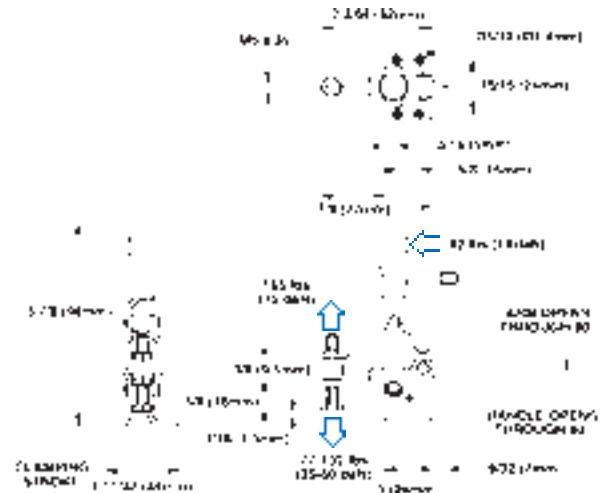
Vertical Cam Clamps



Part Number
72160

Model JCV/155/FF

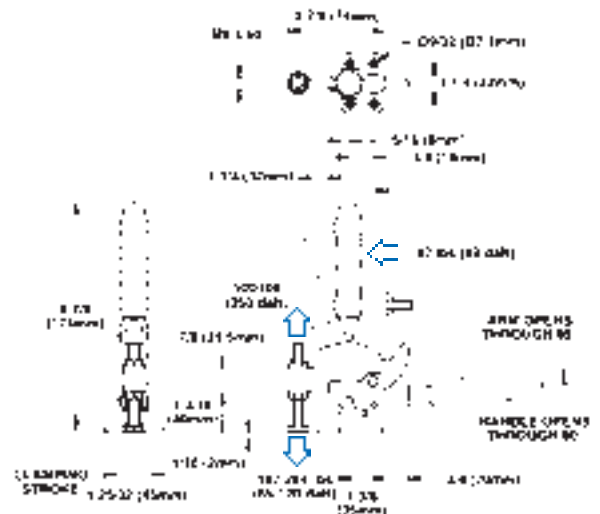
Arm: The spindle is in a fixed position
Base: Flanged
Nominal Holding Force: 165 lbs.
Weight: 1.3 oz.
Supplied complete with: Setscrew & nuts



Part Number	72161

Model JCV550/FF

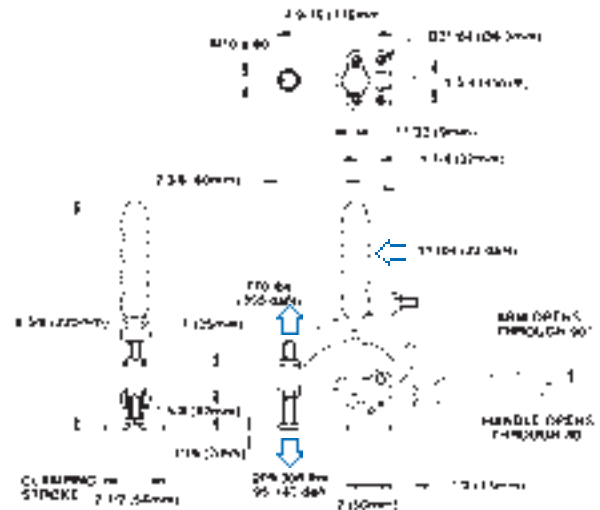
Arm: The spindle is in a fixed position
Base: Flanged
Nominal Holding Force: 550 lbs.
Weight: 9 oz.
Supplied complete with: Setscrew & nuts



Part Number	72162

Model JCV770/FF

Arm: The spindle is in a fixed position
Base: Flanged
Nominal Holding Force: 770 lbs.
Weight: 1 lb 6 oz.
Supplied complete with: Setscrew & nuts



Heavy-Duty & Long-Handled Push-Pull Clamps

- Low profile handle
- Heavy duty link
- Ribbed housing provides extra protection against side impact
- Locks in both forward and rear position



Features:

These clamps are of exceptionally robust construction featuring cast and machined handles and bases. The clamps are designed with a low plunger height and with the mechanism guarded within the base to avoid finger traps.

Models HDP1300, HDP2600, HDP5500, and HDP11000 have handles of normal length for clamping. The long handled 'L' versions (HDP1300/L, HDP5500/L, and HDP11000/L) have their handles either to the front or rear of the clamp according to the application and produce high forces which make them suitable for clamping or for light work such as swaging, rivetting, press fitting components, etc. All models are fitted with a comfortable, cushioned PVC handle grip.

Specifications:

The bases of all models, and the handles of models HDP1300, HDP2600, HDP5500, and HDP11000 are machined cast iron.

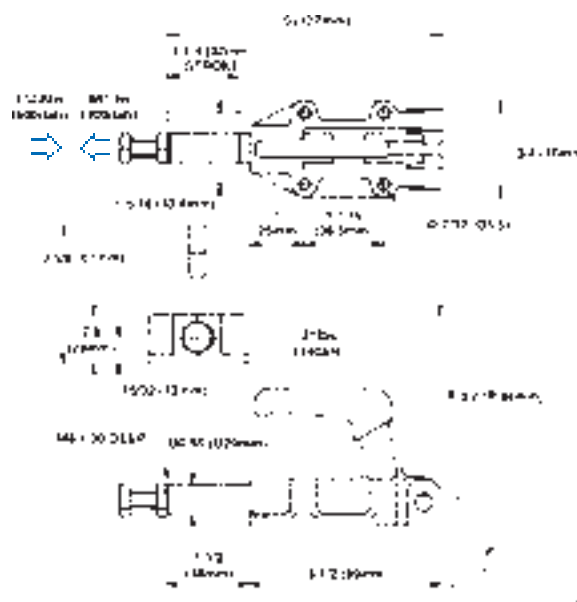
The handles of the 'L' versions are of steel bar and mount in housings which are either machined steel castings or machined from steel bar.

The plungers are of steel, and their precision ground diameter runs in a close-toleranced hole in the base casting.

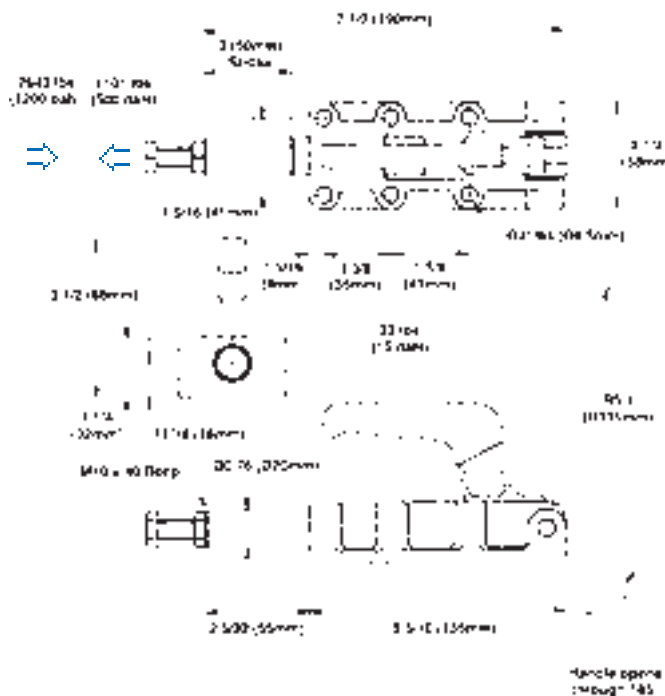
All axles are of hardened steel and run in either the cast iron of the handle, or in the close-toleranced holes of hardened parts.

All models are supplied with a steel setscrew.

Plunger: Locks at both extended & retracted ends of the stroke
Base: Body mounting
Nominal Holding Force: 1,322 lbs.
Weight: 1 lb
Supplied complete with:
Setscrew & nut



Plunger: Locks at both extended & retracted ends of the stroke
Base: Body mounting
Nominal Holding Force: 2,643 lbs.
Weight: 3 lbs
Supplied complete with:
Setscrew & nut



Heavy-Duty & Long-Handled Push-Pull Clamps



Part Number
72205

Model HDP1300/L

With 31 lbs handle force the

output force is:	lbs
Fully retracted	1,035
0.197 extended	242
0.394	154
0.591	165
0.787	176
1.00	187
1.180	322
1.219	419
Fully extended	1,277

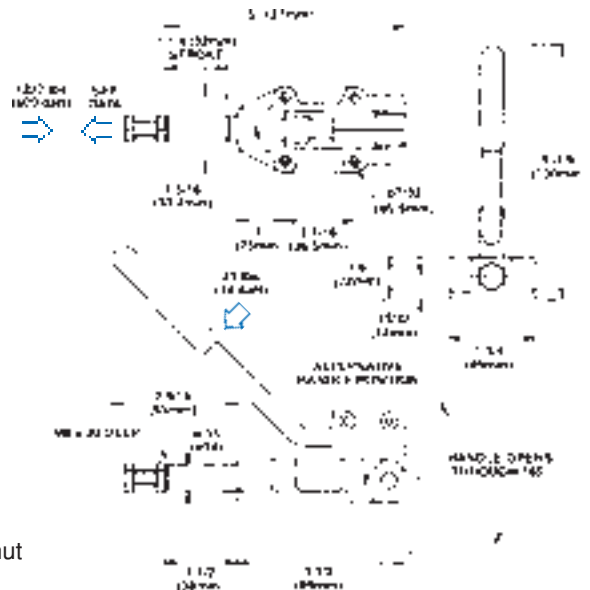
Plunger: Locks at both extended & retracted ends of the stroke

Base: Body mounting

Nominal Holding Force: 1,322 lbs

Weight: 1 lb 2 oz.

Supplied complete with: Setscrew & nut



Part Number
72206

Model HDP2600/L

With 33 lbs handle force the

output force is:	lbs
Fully retracted	1,553
0.197 extended	368
0.394	198
0.591	161
0.787	154
1.00	159
1.180	187
1.377	220
1.573	242
1.769	330
1.887	485
1.926	639
Fully extended	2,048

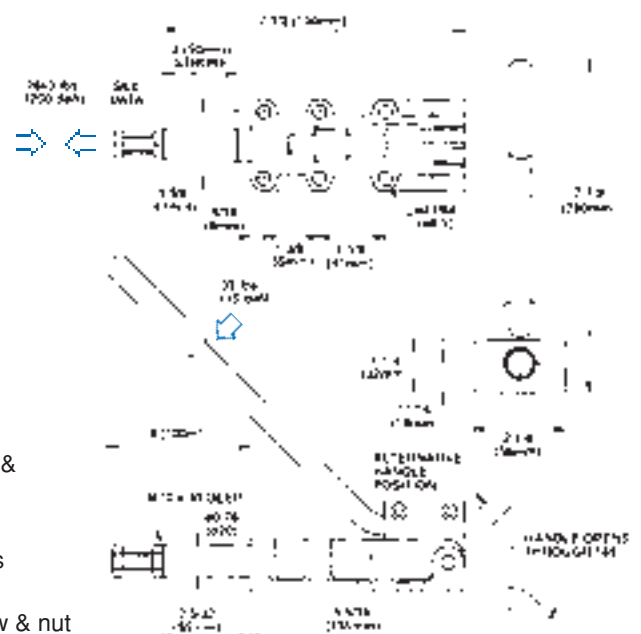
Plunger: Locks at both extended & retracted ends of the stroke

Base: Body mounting

Nominal Holding Force: 2,643 lbs

Weight: 3 lbs 6 oz.

Supplied complete with: Setscrew & nut



Heavy-Duty & Long-Handled Push-Pull Clamps

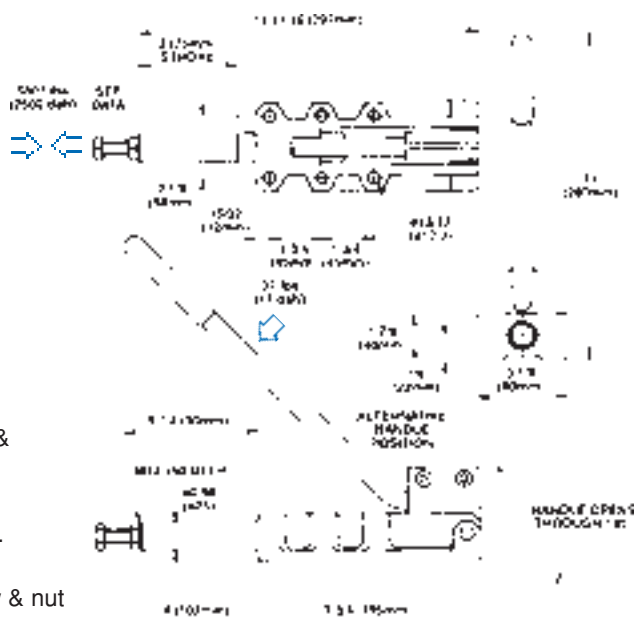
Part Number
72207

Model HDP5500/L

With 37 lbs handle force the

output force is:	lbs
Fully retracted	2,203
0.394 extended	220
0.787 ",	159
1.180 ",	132
1.573 ",	154
1.970 ",	194
2.364 ",	260
2.758 ",	419
2.836 ",	507
2.915 ",	778
Fully extended	2,423

Plunger: Locks at both extended & retracted ends of the stroke
Base: Body mounting
Nominal Holding Force: 5,507 lbs.
Weight: 9 lbs 1 oz.
Supplied complete with: Setscrew & nut

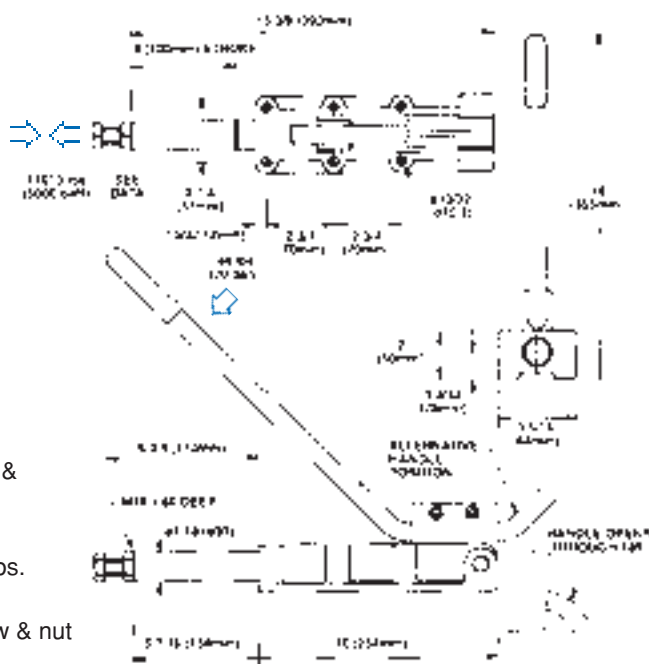
Part Number
72208

Model HDP11000/L

With 44 lbs handle force the

output force is:	lbs
Fully retracted	2,423
0.394 extended	397
0.787 "	242
1.180 "	165
1.573 "	176
1.970 "	181
2.364 "	220
2.758 "	220
3.152 "	286
3.546 "	419
3.743 "	551
3.821 "	683
3.900 "	991
Fully extended	2,665

Plunger: Locks at both extended & retracted ends of the stroke
Base: Body mounting
Nominal Holding Force: 11,013 lbs.
Weight: 15 lbs 6 oz.
Supplied complete with: Setscrew & nut



Horizontal Latch Clamps



Features:

Latch clamps are available in two sizes. Bracket holes will not elongate over time. They have a small footprint for space constrained applications.

All latch clamps are fitted with PVC handle grips.

Specifications:

The HDL Series clamps have precision cast steel bases and latch brackets with cast iron handles. The finish is black oxide.

Installation:

It is important that the clamp and latch bracket are in alignment when viewed from both the top and the side to ensure that the clamp locks over center correctly.

The 'U' bolt should be adjusted to ensure an equal pull on either side.

Horizontal Latch Clamps



Part Number	72301

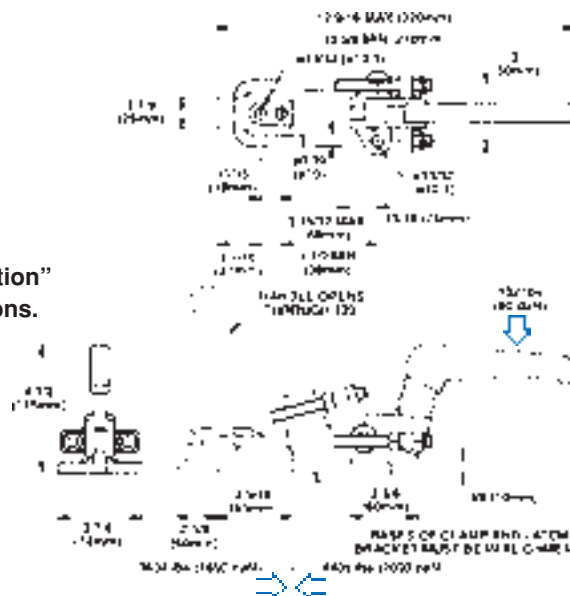
Model HDL4400

Nominal Holding Force: 4,405 lbs

Weight: 3 lbs 1 oz.

Supplied complete with: Latch Bracket
as shown

See “Features and installation information” on page 13.63 for installation instructions.



Part Number
72302

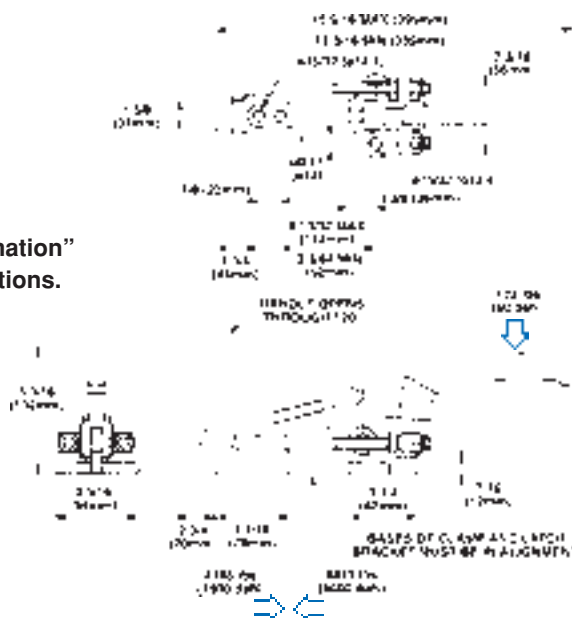
Model HDL8800

Nominal Holding Force: 8,811 lbs

Weight: 5 lbs 9 ozs.

Supplied complete with: Latch Bracket
as shown

**See “Features and installation information”
on page 13.63 for installation instructions.**



Magna Force Heavy Duty Cam Clamps



- Unique, patented range of cam clamps
- Rugged build quality, ideal for machine shops
- Clamping forces from 660 lbs to 11,000 lbs
- Significant cost benefits over strap clamps in repetitive machining
- A fraction of the cost of hydraulic workholding

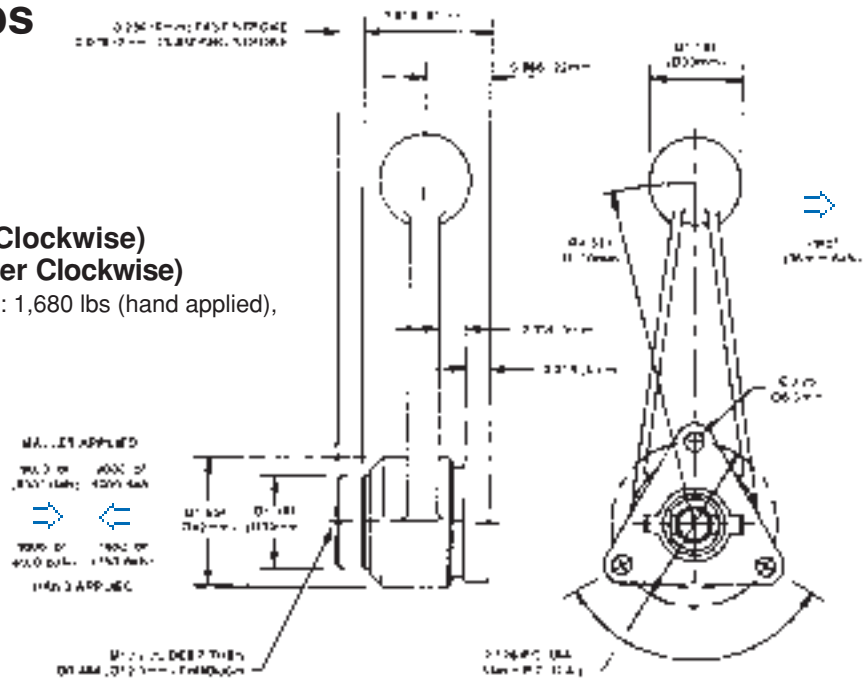
Heavy Duty Cam Clamps



Model HDC8800R (Clockwise) HDC8800RB (Counter Clockwise)

Operating clamping force: 1,680 lbs (hand applied),
9,000 lbs (mallet applied)
Weight: 1.21 lbs

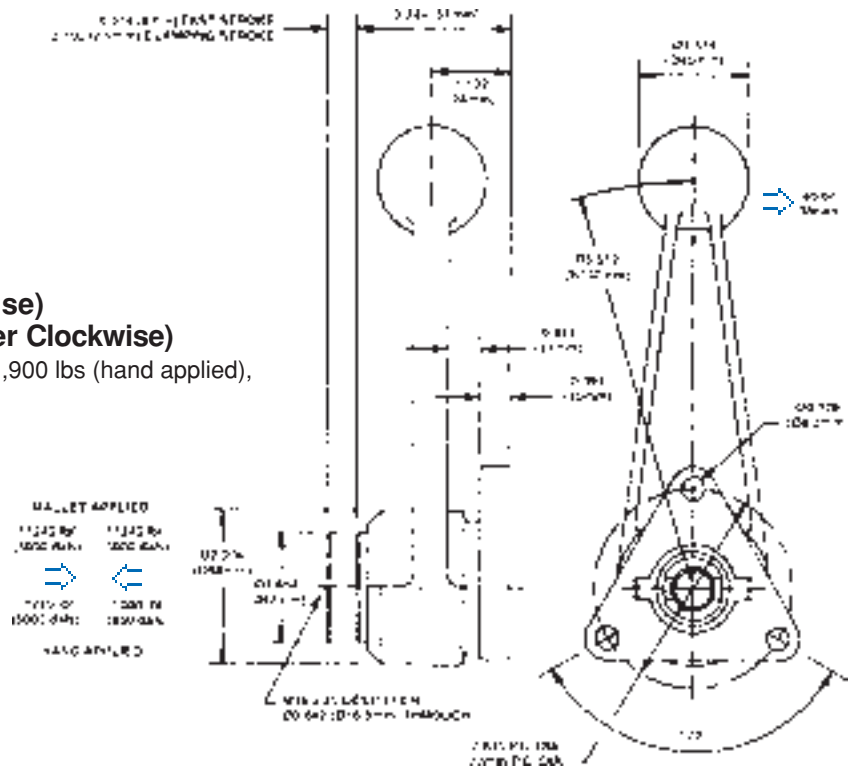
Part Number
72401
72402



Part Number
72403
72404

Model HDC11000R (Clockwise) HDC11000RB (Counter Clockwise)

Operating clamping force: 1,900 lbs (hand applied),
11,240 lbs (mallet applied)
Weight: 2.9 lbs



Part Number	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
72401	81 lbs	1686 lbs	8992 lbs	0.236	0.079
72402	81 lbs	1686 lbs	8992 lbs	0.236	0.079
72403	85 lbs	1910 lbs	11240 lbs	0.315	0.100
72404	85 lbs	1910 lbs	11240 lbs	0.315	0.100

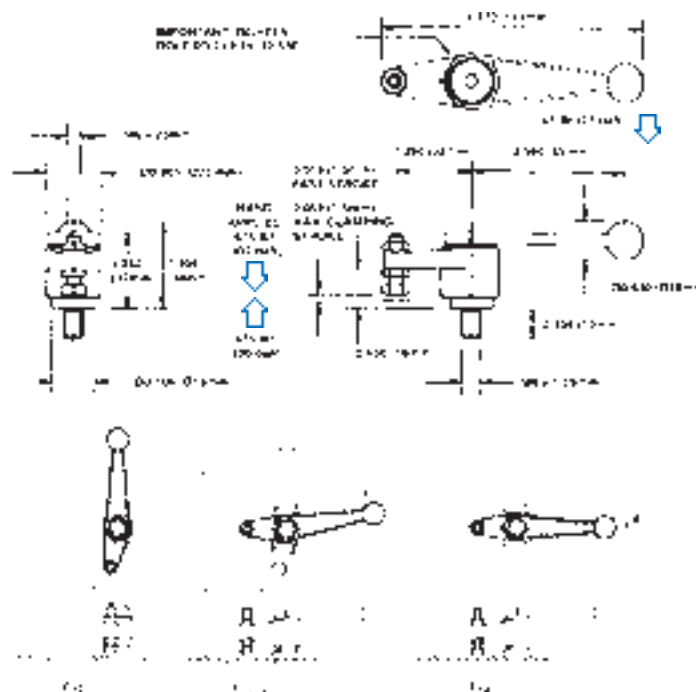
Heavy Duty Cam Swing Clamps



Part Number
72405
72406

Model
HDC675S (Clockwise)
HDC675SB (Counter Clockwise)

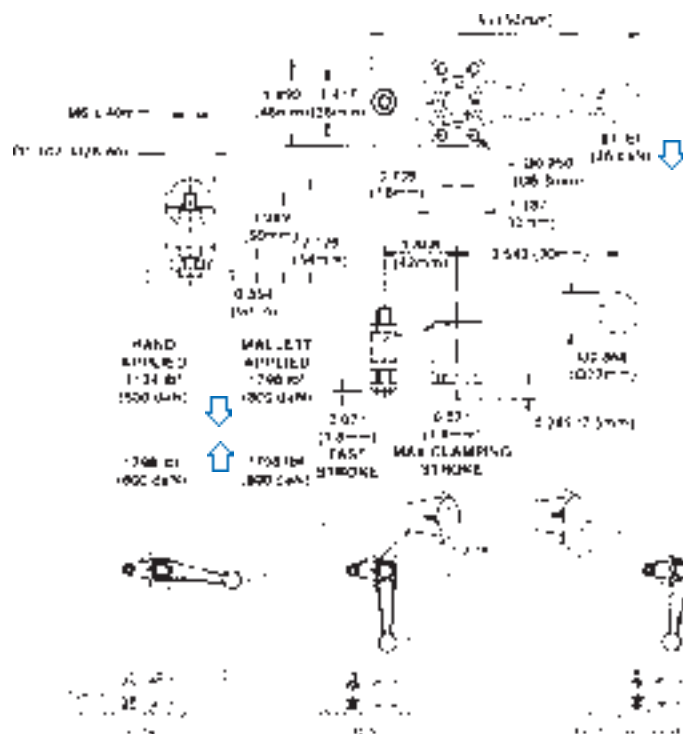
Operating clamping force: 675 lbs (hand applied)
Weight: 0.4 lbs
Supplied complete with: Set screw & nuts



Part Number
72407
72408

Model
HDC1800S (Clockwise)
HDC1800SB (Counter Clockwise)

Operating clamping force: 1,120 lbs (hand applied), 1,800 lbs (mallet applied)
Weight: 0.9 lbs
Supplied complete with: Set screw & nuts



Part Number	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
72405	47 lbs	674 lbs	N/A	0.059	0.059
72406	47 lbs	674 lbs	N/A	0.059	0.059
72407	81 lbs	1124 lbs	1800 lbs	0.070	0.070
72408	81 lbs	1124 lbs	1800 lbs	0.070	0.070

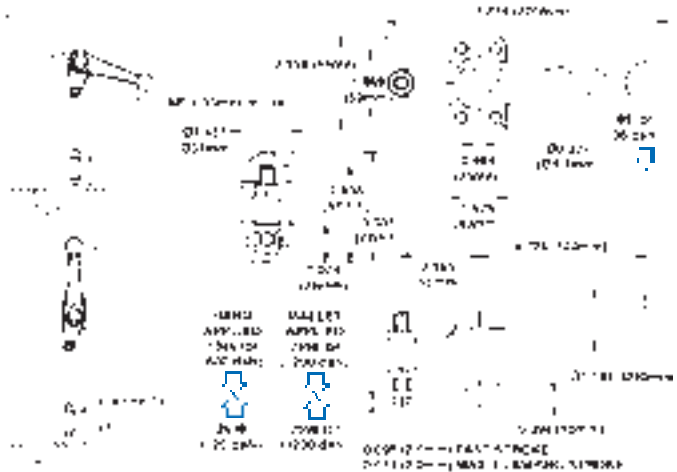
Heavy Duty Cam Swing Clamps



Part Number
72409
72410

Model HDC2600S (Clockwise) HDC2600SB (Counter Clockwise)

Operating clamping force:
1,350 lbs (hand applied),
2,700 lbs (mallet applied)
Weight: 2 lbs
Supplied complete with: Setscrew & nuts



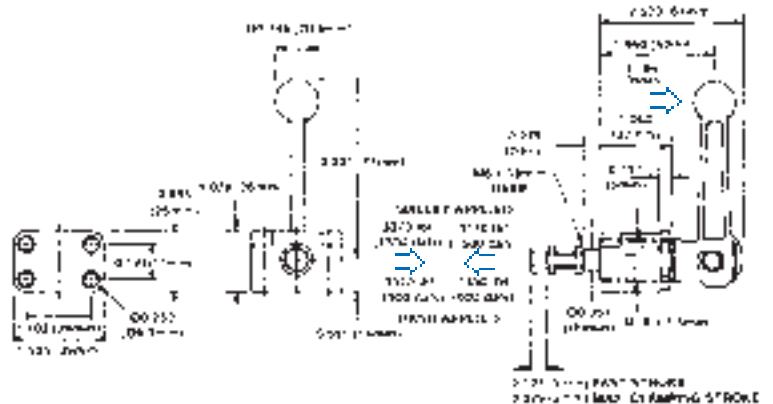
Heavy Duty Cam Push



Part Number
72411

Model HDC3300P

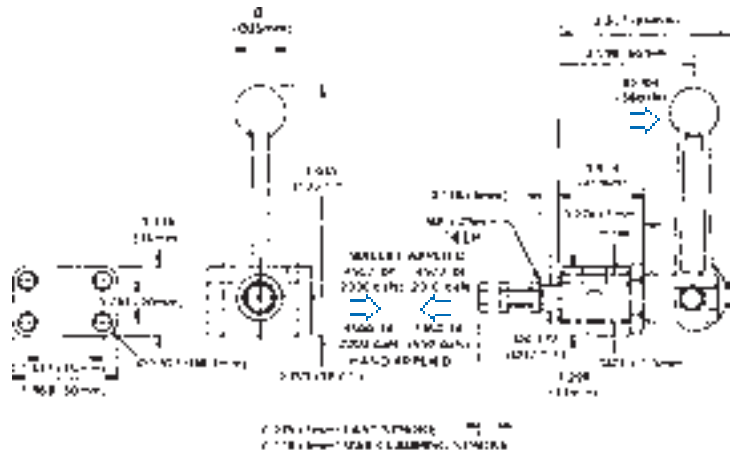
Operating clamping force:
3,370 lbs (mallet applied),
1,350 lbs (hand applied)
Weight: 0.6 lbs
Supplied complete with:
Set screw & nuts, Mounting
base and locknuts



Part Number
72412

Model HDC4400P

Operating clamping force:
4500 lbs (mallet applied),
1,460 lbs (hand applied)
Weight: 1.3 lbs
Supplied complete with:
Set screw & nuts
CMB24 Mounting base & locknuts



Part Number	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
72409	85 lbs	1350 lbs	2700 lbs	0.098	0.079
72410	85 lbs	1350 lbs	2700 lbs	0.098	0.079
72411	81 lbs	1350 lbs	3370 lbs	0.205	0.087
72412	85 lbs	1460 lbs	4500 lbs	0.276	0.118

Heavy Duty Cam Push Clamps



Model HDC6750P

Operating clamping force: 6,750 lbs
(mallet applied), 1,460 lbs (hand applied)
Weight: 3.4 lbs
Supplied complete with: Set screw & nuts. Mounting base & locknuts

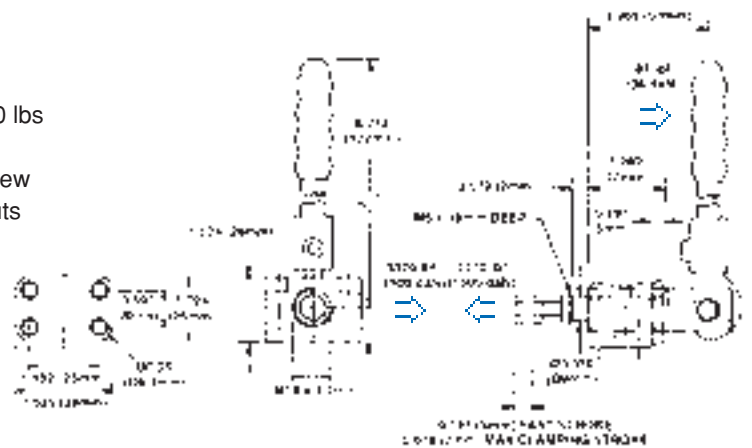
Part Number
72413



Model HDC3300PL

Operating clamping force: 3,370 lbs
Weight: 0.8 lbs
Supplied complete with: Set screw & nuts, Mounting base & locknuts

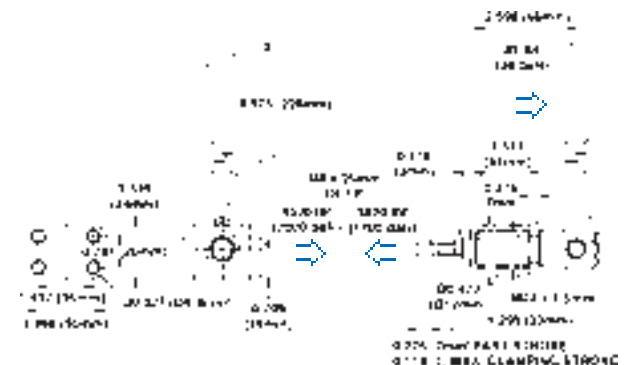
Part Number
72414



Model HDC4400PL

Operating clamping force: 3,820 lbs
Weight: 1.7 lbs
Supplied complete with: Set screw & nuts
Mounting base & locknuts,
Nominal holding force: 4,500 lbs

Part Number
72415



Part Number	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
72413	97 lbs	1460 lbs	6750 lbs	0.433	0.157
72414	81 lbs	3370 lbs	N/A	0.205	0.087
72415	85 lbs	3820 lbs	N/A	0.276	0.118

Heavy Duty Cam Push Clamps



Model HDC6750PL

Operating clamping force: 4,500 lbs

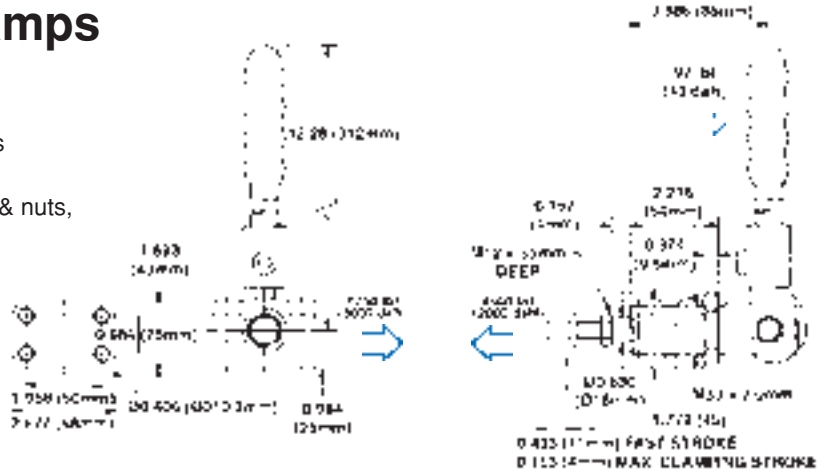
Weight: 4.4 lbs

Supplied complete with: Set screw & nuts,

Mounting base & locknuts

Nominal holding force: 6,740 lbs

Part Number
72416



Part Number	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
72416	97 lbs	4,500 lbs	N/A	0.433	0.157

Conversion Chart Part Numbers

Jergens	Carr Lane	Jergens	Carr Lane	Jergens	Carr Lane	Jergens	Carr Lane
70118	CL-150-TPC	70380	CL-450-VTC	71019	-	72109	
70120	CL-250-TPC	70385	CL-451-VTC	71020	-	72110	
70140	CL-350-TPC	70390	CL-452-VTC	71021	-	72111	
70210	CL-150-HTC	70395	CL-453-VTC	71022	-	72112	
70211	CL-153-HTC	70420	CL-550-VTC	71023	-	72113	
70215	CL-151-HTC	70425	CL-551-VTC	71024	-	70745	CL-254-PL-2
70230	CL-250-HTC	70430	CL-552-VTC	71025	-	70750	CL-454-PL
70231	CL-253-HTC	70440	CL-650-VTC	71026	-	70810	CL-100-PC
70235	CL-251-HTC	70445	CL-651-VTC	71027	-	70815	-
70240	CL-350-HTC	70450	CL-652-VTC	71028	-	70818	CL-50-SPC
70245	CL-351-HTC	70460	CL-750-VTC	71029	-	70820	CL-150-SPC
70250	CL-450-HTC	70470	CL-850-VTC	71030	CL-751-VTC	70830	CL-200-PC
70255	CL-451-HTC	70480	CL-950-VTC	71031	CL-851-VTC	70840	CL-250-SPC
70260	CL-260-HTC	70490	CL-1050-VTC	71032	-	70850	CL-300-PC
70262	-	70550	CL-150-PA	71033	-	71042	CL-210-PA
70264	-	70555	CL-170-PA	71034	-	70860	CL-350-SPC
70270	CL-550-HTC	70558	CL-100-PA	71035	-	71001	CL-152-HTC
70275	CL-551-HTC	70560	CL-200-PA	71037	CL-375-HTC	71002	CL-250-HTC-S
70280	CL-200-VTC	70562	CL-300-PA	71039	CL-350-PA	71003	CL-252-HTC
70285	CL-475-HTC	70565	CL-310-PA	71040	CL-100-PA-S	71004	CL-260-HTC-S
70310	CL-150-VTC	70570	CL-250-PA	71041	CL-110-PA	71005	-
70315	CL-151-VTC	70575	CL-352-PL-S	71049	CL-50-PL-2	71006	CL-350-HTC-S
70320	CL-152-VTC	70580	CL-251-PA	71050	-	71007	-
70330	CL-250-VTC	70710	CL-50-PL	72101		71008	CL-300-HTC
70335	CL-251-VTC	70720	CL-150-PL	72102		71009	-
70340	CL-252-VTC	70730	-	72103		71010	-
70342	CL-253-VTC	70740	CL-254-PL	72104		71011	-
70350	CL-350-VTC	71015	CL-200-VTC-S	72105		71012	CL-151-VTC-S
70355	CL-351-VTC	71016	-	72106		71013	-
70360	CL-352-VTC	71017	-	72107		71014	-
70365	CL-353-VTC	71018	-	72108			

Conversion Chart Part Numbers

Jergens	De-Sta-Co	Jergens	De-Sta-Co	Jergens	De-Sta-Co	Jergens	De-Sta-Co
70118	602	70450	210-TU	71014	201-TB	72113	
70120	604	70460	247-S	71015	305-USS	72114	
70140	624	70470	247-U	71016	202-TB	72120	
70210	205-S	70480	267	71017	202-UB	72121	
70211	205-SL	70490	267-U	71018	202-TUB	72122	
70215	205-SB	70550	301	71019	202-TU	72123	
70230	205-U	70555	311	71020	207-TSB	72160	
70231	205-UL	70558	323	71021	207-LB	72161	
70235	205-UB	70560	331	71022	207-TLB	72162	
70240	215-U	70562	341	71023	207-TL	72201	
70245	215-UB	70565	344	71024	207-TUB	72202	
70250	225-U	70570	351	71025	207-ULB	72203	
70255	225-UB	70575	325	71026	207-TULB	72204	
70260	123-U	70580	351-B	71027	207-TUL	72205	
70262	217-U	70710	424	71028	210-TSB	72206	
70264	227-U	70720	441	71029	210-TUB	72207	
70270	235-U	70730	-	71030	247-SB	72208	
70275	-	70740	462	71031	247-UB	72301	
70280	305-U	70745	462-2	71032	268	72302	
70285	317-U	70750	463	71033	268-U	72310	
70310	201	70810	-	71034		72311	
70315	201-B	70815	603	71035		72314	
70320	201-T	70818	601	71037	317-S	72401	
70330	202	70820	605	71039	381	72402	
70335	202-B	70830	608	71040	323-MSS	72403	
70340	202-T	70840	610	71041	324	72404	
70342	202-U	70850	-	71042	334	72405	
70350	207-S	70860	630	71049	424-2	72406	
70355	207-SB	71001	205-SR	71050	441-2	72407	
70360	207-TS	71002	205-USS	72101		72408	
70365	207-L	71003	205-UR	72102		72409	
70380	207-U	71004	213-USS	72103		72410	
70385	207-UB	71005	213-UB	72104		72411	
70390	207-TU	71006	215-USS	72105		72412	
70395	207-UL	71007	215-UBSS	72106		72413	
70420	210-S	71008	215-S	72107		72414	
70425	210-SB	71009	215-SB	72108		72415	
70430	210-TS	71010	217-UB	72109		72416	
70440	210-U	71011	227-UB	72110		72501	
70445	210-UB	71012	201-SS	72111		72502	
		71013	201-BSS	72112		72503	

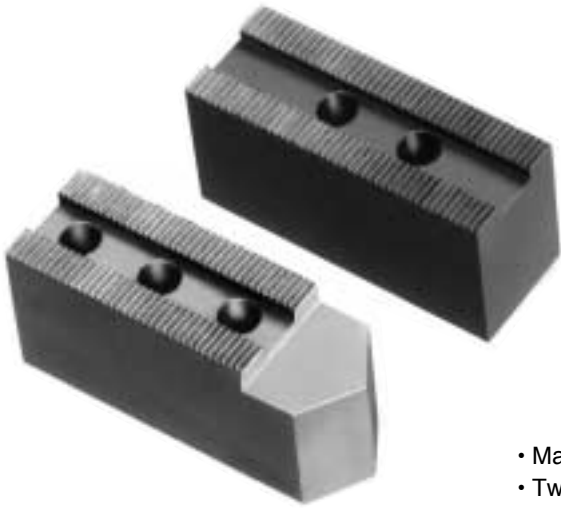
Conversion Chart Part Numbers

Jergens	Good Hand	Jergens	Good Hand	Jergens	Good Hand	Jergens	Good Hand
70118	36202	70460	10249	71015	13005-SS	72114	
70120	36204	70470	10247	71016	12075	72120	
70140	36224	70480	101JS	71017	-	72121	
70210	201-A	70490	101-J	71018	-	72122	
70211	201-AL	70550	43101	71019	-	72123	
70215	201-AI	70555	-	71020	12146	72160	
70230	201	70558	40323	71021	12147	72161	
70231	201-L	70560	431	71022	12148	72162	
70235	201-I	70562	40341	71023	12143	72201	
70240	201-B	70565	40344	71024	12136	72202	
70245	201-BI	70570	451	71025	12137	72203	
70250	225-D	70575	80325	71026	12138	72204	
70255	225-DI	70580	452	71027	12133	72205	
70260	20752-B	70710	50350	71028	12300	72206	
70262	21502-B	70720	50360	71029	12290	72207	
70264	22502-B	70730	-	71030	10250	72208	
70270	20235	70740	50380	71031	10248	72301	
70275	-	70745	-	71032	-	72302	
70280	13005	70750	50450	71033	-	72310	
70285	20820	70810	304-C	71034		72311	
70310	101-A	70815	36003	71035		72314	
70315	101-AI	70818	301-A	71037	-	72401	
70320	101-AT	70820	302-F	71039	43810	72402	
70330	12050	70830	304-E	71040	40323-SS	72403	
70335	12055	70840	36010	71041	40324	72404	
70340	12070	70850	304-H	71042	40334	72405	
70342	12050-U	70860	36330	71049	-	72406	
70350	12140	71001	201-AR	71050	-	72407	
70355	12145	71002	201-SS	72101		72408	
70360	12141	71003	201-R	72102		72409	
70365	12142	71004	-	72103		72410	
70380	12130	71005	-	72104		72411	
70385	12135	71006	201-BSS	72105		72412	
70390	12131	71007	-	72106		72413	
70395	12132	71008	201-BS	72107		72414	
70420	12275	71009	201-BSI	72108		72415	
70425	12280	71010	-	72109		72416	
70430	12295	71011	-	72110		72501	
70440	12265	71012	101-ASS	72111		72502	
70445	12270	71013	-	72112		72503	
70450	12285	71014	101-AIT	72113			

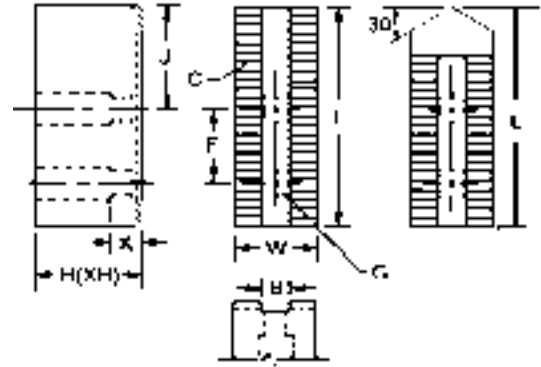


Acme Serrated Top Jaws	14.8
American Standard Tongue and Groove Top Jaws	14.7
Fine Serrated Top Jaws	14.4-14.6
Full Contact Round Top Jaws, Acme Serrated	14.13
Full Contact Round Top Jaws, Fine Serrated	14.12
Full Contact Round Top Jaws, Metric Fine Serrated	14.12
Full Contact Round Top Jaws, Square Serrated	14.13
Full Contact Round Top Jaws, Tongue and Groove	14.13
Jaw Nuts	14.14-14.15
Master Keys, Acme Serrated	14.8
Master Keys, Square Serrated	14.9
Metric Fine Serrated Top Jaws	14.2-14.3
Metric Tongue & Groove Top Jaws	14.6
Soft Blank and New Britain Top Jaws	14.10
Specialty Top Jaws Quote Form	14.11
Square Hole Tool Bit Sleeves	14.16
Square Serrated Top Jaws	14.9

Metric Fine Serrated Top Jaws



TO FIT CHUCKS FROM:
 HOWA
 KITAGAWA
 MATSUMOTO
 NIKKO
 SEIKI



- Material: Low Carbon Steel
- Two Mounting Holes
- Aluminum Jaws Quoted On Request

1.5mm x 60° Serrations

Standard Height

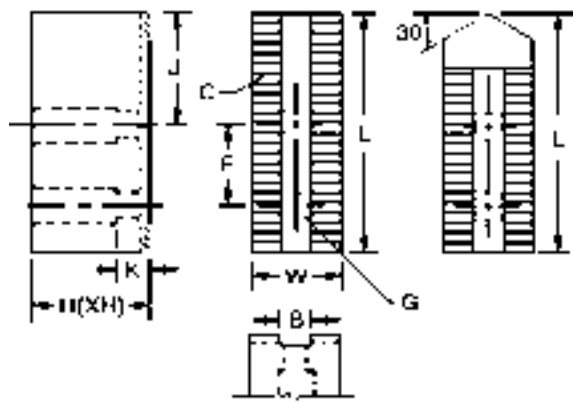
Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Groove B	Pitch C	Bolt Spacing F	Bolt Size G			
14911	2 5/16	1 1/2	1	.394	1.5 mm	3/4	5/16	1 1/8	3/8	.7
14913*	2 5/16	1 1/2	1	.394	1.5 mm	3/4	M8	1 1/8	3/8	.6
14915	2 3/8	1 1/2	1	.433	1.5 mm	45/64	5/16	1 1/8	1/2	.8
14917*	2 3/8	1 1/2	1	.433	1.5 mm	45/64	M8	1 1/8	1/2	.7
14919	3	1 1/2	1	.433	1.5 mm	63/64	5/16	1 17/32	1/2	1.0
14921*	3	1 1/2	1	.433	1.5 mm	63/64	M8	1 17/32	1/2	.8
14923	2 3/4	1 1/2	1	.472	1.5 mm	25/32	3/8	1 13/32	1/2	.9
14925*	2 3/4	1 1/2	1	.472	1.5 mm	25/32	M10	1 13/32	1/2	.8
14927	3 9/16	2	1 1/2	.551	1.5 mm	63/64	1/2	1 5/8	1/2	2.6
14929*	3 9/16	2	1 1/2	.551	1.5 mm	63/64	M12	1 5/8	1/2	2.3
14931	4	2	1 1/2	.551	1.5 mm	1 3/16	3/8	1 13/16	1/2	3.0
14933*	4	2	1 1/2	.551	1.5 mm	1 3/16	M10	1 13/16	1/2	2.7
14935	4 1/2	2	1 1/2	.630	1.5 mm	63/64	1/2	2 1/2	1/2	3.4
14937*	4 1/2	2	1 1/2	.630	1.5 mm	63/64	M12	2 1/2	1/2	3.1
14939	4 3/4	2	1 1/2	.630	1.5 mm	1 3/16	1/2	2 9/16	1/2	3.6
14941*	4 3/4	2	1 1/2	.630	1.5 mm	1 3/16	M12	2 9/16	1/2	3.3
14943	4 3/4	2	1 1/2	.709	1.5 mm	1 3/16	9/16	2 9/16	1/2	3.6
14945*	4 3/4	2	1 1/2	.709	1.5 mm	1 3/16	M14	2 9/16	1/2	3.3
14947	4 3/4	2	1 1/2	.709	1.5 mm	1 3/16	5/8	2 9/16	1/2	3.6
14949*	4 3/4	2	1 1/2	.709	1.5 mm	1 3/16	M16	2 9/16	1/2	3.3
14973	5 1/2	2	2	.709	1.5 mm	1 17/64	9/16	2 9/16	5/8	6.2
14975*	5 1/2	2	2	.709	1.5 mm	1 17/64	M14	2 9/16	5/8	6.2
14951	5 1/4	2	1 3/4	.787	1.5 mm	1 3/8	5/8	2 11/16	1/2	4.8
14953*	5 1/4	2	1 3/4	.787	1.5 mm	1 3/8	M16	2 11/16	1/2	4.3
14955	5 1/4	2 1/2	1 3/4	.827	1.5 mm	1 37/64	5/8	2 7/16	1/2	6.0
14957*	5 1/4	2 1/2	1 3/4	.827	1.5 mm	1 37/64	M16	2 7/16	1/2	5.4
14959	6 1/4	2 1/2	2	.827	1.5 mm	1 25/32	5/8	2 15/32	1/2	8.3
14961*	6 1/4	2 1/2	2	.827	1.5 mm	1 25/32	M16	2 15/32	1/2	7.6
14963	6 1/8	3	2 1/2	.866	1.5 mm	1 11/16	3/4	3 1/16	3/4	12.4
14965*	6 1/8	3	2 1/2	.866	1.5 mm	1 11/16	M20	3 1/16	3/4	11.1
14967	6 1/8	3	2 1/2	.866	1.5 mm	2 23/64	3/4	2 3/8	3/4	12.4
14969*	6 1/8	3	2 1/2	.866	1.5 mm	2 23/64	M20	3 1/16	3/4	11.1

Extra Height

Part Number	Height Xh	Wt. (lbs)
14912	3	1.4
14914*	3	1.2
14916	3	1.6
14918*	3	1.4
14920	3	2.0
14922*	3	1.6
14924	3	1.8
14926*	3	1.6
14928	4	5.2
14930*	4	4.6
14932	4	6.0
14934*	4	5.4
14936	4	6.8
14938*	4	6.2
14940	4	7.2
14942*	4	6.6
14944	4	7.2
14946*	4	6.6
14948	4	7.2
14950*	4	6.6
14974	4	12.2
14976*	3	9.3
14952	4	9.6
14954*	4	8.6
14956	4	9.6
14958*	4	8.6
14960	5	16.6
14962*	5	15.2
14964	5	20.7
14966*	5	18.5
14968	5	20.7
14970*	5	18.5

* Pointed Jaws

Metric Fine Serrated Top Jaws



TO FIT CHUCKS FROM:

- Material: Low Carbon Steel
- Two Mounting Holes
- Aluminum Jaws Quoted Upon Request

HOWA
KITAGAWA
MATSUMOTO
NIKKO
SEIKI

3.0mm x 60° Serrations

Standard Height

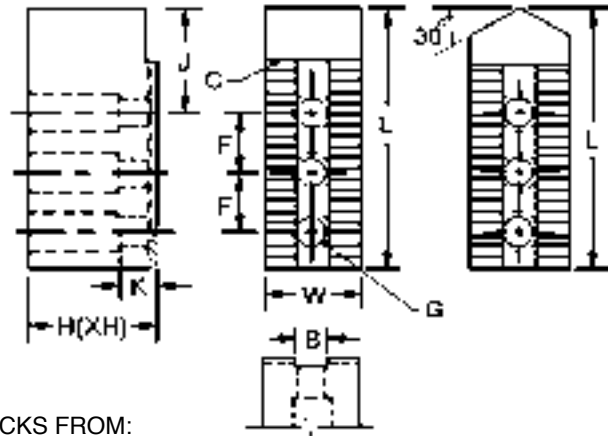
Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Groove B	Pitch C	Bolt Spacing F	Bolt Size G			
15031	3 9/16	2	1 3/4	.551	3.0 mm	63/64	1/2	1 9/16	1/2	3.1
15033*	3 9/16	2	1 3/4				M12	1 9/16	1/2	2.6
15035	4 3/4	2	1 3/4	.591	3.0 mm	1 3/16	1/2	2 7/16	1/2	4.3
15037*	4 3/4	2	1 3/4				M12	2 7/16	1/2	3.8
15039	4 3/4	2	1 3/4	.630	3.0 mm	1 3/16	1/2	2 7/16	1/2	4.3
15041*	4 3/4	2	1 3/4				M12	2 7/16	1/2	3.8
15043	5 1/4	2 1/2	2	.709	3.0 mm	1 3/16	9/16	2 7/8	1/2	6.9
15045*	5 1/4	2 1/2	2				M14	2 7/8	1/2	6.2
15047	5 1/4	2 1/2	2	.709	3.0 mm	1 1/2	9/16	2 7/8	1/2	6.9
15049*	5 1/4	2 1/2	2				M14	2 7/8	1/2	6.2
15051	5	2 1/2	2	.827	3.0 mm	1 9/16	5/8	2 3/8	1/2	6.5
15053*	5	2 1/2	2				M16	2 3/8	1/2	5.8
15055	6	2 1/2	2 1/2	.866	3.0 mm	1 31/32	3/4	2 3/8	5/8	10.1
15057*	6	2 1/2	2 1/2				M20	2 3/8	5/8	9.0

Extra Height

Part Number	Height Xh	Wt. (lbs)
15032	4	6.2
15034*	4	5.2
15036	4	8.6
15038*	4	7.6
15040	4	8.6
15042*	4	7.6
15044	5	13.8
15046*	5	12.4
15048	5	13.8
15050*	5	12.4
15052	5	13.0
15054*	5	11.6
15056	5	20.2
15058*	5	18.0

*Pointed Jaws

Fine Serrated Top Jaws



TO FIT CHUCKS FROM:

CUSHMAN
 ERICKSON
 GAMET
 POWERHOLD
 SMW

- Material: Low Carbon Steel
- Three Mounting Holes
- Aluminum Jaws Quoted Upon Request

1/16" x 90° Serrations

Standard Height

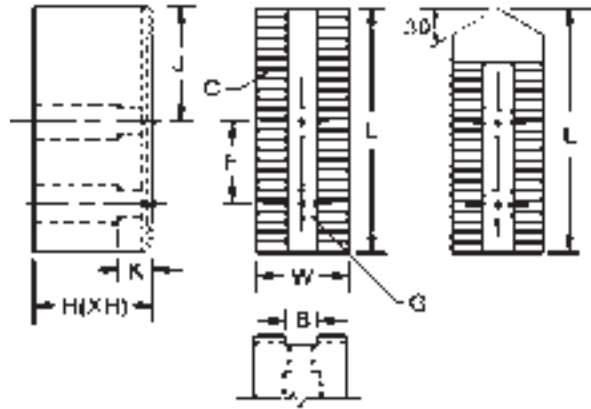
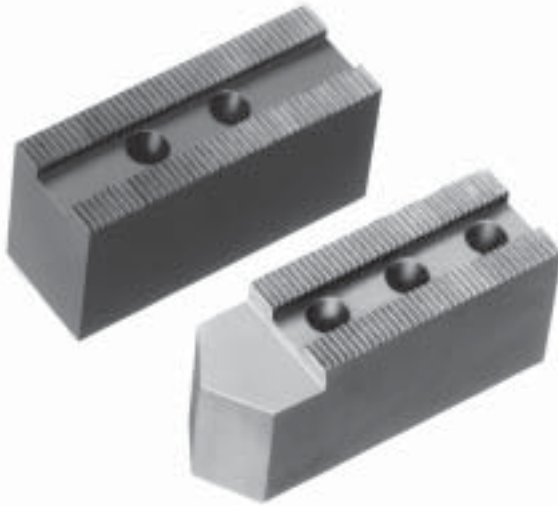
Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Groove B	Pitch C	Bolt Spacing F	Bolt Size G			
15401	3 1/8	1 1/2	1 1/4	.433	1/16	23/32	5/16	1 1/4	7/16	1.5
15403*	3 1/8	1 1/2	1 1/4					1 1/4	7/16	1.4
15405	4 1/4	2	1 1/2	.551	1/16	7/8	3/8	1 15/16	7/16	3.3
15407*	4 1/4	2	1 1/2					1 15/16	7/16	3.0
15409	4 1/4	2	1 1/2	.669	1/16	7/8	1/2	1 15/16	1/2	3.3
15411*	4 1/4	2	1 1/2					1 15/16	1/2	3.0
15413	4 5/8	2	1 3/4	.787	1/16	1 3/16	1/2	1 5/8	1/2	3.6
15415*	4 5/8	2	1 3/4					1 5/8	1/2	3.3
15417	5 1/4	2 1/2	1 3/4					2 1/4	1/2	6.1
15419*	5 1/4	2 1/2	1 3/4					2 1/4	1/2	5.5
15421	5 1/4	2 1/2	1 3/4	.827	1/16	1 3/16	1/2	2 1/4	1/2	6.1
15423*	5 1/4	2 1/2	1 3/4					2 1/4	1/2	5.5
15425	6 5/8	2 1/2	1 3/4					2 3/4	5/8	7.7
15427*	6 5/8	2 1/2	1 3/4					2 3/4	5/8	7.0
15429	6 5/8	3 1/2	2 1/2			1 9/16	5/8	2 3/4	5/8	14.0

Extra Height

Part Number	Height Xh	Wt. (lbs)
15402	3	3.0
15404*	3	2.7
15406	3 1/2	5.6
15408*	3 1/2	5.1
15410	3 1/2	5.6
15412*	3 1/2	5.1
15414	4	6.2
15416*	4	5.6
15418	4	9.3
15420*	4	8.5
15422	4	9.3
15424*	4	8.5
15426	4	11.7
15428*	4	10.7
15430	5	19.6

*Pointed Jaws

Fine Serrated Top Jaws



TO FIT CHUCKS FROM:
AUTOBLOK
FORKHARDT
PRATT BURNERD
SMW

- Material: Low Carbon Steel
- Two Mounting Holes
- Aluminum Jaws Quoted Upon Request

1/16" x 90° Serrations

Standard Height

Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Groove B	Pitch C	Bolt Spacing F	Bolt Size G			
15541	2 3/4	1 1/2	1	.433	1/16	45/64	5/16	1 1/2	7/16	.9
15543*	2 3/4	1 1/2	1				5/16	1 1/2	7/16	.8
15545	2 1/2	1 1/2	1					1 3/8	3/8	.8
15547*	2 1/2	1 1/2	1				M8	1 3/8	3/8	.7
15549	3 1/2	2	1 1/2	.551	1/16	63/64	3/8	1 1/2	7/16	2.6
15551*	3 1/2	2	1 1/2					1 1/2	7/16	2.3
15553†	2	1 1/4	1 1/4	.590	1/16	13/16	3/8	3/4	3/8	.6
15555* †	2	1 1/4	1 1/4				M10	3/4	3/8	.5
15557	3	1 3/4	1 1/4	.669	1/16	55/64	3/8	1 11/16	3/8	1.5
15559*	3	1 3/4	1 1/4				M10	1 11/16	3/8	1.3
15561†	2 1/2	1 1/2	1 1/2	.669	1/16	1	1/2	1	1/2	1.3
15563* †	2 1/2	1 1/2	1 1/2				M12	1	1/2	1.1
15565	3 1/2	2	1 1/2	.669	1/16	1 1/8	1/2	1 3/4	1/2	2.6
15567*	3 1/2	2	1 1/2					1 3/4	1/2	2.3
15569	3 1/2	2 1/4	1 1/2	.827	1/16	63/64	1/2	1 15/16	1/2	2.9
15571*	3 1/2	2 1/4	1 1/2				M12	1 15/16	1/2	2.5
15573	4 3/4	2 1/2	2	.827	1/16	1 3/16	1/2	2 7/16	1/2	6.2
15575*	4 3/4	2 1/2	2				M12	2 7/16	1/2	5.5
15577	4 3/4	2 1/2	2	.827	1/16	1 3/16	5/8	2 13/16	5/8	6.2
15579*	4 3/4	2 1/2	2					2 13/16	5/8	5.5
15581†	4 1/4	2 1/4	1 3/4	.827	1/16	1 1/4	5/8	2 5/16	9/16	4.3
15583* †	4 1/4	2 1/4	1 3/4				M16	2 5/16	9/16	3.7

*Pointed Jaws

† For High Speed Operation

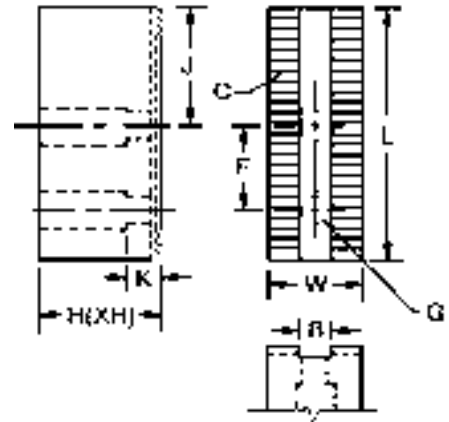
Extra Height

Part Number	Height Xh	Wt. (lbs)
15542	3	1.8
15544*	3	1.6
—	—	—
15550	4	5.2
15552*	4	4.6
—	—	—
—	—	—
—	—	—
15566	4	5.2
15568*	4	4.6
—	—	—
15574	5	12.4
15576*	5	11.0
15578	5	12.4
15580*	5	11.0
—	—	—
—	—	—

Fine Serrated Top Jaws



TO FIT CHUCKS FROM:
 AUTOBLOK
 FORKHARDT
 PRATT BURNERD
 SMW



- Material: Low Carbon Steel
- Two Mounting Holes
- Aluminum Jaws Quoted Upon Request

Standard Height

3/32" x 90° Serrations

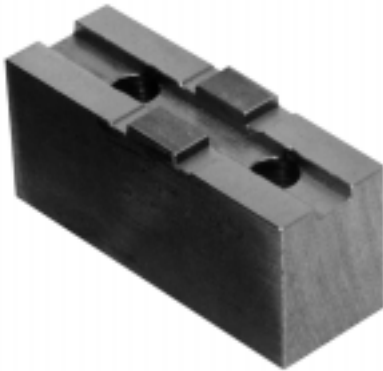
Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Groove B	Pitch C	Bolt Spacing F	Bolt Size G			
15361†	5	2 1/2	2	.827	3/32	1 1/2	5/8 M16	2 13/16	3/4	7.1
15365	6 1/2	3	2 1/2	1.004	3/32	1 9/16	3/4 M20	3 1/4	3/4	13.8
15369	8 1/4	3 1/2	3 1/2	1.181	3/32	2 1/2	1	4 1/4	1	28.6

† For High Speed Operation

Extra Height

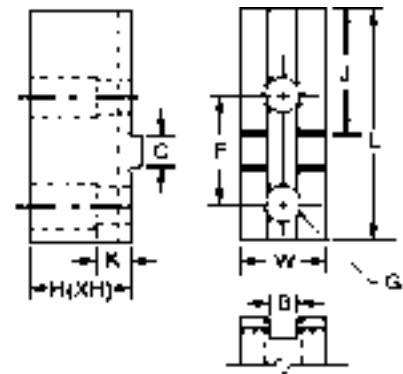
Part Number	Height Xh	Wt. (lbs)
15366	6	27.6
15370	6	49.1

Metric Tongue and Groove Top Jaws



TO FIT CHUCKS FROM:
 FORKHARDT
 ROHM
 SMW

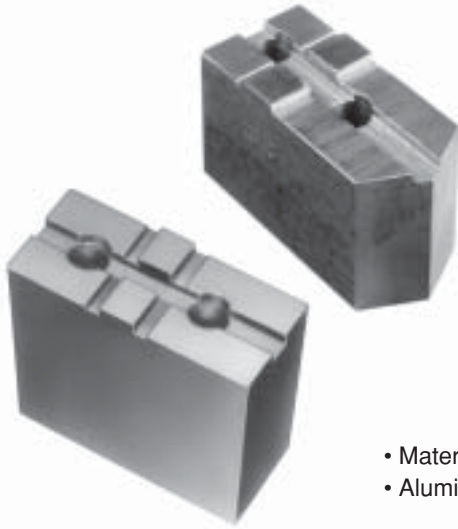
- Material: Low Carbon Steel
- Aluminum Jaws Quoted Upon Request



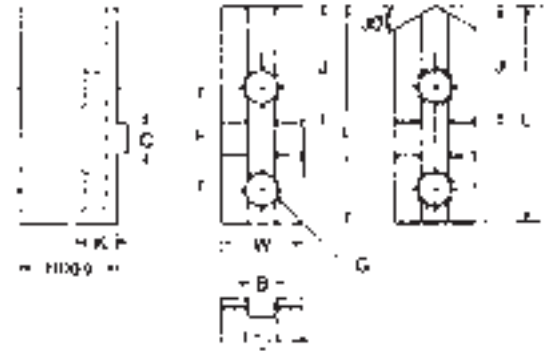
Standard Height

Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Groove B	Tongue C	Bolt Spacing F	Bolt Size G			
15151	3 3/8	1 1/2	3/4	.315	.708	1.260	5/16	1 21/32	3/8	1.1
15159	4 1/8	1 7/8	1	.393	.787	1.575	5/16	2	3/8	2.0
15167	5	1 7/8	1 1/4	.472	.787	1.575	1/2	2 3/4	1/2	3.5
15175	5 23/32	2 1/8	1 1/2	.472	1.023	2.126	1/2	2 15/16	1/2	5.2
15183	7 1/16	2 7/8	1 3/4	.708	1.181	2.362	5/8	3 15/16	1/2	10.4

American Standard Tongue and Groove Top Jaws



TO FIT CHUCKS FROM:
BALL
BERGMAN
HURON
PRATT BURNERD
ROHM
WARNER & SWASEY



- Material: Low Carbon Steel
- Aluminum Jaws Quoted Upon Request

Standard Height

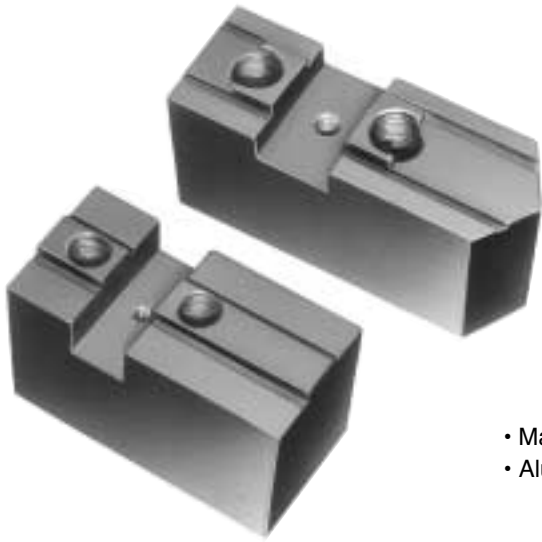
Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Groove B	Tongue C	Bolt Spacing F	Bolt Size G			
15205	2 5/8	1 5/8	1 1/4	.313	.499	1 1/2	3/8	1 1/8	17/32	1.3
15209	2 5/8	1 5/8	1 1/4	.313	.499	1 1/2	7/16	1 1/8	17/32	1.3
15211*	3 3/16	1 5/8	1 1/4	.313	.499	1 1/2	7/16	1 11/16	17/32	1.5
15213	3 1/4	1 5/8	1 1/4	.313	.499	1 3/4	5/16	1 3/8	17/32	1.5
15217	3 1/2	1 5/8	1 1/4	.313	.499	1 3/4	3/8	1 5/8	17/32	1.8
15219*	3 15/16	1 5/8	1 1/4	.313	.499	1 3/4	3/8	2 1/4	17/32	2.8
15221	3 1/2	1 7/8	1 1/2	.313	.499	1 3/4	1/2	1 5/8	17/32	2.5
15223*	3 15/16	1 7/8	1 1/2	.313	.499	1 3/4	1/2	2 1/4	17/32	2.6
15225	3 3/4	2 7/8	2	.313	.499	1 3/4	1/2	2 1/16	17/32	5.4
15229	4 1/4	1 7/8	1 1/2	.501	.749	2 1/8	1/2	1 15/16	21/32	3.0
15231*	4 13/16	1 7/8	1 1/2	.501	.749	2 1/8	1/2	2 11/16	21/32	4.0
15233	4 1/4	2 3/8	1 3/4	.501	.749	2 1/8	5/8	2 3/16	21/32	4.4
15235*	4 13/16	2 3/8	1 3/4	.501	.749	2 1/8	5/8	2 3/4	21/32	4.6
15237	4 1/4	2 7/8	2 1/4	.501	.749	2 1/8	5/8	2 3/16	21/32	6.9
15241	4 7/8	2 3/8	1 3/4	.501	.749	2 1/2	7/16	2 5/16	21/32	5.1
15245	4 7/8	2 3/8	1 3/4	.501	.749	2 1/2	1/2	2 5/16	21/32	5.1
15247*	5 3/4	2 3/8	1 3/4	.501	.749	2 1/2	1/2	3 3/8	21/32	6.5
15249	4 7/8	2 3/8	2	.501	.749	2 1/2	5/8	2 5/16	21/32	5.8
15251*	5 3/4	2 3/8	2	.501	.749	2 1/2	5/8	3 3/8	21/32	6.3
15253	4 7/8	2 7/8	2 1/4	.501	.749	2 1/2	5/8	2 5/16	21/32	7.9
15257	5 5/8	2 1/4	2	.501	.749	3	5/8	2 3/4	21/32	6.3
15259*	7 1/4	2 1/4	2	.501	.749	3	5/8	4 1/2	21/32	9.1
15261	5 5/8	2 1/4	2	.501	.749	3	3/4	2 3/4	21/32	6.3
15263*	6 1/4	2 1/4	2	.501	.749	3	3/4	3 1/2	21/32	12.0
15265	5 5/8	3 1/4	2 1/2	.501	.749	3	3/4	2 3/4	21/32	11.4
15267*	7 1/4	3 1/4	2 1/2	.501	.749	3	3/4	4 1/2	21/32	13.5
15269	6 3/8	3 3/4	3	.501	.749	3	3/4	3 1/2	21/32	18.0

*Pointed Jaws

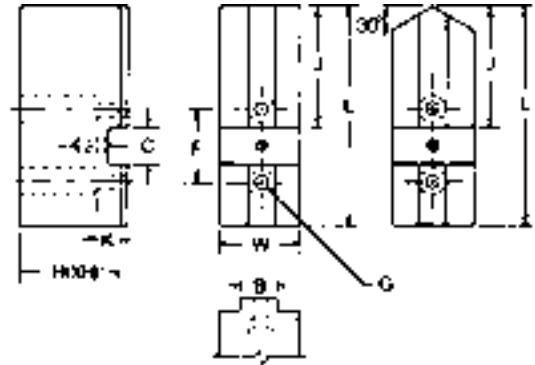
Extra Height

Part Number	Height Xh	Wt. (lbs)
—	—	—
—	—	—
—	—	—
15218	3 3/8	3.7
—	—	—
15222	3 3/8	4.4
—	—	—
15230	3 3/8	5.4
15232*	3 3/8	14.0
15234	3 7/8	7.2
15236*	3 7/8	7.5
15238	4 7/8	11.7
—	—	—
15246	3 7/8	8.3
—	—	—
15250	3 7/8	9.4
15252*	3 7/8	10.3
15254	4 7/8	13.4
15258	3 3/4	10.5
15260*	3 3/4	18.1
15262	3 3/4	10.5
—	—	—
15266	4 3/4	16.7
15268*	4 3/4	19.8
15270	5 3/4	26.3

Acme Serrated Top Jaws



TO FIT CHUCKS FROM:
 BUCK
 CUSHMAN
 GISHOLT
 HOWA
 LOGAN
 S.P.



- Material: Low Carbon Steel
- Aluminum Jaws Quoted Upon Request

Standard Height

Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Tongue B	Key Slot C	Bolt Spacing F	Bolt Size G			
15910	4	2 3/8	2	.625	.781	1 5/8	1/2	2 7/32	7/8	4.6
15601	4 1/8	2 5/16	1 3/4	.750	1.031	1 3/4	1/2	1 13/16	5/8	4.0
15603* †	4 3/8	2 5/16	1 3/4	.750	1.031	1 3/4	1/2	2 1/16	5/8	4.1
15605	4 1/8	2 5/16	1 3/4	.875	1.031	2	5/8	1 13/16	5/8	4.0
15607*	4 13/16	2 5/16	1 3/4	.875	1.031	2	5/8	2 1/2	5/8	4.5
15917	6	3 1/4	2 1/2	1.000	1.436	2 1/2	3/4	2 15/16	5/8	11.7
15609	5 5/8	3 1/4	2 1/2	1.000	1.531	2 1/2	3/4	2 5/8	5/8	11.0
15611*	6 5/16	3 1/4	2 1/2	1.000	1.531	2 1/2	3/4	3 5/16	5/8	11.8
15613* †	4 3/4	2 3/4	2	1.000	1.531	2 1/2	3/4	1 31/32	5/8	6.8
15617	5 7/8	3 1/4	3	1.250	1.531	3	7/8	2 3/4	3/4	14.0

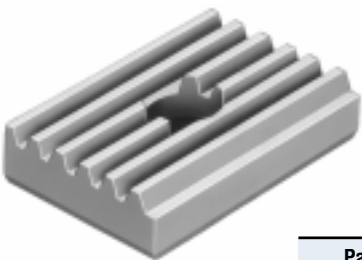
*Pointed Jaws

† For High Speed Operations

Extra Height

Part Number	Height Xh	Wt. (lbs)
15924	3 7/8	7.0
15602	3 13/16	6.6
15604*	3 13/16	6.8
15606	3 13/16	6.6
15608*	3 13/16	7.2
—	—	—
15610	4 3/4	16.0
15612*	4 3/4	18.1
—	—	—
15618	4 3/4	20.4

Acme Serrated Master Keys



- Material: Alloy Steel
- Finish: Black Oxide
- Heat Treat: Rc 40-45



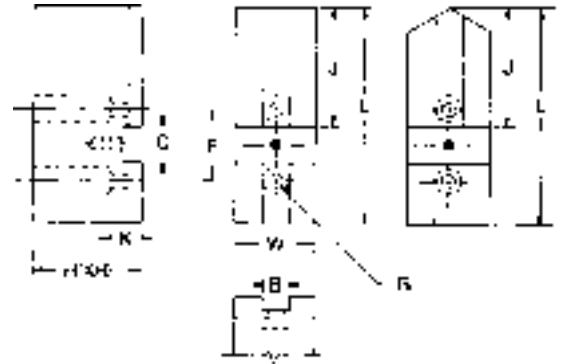
Part Number	A	B	C	D	E	F	Wt. (lbs)
15944	1.030/1.029	1/2	1 11/16	.130	.093/.091	.250	.20
15947	1.530/1.529	1/2	2 7/16	.130	.093/.091	.250	.45
15948	1.530/1.529	1/2	2 7/8	.130	.093/.091	.250	.50

Part Number	Cap Screw G
15926	5/16-18 X 1/2
15927	3/8-16 X 3/4
15927	3/8-16 X 3/4

Square Serrated Top Jaws



TO FIT CHUCKS FROM:
BUCK
CUSHMAN
GISHOLT
SP
WARNER & SWASEY



- Material: Low Carbon Steel
- Aluminum Jaws Quoted Upon Request

Standard Height

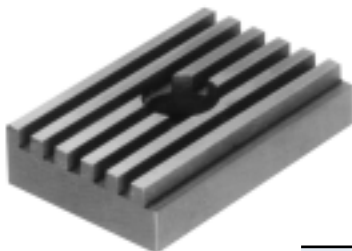
Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Groove B	Key Slot C	Bolt Spacing F	Bolt Size G			
15805	4	2 1/2	1 3/4	.751	.996	1 3/4	1/2	1 5/8	5/8	4.2
15807*	4 3/8	2 1/2	1 3/4	.751	.996	1 3/4	1/2	2	5/8	4.4
15809	4 1/2	3	2	.751	.996	1 3/4	1/2	1 15/16	5/8	6.5
15813	4 1/2	2 1/2	1 3/4	.751	.996	1 3/4	5/8	2 1/8	5/8	4.7
15815*	5	2 1/2	1 3/4	.751	.996	1 3/4	5/8	2 5/8	5/8	5.0
15817	5	3	2 1/4	1.001	1.488	2 1/2	3/4	1 3/4	5/8	8.1
15819*	5 5/8	3	2 1/4	1.001	1.488	2 1/2	3/4	2 3/8	5/8	8.7
15903	6	3	2 1/4	1.001	1.488	2 1/2	3/4	2 5/8	5/8	9.4
15923*	6 13/16	3	2 1/4	1.001	1.488	2 1/2	3/4	3 7/16	5/8	10.2
15821	5	3	2 1/4	1.001	1.488	2 5/8	3/4	1 3/4	5/8	8.1
15904	6	3	2 1/4	1.001	1.488	2 5/8	3/4	2 1/4	5/8	9.4
15825	5	3	2 1/4	1.001	1.488	3	3/4	1 3/4	5/8	8.1

*Pointed Jaws

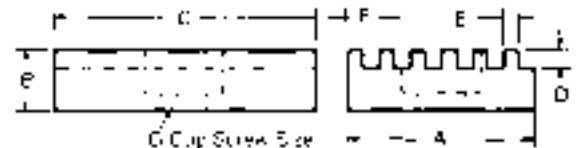
Extra Height

Part Number	Height H	Wt. (lbs)
15806	4	6.7
15808*	4	7.0
15810	5	10.8
15814	4	7.6
15816*	4	8.0
15818	5	13.5
15820*	5	14.5

Square Serrated Master Keys



- Material: Alloy Steel
- Finish: Black Oxide
- Heat Treat: Rc 40-45

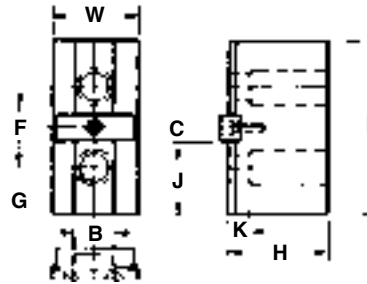


Part Number	A	B	C	D	E	F	Wt. (lbs)	Part Number	Cap Screw G
15942	.995/.994	1/2	1 11/16	.130	.124/.122	.250	.19	15926	5/16-18 x 1/2
15943	1.487/1.486	1/2	2 1/4	.130	.124/.122	.250	.40	15927	3/8-16 x 3/4
15949	1.531/1.530	1/2	2 7/16	.130	.124/.122	.250	.45	15927	3/8-16 x 3/4

Soft Blank Top Jaws



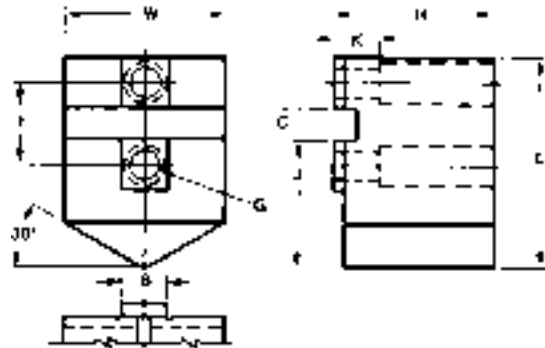
- Material: Low Carbon Steel
- Aluminum Jaws Quoted Upon Request



Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Tongue B	Key C	Bolt Spacing F	Bolt Size G			
15907	6	3	2 1/2	1.125	1.000	3	5/8	2 1/2	5/8	11.4



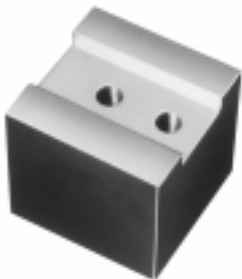
- Material: Low Carbon Steel
- Aluminum Jaws Quoted Upon Request



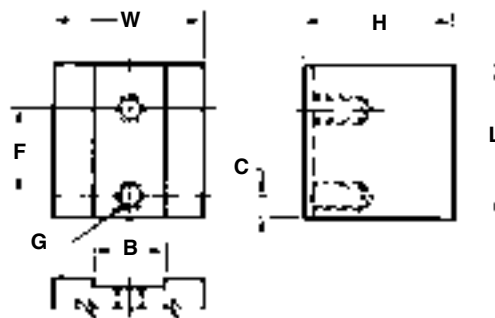
New Britain Jaw

Part Number	Length L	Height H	Width W	Critical Dimensions				J	K	Wt. (lbs)
				Tongue B	Groove C	Bolt Spacing F	Bolt Size G			
15915*	2 5/8	2	2	.499	.376	1	3/8	1 5/8	9/16	2.3

*Pointed Jaws



- Material: Low Carbon Steel
- Aluminum Jaws Quoted Upon Request



New Britain Jaw

Part Number	Length L	Height H	Width W	Critical Dimensions				Wt. (lbs)
				Groove B	C	Bolt Spacing F	Bolt Size G	
15905	2 1/4	2 1/4	2 1/4	1.062	1/2	7/8	3/8-16	3.1

NEED SPECIAL TOP JAW BLANKS?

- (a) Photocopy this page
- (b) Fill in the required information shown below
- (c) Mail or Fax to your Jergens Distributor or to Jergens Inc.

Request For Quote Form:

Company Name _____

Address _____

City _____ State _____ Zip _____

Telephone Number _____ Fax Number _____

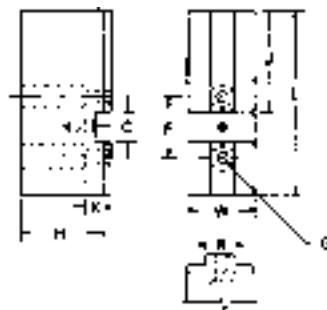
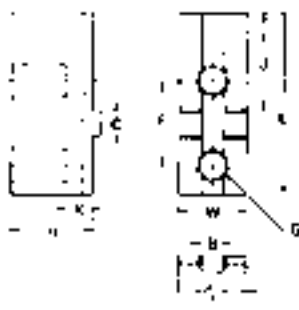
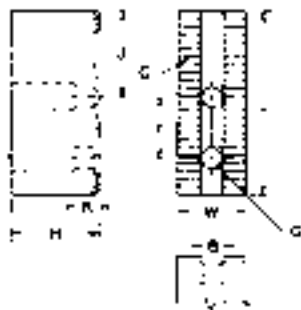
Attention: _____

FINE SERRATED

TONGUE & GROOVE

ACME SERRATED

SQUARE SERRATED



Quantity Req'd. _____

Delivery Req'd. _____

Style _____

Pointed*** ☐ Yes ☐ No

Number of Bolt Holes _____

Pitch of Serrations _____
(Style A Only)

Length L	Height H	Width W	Critical Dimensions				J	**K
			B*	C*	F	G		

*Our Standard tolerances will be supplied unless otherwise stated.

**Our standard dimensions will be supplied unless otherwise stated.

***Pointed Jaws will have 120° included angle unless otherwise stated.

Full Contact Round Top Jaws, Metric Fine Serrated

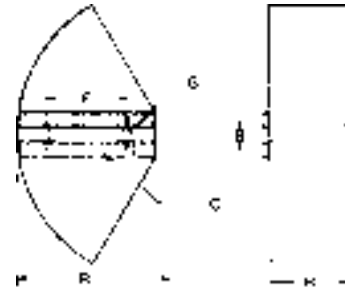


TO FIT CHUCKS FROM:

HOWA
KITAGAWA
MATSUMOTO
NIKKO

- Material: 319 Aluminum
- Two Mounting Holes

Part numbers represent a set of three jaws



Standard Height

1.5mm x 60° Serrations

Part Number	Radius R	Height H	Critical Dimensions				Wt. (lbs)
			Groove B	Pitch C	Bolt Spacing F	Bolt Size G	
14401	3	2	.433	1.5MM	63/64	5/16	6.0
14403	4	2	.551	1.5MM	63/64	1/2	9.5
14405	5	2	.630	1.5MM	1.170	1/2	15
14407	5	2	.630	1.5MM	1.250	1/2	15
14409	6	2 1/2	.787	1.5MM	1.377	1/2	28

Extra Height

Part Number	Height Xh	Wt. (lbs)
14402	4	12
14404	4	19
14406	4	30
14408	4	30
14410	5	51

Standard Height

3.0mm X 60° Serrations

Part Number	Radius R	Height H	Groove B	Pitch C	Bolt Spacing F	Bolt Size G	Wt. (lbs)
14415	4	2	.553	3.0MM	.985	1/2	10
14417	5	2	.630	3.0MM	1.170	1/2	15
14419	6	2 1/2	.710	3.0MM	1.187	9/16	28

Extra Height

Part Number	Height Xh	Wt. (lbs)
14416	4	20
14418	4	30
14420	5	51

Full Contact Round Top Jaws, Fine Serrated

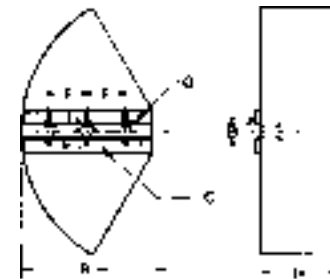


TO FIT CHUCKS FROM:

CUSHMAN
ERICKSON
POWERHOLD
GAMET
SMW

- Material: 319 Aluminum
- Three Mounting Holes

Part numbers represent a set of three jaws



Standard Height

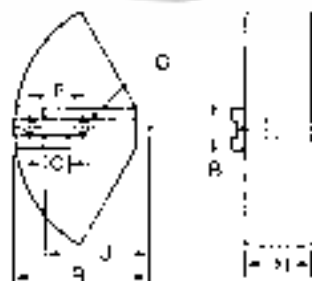
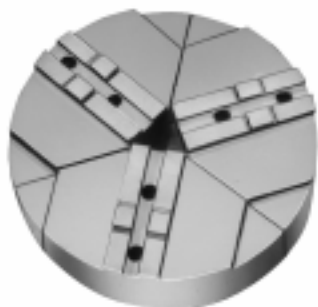
1/16" X 90° Serrations

Part Number	Radius R	Height H	Critical Dimensions				Wt. (lbs)
			Groove B	Pitch C	Bolt Spacing F	Bolt Size G	
14423	3	2	.433	1/16	23/32	5/16	7.5
14425	5	2	.551	1/16	7/8	3/8	15
14427	6	2 1/2	.787	1/16	1 3/16	1/2	15
14429	5	2	.827	1/16	1 3/16	1/2	15
14431	6	2 1/2	.827	1/16	1 3/16	1/2	30
14433	7 1/2	3	.827	1/16	1 9/16	5/8	60
14435	9	3	.827	1/16	1 9/16	5/8	110

Extra Height

Part Number	Height Xh	Wt. (lbs)
14424	4	15
14426	4	30
14428	5	30
14430	4	30
14432	5	52
—	—	—
—	—	—

Full Contact Round Top Jaws, Tongue and Groove



• Material: 319 Aluminum

Part numbers represent a set of three jaws

Standard Height

Part Number	Radius R	Height H	Critical Dimensions				Fully Closed J	Wt. (lbs)
			Groove B	Tongue C	Bolt Spacing F	Bolt Size G		
14473	3	2	.313	.499	1 1/2	3/8	2	5
14475	3	2	.313	.499	1 1/2	7/16	2	5
14477	4	2	.313	.499	1 3/4	3/8	2 3/4	9.5
14479	4	2	.313	.499	1 3/4	1/2	2 3/4	9.5
14481	5	2	.501	.749	2 1/8	1/2	3 1/2	15
14483	5	2	.501	.749	2 1/8	5/8	3 1/2	15
14485	6	2 1/2	.501	.749	2 1/2	1/2	4 1/4	28
14487	6	2 1/2	.501	.749	2 1/2	5/8	4 1/4	28
14489	7 1/2	3	.501	.749	3	5/8	5 1/4	51
14491	7 1/2	3	.501	.749	3	3/4	5 1/4	51
14493	9	4	.501	.749	3	5/8	6 1/2	110
14495	9	4	.501	.749	3	3/4	6 1/2	110

Extra Height

Part Number	Height Xh	Wt (lbs)
14474	4	10
14476	4	10
14478	4	18
14480	4	18
14482	4	30
14484	4	30
14486	5	51
14488	5	51
—	—	—
—	—	—
—	—	—

Full Contact Round Top Jaws, Acme Serrated

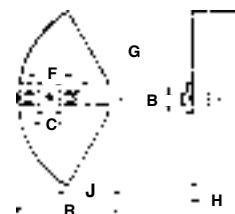


• Material: 319 Aluminum

Part numbers represent a set of three jaws

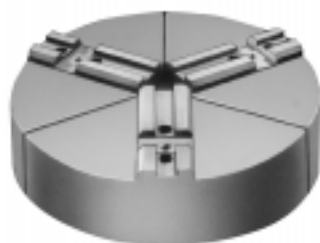
Standard Height

Part Number	Radius R	Height H	Critical Dimensions				Fully Closed J	Wt. Per Set	Part Number	Height Xh	Wt. Per Set
			Tongue B	Key Slot C	Bolt Spacing F	Bolt Size G					
14451	5	2	.750	1.031	1 3/4	1/2	2 11/32	15	14452	4	30
14453	6	3	.875	1.031	2	5/8	3 15/32	33	14454	6	55
14455	7 1/2	4	1.000	1.531	2 1/2	3/4	3 19/32	63	14456	6	78
14457	9	4	1.250	1.531	3	7/8	5 11/32	110	—	—	—



Extra Height

Full Contact Round Top Jaws, Square Serrated



• Material: 319 Aluminum

Master keys required, see pages 14.8-14.9 for selection.

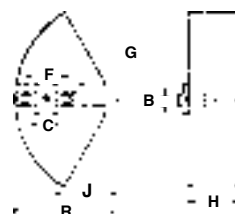
Part numbers represent a set of three jaws

Standard Height

Part Number	Radius R	Height H	Critical Dimensions				Wt. Per Set
			Groove B	Key Slot C	Bolt Spacing F	Bolt Size G	
14463	5	2	.751	.996	1 3/4	1/2	15
14465	6	2 1/2	.751	.996	1 3/4	1/2	28
14467	7 1/2	3	1.001	1.488	2 1/2	3/4	51
14469	9	4	1.001	1.488	2 1/2	3/4	100

Extra Height

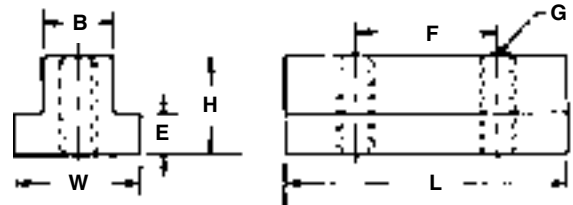
Part Number	Height Xh	Wt. Per Set
14464	4	30
14466	5	51
—	—	—
—	—	—



Jaw Nuts



• Material: Heat Treated Steel



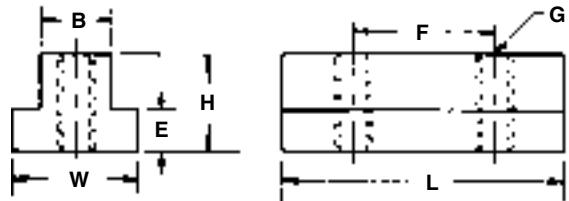
TO FIT CHUCKS FROM:
HOWA

Jaw Nuts for Howa

Part Number	Length L	Height H	Width W	Critical Dimensions				Wt. (lbs)
				B	E	Bolt Spacing F	Bolt Size G	
14251	1 17/32	.650	.590	.393	.216	3/4	5/16-18	.1
14253	1 15/32	.846	.669	.471	.295	25/32	3/8-16	.2
14255	1 13/16	.925	.787	.550	.334	63/64	1/2-13	.3
14257	1 25/32	1.043	.866	.629	.334	63/64	1/2-13	.3
14259	2 3/32	.925	.905	.629	.334	1 3/16	1/2-13	.4
14261	2 1/32	1.082	.945	.708	.375	1 3/16	9/16-12	.4
14263	2 3/8	1.299	1.102	.708	.551	1 3/16	9/16-12	.7
14265	2 9/16	1.141	1.043	.826	.413	1 9/16	5/8-11	.7
14267	3 17/64	1.811	1.299	.865	.767	1 31/32	3/4-10	1.5



TO FIT CHUCKS FROM:
KITAGAWA

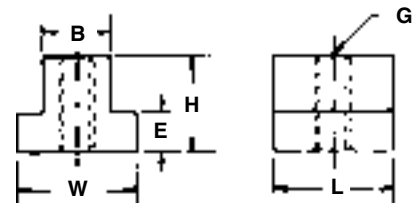


Jaw Nuts for Kitagawa

Part Number	Length L	Height H	Width W	Critical Dimensions				Wt. (lbs)
				B	E	Bolt Spacing F	Bolt Size G	
14271	1 7/16	7/8	11/16	.471	.295	25/32	3/8-16	.2
14273	1 29/32	1	13/16	.550	.374	63/64	1/2-13	.4
14275	2 15/32	1	7/8	.629	.374	1 3/16	1/2-13	.4
14277	2 3/16	1 5/16	1 1/32	.708	.531	1 1/2	9/16-12	.6



TO FIT CHUCKS FROM:
SEIKI
(Two Required per Jaw)



Jaw Nuts for Seiki

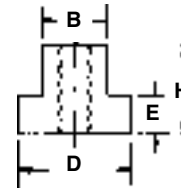
Part Number	Length L	Height H	Width W	Critical Dimensions				Wt. (lbs)
				B	E	Bolt Spacing F	Bolt Size G	
14281	3/4	.787	.689	.432	.295	—	5/16-18	.2
14283	1	.900	.905	.629	.315	—	1/2-13	.3
14285	1	1.180	1.142	.708	.550	—	9/16-12	.5
14287	1 1/2	1.550	1.338	.865	.767	—	3/4-10	1.2

Jaw Nuts



TO FIT CHUCKS FROM:
SMW
(Two Required per Jaw)

• Material: Heat Treated Steel



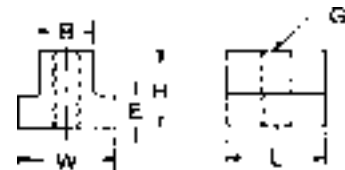
Jaw Nuts for SMW

Part Number	Height H	Diameter D	Critical Dimensions				Wt. (lbs)
			B	E	Bolt Spacing F	Bolt Size G	
14224	1.168	1.10	.825	.425	—	1/2-13	.3
14225	1.340	1.34	1.002	.575	—	3/4-10	.5



TO FIT CHUCKS FROM:
ERICKSON
GAMET
POWERHOLD
(Two Required per Jaw)

Jaw Nuts for Erickson, Gamet, Powerhold

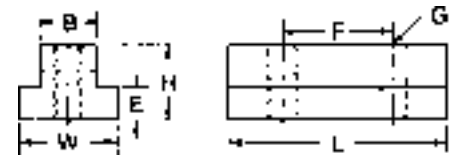


Part Number	Length L	Height H	Width W	Critical Dimensions				Wt. (lbs)
				B	E	Bolt Spacing F	Bolt Size G	
14232	5/8	.581	.530	.432	.252	—	5/16-18	.1
14233	3/4	.606	.750	.550	.252	—	3/8-16	.1
14235	1	.850	1.000	.786	.325	—	1/2-13	.2
14236	1 1/8	1.000	1.000	.826	.430	—	5/8-11	.2



TO FIT CHUCKS FROM:
ACME SERRATED
MASTER KEYS
(Two Required per Jaw)

Jaw Nuts for Acme Serrated Master Keys

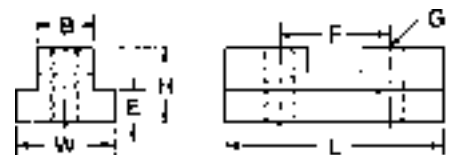


Part Number	Length L	Height H	Width W	Critical Dimensions				Wt. (lbs)
				B	E	Bolt Spacing F	Bolt Size G	
14213	2 1/2	5/8	15/16	.678	.381	1 3/4	1/2-13	.5
14215	3	3/4	1 1/16	.802	.440	2	5/8-11	.5
14217	3 1/2	7/8	1 1/4	.933	.550	2 1/2	3/4-10	.8
14219	4 1/4	1 3/16	1 1/2	1.159	.684	3	7/8-9	1.3



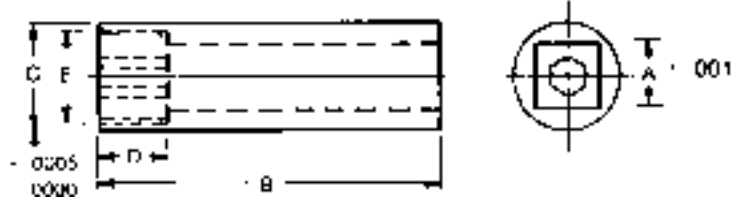
TO FIT CHUCKS FROM:
SQUARE SERRATED
MASTER KEYS

Jaw Nuts for Square Serrated Master Keys



Part Number	Length L	Height H	Width W	Critical Dimensions				Wt. (lbs)
				B	E	Bolt Spacing F	Bolt Size G	
14203	2 7/16	1	1	.750	.375	1 3/4	1/2-13	.5
14204	2 5/8	1	1	.750	.375	1 3/4	5/8-11	.5
14207	3 3/4	1 1/4	1 1/4	1.000	.437	2 1/2	3/4-10	1.2

Square Hole Tool Bit Sleeves

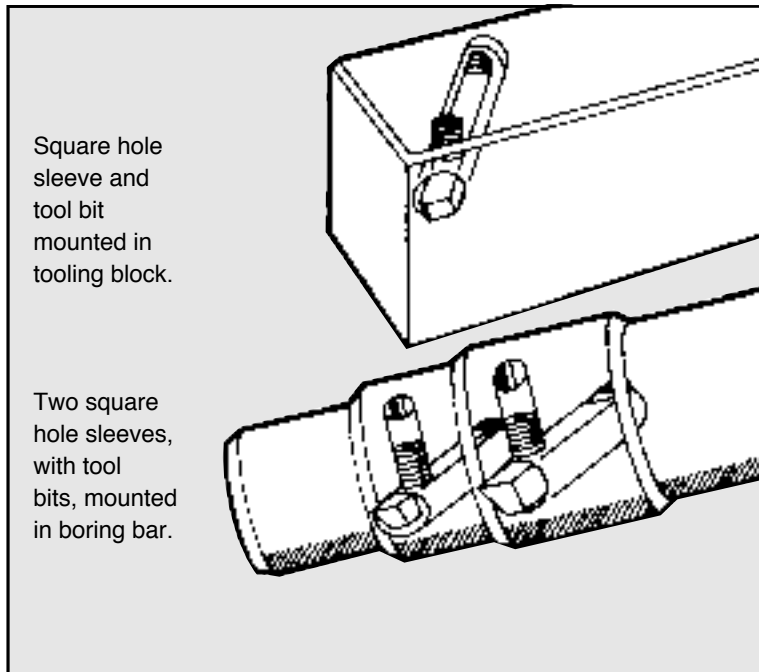


- Material: Low Carbon Steel
- O.D. Ground Concentric with Hole
- Set Screw Supplied
- Concentricity .005

A convenient method to make your own special tools that utilize square tool bits. All that is required are properly positioned reamed holes to hold the Jergens Square Hole Sleeves. Sleeves are threaded in the end to allow for adjustment of tool bits by the use of set screws.

Part Number	Tool Bit Size	A	B	C	D	E	Wt. (lbs) 10 Pcs.
14611	3/16	.1915	1 1/2	.3125	7/16	1/4-28	.31
14612	1/4	.2550	2	.4375	1/2	5/16-24	.95
14613	5/16	.3175	2 1/4	.5000	9/16	3/8-24	1.25
14614	3/8	.3800	2 1/2	.5937	5/8	1/2-20	1.85
14615	7/16	.4425	2 5/8	.6875	5/8	1/2-20	1.85
14616	1/2	.5050	2 3/4	.7812	5/8	5/8-18	1.85
14617	5/8	.6300	3 1/4	.9375	1	3/4-16	3.2
14618	3/4	.7550	4	1.1250	1	1-14	4.7
14619	7/8	.8800	4	1.3125	1 1/4	1-14	6.4
14620	1	1.0080	5	1.5000	1 1/2	1 1/8-12	10.5

Square Hole Sleeve Applications



Square hole sleeve and tool bit mounted in tooling block.

Two square hole sleeves, with tool bits, mounted in boring bar.

It is easier to drill and ream a hole than trying to broach a square hole for tool bits...

Originally designed to be used in boring bar sleeve applications, square hole sleeves may be used wherever square or rectangular bits are needed.

A set screw should be used with the square hole sleeve to prevent tool movement; this can be simply made in the "soft" material.



Boring Bar Sleeves	15.39
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In the event there is a difference between the information contained in the Acme Industrial Company section of this catalog and the Acme Industrial Company Precision Bushing Catalog, the information in the Acme Industrial Company Precision Bushing Catalog will take priority. For a copy of that catalog or for technical assistance call 800-323-5582.

Note: Metric Drill Bushing Information can be found on pages 187-198



“The best bushing for the job – at the right price, right now.”

You can be sure with ACME that you're buying the best bushing for the job. Bushings and accessories have been the backbone of our business since 1914. Our nation-wide network of industrial distributors further assures you of prompt personal service.

The following summaries of typical uses for bushings and liners prefaced our simplified, easy to use catalog – the most complete in the industry.

You may find it helpful first to define your specific needs, and then select a compatible bushing. Standard, off-the-shelf drill bushings are the least expensive. Sometimes, though you may require a special order. Acme will be glad to help you with your toughest requirements.

If you have any questions or need assistance, please call our customer service department at : (847) 428-3911 or (800) 323-5582. Our qualified staff of customer service representatives will be happy to assist you or provide you with the name of the ACME distributor nearest you.

Things to consider in selecting the PROPER drill bushing.

- Use - To drill, tap or ream?
- Kind - Headless, Head, Slip-Fixed Renewable?
- Production Run - Tungsten Carbide or Titanium Nitride Coated bushings, even at a slightly higher cost than standard steel, will last longer during long production runs.
- Size - Hole size, O.D. size, and length.
- Special Requirements - Threaded O.D., angles, flats on head, other special dimensions.
- Standard or Special - Standard sizes are less expensive. Is a special bushing really necessary or will a standard fill your requirement?

No-Counterbore Bushings are Standard with ACME

Acme is committed to the concept of manufacturing our bushings without a counterbore. We believe this produces a better, longer lasting and more versatile bushing (especially if you require modified or special bushings). Even though No-Counterbore bushings are more difficult and costly to produce, because close tolerances are required the full length of the bushing, **No-Counterbore Bushings Are Standard With ACME!** Counterbored bushings will be supplied only upon special request.

Headless Press Fit Bushings



ANSI/ACME Designation Type P

- Most popular, therefore, least expensive
- Typically for single stage drilling operations
- Permits close spacing
- Mounts flush with top of jig plate
- Available with finish ground O.D. or unground for custom grinding

ANSI/ACME Head Press Fit Bushings



Designation Type H

- Same as Headless Press Fit but with head (or shoulder) on the drill entry end
- Head prevents heavy axial loads from forcing bushing through jig hole
- Available with finish ground O.D. or unground for custom grinding
- Flush mounting is possible by counterboring jig hole to fit bushing head

Slip-Fixed Renewable Bushings



ACME Designation Type SF

- The “Two-in-One” Bushing: Fixed mode and slip position options on one knurled head! – flexibility lowers your inventory costs
- Knurled head for easier handling – just turn and lift!
- Used with liner, permanently pressed into drill jig
- Fixed mode for runs longer than life of bushing. Held in place by lock screw or clamp which fits a milled recess in the head.
- Slip mode for multiple operations on the same holes (such as drilling followed by reaming) – without disturbing the workpiece.
- O.D. has a slip fit tolerance for easy insertion or removal from the liner

Headless Press Fit Liners



Headless Liner

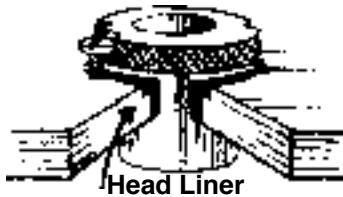
ANSI/ACME Designation Type L

- Used with Slip-Fixed Renewable bushings to provide precise location point
- Permits interchange of Type SF bushings with varied I.D.'s – without affecting centerline accuracy
- Permanently pressed into jig plate – for life of the jig



- Protects jig plate hole from wear caused by frequent bushing replacement
- Used where little impact will occur on the SF bushing's head

Head Press Fit Liners



ANSI/ACME Designation Type HL

- Similar to Headless Press Fit Liners but with head or shoulder
- Use with Slip-Fixed Renewable bushings whenever excessive pounding will occur during operation
- Head prevents liner from being pushed through jig
- Flush mount by counterboring top of hole in jig plate
- Available with finish ground O.D. or unground for custom grinding

Gun Drill Bushings



ACME Designation Type GD

Gun drills are used where maximum precision for long, deep holes is essential.

- Types GDB and GDX are single piece construction
- The other type of Gun Drill bushing is two piece construction. It consists of a Liner (GDL) and an Insert (GDI). The insert can be removed from the Liner thus allowing for a range of I.D. sizes using the same Liner.
- Acme can manufacture special Gun Drill bushings to fit your exact requirements.

Oil Groove Bushings



ACME Designation Type OG

- Used for drill lubrication or as a bearing
- Lubricant (or coolant) flows through grooves in bushing I.D. wall
- 25 Oil Groove styles available – headless or with heads
- Wiper designs available to help guard against dirt or chips
- NOTE: The oil groove should not break out the wiper end of the bushing

Extended Range Bushings and Liners

- Sizes larger than ANSI or ACME standards
- Available in types P, H, SF, L and HL
- Unground O.D.'s available for custom grinding

Extra-Thinwall Bushings

- Reduced wall thickness and head diameters save space
- As durable as regular wall thickness bushings
- For use where extremely close hole patterns must be accurately drilled
- Available in Type P, H, and SF
- Note: This type of bushing will not necessarily be round in the free state

Embedment Bushings

- Designed specifically for use in soft materials such as aluminum or magnesium
- Can also be used in jigs or fixtures made with laminated fiberglass or castable potting compounds
- Three types available: Diamond Groove, Ser-Groove, and Spline-Lock

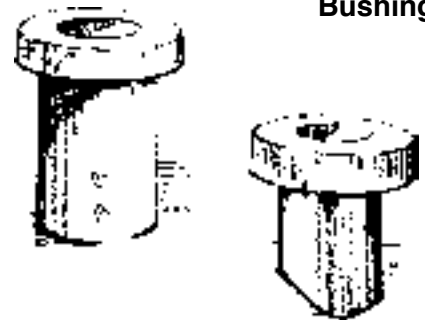
Tungsten Carbide Bushings

- Extremely Hard – Hardness of 78-80 RC
- Can last up to 50 times longer than conventional steel bushings
- Available in Type CP, CH, and CSF

Titanium Nitride (TiN) Coated Bushings

- Can last up to 40 times longer than conventional steel bushings
- Excellent results where long wearing capabilities are needed but carbide may be too brittle
- Much more cost effective than carbide bushings when larger quantities (can be as low as three pieces depending on size) are involved

Special/Custom Bushings



Special Bushings

- Modified Standard - an ANSI/ACME standard bushing is modified or altered in I.D., O.D. or length
- Custom Bushing - Those bushings that can not be easily modified. Requirements can include special diameters, shapes, angles, materials, threads, etc.

Tool Holder Bushings

- Used to adapt various tools to tool holders or turret bores on many types of machine tools.
- Available in six different styles and a complete range of sizes
- Special sizes and configurations can be manufactured to meet your exact requirements



Bushing/Liner Installation Tips

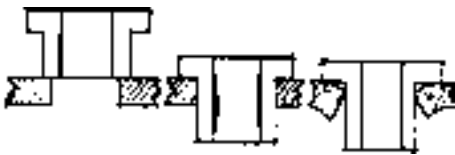
(cast iron or unhardened steel jig plates)

Production accuracy requires extra care when preparing mounting holes and installing bushings/liners. The following factors should be considered: diametral interference fits, alignment, chip clearance, and how close the bushing is to the workpiece.

Because of the many variables, no definite rules can substitute for the skill and judgment of the experienced tool-maker. The following suggestions should be helpful to others.

Interference Fits

Interference holds press fit bushings in place on the jig plate. Too much interference may cause a number of problems: (1) jig plate distortion; (2) bellmouthing (bushing/liner walls bow inward); (3) tool seizure, or (4) trouble with slip-fixed renewable fitting into the liner.



Too little interference may allow slippage, thus causing inaccurately drilled holes. In most cases, interference of 0.0005 to 0.0008 inch is sufficient to properly install press fit bushings and liners.

Mounting Hole Roundness

It is recommended that all mounting holes be jig bored or ground to assure roundness. Ordinary twist drills seldom produce an accurately sized or truly round hole!

Bushing/Liner Installation

First, lubricate the inside diameter of the mounting hole and the outside diameter of the bushing/liner – before pressing into place! Lubrication prevents scoring of the hole wall. White lead is a typical lubricant.

Second, use an arbor press to press the bushing/liner into place. If an arbor press is not available, draw the bushing/liner into place by tightening two steel plates connected by a nut and bolt. A bushing/

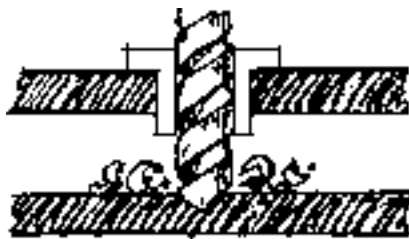
liner should never be hammered into place! Why defeat the main purpose of the bushing? – Accuracy!

Chip Clearance

One school of thought suggests a space between the workpiece and the drill bushing. The other suggests direct contact. In order to decide, you should consider the abrasiveness of the material being drilled, the drill size, and the type of bushing/liner being applied.

Chips produced from drilling will be ejected either through a space or through the bushing. If your drill clogs or heats up, try increasing the space between the end of the bushing and the workpiece. Normal spaces vary from one-half the drill diameter for small chips (as from cast iron) to one and one-half times the drill diameter for long stringy chips (as from cold-rolled steel).

Vary the length of Slip-Fixed Renewable bushings to achieve proper spacing for your operation (see number 4 below for a more detailed explanation). A rule of thumb is, the greater the space between the bushing and the workpiece, the greater the chance for error. Where possible, test your conditions and continue to check for accuracy throughout your production run.



Hints for More Accurate Production and Longer Bushing Life

1. Align Bushings Properly.

Carefully align the drill with the bushing axis to avoid poor alignment and excessive wear. The radius on the bushing will help center the drill point. ACME No-Counterbore bushings help the operator accomplish this with ease.

2. Keep Tools Sharp.

Dull drill bits defeat the preciseness of bushings. Sharpen by first grinding each drill with the point in the exact center. This helps avoid “walking” by the drill when it first enters the workpiece.

3. Use Proper Coolants.

Check the coolant label to be sure you are using the right coolant for your machining process.

4. Use Slip-Fixed Renewable Bushings for Multiple Operations.

Slip-Fixed Renewable Bushings of different lengths provide for both accuracy and chip removal during multiple operations. For example, a short bushing during drilling will provide the proper clearance for chips to escape. A longer bushing during reaming will provide maximum guidance.

5. Adapt Bushings to Irregular Work Surfaces.

The exit end of the bushing should conform to contours of the workpiece. For maximum guidance, hold to a minimum any space for chip clearance. A drill point that does not enter exactly perpendicular to the work surface will skip or wander. In such a case, side load exerted by the drill is concentrated near the exit end of the bushing. The bushing can wear prematurely. Slip-Fixed Renewable bushings could simplify replacement of worn bushings, and also aid alignment with the contoured work surface. For short production runs using press fit bushings, form the bushing end to the workpiece contour.

6. For Long Production Runs, Use Tungsten Carbide or Titanium Nitride Coated Bushings

ACME Carbide bushings last up to 50 times longer than hardened steel. ACME Titanium Nitride (TiN) coated bushings can last up to 40 times longer than conventional bushings. Both types of bushings could save valuable replacement downtime. The additional cost is small when you consider the extra long life possible. Call us for more details.



Bushing Specifications

ANSI/ACME Standard Drill Bushings:

I.D. Range (Std. Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
#80 to 1/4	+.0001 to +.0004
Over 1/4 to 3/4	+.0001 to +.0005
Over 3/4 to 1-1/2	+.0002 to +.0006
Over 1-1/2 to 2-3/4	+.0003 to +.0007

Reamer Bushings:

I.D. Range (Std. Reamer Size)	I.D. Tolerance (add to nominal I.D.)
Up to 1/4	+.0005 to +.0008
Over 1/4 to 1"	+.0006 to +.0010
Over 1"	+.0008 to +.0012

- Finish Ground bushings, 1/8" to 1" I.D., are held within .0003" concentricity T.I.R. (Total Indicator Reading). Other sizes are held within .0005" T.I.R.
- Bushings with grinding stock on the O.D. are concentric within .006". The letter "U" as a suffix to the ANSI symbol indicates an unground O.D. for custom grinding.
- Longer lengths than standard or excessively relieved bushings will meet the above tolerances at the drill exit end only.
- Standard and Special bushings will be manufactured from thru-hardened tool steel and heat treated to 62-64 RC unless instructed otherwise by the customer.
- No-Counterbore bushings will be supplied unless informed otherwise. No-Counterbore bushings allow for truer alignment, more accurate holes, less tool wear, and less problems with chips packing up in the I.D. of the bushing. Acme will, however, supply counterbored bushings when requested.
- Metric sizes are available on request. They are priced as specials and are not returnable.

Ordering Information

26 pcs.	3/4	P	64	12
Quantity	Inside Diameter	Type	Outside Diameter	Length
	For standard drill sizes show: Fraction, Number, or Letter. For Special I.D.'s indicate decimal size to four places.	Type of Bushing: P = Headless Press Fit H = Head Press Fit SF = Slip-Fixed Renewable L = Headless Liners HL = Head Liners "C" prefix = Tungsten Carbide	O.D. in 64ths of 1" (ie. "64" = 1")	Length in 16ths of 1" (ie. "12" = 3/4") "U" suffix = Unground O.D. for custom grinding

Specify in sequence for each order:

1. Quantity
2. Inside Diameter (Column A in catalog)
3. Type: See Chart above for ANSI/ACME designations
4. Outside Diameter (Column B in catalog)
5. Length (Column C in catalog)
6. Unground O.D.'s specify the Letter "U" after the ANSI Symbol

• Gun Drill Bushings

Specify I.D., Description or Part Number (when indicated) and quantity.

• Oil Groove Bushings

Specify in sequence: ACME Oil Groove style, Type of Bushing, I.D., O.D., and length (or ANSI Symbol) and material (steel or bronze). Also indicate style of wiper if required.

• Embedment Bushings

Specify Quantity, I.D. size and ordering symbol.

• Carbide Bushings

Specify Quantity, I.D. and ANSI Symbol prefixed by the letter "C".

• Tool Holder Bushings

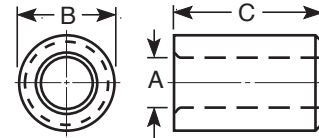
Order by Acme Part Number and quantity.



Type P



All press fit bushings are lapped, honed or ground in the I.D. Bushings with I.D.'s of 1/8" to 1" are concentric within .0003" T.I.R. to the O.D. Other I.D. sizes are held within .0005" T.I.R. All unground bushings are left rough on the O.D. with concentricity of approximately .006" T.I.R.



No-Counterbore bushings are standard with Acme.

A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Overall)	ANSI SYMBOL TYPE P	Price Code**
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Ground*	
.0135 to .0280	#80 to #70 1/64	5/32	.1578 .1575	1/4	P-10-4	230
				5/16	P-10-5	237
				3/8	P-10-6	240
				1/2	P-10-8	244
.0292 to .0469	#69 to #56 1/32 and 3/64	5/32	.1578 .1575	1/4	P-10-4	212
				5/16	P-10-5	218
				3/8	P-10-6	221
				1/2	P-10-8	223
				3/4	P-10-12	251
.0520 to .0625	#55 to #53 1/16	5/32	.1578 .1575	1/4	P-10-4	194
				5/16	P-10-5	199
				3/8	P-10-6	203
				1/2	P-10-8	204
				3/4	P-10-12	228
.0625 to .0995	#52 to #39 1/16 to 3/32	3/16	.1891 .1888	1/4	P-12-4	133
				5/16	P-12-5	140
				3/8	P-12-6	143
				1/2	P-12-8	145
				5/8	P-12-10	157
				3/4	P-12-12	161
.0400 to .0595	#60 to #53 3/64	13/64	.2046 .2043	1/4	P-13-4	203
				5/16	P-13-5	209
				3/8	P-13-6	213
				1/2	P-13-8	216
				3/4	P-13-12	244
.0625 to .0995	#52 to #39 1/16 to 3/32	13/64	.2046 .2043	1/4	P-13-4	133
				5/16	P-13-5	140
				3/8	P-13-6	143
				1/2	P-13-8	145
				3/4	P-13-12	161
				1	P-13-16	168
				1-3/8	P-13-22	210
.0980 to .1406	#40 to #28 7/64 to 9/64	1/4	.2516 .2513	1/4	P-16-4	123
				5/16	P-16-5	126
				3/8	P-16-6	130
				1/2	P-16-8	133
				5/8	P-16-10	137
				3/4	P-16-12	141
				1	P-16-16	149
				1-3/8	P-16-22	192

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

** Price Code - See Separate Net Price Schedule.



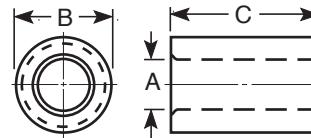
ANSI AND ACME STANDARD BUSHINGS HEADLESS PRESS FIT

15

Type P



I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
#80 to 1/4	+.0001 to +.0004
Over 1/4 to 3/4	+.0001 to +.0005
Over 3/4 to 1-1/2	+.0002 to +.0006
Over 1-1/2 to 2-3/4	+.0003 to +.0007



A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Overall)	ANSI SYMBOL TYPE P	Price Code**
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Ground*	
.1250 to .1935	#30 to #10 1/8 to 3/16	5/16	.3141 .3138	1/4	P-20-4	114
				5/16	P-20-5	117
				3/8	P-20-6	119
				1/2	P-20-8	120
				5/8	P-20-10	122
				3/4	P-20-12	124
				1	P-20-16	135
.1935 to .2280	#10 to #1 13/64 and 7/32	3/8	.3766 .3763	1-3/8	P-20-22	153
				1/4	P-24-4	109
				3/8	P-24-6	113
				1/2	P-24-8	114
				3/4	P-24-12	118
.1875 to .2570	#12 to #1 "A" to "F" 3/16 to 1/4	13/32	.4078 .4075	1	P-24-16	126
				1/4	P-26-4	115
				5/16	P-26-5	115
				3/8	P-26-6	113
				1/2	P-26-8	114
				3/4	P-26-12	118
				1	P-26-16	126
				1-3/8	P-26-22	133
.2344 .2500 .2570 .2656 .2812	15/64 1/4 "F" 17/64 9/32	7/16	.4392 .4389	1-3/4	P-26-28	149
				1/4	P-28-4	110
				5/16	P-28-5	112
				3/8	P-28-6	113
				1/2	P-28-8	114
				5/8	P-28-10	116
				3/4	P-28-12	118
.1875 to .3160	#12 to #1 "A" to "O" 3/16 to 5/16	1/2	.5017 .5014	1	P-28-16	126
				5/16	P-32-5	111
				3/8	P-32-6	113
				1/2	P-32-8	114
				3/4	P-32-12	118
				1	P-32-16	129
				1-3/8	P-32-22	147
				1-3/4	P-32-28	149
.3020 to .3438	"N" to "R" 5/16 to 11/32	9/16	.5642 .5639	3/8	P-36-6	112
				1/2	P-36-8	111
				3/4	P-36-12	114
				1	P-36-16	117

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

** Price Code - See Separate Net Price Schedule.

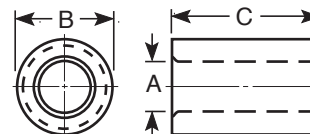
Note: See Headless Liner section for additional lengths on some specific I.D. sizes.



Type P



All press fit bushings are lapped, honed or ground in the I.D. Bushings with I.D.'s of 1/8" to 1" are concentric within .0003" T.I.R. to the O.D. Other I.D. sizes are held within .0005" T.I.R. All unground bushings are left rough on the O.D. with concentricity of approximately .006" T.I.R.



No-Counterbore bushings are standard with Acme.

A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Overall)	ANSI SYMBOL TYPE P	Price Code**
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Ground*	
.3125 to .4375	"O" to "Z" 5/16 to 7/16	5/8	.6267 .6264	5/16	P-40-5	110
				3/8	P-40-6	111
				1/2	P-40-8	111
				5/8	P-40-10	113
				3/4	P-40-12	114
				1	P-40-16	117
				1-1/4	P-40-20	132
				1-3/8	P-40-22	132
				1-3/4	P-40-28	141
				2-1/8	P-40-34	155
.3125 to .5312	"O" to "Z" 5/16 to 17/32	3/4	.7518 .7515	3/8	P-48-6	114
				1/2	P-48-8	114
				5/8	P-48-10	116
				3/4	P-48-12	117
				1	P-48-16	123
				1-1/4	P-48-20	133
				1-3/8	P-48-22	133
				1-3/4	P-48-28	143
				2-1/8	P-48-34	160
				2-1/2	P-48-40	225
.5000 to .6562	1/2 to 21/32	7/8	.8768 .8765	1/2	P-56-8	123
				5/8	P-56-10	124
				3/4	P-56-12	125
				1	P-56-16	128
				1-1/4	P-56-20	132
				1-3/8	P-56-22	132
				1-1/2	P-56-24	138
				1-3/4	P-56-28	144
				2-1/8	P-56-34	155
				2-1/2	P-56-40	167
.5000 to .7656	1/2 to 49/64	1	1.0018 1.0015	1/2	P-64-8	124
				5/8	P-64-10	125
				3/4	P-64-12	125
				1	P-64-16	128
				1-1/4	P-64-20	132
				1-3/8	P-64-22	132
				1-1/2	P-64-24	139
				1-3/4	P-64-28	146
				2-1/8	P-64-34	156
				2-1/2	P-64-40	174
				3	P-64-48	232

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

** Price Code - See Separate Net Price Schedule.

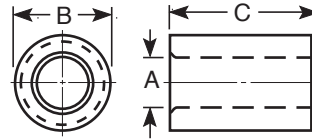
Note: See Headless Liner section for additional lengths on some specific I.D. sizes.



Type P



I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
#80 to 1/4	+.0001 to +.0004
Over 1/4 to 3/4	+.0001 to +.0005
Over 3/4 to 1-1/2	+.0002 to +.0006
Over 1-1/2 to 2-3/4	+.0003 to +.0007



A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Overall)	ANSI SYMBOL TYPE P	Price Code**
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Ground*	
.7812 .8125 .8438	25/32 13/16 27/32	1-1/8	1.1270 1.1267	1/2 3/4 1	P-72-8 P-72-12 P-72-16	153 141 153
.8750 and .9375	7/8 and 15/16	1-1/4	1.2520 1.2517	5/8 3/4 1 1-1/4 1-1/2 1-3/4 2	P-80-10 P-80-12 P-80-16 P-80-20 P-80-24 P-80-28 P-80-32	147 141 153 162 170 178 194
.7500 to 1.0312	3/4 to 1-1/32	1-3/8	1.3772 1.3768	1/2 3/4 1 1-1/4 1-3/8 1-1/2 1-3/4 2 2-1/8 2-1/2 3	P-88-8 P-88-12 P-88-16 P-88-20 P-88-22 P-88-24 P-88-28 P-88-32 P-88-34 P-88-40 P-88-48	153 141 153 162 162 170 178 194 194 210 262
1.0313 1.0625 1.0938 1.1250	1-1/32 1-1/16 1-3/32 1-1/8	1-1/2	1.5022 1.5018	3/4 1 1-1/4 1-1/2 1-3/4 2	P-96-12 P-96-16 P-96-20 P-96-24 P-96-28 P-96-32	173 162 173 180 186 205
1.0000 to 1.3906	1 to 1-25/64	1-3/4	1.7523 1.7519	3/4 1 1-3/8 1-3/4 2-1/8 2-1/2 3	P-112-12 P-112-16 P-112-22 P-112-28 P-112-34 P-112-40 P-112-48	173 162 173 186 205 256 288
1.3750 to 1.7500	1-3/8 to 1-3/4	2-1/4	2.2525 2.2521	1 1-3/8 1-3/4 2-1/8 2-1/2 3	P-144-16 P-144-22 P-144-28 P-144-34 P-144-40 P-144-48	196 210 223 246 264 322

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

** Price Code - See Separate Net Price Schedule.

Note: See Headless Liner section for additional lengths on some specific I.D. sizes.

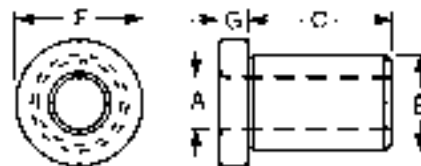
No-Counterbore (Full Bearing Surface) Bushings are Standard at ACME.



Type H



All press fit bushings are lapped, honed or ground in the I.D. Bushings with I.D.'s of 1/8" to 1" are concentric within .0003" T.I.R. to the O.D. Other I.D. sizes are held within .0005" T.I.R. All unground bushings are left rough on the O.D. with concentricity of approximately .006" T.I.R.



No-Counterbore bushings are standard with Acme.

A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Under Head)	ANSI SYMBOL TYPE H	Price Code**	F & G HEAD SIZES
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Ground*		
.0135 to .0280	#80 to #70 1/64	5/32	.1578 .1575	1/4 5/16 3/8 1/2	H-10-4 H-10-5 H-10-6 H-10-8	238 240 245 246	F 1/4 G 3/32
.0292 to .0469	#69 to #56 1/32 and 3/64	5/32	.1578 .1575	1/4 5/16 3/8 1/2	H-10-4 H-10-5 H-10-6 H-10-8	219 221 226 228	F 1/4 G 3/32
.0520 to .0625	#55 to #53 1/16	5/32	.1578 .1575	1/4 5/16 3/8 1/2	H-10-4 H-10-5 H-10-6 H-10-8	200 201 204 207	F 1/4 G 3/32
.0625 to .0995	#52 to #39 1/16 to 3/32	3/16	.1891 .1888	1/4 5/16 3/8 1/2 3/4	H-12-4 H-12-5 H-12-6 H-12-8 H-12-12	145 148 151 153 173	F 5/16 G 3/32
.0400 to .0595	#60 to #53 3/64	13/64	.2046 .2043	1/4 5/16 3/8 1/2 3/4	H-13-4 H-13-5 H-13-6 H-13-8 H-13-12	210 212 218 221 253	F 19/64 G 3/32
.0625 to .0995	#52 to #39 1/16 to 3/32	13/64	.2046 .2043	1/4 5/16 3/8 1/2 3/4 1	H-13-4 H-13-5 H-13-6 H-13-8 H-13-12 H-13-16	145 148 151 153 173 203	F 19/64 G 3/32
.0980 to .1406	#40 to #28 7/64 to 9/64	1/4	.2516 .2513	1/4 5/16 3/8 1/2 5/8 3/4 1 1-3/8	H-16-4 H-16-5 H-16-6 H-16-8 H-16-10 H-16-12 H-16-16 H-16-22	136 137 141 142 154 158 189 231	F 23/64 G 3/32

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

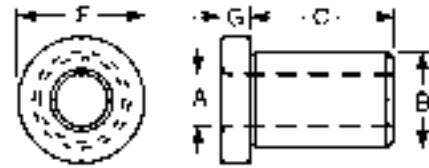
** Price Code - See Separate Net Price Schedule.



Type H



I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
#80 to 1/4	+.0001 to +.0004
Over 1/4 to 3/4	+.0001 to +.0005
Over 3/4 to 1-1/2	+.0002 to +.0006
Over 1-1/2 to 2-3/4	+.0003 to +.0007



A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Under Head)	ANSI SYMBOL TYPE H	Price Code**	F & G HEAD SIZES
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Ground*		
.1250 to .1935	#30 to #10 1/8 to 3/16	5/16	.3141 .3138	1/4	H-20-4	122	F 27/64
				5/16	H-20-5	125	
				3/8	H-20-6	128	
				1/2	H-20-8	129	
				5/8	H-20-10	130	G 1/8
				3/4	H-20-12	132	
				1	H-20-16	144	
				1-3/8	H-20-22	193	
.1935 to .2280	#10 to #1 13/64 and 7/32	3/8	.3766 .3763	1-3/4	H-20-28	228	
				1/4	H-24-4	118	F 1/2
				3/8	H-24-6	124	
				1/2	H-24-8	126	G 3/32
				3/4	H-24-12	129	
.1875 to .2570	#12 to #1 "A" to "F" 3/16 to 1/4	13/32	.4078 .4075	1	H-24-16	139	
				1/4	H-26-4	119	F 1/2
				5/16	H-26-5	120	
				3/8	H-26-6	124	G 5/32
				1/2	H-26-8	126	
				3/4	H-26-12	128	
				1	H-26-16	129	
				1-3/8	H-26-22	148	
.2344 .2500 .2570 .2656 .2812	15/64 1/4 "F" 17/64 9/32	7/16	.4392 .4389	1-3/4	H-26-28	166	
				1/4	H-28-4	119	F 9/16
				3/8	H-28-6	124	
				1/2	H-28-8	126	G 3/32
				5/8	H-28-10	128	
				3/4	H-28-12	129	
.1875 to .3160	#12 to #1 "A" to "O" 3/16 to 5/16	1/2	.5017 .5014	1	H-28-16	139	
				1/4	H-32-4	118	F 39/64
				5/16	H-32-5	120	
				3/8	H-32-6	124	G 7/32
				1/2	H-32-8	126	
				3/4	H-32-12	128	
				1	H-32-16	138	
				1-3/8	H-32-22	148	
.3020 to .3438	"N" to "R" 5/16 to 11/32	9/16	.5642 .5639	1-3/4	H-32-28	166	
				3/8	H-36-6	122	F 11/16
				1/2	H-36-8	122	
				5/8	H-36-10	123	G 3/32
				3/4	H-36-12	124	
				1	H-36-16	128	

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

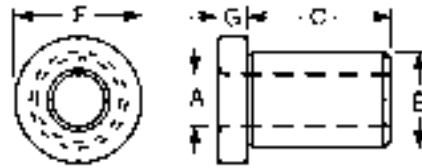
** Price Code - See Separate Net Price Schedule.



Type H



All press fit bushings are lapped, honed or ground in the I.D. Bushings with I.D.'s of 1/8" to 1" are concentric within .0003" T.I.R. to the O.D. Other I.D. sizes are held within .0005" T.I.R. All unground bushings are left rough on the O.D. with concentricity of approximately .006" T.I.R.



No-Counterbore bushings are standard with Acme.

A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Under Head)	ANSI SYMBOL TYPE H	Price Code**	F & G HEAD SIZE
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Ground*		
.3125 to .4375	"O" to "Z" 5/16 to 7/16	5/8	.6267 .6264	1/4	H-40-4	124	F 51/64 G 7/32
				5/16	H-40-5	118	
				3/8	H-40-6	120	
				1/2	H-40-8	120	
				5/8	H-40-10	123	
				3/4	H-40-12	126	
				1	H-40-16	128	
				1-3/8	H-40-22	147	
				1-3/4	H-40-28	158	
				2-1/8	H-40-34	172	
.3125 to .5312	"O" to "Z" 5/16 to 17/32	3/4	.7518 .7515	1/4	H-48-4	128	F 59/64 G 7/32
				3/8	H-48-6	124	
				1/2	H-48-8	124	
				5/8	H-48-10	126	
				3/4	H-48-12	128	
				1	H-48-16	132	
				1-1/4	H-48-20	148	
				1-3/8	H-48-22	148	
				1-3/4	H-48-28	159	
				2-1/8	H-48-34	173	
.5000 to .6562	1/2 to 21/32	7/8	.8768 .8765	3/8	H-56-6	133	F 1-7/64 G 1/4
				1/2	H-56-8	133	
				5/8	H-56-10	134	
				3/4	H-56-12	134	
				1	H-56-16	140	
				1-1/4	H-56-20	145	
				1-3/8	H-56-22	146	
				1-1/2	H-56-24	155	
				1-3/4	H-56-28	159	
				2-1/8	H-56-34	174	
.5000 to .7656	1/2 to 49/64	1	1.0018 1.0015	1/2	H-64-8	136	F 1-15/64 G 5/16
				3/4	H-64-12	137	
				1	H-64-16	141	
				1-3/8	H-64-22	147	
				1-1/2	H-64-24	165	
				1-3/4	H-64-28	170	
				2-1/8	H-64-34	188	
				2-1/2	H-64-40	205	
				3	H-64-48	277	

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

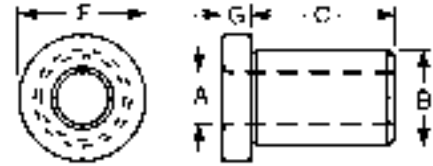
** Price Code - See Separate Net Price Schedule.



Type H



I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
#80 to 1/4	+.0001 to +.0004
Over 1/4 to 3/4	+.0001 to +.0005
Over 3/4 to 1-1/2	+.0002 to +.0006
Over 1-1/2 to 2-3/4	+.0003 to +.0007



A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Under Head)	ANSI SYMBOL TYPE H	Price Code**	F & G HEAD SIZE
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Ground*		
.8750 and .9375	7/8 and 15/16	1-1/4	1.2520 1.2517	5/8	H-80-10	163	F 1-1/2
				3/4	H-80-12	158	
				1	H-80-16	168	
				1-1/4	H-80-20	178	G 1/4
				1-1/2	H-80-24	186	
				1-3/4	H-80-28	194	
.7500 to 1.0312	3/4 to 1-1/32	1-3/8	1.3772 1.3768	2	H-80-32	210	F 1-39/64 G 3/8
				1/2	H-88-8	165	
				3/4	H-88-12	166	
				1	H-88-16	176	
				1-3/8	H-88-22	188	
				1-1/2	H-88-24	205	
				1-3/4	H-88-28	205	
				2-1/8	H-88-34	223	
1.0000 to 1.3906	1 to 1-25/64	1-3/4	1.7523 1.7519	2-1/2	H-88-40	241	F 1-63/64 G 3/8
				3	H-88-48	304	
				3/4	H-112-12	212	
				1	H-112-16	198	
				1-3/8	H-112-22	212	
				1-3/4	H-112-28	227	
1.3750 to 1.7500	1-3/8 to 1-3/4	2-1/4	2.2525 2.2521	2-1/8	H-112-34	246	F 2-31/64 G 3/8
				2-1/2	H-112-40	264	
				3	H-112-48	322	
				1	H-144-16	231	
				1-3/8	H-144-22	249	
				1-3/4	H-144-28	272	
				2-1/8	H-144-34	288	G 3/8
				2-1/2	H-144-40	305	
				3	H-144-48	335	

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

** Price Code - See Separate Net Price Schedule.

No-Counterbore (Full Bearing Surface) Bushings are Standard at ACME

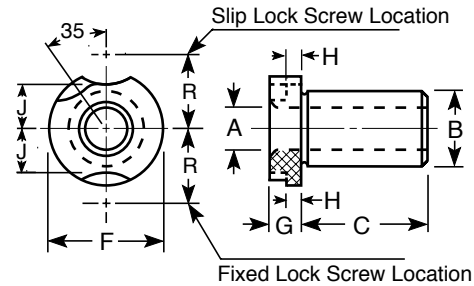


Type SF



All type "SF" bushings are lapped, honed or ground in the I.D. Bushings with I.D.'s of 1/8" to 1" are concentric within .0003" T.I.R. to the O.D. Other I.D. sizes are held within .0005" T.I.R. A slip fit clearance is provided for proper alignment when inserted into a liner.

No-Counterbore bushings are standard with Acme.



A I.D. RANGE (Std. Drill Sizes)		B Body O.D.		C Length (Under Head)	ANSI SYMBOL TYPE SF	Price Code**	HEAD SIZE					Lock Screws and Clamps
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual				F	G	H	J	R	
.0135 to .0280	#80 to #70 1/64	3/16	.1875 .1873	1/4 5/16 3/8 1/2	SF-12-4 SF-12-5 SF-12-6 SF-12-8	271 274 278 280	5/16	3/16	3/32	3/32	17/64	#1 - LS
.0292 to .0469	#69 to #56 1/32 and 3/64	3/16	.1875 .1873	1/4 5/16 3/8 1/2	SF-12-4 SF-12-5 SF-12-6 SF-12-8	244 246 249 251	5/16	3/16	3/32	3/32	17/64	#1 - LS
.0520 to .0595	#55 to #53	3/16	.1875 .1873	1/4 5/16 3/8 1/2	SF-12-4 SF-12-5 SF-12-6 SF-12-8	215 217 219 222	5/16	3/16	3/32	3/32	17/64	#1-LS
.0625 to .0980	#52 to #40 1/16 to 3/32	3/16	.1875 .1873	1/4 5/16 3/8 1/2 3/4	SF-12-4 SF-12-5 SF-12-6 SF-12-8 SF-12-12	154 156 158 161 172	5/16	3/16	3/32	3/32	17/64	#1-LS
.0995 to .1405	#39 to #28 7/64 and 1/8	1/4	.2500 .2498	1/4 3/8 1/2 5/8 3/4	SF-16-4 SF-16-6 SF-16-8 SF-16-10 SF-16-12	147 153 156 161 163	7/16	1/4	1/8	9/64	23/64	#2 - LS
.0469 to .0595	#55 to #53 3/64	5/16	.3125 .3123	5/16 3/8 1/2 3/4 1	SF-20-5 SF-20-6 SF-20-8 SF-20-12 SF-20-16	204 208 209 251 274	35/64	1/4	1/8	11/64	1/2	1A - LS RC - 1A
.0625 to .0890	#52 to #43 1/16 and 5/64	5/16	.3125 .3123	5/16 3/8 1/2 3/4 1	SF-20-5 SF-20-6 SF-20-8 SF-20-12 SF-20-16	158 160 164 182 206	35/64	1/4	1/8	11/64	1/2	1A - LS RC - 1A
.0935 to .1935	#42 to #10 3/32 to 3/16	5/16	.3125 .3123	5/16 3/8 1/2 3/4 1 1-3/8	SF-20-5 SF-20-6 SF-20-8 SF-20-12 SF-20-16 SF-20-22	150 153 156 164 178 205	35/64	1/4	1/8	11/64	1/2	1A - LS RC - 1A
.1935 to .2280	#10 to #1 13/64 and 7/32	3/8	.3750 .3748	1/4 3/8 1/2 3/4 1	SF-24-4 SF-24-6 SF-24-8 SF-24-12 SF-24-16	134 138 140 146 153	5/8	1/4	1/8	15/64	29/64	#2 - LS

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

** Price Code - See Separate Net Price Schedule.



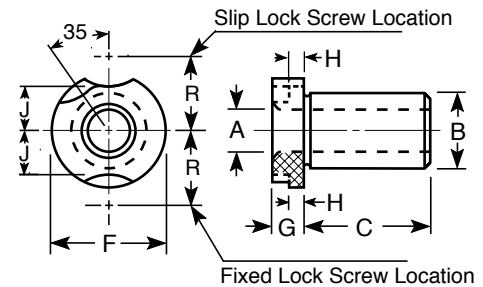
ANSI AND ACME STANDARD BUSHINGS SLIP-FIXED RENEWABLE

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Type SF



I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
#80 to 1/4	+.0001 to +.0004
Over 1/4 to 3/4	+.0001 to +.0005
Over 3/4 to 1-1/2	+.0002 to +.0006
Over 1-1/2 to 2-3/4	+.0003 to +.0007

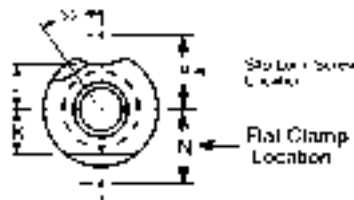


A I.D. RANGE (Std. Drill Sizes)		B Body O.D.		C Length (Under Head)	ANSI SYMBOL TYPE SF	Price Code**	HEAD SIZE					Lock Screws and Clamps
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual				F	G	H	J	R	
.2344 .2500 .2570 .2656 .2812	15/64 1/4 "F" 17/64 9/32	7/16	.4375 .4373	3/8 1/2 3/4 1	SF-28-6 SF-28-8 SF-28-12 SF-28-16	138 140 146 153	5/8	1/4	1/8	15/64	29/64	#2 - LS
.1406 to .1875	#27 to #13 9/64 to 3/16	1/2	.5000 .4998	5/16 3/8 1/2 3/4 1 1-3/8 1-3/4	SF-32-5 SF-32-6 SF-32-8 SF-32-12 SF-32-16 SF-32-22 SF-32-28	140 143 145 150 160 170 182	51/64	1/4	1/8	19/64	5/8	1A - LS RC - 1A
.1890 to .3438	#12 to #1 "A" to "R" 13/64 to 11/32	1/2	.5000 .4998	5/16 3/8 1/2 3/4 1 1-3/8 1-3/4 2-1/8	SF-32-5 SF-32-6 SF-32-8 SF-32-12 SF-32-16 SF-32-22 SF-32-28 SF-32-34	137 138 140 146 153 165 177 245	51/64	1/4	1/8	19/64	5/8	1A-LS RC - 1A
.3125 to .3438	"O" to "R" 5/16 to 11/32	9/16	.5625 .5623	1/2 5/8 3/4 1	SF-36-8 SF-36-10 SF-36-12 SF-36-16	140 143 146 153	7/8	1/4	1/8	23/64	37/64	#2 - LS
.3594 to .4375	"U" to "Z" 23/64 to 7/16	5/8	.6250 .6248	5/16 3/8 1/2 5/8 3/4 1 1-1/4	SF-40-5 SF-40-6 SF-40-8 SF-40-10 SF-40-12 SF-40-16 SF-40-20	137 138 140 142 144 150 165	7/8	1/4	1/8	23/64	37/64	#2 - LS
.2812 to .5625	"L" to "Z" 9/32 to 9/16	3/4	.7500 .7498	1/2 3/4 1 1-3/8 1-3/4 2-1/8 2-1/2 3	SF-48-8 SF-48-12 SF-48-16 SF-48-22 SF-48-28 SF-48-34 SF-48-40 SF-48-48	140 144 150 165 180 194 260 312	1-3/64	1/4	1/8	27/64	3/4	1A - LS RC - 1A

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

** Price Code - See Separate Net Price Schedule.

"SF" bushings are available milled for flat clamps. To order please prefix the letters "FM."



Body O.D.	"K"	"N"	Use Clamp
5/16	11/64	11/16	FC-1
1/2	17/64	25/32	FC-1
3/4	25/64	57/64	FC-1
1	1/2	1-9/64	FC-2
1-3/8	11/16	1-21/64	FC-2
1-3/4	7/8	1-33/64	FC-3
2-1/4	1-1/8	1-49/64	FC-3

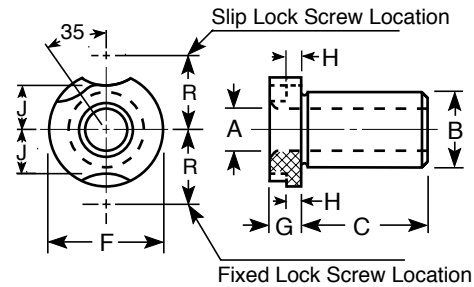


Type SF



All type "SF" bushings are lapped, honed or ground in the I.D. Bushings with I.D.'s of 1/8" to 1" are concentric within .0003" T.I.R. to the O.D. Other I.D. sizes are held within .0005" T.I.R. A slip fit clearance is provided for proper alignment when inserted into a liner.

No-Counterbore bushings are standard with Acme.



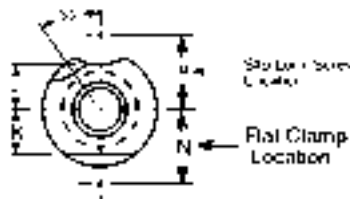
A I.D. RANGE (Std. Drill Sizes)		B Body O.D.		C Length (Under Head)	ANSI SYMBOL TYPE SF	Price Code**	HEAD SIZE					Lock Screws and Clamps
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual				F	G	H	J	R	
.5469 to .6562	35/64 to 21/32	7/8	.8750 .8748	1/2 3/4 1 1-1/4 1-1/2	SF-56-8 SF-56-12 SF-56-16 SF-56-20 SF-56-24	146 150 156 163 175	1-1/4	3/8	3/16	31/64	53/64	2A - LS RC - 2A
.4688 to .7812	15/32 to 25/32	1	1.0000 .9998	1/2 3/4 1 1-3/8 1-1/2 1-3/4 2-1/8 2-1/2 3	SF-64-8 SF-64-12 SF-64-16 SF-64-22 SF-64-24 SF-64-28 SF-64-34 SF-64-40 SF-64-48	146 151 156 164 175 187 205 272 316	1-27/64	3/8	3/16	19/32	59/64	2A - LS RC - 2A
.8750 and .9375	7/8 and 15/16	1-1/4	1.2500 1.2498	3/4 1 1-1/4 2	SF-80-12 SF-80-16 SF-80-20 SF-80-32	188 200 210 254	1-5/8	3/8	3/16	43/64	1-1/64	2A - LS RC - 2A
.7500 to 1.0625	3/4 to 1-1/16	1-3/8	1.3750 1.3747	3/4 1 1-3/8 1-1/2 1-3/4 2-1/8 2-1/2 3	SF-88-12 SF-88-16 SF-88-22 SF-88-24 SF-88-28 SF-88-34 SF-88-40 SF-88-48	182 193 204 213 223 245 288 325	1-51/64	3/8	3/16	25/32	1-7/64	2A - LS RC - 2A
1.0000 to 1.3750	1" to 1-3/8	1-3/4	1.7500 1.7497	3/4 1 1-3/8 1-3/4 2-1/8 2-1/2 3	SF-112-12 SF-112-16 SF-112-22 SF-112-28 SF-112-34 SF-112-40 SF-112-48	238 220 235 251 273 306 331	2-19/64	3/8	3/16	1	1-25/64	3A - LS RC - 3A
1.3750 to 1.7500	1-3/8 to 1-3/4	2-1/4	2.2500 2.2496	1 1-3/8 1-3/4 2-1/8 2-1/2 3	SF-144-16 SF-144-22 SF-144-28 SF-144-34 SF-144-40 SF-144-48	263 279 294 313 325 336	2-51/64	3/8	3/16	1-1/4	1-41/64	3A - LS RC - 3A

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

** Price Code - See Separate Net Price Schedule.

Please prefix the letters "FM" when ordering "SF" bushings milled for flat clamps.

I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
#80 to 1/4	+ .0001 to + .0004
Over 1/4 to 3/4	+ .0001 to + .0005
Over 3/4 to 1-1/2	+ .0002 to + .0006
Over 1-1/2 to 2-3/4	+ .0003 to + .0007



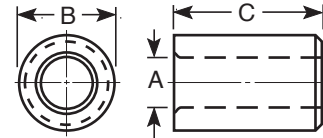
Body O.D.	"K"	"N"	Use Clamp
5/16	11/64	11/16	FC-1
1/2	17/64	25/32	FC-1
3/4	25/64	57/64	FC-1
1	1/2	1-9/64	FC-2
1-3/8	11/16	1-21/64	FC-2
1-3/4	7/8	1-33/64	FC-3
2-1/4	1-1/8	1-49/64	FC-3



Type L



All liner bushings are honed or ground in the I.D.
Liners with I.D.'s 3/16" to 1" are concentric within .0003"
T.I.R. to the O.D. Other I.D. sizes are held within .0005"
T.I.R. All unground bushings are left rough on the O.D.
with concentricity of approximately .006" T.I.R.



A I.D. SIZE		B BODY O.D.		C LENGTH (Overall)	ANSI SYMBOL TYPE L	Price Code**
Nominal	Actual	Nominal	Actual Ground		Ground*	
3/16	.1876 .1879	5/16	.3141 .3138	1/4	L-20-4	114
				5/16	L-20-5	117
				3/8	L-20-6	119
				1/2	L-20-8	120
				5/8	L-20-10	122
				3/4	L-20-12	124
1/4	.2501 .2504	7/16	.4392 .4389	1/4	L-28-4	110
				5/16	L-28-5	112
				3/8	L-28-6	113
				1/2	L-28-8	114
				5/8	L-28-10	116
				3/4	L-28-12	118
5/16	.3126 .3129	1/2	.5017 .5014	1/4	L-32-4	110
				5/16	L-32-5	111
				3/8	L-32-6	113
				1/2	L-32-8	114
				3/4	L-32-12	118
				1	L-32-16	129
				1-3/8	L-32-22	147
5/16	.3126 .3129	9/16	.5642 .5639	1/4	L-36-4	117
				5/16	L-36-5	112
				3/8	L-36-6	112
				1/2	L-36-8	111
				5/8	L-36-10	113
				3/4	L-36-12	114
				1	L-36-16	117
3/8	.3751 .3754	5/8	.6267 .6264	1/4	L-40-4	114
				5/16	L-40-5	110
				3/8	L-40-6	111
				1/2	L-40-8	111
				5/8	L-40-10	113
				3/4	L-40-12	114
				1	L-40-16	117
7/16	.4377 .4380	5/8	.6267 .6264	1/4	L-40-4	114
				5/16	L-40-5	110
				3/8	L-40-6	111
				1/2	L-40-8	111
				5/8	L-40-10	113
				3/4	L-40-12	114
				1	L-40-16	117
1/2	.5002 .5005	3/4	.7518 .7515	5/16	L-48-5	111
				3/8	L-48-6	114
				1/2	L-48-8	114
				3/4	L-48-12	117
				1	L-48-16	123
				1-3/8	L-48-22	133
				1-3/4	L-48-28	143
				2-1/8	L-48-34	160

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

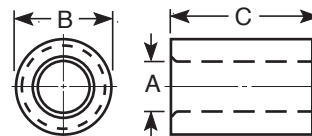
** Price Code - See Separate Net Price Schedule.



Type L



All liner bushings are honed or ground in the I.D.
Liners with I.D.'s 3/16" to 1" are concentric within .0003"
T.I.R. to the O.D. Other I.D. sizes are held within .0005"
T.I.R. All unground bushings are left rough on the O.D.
with concentricity of approximately .006" T.I.R.



A I.D. SIZE		B BODY O.D.		C LENGTH (Overall)	ANSI SYMBOL TYPE L	Price Code**
Nominal	Actual	Nominal	Actual Ground		Ground*	
9/16	.5627 .5630	7/8	.8768 .8765	5/16	L-56-5	127
				3/8	L-56-6	129
				1/2	L-56-8	123
				5/8	L-56-10	124
				3/4	L-56-12	125
				1	L-56-16	128
5/8	.6252 .6255	7/8	.8768 .8765	5/16	L-56-5	127
				3/8	L-56-6	129
				1/2	L-56-8	123
				5/8	L-56-10	124
				3/4	L-56-12	125
				1	L-56-16	128
3/4	.7503 .7506	1	1.0018 1.0015	1-1/4	L-56-20	132
				5/16	L-64-5	124
				3/8	L-64-6	120
				1/2	L-64-8	124
				3/4	L-64-12	125
				1	L-64-16	128
				1-3/8	L-64-22	132
				1-3/4	L-64-28	146
				2-1/8	L-64-34	156
7/8	.8754 .8757	1-1/4	1.2520 1.2517	2-1/2	L-64-40	174
				3	L-64-48	232
				3/8	L-80-6	138
				1/2	L-80-8	138
				5/8	L-80-10	147
				3/4	L-80-12	141
1	1.0004 1.0007	1-3/8	1.3772 1.3768	1	L-80-16	153
				1-1/4	L-80-20	162
				1-1/2	L-80-24	170
				1/2	L-88-8	153
				3/4	L-88-12	141
				1	L-88-16	153
				1-3/8	L-88-22	162
				1-1/2	L-88-24	170
				1-3/4	L-88-28	178
1-1/4	1.2505 1.2509	1-5/8	1.6272 1.6268	2-1/8	L-88-34	194
				2-1/2	L-88-40	210
				3	L-88-48	262
				5/8	L-104-10	144
				3/4	L-104-12	143
				1	L-104-16	147
				1-1/4	L-104-20	155
				1-1/2	L-104-24	161
				1-3/4	L-104-28	167
				2	L-104-32	179

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

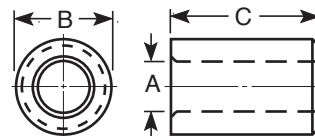
** Price Code - See Separate Net Price Schedule.



Type L



All liner bushings are honed or ground in the I.D.
Liners with I.D.'s 3/16" to 1" are concentric within .0003"
T.I.R. to the O.D. Other I.D. sizes are held within .0005"
T.I.R. All unground bushings are left rough on the O.D.
with concentricity of approximately .006" T.I.R.



A I.D. SIZE		B BODY O.D.		C LENGTH (Overall)	ANSI SYMBOL TYPE L	Price Code**
Nominal	Actual	Nominal	Actual Ground		Ground*	
1-3/8	1.3756 1.3760	1-3/4	1.7523 1.7519	3/4	L-112-12	173
				1	L-112-16	162
				1-3/8	L-112-22	173
				1-1/2	L-112-24	172
				1-3/4	L-112-28	186
				2-1/8	L-112-34	205
				2-1/2	L-112-40	256
				3	L-112-48	288
1-1/2	1.5006 1.5010	1-7/8	1.8773 1.8769	3/4	L-120-12	154
				1	L-120-16	157
				1-1/4	L-120-20	166
				1-1/2	L-120-24	172
				1-3/4	L-120-28	178
				2	L-120-32	191
				2-1/4	L-120-36	199
1-3/4	1.7508 1.7512	2-1/4	2.2525 2.2521	3/4	L-144-12	185
				1	L-144-16	196
				1-3/8	L-144-22	210
				1-3/4	L-144-28	223
				2-1/8	L-144-34	246
				2-1/2	L-144-40	264
				3	L-144-48	322
2-1/4	2.2510 2.2515	2-3/4	2.7526 2.7522	3/4	L-176-12	210
				1	L-176-16	197
				1-3/8	L-176-22	211
				1-3/4	L-176-28	227
				2-1/8	L-176-34	242
				2-1/2	L-176-40	261
				3	L-176-48	316

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

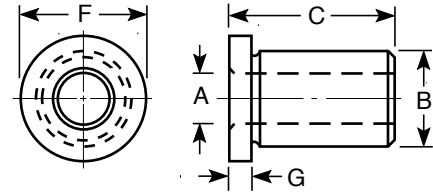
** Price Code - See Separate Net Price Schedule.



Type HL



All liner bushings are honed or ground in the I.D.
Liners with I.D.'s 3/16" to 1" are concentric within .0003"
T.I.R. to the O.D. Other I.D. sizes are held within .0005"
T.I.R. All unground bushings are left rough on the O.D.
with concentricity of approximately .006" T.I.R.



A I.D. SIZE		B BODY O.D.		C LENGTH (Overall)	ANSI SYMBOL TYPE HL	Price Code**	F & G HEAD SIZE
Nominal	Actual	Nominal	Actual Ground		Ground*		
5/16	.3126 .3129	1/2	.5017 .5014	5/16	HL-32-5	120	F 5/8 G 3/32
				3/8	HL-32-6	124	
				1/2	HL-32-8	125	
				3/4	HL-32-12	129	
				1	HL-32-16	146	
				1-3/8	HL-32-22	164	
1/2	.5002 .5005	3/4	.7518 .7515	5/16	HL-48-5	122	F 7/8 G 3/32
				3/8	HL-48-6	125	
				1/2	HL-48-8	125	
				3/4	HL-48-12	129	
				1	HL-48-16	137	
				1-3/8	HL-48-22	149	
				1-3/4	HL-48-28	161	
				2-1/8	HL-48-34	175	
3/4	.7503 .7506	1	1.0018 1.0015	1/2	HL-64-8	136	F 1-1/8 G 1/8
				3/4	HL-64-12	139	
				1	HL-64-16	144	
				1-3/8	HL-64-22	149	
				1-3/4	HL-64-28	168	
				2-1/8	HL-64-34	181	
				2-1/2	HL-64-40	203	
				3	HL-64-48	274	
1	1.0004 1.0007	1-3/8	1.3772 1.3768	1/2	HL-88-8	156	F 1-1/2 G 1/8
				3/4	HL-88-12	156	
				1	HL-88-16	156	
				1-3/8	HL-88-22	163	
				1-3/4	HL-88-28	179	
				2-1/8	HL-88-34	192	
				2-1/2	HL-88-40	210	
				3	HL-88-48	305	
1-3/8	1.3756 1.3760	1-3/4	1.7523 1.7519	3/4	HL-112-12	175	F 1-7/8 G 3/16
				1	HL-112-16	180	
				1-3/8	HL-112-22	191	
				1-3/4	HL-112-28	207	
				2-1/8	HL-112-34	225	
				2-1/2	HL-112-40	243	
				3	HL-112-48	324	
1-3/4	1.7508 1.7512	2-1/4	2.2525 2.2521	3/4	HL-144-12	216	F 2-3/8 G 3/16
				1	HL-144-16	204	
				1-3/8	HL-144-22	217	
				1-3/4	HL-144-28	232	
				2-1/8	HL-144-34	249	
				2-1/2	HL-144-40	269	
				3	HL-144-48	331	
2-1/4	2.2510 2.2515	2-3/4	2.7526 2.7522	3/4	HL-176-12	247	F 2-7/8 G 3/16
				1	HL-176-16	231	
				1-3/8	HL-176-22	249	
				1-3/4	HL-176-28	269	
				2-1/8	HL-176-34	284	
				2-1/2	HL-176-40	304	
				3	HL-176-48	336	

* Unground O.D.'s are available for custom grinding. To order add the letter "U" to the end of the ANSI Symbol.

** Price Code - See Separate Net Price Schedule.



EXTENDED RANGE BUSHINGS HEADLESS PRESS FIT

15

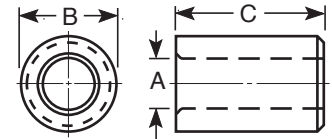
Type P



Extended Range Bushings with a ground O.D. are concentric within .0005" T.I.R. Unground Extended Range Bushings have a concentricity of .006" T.I.R. To order an unground O.D., add the letter "U" to the end of the ANSI designation.

The price code is listed below the ANSI designation for each Extended Range Bushing and applies to standard drill sizes only. For prices see separate price schedule. Special Extended Range Bushings will be priced on request.

Extended Range Bushings are not returnable.



A I.D. RANGE		1.5000 to 2.0000	1.5000 to 2.1250	1.5000 to 2.3750	1.7500 to 2.5000	2.2500 to 2.7500	2.2500 to 2.8750	2.5000 to 3.0000	2.5000 to 3.1250	2.7500 to 3.3750	3.0000 to 3.6250	3.0000 to 3.7500	3.3750 to 3.8750	3.3750 to 4.1250	3.6250 to 4.2500
B O.D. GROUND		2.3775 2.3771	2.5025 2.5021	2.7525 2.7521	3.0028 3.0023	3.2528 3.2523	3.3778 3.3773	3.5028 3.5023	3.7528 3.7523	4.0028 4.0023	4.2530 4.2525	4.3780 4.3775	4.5030 4.5025	4.7530 4.7525	5.0030 5.0025
B O.D. UNGROUND		2.395 2.390	2.520 2.515	2.770 2.765	3.020 3.015	3.270 3.265	3.395 3.390	3.520 3.515	3.770 3.765	4.020 4.015	4.270 4.265	4.395 4.390	4.520 4.515	4.770 4.765	5.020 5.015
L E N G T H C	3/4	P152-12 279	P160-12 306	P176-12 318	P192-12 323	P208-12 349	P216-12 351	P224-12 354	P240-12 358	P256-12 363	P272-12 369	P280-12 372	P288-12 375	P304-12 382	P320-12 388
	1	P152-16 294	P160-16 311	P176-16 323	P192-16 331	P208-16 354	P216-16 357	P224-16 360	P240-16 365	P256-16 372	P272-16 378	P280-16 382	P288-16 385	P304-16 391	P320-16 398
	1-1/4	P152-20 294	P160-20 317	P176-20 330	P192-20 335	P208-20 361	P216-20 364	P224-20 367	P240-20 375	P256-20 383	P272-20 389	P280-20 392	P288-20 395	P304-20 402	P320-20 414
	1-1/2	P152-24 295	P160-24 322	P176-24 335	P192-24 336	P208-24 367	P216-24 371	P224-24 375	P240-24 384	P256-24 391	P272-24 399	P280-24 402	P288-24 406	P304-24 414	P320-24 422
	1-3/4	P152-28 307	P160-28 328	P176-28 336	P192-28 337	P208-28 375	P216-28 379	P224-28 384	P240-28 390	P256-28 399	P272-28 407	P280-28 411	P288-28 416	P304-28 426	P320-28 433
	2	P152-32 314	P160-32 333	P176-32 337	P192-32 341	P208-32 383	P216-32 387	P224-32 390	P240-32 399	P256-32 407	P272-32 417	P280-32 422	P288-32 428	P304-32 439	P320-32 448
	2-1/8	P152-34 316	P160-34 335	P176-34 338											
	2-1/4	P152-36 319	P160-36 336	P176-36 338	P192-36 348	P208-36 389	P216-36 394	P224-36 397	P240-36 406	P256-36 416	P272-36 428	P280-36 433	P288-36 439	P304-36 448	P320-36 459
	2-1/2	P152-40 323	P160-40 336	P176-40 343	P192-40 354	P208-40 394	P216-40 399	P224-40 403	P240-40 413	P256-40 424	P272-40 437	P280-40 442	P288-40 447	P304-40 456	P320-40 466
	2-3/4	P152-44 330	P160-44 337	P176-44 348	P192-44 359	P208-44 400	P216-44 405	P224-44 409	P240-44 419	P256-44 432	P272-44 445	P280-44 449	P288-44 455	P304-44 464	P320-44 473
	3	P152-48 334	P160-48 338	P176-48 353	P192-48 366	P208-48 401	P216-48 411	P224-48 416	P240-48 427	P256-48 440	P272-48 452	P280-48 457	P288-48 462	P304-48 471	P320-48 483
	3-1/4	P152-52 336	P160-52 345	P176-52 359	P192-52 372	P208-52 412	P216-52 419	P224-52 425	P240-52 437	P256-52 448	P272-52 460	P280-52 466	P288-52 471	P304-52 482	P320-52 494
	3-1/2	P152-56 338	P160-56 356	P176-56 371	P192-56 384	P208-56 423	P216-56 429	P224-56 436	P240-56 447	P256-56 460	P272-56 471	P280-56 477	P288-56 483	P304-56 495	P320-56 506
	3-3/4	P152-60 343	P160-60 361	P176-60 376	P192-60 389	P208-60 429	P216-60 434	P224-60 443	P240-60 454	P256-60 466	P272-60 478	P280-60 485	P288-60 490	P304-60 502	P320-60 514
	4	P152-64 348	P160-64 367	P176-64 385	P192-64 400	P208-64 440	P216-64 445	P224-64 450	P240-64 461	P256-64 472	P272-64 486	P280-64 492	P288-64 498	P304-64 510	P320-64 523
	4-1/4	P152-68 361	P160-68 381	P176-68 396	P192-68 409	P208-68 447	P216-68 453	P224-68 458	P240-68 469	P256-68 480	P272-68 493	P280-68 499	P288-68 505	P304-68 518	P320-68 533
	4-1/2	P152-72 371	P160-72 391	P176-72 406	P192-72 417	P208-72 454	P216-72 459	P224-72 464	P240-72 475	P256-72 488	P272-72 501	P280-72 506	P288-72 513	P304-72 528	P320-72 542
	4-3/4	P152-76 380	P160-76 398	P176-76 413	P192-76 427	P208-76 462	P216-76 466	P224-76 471	P240-76 485	P256-76 497	P272-76 510	P280-76 517	P288-76 524	P304-76 540	P320-76 551
	5	P152-80 389	P160-80 406	P176-80 423	P192-80 442	P208-80 471	P216-80 477	P224-80 482	P240-80 495	P256-80 507	P272-80 522	P280-80 530	P288-80 538	P304-80 551	P320-80 564
	5-1/2						P216-88 488	P224-88 492	P240-88 505	P256-88 520	P272-88 536	P280-88 543	P288-88 549	P304-88 562	P320-88 580
	6								P240-96 515	P256-96 532	P272-96 547	P280-96 551	P288-96 558	P304-96 576	P320-96 594

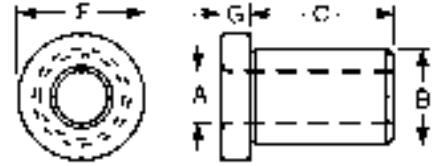


Type H



Extended Range Bushings with a ground O.D. are concentric within .0005" T.I.R. Unground Extended Range Bushings have a concentricity of .006" T.I.R. To order an unground O.D., add the letter "U" to the end of the ANSI designation.

The price code is listed below the ANSI designation for each Extended Range Bushing and applies to standard drill sizes only. For prices see separate price schedule. Special Extended Range Bushings will be priced on request.



Extended Range Bushings are not returnable.

A I.D. RANGE		+ .0003 + .0007	1.5000 to 2.0000	1.5000 to 2.1250	1.5000 to 2.3750	1.7500 to 2.5000	2.2500 to 2.7500	2.2500 to 2.8750	2.5000 to 3.0000	2.5000 to 3.1250	2.7500 to 3.3750	3.0000 to 3.6250	3.0000 to 3.7500	3.3750 to 3.8750	3.3750 to 4.1250	3.6250 to 4.2500
B O.D. GROUND			2.3775 2.3771	2.5025 2.5021	2.7525 2.7521	3.0028 3.0023	3.2528 3.2523	3.3778 3.3773	3.5028 3.5023	3.7528 3.7523	4.0028 4.0023	4.2530 4.2525	4.3780 4.3775	4.5030 4.5025	4.7530 4.7525	5.0030 5.0025
B O.D. UNGROUND			2.395 2.390	2.520 2.515	2.770 2.765	3.020 3.015	3.270 3.265	3.395 3.390	3.520 3.515	3.770 3.765	4.020 4.015	4.270 4.265	4.395 4.390	4.520 4.515	4.770 4.765	5.020 5.015
↑ <																

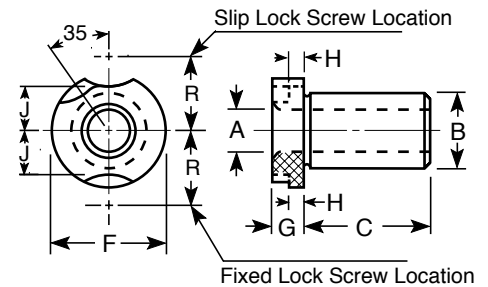
Type SF



Extended Range Slip-Fixed Renewable Bushings are ground to slip fit into Liners and are concentric within .0005" T.I.R.

The price code is listed below the ANSI designation for each Extended Range Bushing and applies to standard drill sizes only. For prices see separate price schedule. Special Extended Range Bushings will be priced on request.

Extended Range Bushings are not returnable.



A I.D. RANGE		+0.0003 +0.0007	1.0937 to 1.5312	1.5000 to 2.0312	1.5000 to 2.2812	1.7500 to 2.5312	2.2500 to 2.6250	2.2500 to 2.8750	2.6250 to 2.8750	2.5000 to 3.1250	2.7500 to 3.2500	3.0000 to 3.5000	3.0000 to 3.6250	3.3750 to 3.7500	3.3750 to 4.0000	3.6250 to 4.2500
B O.D.			2.0000 1.9996	2.5000 2.4996	2.7500 2.7496	3.0000 2.9996	3.2500 3.2496	3.3750 3.3746	3.5000 3.4996	3.7500 3.7496	4.0000 3.9996	4.2500 4.2496	4.3750 4.3746	4.5000 4.4996	4.7500 4.7496	5.0000 4.9996
LENGTH C	↑	3/4	SF128-12 326	SF160-12 382	SF176-12 406	SF192-12 438	SF208-12 442	SF216-12 447	SF224-12 451	SF240-12 455	SF256-12 470	SF272-12 475	SF280-12 481	SF288-12 489	SF304-12 497	SF320-12 506
		1	SF128-16 330	SF160-16 387	SF176-16 415	SF192-16 443	SF208-16 448	SF216-16 453	SF224-16 458	SF240-16 462	SF256-16 473	SF272-16 481	SF280-16 487	SF288-16 495	SF304-16 502	SF320-16 514
		1-1/4	SF128-20 335	SF160-20 394	SF176-20 419	SF192-20 448	SF208-20 454	SF216-20 460	SF224-20 464	SF240-20 467	SF256-20 480	SF272-20 487	SF280-20 493	SF288-20 500	SF304-20 507	SF320-20 521
		1-1/2	SF128-24 337	SF160-24 400	SF176-24 431	SF192-24 454	SF208-24 460	SF216-24 466	SF224-24 471	SF240-24 474	SF256-24 486	SF272-24 492	SF280-24 498	SF288-24 505	SF304-24 512	SF320-24 529
		1-3/4	SF128-28 338	SF160-28 408	SF176-28 439	SF192-28 459	SF208-28 467	SF216-28 473	SF224-28 477	SF240-28 482	SF256-28 492	SF272-28 500	SF280-28 504	SF288-28 511	SF304-28 519	SF320-28 537
		2	SF128-32 350	SF160-32 417	SF176-32 445	SF192-32 465	SF208-32 472	SF216-32 481	SF224-32 485	SF240-32 489	SF256-32 498	SF272-32 506	SF280-32 509	SF288-32 517	SF304-32 525	SF320-32 545
		2-1/8	SF128-34 354	SF160-34 426	SF176-34 451											
		2-1/4	SF128-36 365	SF160-36 429	SF176-36 455	SF192-36 470	SF208-36 480	SF216-36 489	SF224-36 493	SF240-36 497	SF256-36 505	SF272-36 512	SF280-36 517	SF288-36 525	SF304-36 533	SF320-36 550
		2-1/2	SF128-40 370	SF160-40 438	SF176-40 460	SF192-40 476	SF208-40 486	SF216-40 497	SF224-40 500	SF240-40 504	SF256-40 511	SF272-40 520	SF280-40 525	SF288-40 533	SF304-40 541	SF320-40 555
		2-3/4	SF128-44 380	SF160-44 444	SF176-44 466	SF192-44 483	SF208-44 494	SF216-44 504	SF224-44 507	SF240-44 512	SF256-44 519	SF272-44 528	SF280-44 534	SF288-44 541	SF304-44 548	SF320-44 564
		3	SF128-48 387	SF160-48 448	SF176-48 470	SF192-48 489	SF208-48 500	SF216-48 512	SF224-48 516	SF240-48 521	SF256-48 527	SF272-48 536	SF280-48 542	SF288-48 548	SF304-48 552	SF320-48 573
		3-1/4	SF128-52 398	SF160-52 454	SF176-52 474	SF192-52 497	SF208-52 509	SF216-52 522	SF224-52 527	SF240-52 526	SF256-52 536	SF272-52 543	SF280-52 549	SF288-52 553	SF304-52 561	SF320-52 582
		3-1/2	SF128-56 406	SF160-56 459	SF176-56 479	SF192-56 503	SF208-56 517	SF216-56 532	SF224-56 536	SF240-56 541	SF256-56 543	SF272-56 550	SF280-56 555	SF288-56 562	SF304-56 570	SF320-56 593
		3-3/4	SF128-60 413	SF160-60 463	SF176-60 485	SF192-60 510	SF208-60 526	SF216-60 542	SF224-60 545	SF240-60 549	SF256-60 551	SF272-60 556	SF280-60 566	SF288-60 574	SF304-60 581	SF320-60 601
		4	SF128-64 419	SF160-64 466	SF176-64 489	SF192-64 519	SF208-64 534	SF216-64 548	SF224-64 551	SF240-64 553	SF256-64 557	SF272-64 564	SF280-64 577	SF288-64 585	SF304-64 592	SF320-64 609
		4-1/4	SF128-68 424	SF160-68 471	SF176-68 494	SF192-68 528	SF208-68 542	SF216-68 551	SF224-68 556	SF240-68 564	SF256-68 569	SF272-68 578	SF280-68 589	SF288-68 595	SF304-68 601	SF320-68 614
		4-1/2	SF128-72 430	SF160-72 477	SF176-72 498	SF192-72 538	SF208-72 549	SF216-72 556	SF224-72 565	SF240-72 574	SF256-72 581	SF272-72 590	SF280-72 597	SF288-72 603	SF304-72 610	SF320-72 628
		4-3/4	SF128-76 436	SF160-76 483	SF176-76 503	SF192-76 546	SF208-76 552	SF216-76 563	SF224-76 574	SF240-76 584	SF256-76 592	SF272-76 598	SF280-76 605	SF288-76 612	SF304-76 618	SF320-76 637
		5	SF128-80 441	SF160-80 490	SF176-80 511	SF192-80 552	SF208-80 560	SF216-80 570	SF224-80 583	SF240-80 593	SF256-80 599	SF272-80 606	SF280-80 613	SF288-80 620	SF304-80 628	SF320-80 643
		5-1/2						SF216-88 584	SF224-88 599	SF240-88 606	SF256-88 615	SF272-88 622	SF280-88 630	SF288-88 637	SF304-88 642	SF320-88 652
HEAD SIZE		F	2-9/16	3-1/16	3-7/16	3-11/16	3-15/16	4-1/16	4-3/16	4-9/16	4-13/16	5-1/16	5-3/16	5-5/16	5-9/16	5-13/16
		G	3/8	3/8	7/16	7/16	7/16	7/16	7/16	7/16	1/2	1/2	1/2	1/2	1/2	1/2
		H	3/16	3/16	7/32	7/32	7/32	7/32	7/32	7/32	1/4	1/4	1/4	1/4	1/4	1/4
		J	1-1/8	1-3/8	1-35/64	1-43/64	1-51/64	1-55/64	1-59/64	2-7/64	2-15/64	2-23/64	2-27/64	2-31/64	2-39/64	2-47/64
Lock Screw			1-33/64	1-49/64	1-15/16	2-1/16	2-3/16	2-1/4	2-5/16	2-1/2	2-5/8	2-3/4	2-13/16	2-7/8	3	3-1/8
3A-LS		3A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS	4A-LS



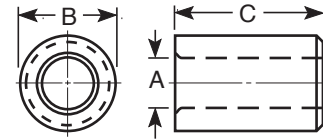
Type L



Extended Range Bushings with a ground O.D. are concentric within .0005" T.I.R. Unground Extended Range Bushings have a concentricity of .006" T.I.R. To order an unground O.D., add the letter "U" to the end of the ANSI designation.

The price code is listed below the ANSI designation for each Extended Range Bushing. For prices see separate price schedule.

Extended Range Bushings are not returnable.



A I.D. SIZE		2.0010 2.0015	2.5010 2.5015	2.7510 2.7515	3.0010 3.0015	3.2510 3.2515	3.3760 3.3765	3.5010 3.5015	3.7510 3.7515	4.0010 4.0015	4.2510 4.2515	4.3760 4.3765	4.5010 4.5015	4.7510 4.7515	5.0010 5.0015
B O.D. GROUND		2.5025 2.5021	3.0028 3.0023	3.3778 3.3773	3.6278 3.6273	3.8778 3.8773	4.0028 4.0023	4.1280 4.1275	4.5030 4.5025	4.7530 4.7525	5.0030 5.0025	5.1280 5.1275	5.2530 5.2525	5.5030 5.5025	5.7530 5.7525
B O.D. UNGROUND		2.520 2.515	3.020 3.015	3.395 3.390	3.645 3.640	3.895 3.890	4.020 4.015	4.145 4.140	4.520 4.515	4.770 4.765	5.020 5.015	5.145 5.140	5.270 5.265	5.520 5.515	5.770 5.765
L E N G T H C	3/4	L160-12 306	L192-12 323	L216-12 351	L232-12 356	L248-12 360	L256-12 363	L264-12 366	L288-12 375	L304-12 382	L320-12 388	L328-12 391	L336-12 395	L352-12 401	L368-12 408
	1	L160-16 311	L192-16 331	L216-16 357	L232-16 363	L248-16 369	L256-16 372	L264-16 375	L288-16 385	L304-16 391	L320-16 398	L328-16 401	L336-16 405	L352-16 412	L368-16 420
	1-1/4	L160-20 317	L192-20 335	L216-20 364	L232-20 370	L248-20 378	L256-20 383	L264-20 386	L288-20 395	L304-20 402	L320-20 410	L328-20 413	L336-20 417	L352-20 425	L368-20 433
	1-1/2	L160-24 322	L192-24 336	L216-24 371	L232-24 379	L248-24 386	L256-24 391	L264-24 394	L288-24 406	L304-24 414	L320-24 422	L328-24 426	L336-24 430	L352-24 439	L368-24 447
	1-3/4	L160-28 328	L192-28 337	L216-28 379	L232-28 387	L248-28 394	L256-28 399	L264-28 403	L288-28 416	L304-28 426	L320-28 433	L328-28 438	L336-28 443	L352-28 450	L368-28 459
	2	L160-32 333	L192-32 341	L216-32 387	L232-32 394	L248-32 402	L256-32 407	L264-32 412	L288-32 428	L304-32 439	L320-32 448	L328-32 452	L336-32 455	L352-32 462	L368-32 469
	2-1/8	L160-34 335	L192-34 345	L216-34 390											
	2-1/4	L160-36 336	L192-36 348	L216-36 394	L232-36 401	L248-36 410	L256-36 416	L264-36 421	L288-36 439	L304-36 448	L320-36 459	L328-36 463	L336-36 466	L352-36 473	L368-36 482
	2-1/2	L160-40 336	L192-40 354	L216-40 399	L232-40 408	L248-40 418	L256-40 424	L264-40 430	L288-40 447	L304-40 456	L320-40 466	L328-40 470	L336-40 475	L352-40 485	L368-40 496
	2-3/4	L160-44 337	L192-44 359	L216-44 405	L232-44 414	L248-44 425	L256-44 432	L264-44 438	L288-44 455	L304-44 464	L320-44 473	L328-44 479	L336-44 485	L352-44 497	L368-44 509
	3	L160-48 338	L192-48 366	L216-48 411	L232-48 422	L248-48 433	L256-48 440	L264-48 445	L288-48 462	L304-48 471	L320-48 483	L328-48 489	L336-48 496	L352-48 507	L368-48 521
	3-1/4	L160-52 345	L192-52 372	L216-52 419	L232-52 431	L248-52 443	L256-52 448	L264-52 454	L288-52 471	L304-52 482	L320-52 494	L328-52 500	L336-52 506	L352-52 520	L368-52 535
	3-1/2	L160-56 356	L192-56 384	L216-56 429	L232-56 442	L248-56 454	L256-56 460	L264-56 466	L288-56 483	L304-56 495	L320-56 506	L328-56 512	L336-56 520	L352-56 535	L368-56 549
	3-3/4	L160-60 361	L192-60 389	L216-60 434	L232-60 447	L248-60 460	L256-60 466	L264-60 471	L288-60 490	L304-60 502	L320-60 514	L328-60 522	L336-60 529	L352-60 544	L368-60 554
	4	L160-64 367	L192-64 400	L216-64 445	L232-64 455	L248-64 466	L256-64 472	L264-64 478	L288-64 498	L304-64 510	L320-64 523	L328-64 531	L336-64 539	L352-64 551	L368-64 565
	4-1/4	L160-68 381	L192-68 409	L216-68 453	L232-68 463	L248-68 473	L256-68 480	L264-68 486	L288-68 505	L304-68 518	L320-68 533	L328-68 541	L336-68 548	L352-68 559	L368-68 577
	4-1/2	L160-72 391	L192-72 417	L216-72 459	L232-72 469	L248-72 481	L256-72 488	L264-72 494	L288-72 513	L304-72 528	L320-72 542	L328-72 549	L336-72 553	L352-72 570	L368-72 590
	4-3/4	L160-76 398	L192-76 427	L216-76 466	L232-76 477	L248-76 490	L256-76 497	L264-76 502	L288-76 524	L304-76 540	L320-76 551	L328-76 558	L336-76 566	L352-76 585	L368-76 600
	5	L160-80 406	L192-80 442	L216-80 477	L232-80 488	L248-80 501	L256-80 507	L264-80 513	L288-80 538	L304-80 551	L320-80 564	L328-80 573	L336-80 583	L352-80 599	L368-80 613
	5-1/2						L256-88 520	L264-88 527	L288-88 549	L304-88 562	L320-88 580	L328-88 590	L336-88 597	L352-88 611	L368-88 627



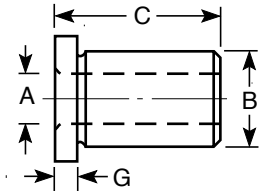
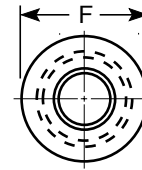
Type HL



Extended Range Bushings with a ground O.D. are concentric within .0005" T.I.R. Unground Extended Range Bushings have a concentricity of .006" T.I.R. To order an unground O.D., add the letter "U" to the end of the ANSI designation.

The price code is listed below the ANSI designation for each Extended Range Bushing. For prices see separate price schedule.

Extended Range Bushings are not returnable.



A I.D. SIZE		2.0010 2.0015	2.5010 2.5015	2.7510 2.7515	3.0010 3.0015	3.2510 3.2515	3.3760 3.3765	3.5010 3.5015	3.7510 3.7515	4.0010 4.0015	4.2510 4.2515	4.3760 4.3765	4.5010 4.5015	4.7510 4.7515	5.0010 5.0015
B O.D. GROUND		2.5025 2.5021	3.0028 3.0023	3.3778 3.3773	3.6278 3.6273	3.8778 3.8773	4.0028 4.0023	4.1280 4.1275	4.5030 4.5025	4.7530 4.7525	5.0030 5.0025	5.1280 5.1275	5.2530 5.2525	5.5030 5.5025	5.7530 5.7525
B O.D. UNGROUND		2.520 2.515	3.020 3.015	3.395 3.390	3.645 3.640	3.895 3.890	4.020 4.015	4.145 4.140	4.520 4.515	4.770 4.765	5.020 5.015	5.145 5.140	5.270 5.265	5.520 5.515	5.770 5.765
L E N G T H C	3/4	HL160-12 325	HL192-12 335	HL216-12 365	HL232-12 379	HL248-12 386	HL256-12 389	HL264-12 392	HL288-12 405	HL304-12 415	HL320-12 430	HL328-12 433	HL336-12 437	HL352-12 447	HL368-12 458
	1	HL160-16 332	HL192-16 336	HL216-16 373	HL232-16 387	HL248-16 394	HL256-16 397	HL264-16 401	HL288-16 415	HL304-16 425	HL320-16 437	HL328-16 443	HL336-16 447	HL352-16 458	HL368-16 467
	1-1/4	HL160-20 335	HL192-20 338	HL216-20 380	HL232-20 394	HL248-20 401	HL256-20 405	HL264-20 409	HL288-20 424	HL304-20 436	HL320-20 446	HL328-20 452	HL336-20 456	HL352-20 466	HL368-20 476
	1-1/2	HL160-24 336	HL192-24 341	HL216-24 387	HL232-24 401	HL248-24 410	HL256-24 415	HL264-24 419	HL288-24 436	HL304-24 446	HL320-24 456	HL328-24 462	HL336-24 466	HL352-24 476	HL368-24 488
	1-3/4	HL160-28 337	HL192-28 347	HL216-28 394	HL232-28 408	HL248-28 419	HL256-28 425	HL264-28 429	HL288-28 445	HL304-28 455	HL320-28 466	HL328-28 470	HL336-28 475	HL352-28 487	HL368-28 499
	2	HL160-32 338	HL192-32 352	HL216-32 400	HL232-32 417	HL248-32 428	HL256-32 434	HL264-32 440	HL288-32 455	HL304-32 466	HL320-32 474	HL328-32 480	HL336-32 486	HL352-32 497	HL368-32 509
	2-1/8	HL160-34 340	HL192-34 355	HL216-34 404											
	2-1/4	HL160-36 342	HL192-36 357	HL216-36 406	HL232-36 424	HL248-36 436	HL256-36 441	HL264-36 446	HL288-36 463	HL304-36 472	HL320-36 483	HL328-36 489	HL336-36 495	HL352-36 506	HL368-36 520
	2-1/2	HL160-40 349	HL192-40 364	HL216-40 414	HL232-40 432	HL248-40 444	HL256-40 448	HL264-40 454	HL288-40 470	HL304-40 482	HL320-40 492	HL328-40 498	HL336-40 503	HL352-40 516	HL368-40 531
	2-3/4	HL160-44 352	HL192-44 370	HL216-44 420	HL232-44 440	HL248-44 450	HL256-44 455	HL264-44 461	HL288-44 479	HL304-44 490	HL320-44 501	HL328-44 506	HL336-44 512	HL352-44 527	HL368-44 542
	3	HL160-48 357	HL192-48 377	HL216-48 427	HL232-48 447	HL248-48 457	HL256-48 464	HL264-48 468	HL288-48 488	HL304-48 499	HL320-48 510	HL328-48 517	HL336-48 524	HL352-48 539	HL368-48 551
	3-1/4	HL160-52 366	HL192-52 386	HL216-52 439	HL232-52 457	HL248-52 467	HL256-52 473	HL264-52 479	HL288-52 499	HL304-52 511	HL320-52 524	HL328-52 532	HL336-52 539	HL352-52 551	HL368-52 566
	3-1/2	HL160-56 380	HL192-56 398	HL216-56 452	HL232-56 469	HL248-56 480	HL256-56 488	HL264-56 494	HL288-56 514	HL304-56 529	HL320-56 542	HL328-56 549	HL336-56 553	HL352-56 571	HL368-56 590
	3-3/4	HL160-60 386	HL192-60 405	HL216-60 458	HL232-60 476	HL248-60 488	HL256-60 495	HL264-60 501	HL288-60 524	HL304-60 539	HL320-60 550	HL328-60 555	HL336-60 564	HL352-60 583	HL368-60 599
	4	HL160-64 392	HL192-64 413	HL216-64 466	HL232-64 485	HL248-64 496	HL256-64 504	HL264-64 510	HL288-64 536	HL304-64 549	HL320-64 560	HL328-64 568	HL336-64 579	HL352-64 595	HL368-64 610
	4-1/4	HL160-68 402	HL192-68 423	HL216-68 472	HL232-68 492	HL248-68 504	HL256-68 511	HL264-68 519	HL288-68 545	HL304-68 555	HL320-68 571	HL328-68 581	HL336-68 590	HL352-68 604	HL368-68 619
	4-1/2	HL160-72 412	HL192-72 435	HL216-72 480	HL232-72 499	HL248-72 510	HL256-72 518	HL264-72 526	HL288-72 551	HL304-72 564	HL320-72 581	HL328-72 591	HL336-72 597	HL352-72 612	HL368-72 627
	4-3/4	HL160-76 425	HL192-76 446	HL216-76 487	HL232-76 505	HL248-76 517	HL256-76 526	HL264-76 534	HL288-76 556	HL304-76 574	HL320-76 591	HL328-76 598	HL336-76 605	HL352-76 625	HL368-76 636
	5	HL160-80 431	HL192-80 454	HL216-80 493	HL232-80 511	HL248-80 525	HL256-80 533	HL264-80 542	HL288-80 566	HL304-80 583	HL320-80 598	HL328-80 605	HL336-80 612	HL352-80 628	HL368-80 642
	5-1/2						HL256-88 544	HL264-88 551	HL288-88 580	HL304-88 596	HL320-88 609	HL328-88 616	HL336-88 624	HL352-88 640	HL368-88 649
HEAD SIZE		F 2-5/8	3-1/8	3-1/2	3-7/8	4-1/8	4-1/4	4-3/8	4-3/4	5	5-1/4	5-3/8	5-1/2	5-3/4	6
		G 3/16	3/16	3/16	3/16	3/16	3/16	3/16	7/32	7/32	7/32	7/32	7/32	7/32	7/32



All "XTW" bushings are lapped, honed or ground in the I.D. Bushings with I.D.'s of 1/8" to 1" are ground to give a uniform wall thickness within .0003" T.I.R. Other I.D. sizes are held within .0005" T.I.R. Wall thickness (W) must fall within the range indicated in the chart below to be considered "XTW".

Because of the extremely thin wall, this type bushing tends to assume the shape of the hole into which it is inserted or the shape of the arbor onto which it is pressed. It will not necessarily be round in the free state.

Unless specified otherwise, "Xtra-Thinwall" Bushings will be manufactured to the following tolerances:

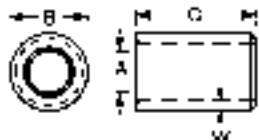
I.D. - Standard I.D. tolerances

O.D. - Type XTWP and XTWH: Standard press fit tolerances

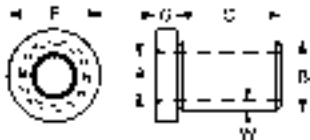
Type XTWSF: Standard slip-fit tolerances

Xtra-Thinwall Bushings are not returnable.
Prices on request.

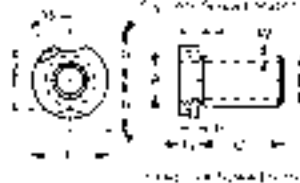
Type XTWP



Type XTWH



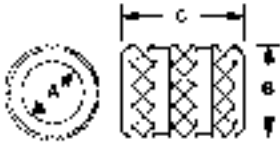
Type XTWSF



A I.D. Range	B O.D. Range	W Wall Thickness	C Length (Specify)	HEAD DIMENSIONS TYPE XTWH		HEAD DIMENSIONS TYPE XTWSF					
				F	G	F	G	H	J	R	Lock Screw
.0135 to .0485	.0785 to .1285	.0325 to .0400		1/4	3/32	5/16	3/16	3/32	3/32	17/64	#1-LS
.0486 to .0625	.0786 to .1425	.015 to .040		1/4	3/32	5/16	3/16	3/32	3/32	17/64	#1-LS
.0626 to .0995	.0926 to .1795	.015 to .040		5/16	3/32	5/16	3/16	3/32	3/32	17/64	#1-LS
.0996 to .1405	.1376 to .2305	.018 to .045		23/64	3/32	7/16	1/4	1/8	9/64	23/64	#2-LS
.1406 to .1910	.1786 to .2850	.019 to .047		27/64	1/8	35/64	1/4	1/8	11/64	1/2	1A-LS
.1911 to .2280	.2311 to .3140	.020 to .048		27/64	1/8	5/8	1/4	1/8	15/64	29/64	#2-LS
.2281 to .2900	.2671 to .3900	.021 to .050		1/2	5/32	5/8	1/4	1/8	15/64	29/64	#2-LS
.2901 to .3437	.3341 to .4577	.022 to .052		39/64	7/32	51/64	1/4	1/8	19/64	5/8	1A-LS
.3438 to .4375	.3918 to .5475	.024 to .055		11/16	3/32	7/8	1/4	1/8	23/64	37/64	#2-LS
.4376 to .5312	.4916 to .6512	.027 to .060		59/64	7/32	1-3/64	1/4	1/8	27/64	3/4	1A-LS
.5312 to .6562	.5913 to .7862	.030 to .065		1-7/64	1/4	1-1/4	3/8	3/16	31/64	53/64	2A-LS
.6562 to .7500	.7223 to .8900	.033 to .070		1-15/64	5/16	1-27/64	3/8	3/16	19/32	59/64	2A-LS
.7501 to .8437	.8201 to .9877	.035 to .072		1-15/64	5/16	1-27/64	3/8	3/16	19/32	59/64	2A-LS
.8438 to .9375	.9148 to 1.0875	.037 to .075		1-1/2	1/4	1-5/8	3/8	3/16	43/64	1-1/64	2A-LS
.9376 to 1.0000	1.0176 to 1.1600	.040 to .080		1-1/2	1/4	1-5/8	3/8	3/16	43/64	1-1/64	2A-LS



Type DG



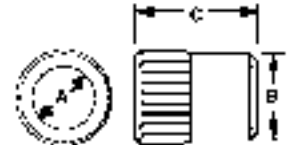
The Diamond-Groove type (DG) has a special knurl that provides superior holding strength in potting compounds and castable materials. The number of grooves is dependent on the length of the bushing.

Type SG



The Ser-Groove (SG) bushing consists of a serration that permits the bushing to be pressed into a jig or fixture made of soft material or laminated fiberglass while maintaining its holding strength.

Type SL



The Spline-Lock (SL) type bushing features a partially serrated and partially ground outside diameter. This configuration enables the bushing to be pressed into soft metals or wood.

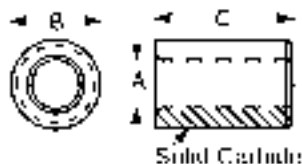
A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.			C LENGTH (Overall)	ORDERING SYMBOL		
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual			Diamond - Groove (Type DG)	Ser - Groove (Type SG)	Spline - Lock (Type SL)
			DG & SG	SL				
.0980 to .1406	#40 to #28 7/64 to 9/64	1/4	.275 .260	.2500 .2498	1/4 5/16 3/8 1/2	DG-16-4 DG-16-5 DG-16-6 DG-16-8	SG-16-4 SG-16-5 SG-16-6 SG-16-8	SL-16-4 SL-16-5 SL-16-6 SL-16-8
.1406 to .1935	#27 to #10 9/64 to 3/16	5/16	.337 .322	.3125 .3123	1/4 5/16 3/8 1/2 3/4	DG-20-4 DG-20-5 DG-20-6 DG-20-8 DG-20-12	SG-20-4 SG-20-5 SG-20-6 SG-20-8 SG-20-12	SL-20-5 SL-20-6 SL-20-8 SL-20-12
.1875 to .2570	#12 to #1 “A” to “F” 3/16 to 1/4	13/32	.431 .416	.4062 .4060	1/4 5/16 3/8 1/2 3/4	DG-26-4 DG-26-5 DG-26-6 DG-26-8 DG-26-12	SG-26-4 SG-26-5 SG-26-6 SG-26-8 SG-26-12	SL-26-5 SL-26-6 SL-26-8 SL-26-12
.2500 to .3160	“F” to “O” 1/4 to 5/16	1/2	.525 .510	.5000 .4998	5/16 3/8 1/2 3/4	DG-32-5 DG-32-6 DG-32-8 DG-32-12	SG-32-5 SG-32-6 SG-32-8 SG-32-12	SL-32-5 SL-32-6 SL-32-8 SL-32-12
.3125 to .4375	“O” to “Z” 5/16 to 7/16	5/8	.650 .635	.6250 .6248	3/8 1/2 3/4 1 1-3/8	DG-40-6 DG-40-8 DG-40-12 DG-40-16 DG-40-22	SG-40-6 SG-40-8 SG-40-12 SG-40-16 SG-40-22	SL-40-6 SL-40-8 SL-40-12 SL-40-16
.4375 to .5312	7/16 to 17/32	3/4	.775 .760	.7500 .7498	3/8 1/2 3/4 1 1-3/8	DG-48-6 DG-48-8 DG-48-12 DG-48-16 DG-48-22	SG-48-6 SG-48-8 SG-48-12 SG-48-16 SG-48-22	SL-48-6 SL-48-8 SL-48-12 SL-48-16
.5000 to .6562	1/2 to 21/32	7/8	.900 .885	.8750 .8748	3/8 1/2 3/4 1 1-3/8	DG-56-6 DG-56-8 DG-56-12 DG-56-16 DG-56-22	SG-56-6 SG-56-8 SG-56-12 SG-56-16 SG-56-22	SL-56-6 SL-56-8 SL-56-12 SL-56-16
.6250 to .7656	5/8 to 49/64	1"	1.025 1.010	1.0000 .9998	1/2 3/4 1 1-3/8	DG-64-8 DG-64-12 DG-64-16 DG-64-22	SG-64-8 SG-64-12 SG-64-16 SG-64-22	SL-64-8 SL-64-12 SL-64-16 SL-64-22

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise)
Embedment Bushings are Priced on Request.

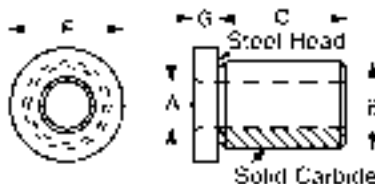
I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
7/64 to 1/4	+.0001 to +.0004
Over 1/4 to 3/4	+.0001 to +.0005
Over 3/4 to 49/64	+.0002 to +.0006



Type CP



Type CH



A I.D. RANGE (Std. Drill Sizes)		B BODY O.D.		C LENGTH (Under Head)	ANSI SYMBOL		HEAD SIZES (Type CH Only)	
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual Ground		Headless Press Fit (Type CP)	Head Press Fit (Type CH)	F	G
.0135 to .0312	#80 to #68 1/64 and 1/32	5/32	.1578 .1575	1/4 5/16	CP-10-4 CP-10-5			
.0320 to .0469	#67 to #56 3/64	5/32	.1578 .1575	1/4 5/16 1/2	CP-10-4 CP-10-5 CP-10-8			
.0520 to .0995	#55 to #39 1/16 to 3/32	13/64	.2046 .2043	1/4 5/16 1/2	CP-13-4 CP-13-5 CP-13-8	CH-13-5 CH-13-8	19/64	3/32
.1015 to .1360	#38 to #29 7/64 and 1/8	1/4	.2516 .2513	1/4 5/16 1/2	CP-16-4 CP-16-5 CP-16-8	CH-16-5 CH-16-8	23/64	3/32
.1405 to .1875	#28 to #13 9/64 to 3/16	5/16	.3141 .3138	5/16 1/2 3/4 1	CP-20-5 CP-20-8 CP-20-12 CP-20-16	CH-20-5 CH-20-8 CH-20-12 CH-20-16	27/64	1/8
.1890 to .2500	#12 to #1 "A" to "D" 13/64 to 1/4	13/32	.4078 .4075	5/16 1/2 3/4 1	CP-26-5 CP-26-8 CP-26-12 CP-26-16	CH-26-5 CH-26-8 CH-26-12 CH-26-16	1/2	5/32
.2570 to .3125	"F" to "N" 17/64 to 5/16	1/2	.5017 .5014	5/16 1/2 3/4 1 1-3/8	CP-32-5 CP-32-8 CP-32-12 CP-32-16 CP-32-22	CH-32-5 CH-32-8 CH-32-12 CH-32-16 CH-32-22	39/64	7/32
.3160 to .4219	"O" to "Z" 21/64 to 27/64	5/8	.6267 .6264	1/2 3/4 1 1-3/8	CP-40-8 CP-40-12 CP-40-16 CP-40-22	CH-40-8 CH-40-12 CH-40-16 CH-40-22	51/64	7/32
.4375 to .5000	7/16 to 1/2	3/4	.7518 .7515	1/2 3/4 1 1-3/8	CP-48-8 CP-48-12 CP-48-16 CP-48-22	CH-48-8 CH-48-12 CH-48-16 CH-48-22	59/64	7/32
.5156 to .6250	33/64 to 5/8	7/8	.8768 .8765	3/4 1 1-3/8 1-3/4	CP-56-12 CP-56-16 CP-56-22 CP-56-28	CH-56-12 CH-56-16 CH-56-22 CH-56-28	1-7/64	1/4
.6406 to .7500	41/64 to 3/4	1	1.0018 1.0015	1/2 3/4 1 1-3/8 1-3/4	CP-64-8 CP-64-12 CP-64-16 CP-64-22 CP-64-28	CH-64-8 CH-64-12 CH-64-16 CH-64-22 CH-64-28	1-15/64	5/16
.7656 to 1.0000	49/64 to 1"	1-3/8	1.3772 1.3768	3/4 1 1-3/8 1-3/4 2-1/8 2-1/2	CP-88-12 CP-88-16 CP-88-22 CP-88-28 CP-88-34 CP-88-40	CH-88-12 CH-88-16 CH-88-22 CH-88-28 CH-88-34 CH-88-40	1-39/64	3/8
1.0156 to 1.3750	1-1/64 to 1-3/8	1-3/4	1.7523 1.7519	1 1-3/8 1-3/4 2-1/8 2-1/2 3	CP-112-16 CP-112-22 CP-112-28 CP-112-34 CP-112-40 CP-112-48	CH-112-16 CH-112-22 CH-112-28 CH-112-34 CH-112-40 CH-112-48	1-63/64	3/8
1.3906 to 1.7500	1-25/64 to 1-3/4	2-1/4	2.2525 2.2521	1 1-3/8 1-3/4 2-1/8 2-1/2 3	CP-144-16 CP-144-22 CP-144-28 CP-144-34 CP-144-40 CP-144-48	CH-144-16 CH-144-22 CH-144-28 CH-144-34 CH-144-40 CH-144-48	2-31/64	3/8

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise).

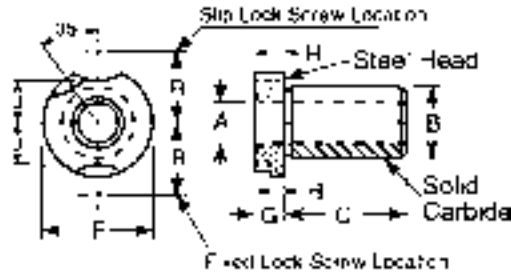
Prices on Request.

Carbide Bushings are not Returnable.



Type CSF

I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
#80 to 1/4	+0.0001 to +0.0004
Over 1/4 to 3/4	+0.0001 to +0.0005
Over 3/4 to 1-1/2	+0.0002 to +0.0006
Over 1-1/2 to 1-3/4	+0.0003 to +0.0007



A I.D. RANGE (Std. Drill Sizes)		B Body O.D.		C Length (Under Head)	ANSI SYMBOL Slip-Fixed Renewable (Type CSF)	HEAD SIZE					Lock Screws and Clamps
Decimal	Numbers, Letters, and Fractions†	Nominal	Actual			F	G	H	J	R	
.0520 to .1562	#55 to #23 1/16 to 5/32	5/16	.3125 .3123	5/16 1/2 3/4 1	CSF-20-5 CSF-20-8 CSF-20-12 CSF-20-16	35/64	1/4	1/8	11/64	1/2	1A-LS RC-1A
.1570 to .3125	#22 to #1 "A" to "N" 11/64 to 5/16	1/2	.5000 .4998	5/16 1/2 3/4 1 1-3/8	CSF-32-5 CSF-32-8 CSF-32-12 CSF-32-16 CSF-32-22	51/64	1/4	1/8	19/64	5/8	1A-LS RC-1A
.3160 to .5000	"O" to "Z" 21/64 to 1/2	3/4	.7500 .7498	1/2 3/4 1 1-3/8	CSF-48-8 CSF-48-12 CSF-48-16 CSF-48-22	1-3/64	1/4	1/8	27/64	3/4	1A-LS RC-1A
.5156 to .7500	33/64 to 3/4	1	1.0000 .9998	1/2 3/4 1 1-3/8 1-3/4	CSF-64-8 CSF-64-12 CSF-64-16 CSF-64-22 CSF-64-28	1-27/64	3/8	3/16	19/32	59/64	2A-LS RC-2A
.7656 to 1.0000	49/64 to 1"	1-3/8	1.3750 1.3747	3/4 1 1-3/8 1-3/4 2-1/8 2-1/2	CSF-88-12 CSF-88-16 CSF-88-22 CSF-88-28 CSF-88-34 CSF-88-40	1-51/64	3/8	3/16	25/32	1-7/64	2A-LS RC-2A
1.0156 to 1.3750	1-1/64 to 1-3/8	1-3/4	1.7500 1.7497	1 1-3/8 1-3/4 2-1/8 2-1/2 3	CSF-112-16 CSF-112-22 CSF-112-28 CSF-112-34 CSF-112-40 CSF-112-48	2-19/64	3/8	3/16	1	1-25/64	3A-LS RC-3A
1.3906 to 1.7500	1-25/64 to 1-3/4	2-1/4	2.2500 2.2496	1 1-3/8 1-3/4 2-1/8 2-1/2 3	CSF-144-16 CSF-144-22 CSF-144-28 CSF-144-34 CSF-144-40 CSF-144-48	2-51/64	3/8	3/16	1-1/4	1-41/64	3A-LS RC-3A

† Fraction I.D. Range is in increments of 1/64" (except where indicated otherwise)

Prices on Request

Carbide Bushings are not Returnable

ACME Ultimate™ Bushings

- Is the brittle nature of Carbide Bushings unacceptable for your application?
- Does the quantity of bushings you require for a job make Carbide Bushings cost prohibitive?
- Is the abrasive action of Carbide Bushings causing premature tool wear?

Acme Ultimate Bushings are the answer!

Acme Ultimate bushings are Titanium Nitride (TiN) coated for longer life. Titanium Nitride coated bushings have a hardness of 82-85 RC. This increase in surface hardness means the bushings can stand the abrasive wear of tools and chips for much longer periods of time and are less brittle than regular carbide bushings.

The TiN coating on Acme Ultimate Bushings has a very slippery surface. This slippery surface on the I.D. of the bushing will help increase tool life.

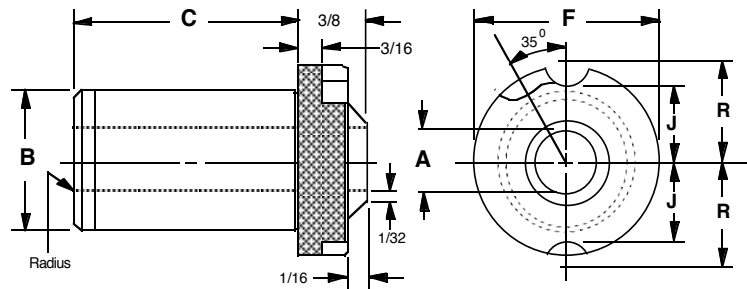
The greater the number of bushings needed for an application, the more Acme Ultimate Bushings can reduce your cost.

Call or write us for more information.



Type GDB

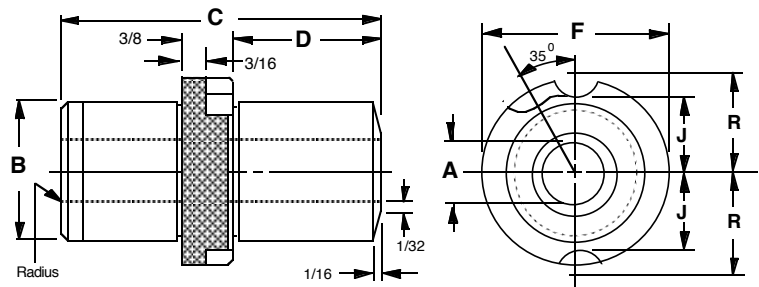
Acme Type GDB Bushings are thru-hardened to 62–64 RC and ground concentric within .0002" T.I.R. The head is undercut and ground square to the outside diameter. The face is square to the inside diameter within .0002" T.I.R. Type GDB Bushings are manufactured from semi-finished inventory for quick delivery.



Description	A I.D. Range +.0002 / -.0000	B O.D. Size		C Length (Under Head)	Head Dimensions			Lockscrew
		Nominal	Actual		F	J	R	
GDB-64-16	3/16 – 25/32 (.1875) (.7812)	1"	1.0000 .9998	1"	1-27/64	19/32	59/64	2A-LS
GDB-64-22	1/4 – 25/32 (.2500) (.7812)			1-3/8				
GDB-88-16	3/16 – 1-1/16 (.1875) (1.0625)	1-3/8	1.3750 1.3748	1"	1-51/64	25/32	1-7/64	2A-LS
GDB-88-22	1/4 – 1-1/16 (.2500) (1.0625)			1-3/8				

Type GDX

Type GDX Bushings are made to the same high standards as Acme's other Gun Drill Bushings. The I.D. is ground concentric to the O.D. within .0002" T.I.R. and the face is also square to the I.D. within .0002" T.I.R. The head is undercut and ground square to the O.D. The O.D. of length "D" is left unground. GDX Bushings are made from tool steel and thru-hardened to 62–64 RC. Special sizes and materials are available on request.

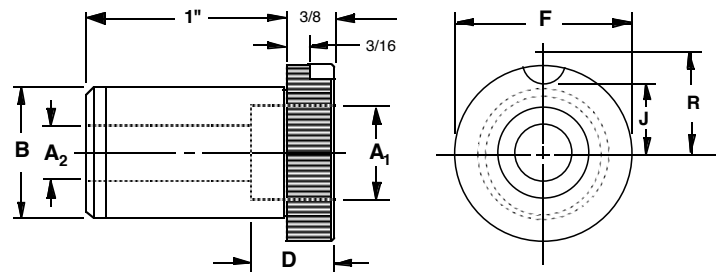


Description	A I.D. Range +.0002 / -.0000	B O.D. Size		C Overall Length	D	Head Dimensions			Lockscrew
		Nominal	Actual			F	J	R	
GDX-88-30	3/16 – 1-1/16 (.1875) (1.0625)	1-3/8	1.3750 1.3748	1-7/8	1/2	1-51/64	25/32	1-7/64	2A-LS
GDX-88-38	1/4 – 1-1/16 (.2500) (1.0625)			2-3/8	1"				
GDX-88-46	9/32 – 1-1/16 (.2812) (1.0625)			2-7/8	1-1/2				
GDX-88-54	5/16 – 1-1/16 (.3125) (1.0625)			3-3/8	2"				



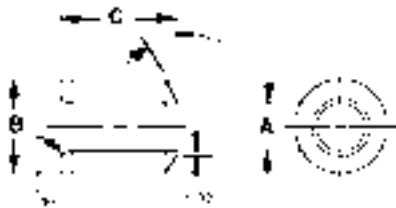
Liners – Type GDL

Acme Gun Drill Liners are designed to be used with the replaceable inserts indicated in the table below. All type GDL Bushings are ground concentric within .0002" T.I.R. The heads are undercut and ground square with outside diameters so the liner will seat flat against the chip box.



Part Number	Description	A ₁ +.0002 -.0000	A ₂ ±.005	B O.D. Size		D	Head Dimensions			Lockscrew	Insert Used
				Nominal	Actual		F	J	R		
A51210	GDL-64-16	.2045	.125	1"	1.0000 .9998	7/16	1-27/64	19/32	59/64	2A-LS	GDI-13-8
A51212		.2515	.156								GDI-16-8
A51214		.3140	.218								GDI-20-8
A51216		.5016	.406								GDI-32-8
A51218		.7517	.625								GDI-48-8
A51240	GDL-88-16	.2045	.125	1-3/8	1.3750 1.3748	7/16	1-51/64	25/32	1-7/64	2A-LS	GDI-13-8
A51242		.2515	.156								GDI-16-8
A51244		.3140	.218								GDI-20-8
A51246		.5016	.406								GDI-32-8
A51248		.7517	.625								GDI-48-8
A51250		1.0017	.875			11/16	1-51/64	25/32	1-7/64	2A-LS	GDI-64-12

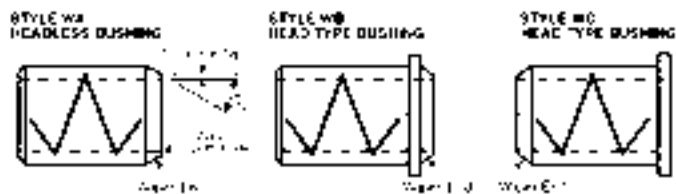
Inserts – Type GDI



Acme Gun Drill Inserts are manufactured from thru-hardened tool steel and heat treated to 62–64 RC for longer life. The I.D., O.D., and face of GDI Bushings are ground concentric and square within .0002" T.I.R.

Inserts are stocked in standard drill sizes only. Special I.D. sizes and special materials (ie. Carbide or Titanium Nitride coating) are available to meet your requirements.

Description	A I.D. Range +.0002 / -.0000	B O.D. Size		C Length
		Nominal	Actual	
GDI-13-8	5/64 – #39 (.0781) (.0995)	13/64	.2047 .2044	1/2
GDI-16-8	#38 – 9/64 (.1015) (.1406)	1/4	.2517 .2514	1/2
GDI-20-8	#27 – #10 (.1440) (.1935)	5/16	.3142 .3139	1/2
GDI-32-8	13/64 – O (.2031) (.3160)	1/2	.5018 .5015	1/2
GDI-48-8	P – 17/32 (.3230) (.5312)	3/4	.7519 .7516	1/2
GDI-64-12	9/16 – 3/4 (.5625) (.7500)	1"	1.0019 1.0016	3/4



Oil Grooves: 1/16" wide x 1/32" deep

Oil Holes: 1/4" Diam. (If I.D., O.D., and/or Length are 1" or less, Oil hole will be 1/8" Diam. and O.D. groove will be 3/16" wide x 1/32" deep).

Order by: Acme/ANSI Symbol or by I.D., O.D. and Length, indicating desired style of Oil Groove. Example: Style 18 Oil Groove, 1" X 1-3/8 x 3/4 Type P and WA Wiper.

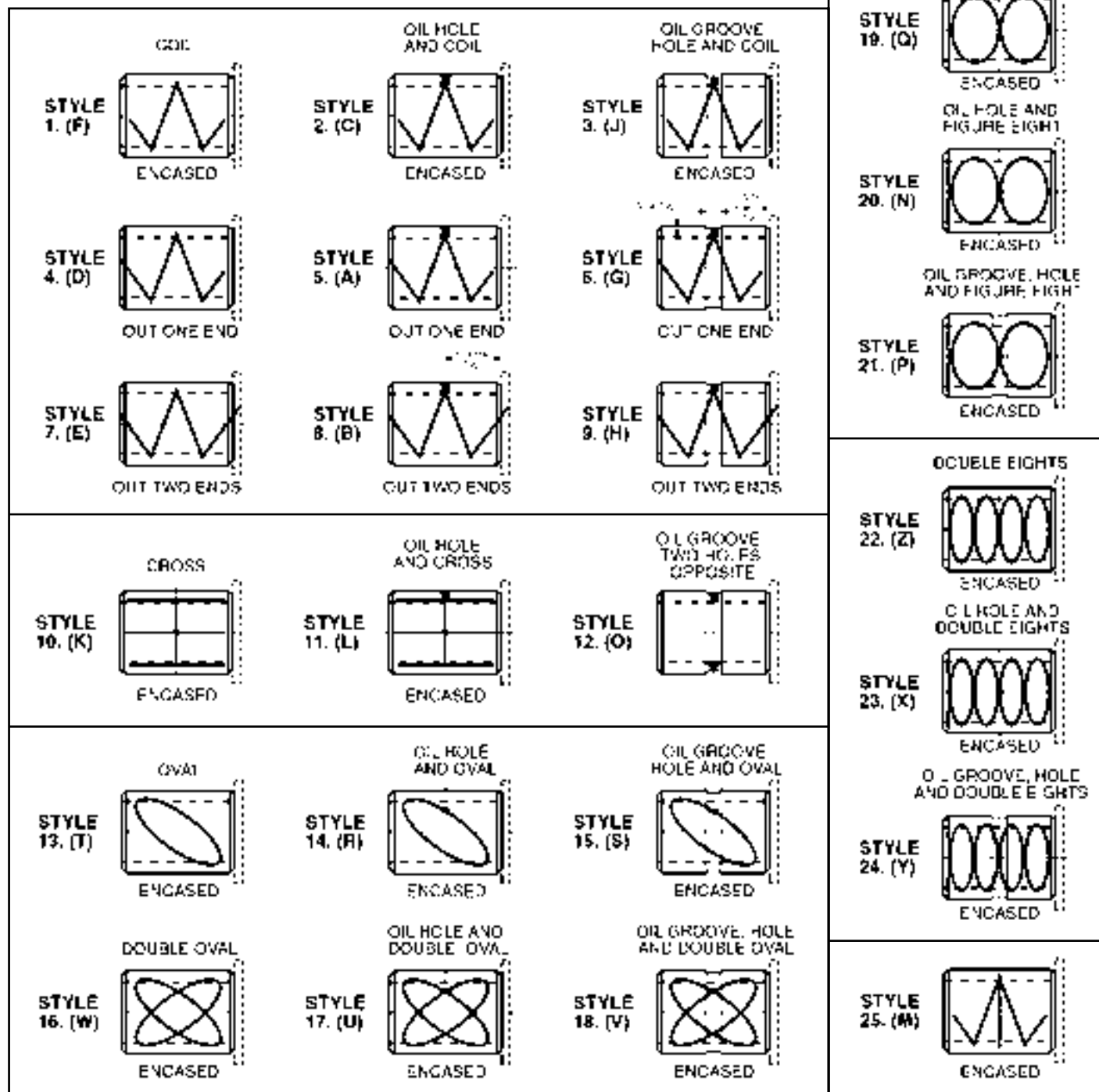
Prices Available on Request

Oil Groove Bushings are not Returnable

Wiper Specifications: Oil groove does not run out on wiper end.

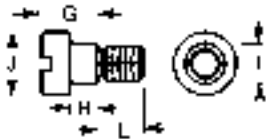
Material: Tool Steel unless specified otherwise by customer.

Range: 1/2" to 8" I.D. and 1/2" to 6" long. Styles 1-9 must be 5/8" I.D. or larger.



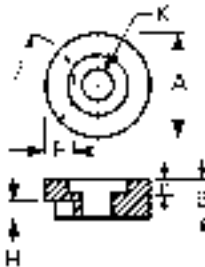


Lock Screws



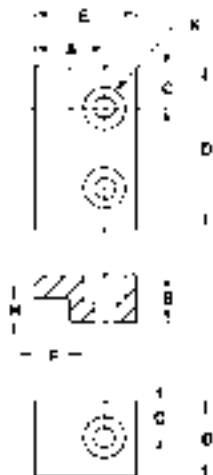
Part Number	Symbol	G	H	I	J	L	Thread
A00012	#1-LS	3/16	.100 .094	3/16	5/16	1/4	8-32
A00016	#2-LS	1/4	.132 .128	1/4	3/8	1/4	10-32
A00014	1A-LS	1/4	.138 .132	3/8	5/8	3/8	5/16-18
A00018	2A-LS	3/8	.200 .194	3/8	5/8	3/8	5/16-18
A00022	3A-LS	3/8	.200 .194	7/16	3/4	5/8	3/8-16
A00026	4A-LS	7/16	.231 .225	7/16	3/4	5/8	3/8-16
A00030	5A-LS	1/2	.263 .257	7/16	3/4	5/8	3/8-16

Round Clamps



Part Number	Symbol	A	B	D	E	F	H	K
A00002	RC-1A	5/8	5/16	5/32	35/64	.109	1/8	5/16 SOC. HD. SCR.
A00004	RC-2A	5/8	7/16	7/32	59/64	.125	3/16	5/16 SOC. HD. SCR.
A00006	RC-3A	3/4	1/2	9/32	1-27/64	.156	3/16	3/8 SOC. HD. SCR.
A00008	RC-4A	3/4	17/32	1/4	2-33/64	.156	7/32	3/8 SOC. HD. SCR.
A00010	RC-5A	3/4	9/16	1/4	2-33/64	.156	1/4	3/8 SOC. HD. SCR.

Flat Clamps



FOR FLUSH MOUNTING WITH HEADLESS LINERS (TYPE L)										
Part Number	Symbol	A	B	C	D	E	F	H	K	No. of Holes
A00050	FC-1	1/2	5/16	5/16	5/8	7/8	3/16	1/8	1/4 SOC. HD. SCR.	1
A00051	FC-2	5/8	3/8	1/2	1	1	1/4	3/16	5/16 SOC. HD. SCR.	1
A00052	FC-3	5/8	3/8	1/2	1	1-1/8	5/16	3/16	5/16 SOC. HD. SCR.	1
A00053	FC-4	51/64	7/16	5/8	1-1/4	1-11/64	27/64	7/32	3/8 SOC. HD. SCR.	1
A00054	FC-5	51/64	7/16	3/8	1-3/4	1-11/64	27/64	7/32	3/8 SOC. HD. SCR.	2
A00055	FC-6	51/64	1/2	5/8	1-1/4	1-11/64	27/64	1/4	3/8 SOC. HD. SCR.	1
A00056	FC-7	51/64	1/2	3/8	1-3/4	1-11/64	27/64	1/4	3/8 SOC. HD. SCR.	2
FOR PROJECTED MOUNTING WITH HEAD LINERS (TYPE HL)										
A00058	FC-11	1/2	3/8	5/16	5/8	7/8	3/16	1/4	1/4 SOC. HD. SCR.	1
A00059	FC-12	5/8	1/2	1/2	1	1	1/4	5/16	5/16 SOC. HD. SCR.	1
A00060	FC-13	5/8	9/16	1/2	1	1	1/4	3/8	5/16 SOC. HD. SCR.	1
A00061	FC-14	5/8	9/16	5/8	1-1/4	1-1/8	5/16	3/8	3/8 SOC. HD. SCR.	1
A00062	FC-15	5/8	9/16	3/8	1-3/4	1-1/8	5/16	3/8	3/8 SOC. HD. SCR.	2
A00064	FC-21	51/64	3/4	3/8	1-3/4	1-11/64	27/64	15/32	3/8 SOC. HD. SCR.	2



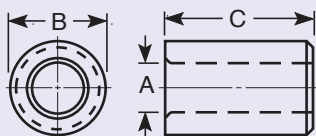
**To Standardize is to
Economize —
Always try to order a
standard bushing**

Where possible, ACME will modify ANSI/ACME standard bushings to meet your requirements. This will save you money. However, we will gladly manufacture to your specifications and tolerances.

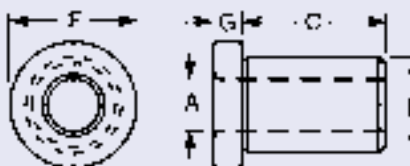
Just photocopy this page, fill in the necessary information and mail or FAX to:

ACME INDUSTRIAL COMPANY
441 Maple Avenue
Carpentersville, IL 60110
Attn: Customer Service Department

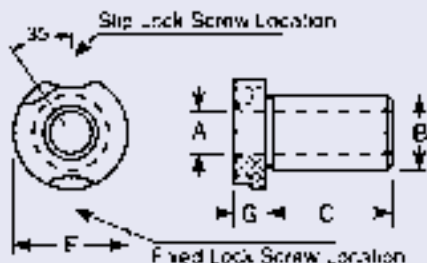
Headless Press Fit – Type P and Headless Liner – Type L



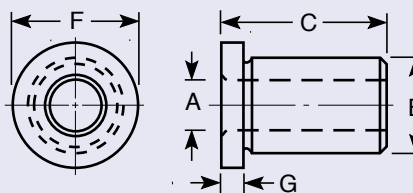
Head Press Fit – Type H



Slip-Fixed Renewable – Type SF



Head Liner – Type HL



Please Fill in the Required Dimensions:

A (I.D.)	B (O.D.)	C (Length)	F (Head Diam.)	G (Head Thick.)

- Our standard tolerances will be supplied unless otherwise specified.
- Please specify to four decimal places.
- No-Counterbore is standard unless specified otherwise.

Please check the type of bushing desired:

- ☐ P = Headless Press Fit
☐ H = Head Press Fit
☐ SF = Slip-Fixed Renewable
☐ L = Headless Liners
☐ HL = Head Liners

Material Required _____
 Hardness of _____ RC
 Quantities Required _____
 and _____

Additional Information: _____

If you need any further assistance in ordering special/custom drill bushings please call our customer service department for help:

Phone: (847) 428-3911
 WATTS: (800) 323-5582
 FAX: (847) 428-1820

Name: _____ Title: _____

Company: _____

Address: _____

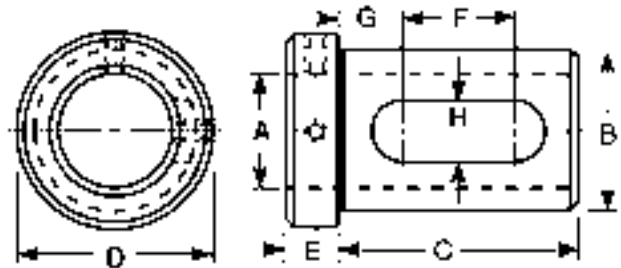
City: _____ State: _____ Zip: _____

Telephone: _____ FAX: _____ Telex: _____



CNC Style

Type Z



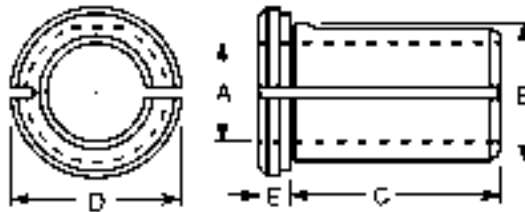
Acme CNC Tool Holder Bushings are designed to adapt tools such as drills and boring bars to NC or CNC machine tools. The elongated slots on the body makes adapting tools to all brands of equipment a snap. Set screws in the head of these bushings permits use with preset tooling. Type Z bushings are hardened and ground for long life and precision alignment.

Acme Part Number	A I.D.	B O.D.	C Length (Under Head)	HEAD DIMENSIONS		F	G	H
				D O.D.	E Thickness			
A52321 A52322 A52323 A52325 A52327 A52328	1/2 5/8 3/4 7/8 1 1-1/4	1-1/2	3-1/2	1-3/4	5/8	2	11/16	7/8
A52331 A52332 A52333 A52334 A52335 A52336 A52337	1/2 5/8 3/4 7/8 1 1-1/4 1-1/2	1-3/4	3-1/2	2-1/8	5/8	2	11/16	7/8
A52343 A52344 A52345 A52346 A52347 A52348	3/4 7/8 1 1-1/4 1-1/2 1-3/4	2	4	2-3/8	5/8	2-1/8	3/4	1
A52352 A52354 A52355 A52356 A52357 A52358 A52359	3/4 1 1-1/4 1-1/2 1-3/4 2 2-1/4	2-1/2	4	2-7/8	3/4	2-1/8	7/8	1
A52361 A52362 A52363 A52364 A52365 A52366 A52367	1 1-1/4 1-1/2 1-3/4 2 2-1/4 2-1/2	3	4-1/2	3-5/8	3/4	2-1/4	1	1-1/4



Solid Style

Type B



Type B Tool Holder Bushings are split through the entire length of the bushing on one side. This enables the bushing to clamp on the shank of cutting tools by tightening the screws in the turret bore or tool holder. Acme Type B bushings are hardened and precision ground to provide a longer lasting more accurate bushing. Solid, soft blanks with a machine finish are available upon request.

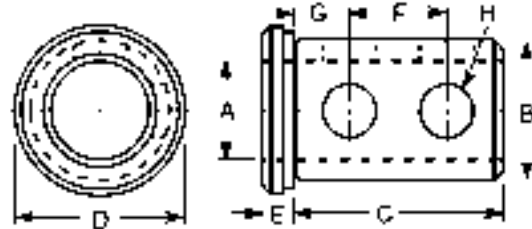
Acme Part Number	A I.D.	B O.D.	C Length (Under Head)	HEAD DIMENSIONS	
				D O.D.	E Thickness
A52001 A52002 A52003	5/16 3/8 1/2	3/4	1-1/2	1-1/16	3/16
A52010 A52011 A52012 A52013	3/8 1/2 5/8 3/4	1	1-3/4	1-3/16	3/16
A52014 A52015 A52016 A52017 A52018 A52019	3/8 1/2 5/8 3/4 7/8 1	1-1/4	2-1/8	1-7/16	1/4
A52020 A52021 A52022 A52023 A52025 A52027 A52028	3/8 1/2 5/8 3/4 7/8 1 1-1/4	1-1/2	2-1/2	1-11/16	1/4
A52031 A52032 A52033 A52035 A52036 A52037	1/2 5/8 3/4 1 1-1/4 1-1/2	1-3/4	3	2-1/8	5/16
A52041 A52042 A52043 A52045 A52046 A52047 A52048	1/2 5/8 3/4 1 1-1/4 1-1/2 1-3/4	2	3-1/2	2-3/8	5/16
A52050 A52051 A52052 A52054 A52055 A52056 A52057 A52058 A52059	1/2 5/8 3/4 1 1-1/4 1-1/2 1-3/4 2 2-1/4	2-1/2	4	2-7/8	3/8
A52063 A52064 A52065 A52066 A52067	1-1/2 1-3/4 2 2-1/4 2-1/2	3	4-1/2	3-5/8	7/16



Solid Style Type J



Acme Type J Tool Holder Bushings have clearance holes for set screws for proper clamping on the shank of tools. These bushings are hardened and ground for long life and accurate alignment. Solid, soft blanks for custom machining are available on request.

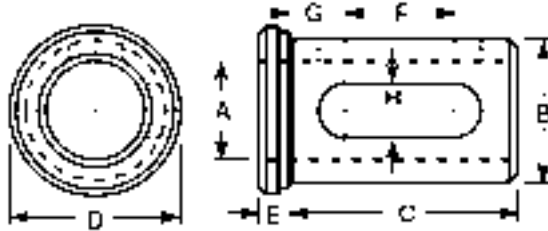


Acme Part Number	A I.D.	B O.D.	C Length (Under Head)	HEAD DIMENSIONS		F	G	H	Number of Holes
				D O.D.	E Thickness				
A52114 A52115 A52116 A52117 A52118 A52119	3/8 1/2 5/8 3/4 7/8 1	1-1/4	2-1/8	1-7/16	1/4	1	1/2	5/8	2
A52121 A52122 A52123 A52125 A52127 A52128	1/2 5/8 3/4 7/8 1 1-1/4	1-1/2	2-1/2	1-11/16	1/4	1-1/8	11/16	7/8	2
A52131 A52132 A52133 A52134 A52135 A52136 A52137	1/2 5/8 3/4 7/8 1 1-1/4 1-1/2	1-3/4	3	2-1/8	5/16	1-1/4	3/4	7/8	2
A52143 A52144 A52145 A52146 A52147 A52148	3/4 7/8 1 1-1/4 1-1/2 1-3/4	2	3-1/2	2-3/8	5/16	1-1/2	3/4	1	2
A52152 A52154 A52155 A52156 A52157 A52158 A52159	3/4 1 1-1/4 1-1/2 1-3/4 2 2-1/4	2-1/2	4	2-7/8	3/8	1-3/4	7/8	1-1/4	2 2 4 4 4 4 4
A52161 A52162 A52163 A52164 A52165 A52166 A52167	1 1-1/4 1-1/2 1-3/4 2 2-1/4 2-1/2	3	4-1/2	3-5/8	7/16	2	1	1-1/4	2 4 4 4 4 4 4



Slotted Style

Type C



Acme Type C Tool Holder Bushings have an elongated slot to allow set screws to properly clamp on the shank of tools. Type C bushings are hardened and ground for a more accurate, longer lasting bushing.

Acme Part Number	A I.D.	B O.D.	C Length (Under Head)	HEAD DIMENSIONS		F	G	H
				D O.D.	E Thickness			
A52214 A52215 A52216 A52217 A52218 A52219	3/8 1/2 5/8 3/4 7/8 1	1-1/4	3-1/4	1-7/16	1/4	2	11/16	3/4
A52221 A52222 A52223 A52225 A52227 A52228	1/2 5/8 3/4 7/8 1 1-1/4	1-1/2	3-3/8	1-11/16	1/4	2	11/16	7/8
A52231 A52232 A52233 A52234 A52235 A52236 A52237	1/2 5/8 3/4 7/8 1 1-1/4 1-1/2	1-3/4	3-1/2	2-1/8	5/16	2-1/8	11/16	7/8
A52243 A52244 A52245 A52246 A52247 A52248	3/4 7/8 1 1-1/4 1-1/2 1-3/4	2	4	2-3/8	5/16	2-1/2	11/16	1
A52252 A52254 A52255 A52256 A52257 A52258 A52259	3/4 1 1-1/4 1-1/2 1-3/4 2 2-1/4	2-1/2	4-1/2	2-7/8	3/8	2-3/4	11/16	1
A52261 A52262 A52263 A52264 A52265 A52266 A52267	1 1-1/4 1-1/2 1-3/4 2 2-1/4 2-1/2	3	5	3-5/8	7/16	3-1/2	3/4	1

Bushings with O.D.'s greater than 2" and I.D.'s 1-1/4" and larger have two slots.
All others have one slot.

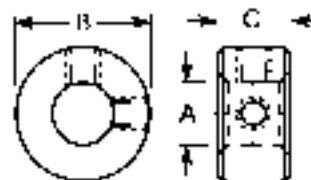
Boring Bar Sleeves



Acme Boring Bar Sleeves are ideal for adapting boring bars and other shank type tools to machine turret bores or tool holders. The long lengths and sturdy construction provide extra support to extend the range of the tool. These sleeves are hardened and ground. Special sizes can be manufactured to your specifications.

Acme Part Number	A I.D.	B O.D.	C Length	D	E	F	G SCREW SIZE
A53401	3/8	1	6	1-3/4	7/16	7/8	1/4-28
A53402	1/2		6	2	7/16	7/8	1/4-28
A53411	3/8	1-1/2	6	1-1/2	7/16	7/8	#10-32
A53412	1/2		6	2	7/16	1	5/16-24
A53413	5/8		6	2	7/16	1	5/16-24
A53414	3/4		6	2	7/16	1	5/16-24
A53415	7/8		8	2	7/16	1	7/16-20
A53421	1/2	1-3/4	8	2-1/2	7/16	1	5/16-24
A53422	3/4		8	2-1/2	7/16	1	7/16-20
A53423	1		8	2-1/2	7/16	1	7/16-20
A53431	5/8	2	9	2	7/16	1	7/16-20
A53432	3/4		9	2	1/2	1	7/16-20
A53433	7/8		9	2	1/2	1	7/16-20
A53434	1		9	3	1/2	1	1/2-20
A53435	1-1/4		9	3	1/2	1	1/2-20
A53441	5/8	2-1/2	10	2-1/4	1/2	1	1/2-20
A53442	3/4		10	2-3/4	1/2	1	1/2-20
A53443	1		10	3-1/2	1/2	1	1/2-20
A53444	1-1/4		10	3-1/2	1/2	1	1/2-20
A53445	1-1/2		10	3-1/2	1/2	1	1/2-20
A53450	1	3	11-1/2	3-1/2	1/2	1	1/2-20
A53451	1-1/4		11-1/2	3-1/2	1/2	1	1/2-20
A53452	1-1/2		11-1/2	3-3/4	1/2	1	1/2-20
A53453	1-3/4		11-1/2	3-3/4	1/2	1	1/2-20
A53454	2		11-1/2	3-3/4	1/2	1	1/2-20
A53462	2	4	14	3-3/4	5/8	1-3/4	5/8-18
A53463	2-1/2		14	4	5/8	2	5/8-18

Tool Collars



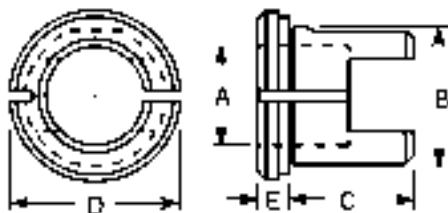
Acme hardened and ground Tool Collars are designed to be used with boring bar sleeves and boring bars. The two set screws lock the collar on the tool or sleeve at a pre-determined location for preset tooling applications.

Acme Part Number	A I.D.	B O.D.	C Length
A53501	1	2	3/4
A53502	1-1/4	2-1/4	3/4
A53503	1-1/2	2-1/2	3/4
A53504	1-3/4	2-3/4	3/4
A53505	2	3	3/4
A53506	2-1/4	3-1/4	3/4
A53507	2-1/2	3-1/2	3/4
A53508	2-3/4	3-3/4	3/4
A53509	3	4	1



Tap Holder Bushings

Type K



Acme Tap Holder Bushings are split along the body with a square recess milled in the back to firmly grip and drive taps. Tap holder bushings are left soft to protect the tap. Type K bushings are precision ground for proper alignment.

Acme Part Number	TAP SIZES			BUSHING DIMENSIONS				
	Mach. Screw Size No.	Nom. Fract. Dia. (IN.)	Nom. Metric Dia. (MM)	A Dia. of Tap Shank	B Nom. O.D.	C Length (Under Head)	HEAD DIMENSIONS	
							D O.D.	E Thickness
A53002	8	5/32	M4	.168	1	15/16	1-3/16	3/16
A53003	10	3/16	M4.5, M5	.194				
A53004	12	7/32		.220				
A53005	14	1/4	M6, M6.3	.255				
A53006		5/16	M7, M8	.318				
A53007		3/8		.381				
A53008		7/16	M10	.323				
A53009		1/2	M12, M12.5	.367				
A53010		9/16	M14	.429				
A53011		5/8	M16	.480				
A53033		1/8*		.4375				
A53115	14	1/4	M6, M6.3	.255	1-1/2	1-3/16	1-11/16	1/4
A53116		5/16	M7, M8	.318				
A53117		3/8		.381				
A53118		7/16	M10	.323				
A53119		1/2	M12, M12.5	.367				
A53120		9/16	M14	.429				
A53121		5/8	M16	.480				
A53122		11/16	M18	.542				
A53123		3/4		.590				
A53124		13/16	M20	.652				
A53125		7/8	M22	.697				
A53126		15/16	M24	.760				
A53127		1	M25	.800				
A53128		1-1/16	M27	.896				
A53129		1-1/8		.896				
A53130		1-3/16	M30	1.021				
A53131		1-1/4		1.021				
A53135		1/4*		.5625				
A53136		3/8*		.7000				
A53137		1/2*		.6875				
A53138		3/4*		.9063				
A53139		1*		1.1250				
A53207		3/8	M10	.381	1-3/4	1-5/16	2-1/8	5/16
A53208		7/16	M12, M12.5	.323				
A53209		1/2	M14	.367				
A53210		9/16	M16	.429				
A53211		5/8	M18	.480				
A53212		11/16		.542				
A53213		3/4		.590				
A53214		13/16	M20	.652				
A53215		7/8	M22	.697				
A53216		15/16	M24	.760				
A53217		1	M25	.800				
A53218		1-1/16	M27	.896				
A53219		1-1/8		.896				
A53220		1-3/16	M30	1.021				
A53221		1-1/4		1.021				
A53236		1/2*		.6875				
A53237		3/4*		.9063				
A53238		1*		1.1250				

* Pipe Tap



No-Counterbore Bushings are Standard with ACME

Acme is committed to the concept of manufacturing our bushings without a counterbore. No-Counterbore bushings are more difficult and costly to produce, because close tolerances are required the full length of the bushing. We believe this produces a better, longer lasting and more versatile bushing. Counterbored bushings will be supplied only upon special request.

Plain Press Fit Bushings -Type PM

- Least expensive
- Typically for single stage drilling operations
- Permits close spacing
- Mounts flush with top of jig plate
- Length is measured overall

Head Press Fit Bushings - Type HM

- Same as Plain Press Fit but with head (or shoulder) on the drill entry end
- Head prevents heavy axial loads from forcing bushing through jig hole
- Flush mount by counterboring jig plate to fit bushing head
- Length is measured overall

Slip-Fixed Renewable Bushings - Type SFM

- Fixed and removable options on one knurled head for easier use
- Used with liner, permanently pressed into jig
- Held in place by lock screw or clamp which fits a milled recess in the head
- Fixed mode for runs longer than life of bushing
- Slip mode for multiple operations on the same holes (such as drilling followed by reaming)
- O.D. has a slip fit tolerance for easy insertion or removal from the liner
- Length is measured under the head

Plain Liners - Type PM

- Used with Slip-Fixed Renewable bushings to provide precise location point
- Permits interchange of Type SFM bushings with varied I.D.'s – without affecting centerline accuracy
- Permanently pressed into jig plate – for life of the jig
- Protects jig plate hole from wear caused by frequent bushing replacement
- Used where little impact or force will occur on the SF bushing's head
- Plain Liners are the same as Plain Press Fit Bushings

Head Liners - Type HM

- Similar to Plain Liners but with a head or shoulder
- Use with Slip-Fixed Renewable bushings whenever excessive pounding or force will occur during operation
- Head prevents liner from being pushed through jig plate

- Flush mount by counterboring top of hole in jig plate
- Length is measured overall
- Head Liners are the same as Head Press Fit Bushings

Bushing Installation

Production accuracy requires extra care when preparing mounting holes and installing bushings/liners. The following factors should be considered: interference fits, alignment, chip clearance, and how close the bushing is to the workpiece.

Because of the many variables, no definite rules can substitute for the skill and judgment of the experienced toolmaker.

Interference Fits

Interference holds press fit bushings in the jig plate. Too much interference may cause a number of problems: (1) jig plate distortion; (2) bellmouthing (bushing/liner walls bow inward); (3) tool seizure, or (4) trouble with slip-fixed renewable fitting into the liner. Too little interference may allow slippage, thus causing inaccurately drilled holes.

Mounting Hole Preparation

It is recommended that all mounting holes be jig bored or sized with a reamer to assure roundness. Bushings tend to assume the shape of the hole they are pressed into. See chart below for recommended size.

The recommended installation hole size should be in accordance with metric tolerance class H7.

Nominal O.D.	Recommended Hole Size
4 to 6	Nominal +0/+ .012
7 to 10	Nominal +0/+ .015
12 to 18	Nominal +0/+ .018
22 to 30	Nominal +0/+ .021
35 to 48	Nominal +0/+ .025
55 to 78	Nominal +0/+ .030
85 to 115	Nominal +0/+ .035
125	Nominal +0/+ .040

Press Fit Bushing Installation

First, lubricate the inside diameter of the mounting hole and the outside diameter of the bushing/liner.

Second, use an arbor press to press the bushing/liner into place. If an arbor press is not available, draw the bushing/liner into place by tightening two steel plates connected by a nut and bolt. Maintain centerline perpendicularity.

Bushing Features

- All bushings that are ground on the O.D., are held within .012 mm concentricity T.I.R. (Total Indicator Reading).
- Longer lengths than standard or excessively counterbored bushings will meet the above tolerances at the drill exit end only.
- All Acme bushings are manufactured with a blended radius at the drill entrance end unless specified otherwise.

- All Press Fit bushings have a chamfer and ground lead on the exit end.
- Standard and Special bushings will be manufactured from thru-hardened tool steel and heat treated to 61-65 Rockwell "C" unless instructed otherwise by the customer.
- No-Counterbore bushings will be supplied unless informed otherwise. No-Counterbore bushings allow for truer alignment, more accurate holes, less tool wear, and less problems with chips packing up in the I.D. of the bushing.

Inside Diameter Tolerances

The minimum and maximum allowance for the Inside Diameter of standard bushings is in accordance with metric tolerance class G6. Special bushings will be supplied with the tolerances shown, unless specified otherwise.

STANDARD DRILL BUSHINGS:

I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
0.35 to 3.00	+ .002 to + .008
3.01 to 6.00	+ .004 to + .012
6.01 to 10.00	+ .005 to + .014
10.01 to 18.00	+ .006 to + .017
18.01 to 30.00	+ .007 to + .020
30.01 to 50.00	+ .009 to + .025
50.01 to 80.00	+ .010 to + .029
80.01 to 105.00	+ .012 to + .034

REAMER BUSHINGS:

I.D. Range (Reamer Size)	I.D. Tolerance (add to nominal I.D.)
1.00 to 3.00	+ .006 to + .012
3.01 to 6.00	+ .010 to + .018
6.01 to 10.00	+ .013 to + .022
10.01 to 18.00	+ .016 to + .027
18.01 to 30.00	+ .020 to + .033

Reamer Bushings are considered specials and are priced accordingly. When ordering specify the letters "RM" after the I.D.

Outside Diameter Tolerances

The minimum and maximum metric tolerance for the Outside Diameter of standard press fit bushings is class s6 and class h5 for slip-fixed renewable bushings.

Ordering Information

To order metric bushings please provide the quantity required, ANSI Symbol, and inside diameter. The order for 26 pieces of a 38 mm I.D., by 55 mm O.D., by 30 mm long, Type PM bushing should appear as follows:

QTY.	TYPE	O.D. (IN MM)	LGTH. (IN MM)	I.D. (IN MM)
26 PCS.	PM	55	30	38.00



Type PM

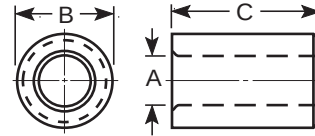


All press fit bushings are lapped, honed or ground in the I.D. and are concentric within .012 T.I.R. to the O.D.

Please order by providing the ANSI symbol and I.D. size.

Example: 9mm I.D. X 15mm O.D. X 20mm Long Type PM,
order as PM-15-20-9.00

No-Counterbore bushings are standard with Acme.



A Inside Diameter Range of Standard Drill Sizes	B Outside Diameter (Actual O.D.)	C Length Overall	ANSI Symbol Type "PM"
0.35 thru 1.00	4 (4.027 / 4.019)	6	PM-4-6
1.01 thru 1.80		9	PM-4-9
1.81 thru 2.60	5 (5.027 / 5.019)	6 9	PM-5-6 PM-5-9
2.61 thru 3.30	6 (6.027 / 6.019)	8 12 16	PM-6-8 PM-6-12 PM-6-16
3.31 thru 4.00	7 (7.032 / 7.023)	8 12 16	PM-7-8 PM-7-12 PM-7-16
4.01 thru 5.00	8 (8.032 / 8.023)	8 12 16	PM-8-8 PM-8-12 PM-8-16
5.01 thru 6.00	10 (10.032 / 10.023)	10 16 20	PM-10-10 PM-10-16 PM-10-20
6.01 thru 8.00	12 (12.039 / 12.028)	10 16 20	PM-12-10 PM-12-16 PM-12-20
8.01 thru 10.00	15 (15.039 / 15.028)	12 20 25	PM-15-12 PM-15-20 PM-15-25
10.01 thru 12.00	18 (18.039 / 18.028)	12 20 25	PM-18-12 PM-18-20 PM-18-25
12.01 thru 15.00	22 (22.048 / 22.035)	16 28 36	PM-22-16 PM-22-28 PM-22-36
15.01 thru 18.00	26 (26.048 / 26.035)	16 28 36	PM-26-16 PM-26-28 PM-26-36
18.01 thru 22.00	30 (30.048 / 30.035)	20 36 45	PM-30-20 PM-30-36 PM-30-45
22.01 thru 26.00	35 (35.059 / 35.043)	20 36 45	PM-35-20 PM-35-36 PM-35-45

Std. Metric Drill Sizes		
0.35	3.40	8.25
0.38	3.50	8.30
0.40	3.60	8.40
0.42	3.70	8.50
0.45	3.75	8.60
0.48	3.80	8.70
0.50	3.90	8.75
0.55	4.00	8.80
0.60	4.10	8.90
0.65	4.20	9.00
0.70	4.25	9.10
0.75	4.30	9.20
0.80	4.40	9.25
0.85	4.50	9.30
0.90	4.60	9.40
0.95	4.70	9.50
1.00	4.75	9.60
1.05	4.80	9.70
1.10	4.90	9.75
1.15	5.00	9.80
1.20	5.10	9.90
1.25	5.20	10.0
1.30	5.25	10.2
1.35	5.30	10.5
1.40	5.40	10.8
1.45	5.50	11.0
1.50	5.60	11.2
1.55	5.70	11.5
1.60	5.75	11.8
1.65	5.80	12.0
1.70	5.90	12.2
1.75	6.00	12.5
1.80	6.10	13.0
1.85	6.20	13.5
1.90	6.25	14.0
1.95	6.30	14.5
2.00	6.40	15.0
2.05	6.50	15.5
2.10	6.60	16.0
2.15	6.70	16.5
2.20	6.75	17.0
2.25	6.80	17.5
2.30	6.90	18.0
2.35	7.00	18.5
2.40	7.10	19.0
2.45	7.20	19.5
2.50	7.25	20.0
2.55	7.30	20.5
2.60	7.40	21.0
2.65	7.50	21.5
2.70	7.60	22.0
2.75	7.70	22.5
2.80	7.75	23.0
2.90	7.80	23.5
3.00	7.90	24.0
3.10	8.00	24.5
3.20	8.10	25.0
3.25	8.20	26.0
3.30		

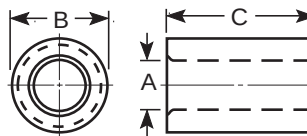
All dimensions are in millimeters.



Type PM



I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
0.35 to 3.00	+0.002 to +0.008
3.01 to 6.00	+0.004 to +0.012
6.01 to 10.00	+0.005 to +0.014
10.01 to 18.00	+0.006 to +0.017
18.01 to 30.00	+0.007 to +0.020
30.01 to 50.00	+0.009 to +0.025
50.01 to 80.00	+0.010 to +0.029
80.01 to 105.00	+0.012 to +0.034



Std. Metric Drill Sizes
27.0
28.0
29.0
30.0
31.0
32.0
33.0
34.0
35.0
36.0
37.0
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
47.0
48.0
49.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
90.0
95.0
100.0
105.0

A Inside Diameter Range of Standard Drill Sizes	B Outside Diameter (Actual O.D.)	C Length Overall	ANSI Symbol Type "PM"
26.01 thru 30.00	42 (42.059 / 42.043)	25 45 56	PM-42-25 PM-42-45 PM-42-56
30.01 thru 35.00	48 (48.059 / 48.043)	25 45 56	PM-48-25 PM-48-45 PM-48-56
35.01 thru 42.00	55 (55.072 / 55.053)	30 56 67	PM-55-30 PM-55-56 PM-55-67
42.01 thru 48.00	62 (62.072 / 62.053)	30 56 67	PM-62-30 PM-62-56 PM-62-67
48.01 thru 55.00	70 (70.078 / 70.059)	30 56 67	PM-70-30 PM-70-56 PM-70-67
55.01 thru 63.00	78 (78.078 / 78.059)	35 67 78	PM-78-35 PM-78-67 PM-78-78
63.01 thru 70.00	85 (85.093 / 85.071)	35 67 78	PM-85-35 PM-85-67 PM-85-78
70.01 thru 78.00	95 (95.093 / 95.071)	40 78 105	PM-95-40 PM-95-78 PM-95-105
78.01 thru 85.00	105 (105.101 / 105.079)	40 78 105	PM-105-40 PM-105-78 PM-105-105
85.01 thru 95.00	115 (115.101 / 115.079)	45 89 112	PM-115-45 PM-115-89 PM-115-112
95.01 thru 105.00	125 (125.117 / 125.092)	45 89 112	PM-125-45 PM-125-89 PM-125-112

All dimensions are in millimeters.

No-Counterbore (Full Bearing Surface) Bushings are Standard at ACME.



Type HM

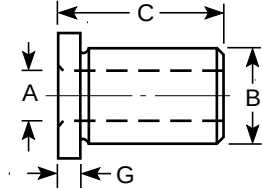
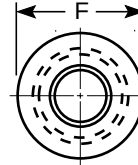


All press fit bushings are lapped, honed or ground in the I.D. and are concentric within .012 T.I.R. to the O.D.

Please order by providing the ANSI symbol and I.D. size. Example:
9mm I.D. X 15mm O.D. X 20mm Long Type HM, order as HM-15-20-9.00

No-Counterbore bushings are standard with Acme.

Please note that the length on type "HM" bushings is measured overall.



A Inside Diameter Range of Standard Drill Sizes	B Outside Diameter (Actual O.D.)	C Length Overall	ANSI Symbol Type "HM"	Head Dimensions	
				F	G
0.35 thru 1.00	4 (4.027 / 4.019)	6	HM-4-6	7	2.0
1.01 thru 1.80		9	HM-4-9		
1.81 thru 2.60	5 (5.027 / 5.019)	6 9	HM-5-6 HM-5-9	8	2.0
2.61 thru 3.30	6 (6.027 / 6.019)	8 12 16	HM-6-8 HM-6-12 HM-6-16	9	2.5
3.31 thru 4.00	7 (7.032 / 7.023)	8 12 16	HM-7-8 HM-7-12 HM-7-16	10	2.5
4.01 thru 5.00	8 (8.032 / 8.023)	8 12 16	HM-8-8 HM-8-12 HM-8-16	11	2.5
5.01 thru 6.00	10 (10.032 / 10.023)	10 16 20	HM-10-10 HM-10-16 HM-10-20	13	3.0
6.01 thru 8.00	12 (12.039 / 12.028)	10 16 20	HM-12-10 HM-12-16 HM-12-20	15	3.0
8.01 thru 10.00	15 (15.039 / 15.028)	12 20 25	HM-15-12 HM-15-20 HM-15-25	18	3.0
10.01 thru 12.00	18 (18.039 / 18.028)	12 20 25	HM-18-12 HM-18-20 HM-18-25	22	4.0
12.01 thru 15.00	22 (22.048 / 22.035)	16 28 36	HM-22-16 HM-22-28 HM-22-36	26	4.0
15.01 thru 18.00	26 (26.048 / 26.035)	16 28 36	HM-26-16 HM-26-28 HM-26-36	30	4.0
18.01 thru 22.00	30 (30.048 / 30.035)	20 36 45	HM-30-20 HM-30-36 HM-30-45	34	5.0
22.01 thru 26.00	35 (35.059 / 35.043)	20 36 45	HM-35-20 HM-35-36 HM-35-45	39	5.0

Std. Metric Drill Sizes		
0.35	3.40	8.25
0.38	3.50	8.30
0.40	3.60	8.40
0.42	3.70	8.50
0.45	3.75	8.60
0.48	3.80	8.70
0.50	3.90	8.75
0.55	4.00	8.80
0.60	4.10	8.90
0.65	4.20	9.00
0.70	4.25	9.10
0.75	4.30	9.20
0.80	4.40	9.25
0.85	4.50	9.30
0.90	4.60	9.40
0.95	4.70	9.50
1.00	4.75	9.60
1.05	4.80	9.70
1.10	4.90	9.75
1.15	5.00	9.80
1.20	5.10	9.90
1.25	5.20	10.0
1.30	5.25	10.2
1.35	5.30	10.5
1.40	5.40	10.8
1.45	5.50	11.0
1.50	5.60	11.2
1.55	5.70	11.5
1.60	5.75	11.8
1.65	5.80	12.0
1.70	5.90	12.2
1.75	6.00	12.5
1.80	6.10	13.0
1.85	6.20	13.5
1.90	6.25	14.0
1.95	6.30	14.5
2.00	6.40	15.0
2.05	6.50	15.5
2.10	6.60	16.0
2.15	6.70	16.5
2.20	6.75	17.0
2.25	6.80	17.5
2.30	6.90	18.0
2.35	7.00	18.5
2.40	7.10	19.0
2.45	7.20	19.5
2.50	7.25	20.0
2.55	7.30	20.5
2.60	7.40	21.0
2.65	7.50	21.5
2.70	7.60	22.0
2.75	7.70	22.5
2.80	7.75	23.0
2.90	7.80	23.5
3.00	7.90	24.0
3.10	8.00	24.5
3.20	8.10	25.0
3.25	8.20	26.0
3.30		

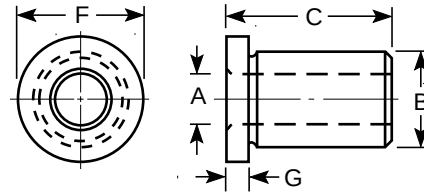
All dimensions are in millimeters.



Type HM



I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
0.35 to 3.00	+0.002 to +0.008
3.01 to 6.00	+0.004 to +0.012
6.01 to 10.00	+0.005 to +0.014
10.01 to 18.00	+0.006 to +0.017
18.01 to 30.00	+0.007 to +0.020
30.01 to 50.00	+0.009 to +0.025
50.01 to 80.00	+0.010 to +0.029
80.01 to 105.00	+0.012 to +0.034



Std. Metric Drill Sizes
27.0
28.0
29.0
30.0
31.0
32.0
33.0
34.0
35.0
36.0
37.0
38.0
39.0
40.0
41.0
42.0
43.0
44.0
45.0
46.0
47.0
48.0
49.0
50.0
55.0
60.0
65.0
70.0
75.0
80.0
85.0
90.0
95.0
100.0
105.0

A Inside Diameter Range of Standard Drill Sizes	B Outside Diameter (Actual O.D.)	C Length Overall	ANSI Symbol Type "HM"	Head Dimensions	
				F	G
26.01 thru 30.00	42 (42.059 / 42.043)	25 45 56	HM-42-25 HM-42-45 HM-42-56	46	5.0
30.01 thru 35.00	48 (48.059 / 48.043)	25 45 56	HM-48-25 HM-48-45 HM-48-56	52	5.0
35.01 thru 42.00	55 (55.072 / 55.053)	30 56 67	HM-55-30 HM-55-56 HM-55-67	59	5.0
42.01 thru 48.00	62 (62.072 / 62.053)	30 56 67	HM-62-30 HM-62-56 HM-62-67	66	6.0
48.01 thru 55.00	70 (70.078 / 70.059)	30 56 67	HM-70-30 HM-70-56 HM-70-67	74	6.0
55.01 thru 63.00	78 (78.078 / 78.059)	35 67 78	HM-78-35 HM-78-67 HM-78-78	82	6.0
63.01 thru 70.00	85 (85.093 / 85.071)	35 67 78	HM-85-35 HM-85-67 HM-85-78	90	6.0
70.01 thru 78.00	95 (95.093 / 95.071)	40 78 105	HM-95-40 HM-95-78 HM-95-105	100	6.0
78.01 thru 85.00	105 (105.101 / 105.079)	40 78 105	HM-105-40 HM-105-78 HM-105-105	110	6.0
85.01 thru 95.00	115 (115.101 / 115.079)	45 89 112	HM-115-45 HM-115-89 HM-115-112	120	6.0
95.01 thru 105.00	125 (125.117 / 125.092)	45 89 112	HM-125-45 HM-125-89 HM-125-112	130	6.0

All dimensions are in millimeters.

No-Counterbore (Full Bearing Surface) Bushings are Standard at ACME.



Type SFM

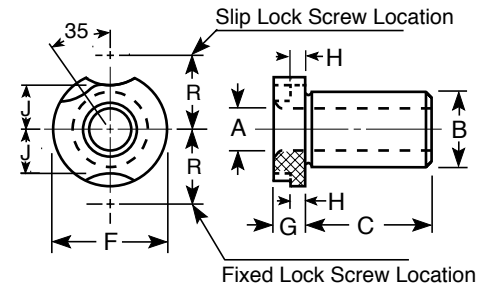


All type "SFM" bushings are lapped, honed or ground in the I.D. and are concentric within .012 T.I.R. to the O.D. A slip fit clearance is provided for proper alignment when inserted into a liner.

Please order by providing the ANSI symbol and I.D. size. Example: 8.5 mm I.D. X 15 mm O.D. X 28 mm Long Type SFM, order as SFM-15-28-8.50

No-Counterbore bushings are standard with Acme.

Please note that the length on type "SFM" bushings is measured under the head.



A Inside Diameter Range of Standard Drill Sizes	B Outside Diameter (Actual O.D.)	C Length Under Head	ANSI Symbol Type "SFM"	Head Dimensions					Lock Screws and Clamps
				F	G	H	J	R	
0.35 thru 1.00	8 (8.000 / 7.994)	10 16	SFM-8-10 SFM-8-16	15	6	3.0	4.5	11.5	LSM-1 or 2 RCM-1 or 2
1.01 thru 1.80									
1.81 thru 4.00									
4.01 thru 6.00	10 (10.000 / 9.994)	12 20 25	SFM-10-12 SFM-10-20 SFM-10-25	18	6	3.0	6.0	13.0	LSM-1 or 2 RCM-1 or 2
6.01 thru 8.00	12 (12.000 / 11.992)	12 20 25	SFM-12-12 SFM-12-20 SFM-12-25	22	8	4.0	7.5	16.0	LSM-3 or 4 RCM-3 or 4
8.01 thru 10.00	15 (15.000 / 14.992)	16 28 36	SFM-15-16 SFM-15-28 SFM-15-36	26	8	4.0	9.5	18.0	LSM-3 or 4 RCM-3 or 4
10.01 thru 12.00	18 (18.000 / 17.992)	16 28 36	SFM-18-16 SFM-18-28 SFM-18-36	30	8	4.0	11.5	20.0	LSM-3 or 4 RCM-3 or 4
12.01 thru 15.00	22 (22.000 / 21.991)	20 36 45	SFM-22-20 SFM-22-36 SFM-22-45	34	10	5.5	13.0	23.5	LSM-5 or 6 RCM-5 or 6
15.01 thru 18.00	26 (26.000 / 25.991)	20 36 45	SFM-26-20 SFM-26-36 SFM-26-45	39	10	5.5	15.5	26.0	LSM-5 or 6 RCM-5 or 6
18.01 thru 22.00	30 (30.000 / 29.991)	25 45 56	SFM-30-25 SFM-30-45 SFM-30-56	46	10	5.5	19.0	29.5	LSM-5 or 6 RCM-5 or 6
22.01 thru 26.00	35 (35.000 / 34.989)	25 45 56	SFM-35-25 SFM-35-45 SFM-35-56	52	10	5.5	22.0	32.5	LSM-5 or 6 RCM-5 or 6
26.01 thru 30.00	42 (42.000 / 41.989)	30 56 67	SFM-42-30 SFM-42-56 SFM-42-67	59	10	5.5	25.5	36.0	LSM-5 or 6 RCM-5 or 6
30.01 thru 35.00	48 (48.000 / 47.989)	30 56 67	SFM-48-30 SFM-48-56 SFM-48-67	66	12	7.0	28.5	41.0	LSM-7 or 8 RCM-7 or 8

All dimensions are in millimeters.

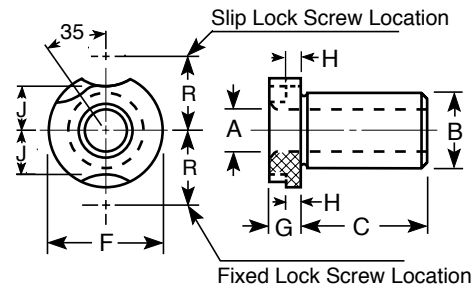
Std. Metric Drill Sizes		
0.35	3.70	8.75
0.38	3.75	8.80
0.40	3.80	8.90
0.42	3.90	9.00
0.45	4.00	9.10
0.48	4.10	9.20
0.50	4.20	9.25
0.55	4.25	9.30
0.60	4.30	9.40
0.65	4.40	9.50
0.70	4.50	9.60
0.75	4.60	9.70
0.80	4.70	9.75
0.85	4.75	9.80
0.90	4.80	9.90
0.95	4.90	10.0
1.00	5.00	10.2
1.05	5.10	10.5
1.10	5.20	10.8
1.15	5.25	11.0
1.20	5.30	11.2
1.25	5.40	11.5
1.30	5.50	11.8
1.35	5.60	12.0
1.40	5.70	12.2
1.45	5.75	12.5
1.50	5.80	13.0
1.55	5.90	13.5
1.60	6.00	14.0
1.65	6.10	14.5
1.70	6.20	15.0
1.75	6.25	15.5
1.80	6.30	16.0
1.85	6.40	16.5
1.90	6.50	17.0
1.95	6.60	17.5
2.00	6.70	18.0
2.05	6.75	18.5
2.10	6.80	19.0
2.15	6.90	19.5
2.20	7.00	20.0
2.25	7.10	20.5
2.30	7.20	21.0
2.35	7.25	21.5
2.40	7.30	22.0
2.45	7.40	22.5
2.50	7.50	23.0
2.55	7.60	23.5
2.60	7.70	24.0
2.65	7.75	24.5
2.70	7.80	25.0
2.75	7.90	26.0
2.80	8.00	27.0
2.90	8.10	28.0
3.00	8.20	29.0
3.10	8.25	30.0
3.20	8.30	31.0
3.25	8.40	32.0
3.30	8.50	33.0
3.40	8.60	34.0
3.50	8.70	35.0
3.60		



Type SFM



I.D. Range (Drill Size)	Standard I.D. Tolerance (add to nominal I.D.)
0.35 to 3.00	+0.002 to +0.008
3.01 to 6.00	+0.004 to +0.012
6.01 to 10.00	+0.005 to +0.014
10.01 to 18.00	+0.006 to +0.017
18.01 to 30.00	+0.007 to +0.020
30.01 to 50.00	+0.009 to +0.025
50.01 to 80.00	+0.010 to +0.029
80.01 to 105.00	+0.012 to +0.034



Std. Metric Drill Sizes	A Inside Diameter Range of Standard Drill Sizes	B Outside Diameter (Actual O.D.)	C Length Under Head	ANSI Symbol Type "SFM"	Head Dimensions					Lock Screws and Clamps
					F	G	H	J	R	
36.0 37.0 38.0 39.0 40.0 41.0 42.0 43.0 44.0 45.0 46.0 47.0 48.0 49.0 50.0 55.0 60.0 65.0 70.0 75.0 80.0 85.0 90.0 95.0 100.0 105.0	35.01 thru 42.00	55 (55.000 / 54.987)	30 56 67	SFM-55-30 SFM-55-56 SFM-55-67	74	12	7.0	32.5	45.0	LSM-7 or 8 RCM-7 or 8
	42.01 thru 48.00	62 (62.000 / 61.987)	35 67 78	SFM-62-35 SFM-62-67 SFM-62-78	82	12	7.0	36.5	49.0	LSM-7 or 8 RCM-7 or 8
	48.01 thru 55.00	70 (70.000 / 69.987)	35 67 78	SFM-70-35 SFM-70-67 SFM-70-78	90	12	7.0	40.5	53.0	LSM-7 or 8 RCM-7 or 8
	55.01 thru 62.00	78 (78.000 / 77.987)	40 78 105	SFM-78-40 SFM-78-78 SFM-78-105	100	12	7.0	45.5	58.0	LSM-7 or 8 RCM-7 or 8
	62.01 thru 70.00	85 (85.000 / 84.985)	40 78 105	SFM-85-40 SFM-85-78 SFM-85-105	110	12	7.0	50.5	63.0	LSM-7 or 8 RCM-7 or 8
	70.01 thru 78.00	95 (95.000 / 94.985)	45 89 112	SFM-95-45 SFM-95-89 SFM-95-112	120	12	7.0	55.5	68.0	LSM-7 or 8 RCM-7 or 8
	78.01 thru 85.00	105 (105.000 / 104.985)	45 89 112	SFM-105-45 SFM-105-89 SFM-105-112	130	12	7.0	60.5	73.0	LSM-7 or 8 RCM-7 or 8

All dimensions are in millimeters.

No-Counterbore (Full Bearing Surface) Bushings are Standard at ACME.



Type PM

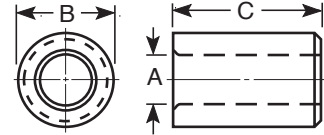


All liners are honed or ground in the I.D. and are concentric within .012 T.I.R. to the O.D.

Please order by providing the ANSI symbol and I.D. size.
Example: 15mm I.D. X 22mm O.D. X 28mm Long Type PM,
order as PM-22-28-15.00

No-Counterbore bushings are standard with Acme.

Plain Liners are dimensionally the same as Plain Press Fit Bushings so they both have the same type "PM" designation. Some catalogs may refer to Plain Liners as type "LM".



A Inside Diameter (Actual I.D.)	B Outside Diameter (Actual O.D.)	C Length Overall	ANSI Symbol Type "PM"
8.00 (8.005 / 8.014)	12 (12.039 / 12.028)	10 16	PM-12-10-8.00 PM-12-16-8.00
10.00 (10.005 / 10.014)	15 (15.039 / 15.028)	12 20 25	PM-15-12-10.00 PM-15-20-10.00 PM-15-25-10.00
12.00 (12.006 / 12.017)	18 (18.039 / 18.028)	12 20 25	PM-18-12-12.00 PM-18-20-12.00 PM-18-25-12.00
15.00 (15.006 / 15.017)	22 (22.048 / 22.035)	16 28 36	PM-22-16-15.00 PM-22-28-15.00 PM-22-36-15.00
18.00 (18.006 / 18.017)	26 (26.048 / 26.035)	16 28 36	PM-26-16-18.00 PM-26-28-18.00 PM-26-36-18.00
22.00 (22.007 / 22.020)	30 (30.048 / 30.035)	20 36 45	PM-30-20-22.00 PM-30-36-22.00 PM-30-45-22.00
26.00 (26.007 / 26.020)	35 (35.059 / 35.043)	20 36 45	PM-35-20-26.00 PM-35-36-26.00 PM-35-45-26.00
30.00 (30.007 / 30.020)	42 (42.059 / 42.043)	25 45 56	PM-42-25-30.00 PM-42-45-30.00 PM-42-56-30.00
35.00 (35.009 / 35.025)	48 (48.059 / 48.043)	25 45 56	PM-48-25-35.00 PM-48-45-35.00 PM-48-56-35.00
42.00 (42.009 / 42.025)	55 (55.072 / 55.053)	30 56 67	PM-55-30-42.00 PM-55-56-42.00 PM-55-67-42.00
48.00 (48.009 / 48.025)	62 (62.072 / 62.053)	30 56 67	PM-62-30-48.00 PM-62-56-48.00 PM-62-67-48.00

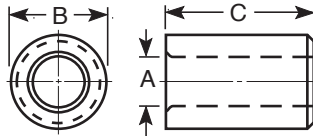
All dimensions are in millimeters.



Type PM



Plain Liners are dimensionally the same as Plain Press Fit Bushings so they both have the same type "PM" designation. Some catalogs may refer to Plain Liners as type "LM".



A Inside Diameter (Actual I.D.)	B Outside Diameter (Actual O.D.)	C Length Overall	ANSI Symbol Type "PM"
55.00 (55.010 / 55.029)	70 (70.078 / 70.059)	30 56 67	PM-70-30-55.00 PM-70-56-55.00 PM-70-67-55.00
62.00 (62.010 / 62.029)	78 (78.078 / 78.059)	35 67 78	PM-78-35-62.00 PM-78-67-62.00 PM-78-78-62.00
70.00 (70.010 / 70.029)	85 (85.093 / 85.071)	35 67 78	PM-85-35-70.00 PM-85-67-70.00 PM-85-78-70.00
78.00 (78.010 / 78.029)	95 (95.093 / 95.071)	40 78 105	PM-95-40-78.00 PM-95-78-78.00 PM-95-105-78.00
85.00 (85.012 / 85.034)	105 (105.101 / 105.079)	40 78 105	PM-105-40-85.00 PM-105-78-85.00 PM-105-105-85.00
95.00 (95.012 / 95.034)	115 (115.101 / 115.079)	45 89 112	PM-115-45-95.00 PM-115-89-95.00 PM-115-112-95.00
105.00 (105.012 / 105.034)	125 (125.117 / 125.092)	45 89 112	PM-125-45-105.00 PM-125-89-105.00 PM-125-112-105.00

All dimensions are in millimeters.

No-Counterbore (Full Bearing Surface) Bushings are Standard at ACME.



Type HM

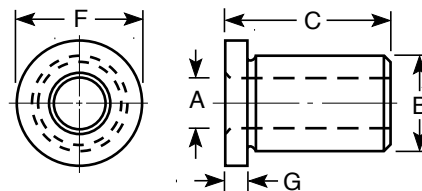


All Head Liners are honed or ground in the I.D. and are concentric within .012 T.I.R. to the O.D.

Please order by providing the ANSI symbol and I.D. size. Example: 18mm I.D. X 26mm O.D. X 16mm Long Type HM, order as HM-26-16-18.00

No-Counterbore bushings are standard with Acme.

Head Liners are dimensionally the same as Head Press Fit Bushings so they both have the same type "HM" designation. Some catalogs may refer to Head Liners as type "HLM".



A Inside Diameter (Actual I.D.)	B Outside Diameter (Actual O.D.)	C Length Overall	ANSI Symbol Type "HM"	Head Dimensions	
				F	G
8 (8.005 / 8.014)	12 (12.039 / 12.028)	10 16	HM-12-10-8.00 HM-12-16-8.00	15	3.0
10 (10.005 / 10.014)	15 (15.039 / 15.028)	12 20 25	HM-15-12-10.00 HM-15-20-10.00 HM-15-25-10.00	18	3.0
12 (12.006 / 12.017)	18 (18.039 / 18.028)	12 20 25	HM-18-12-12.00 HM-18-20-12.00 HM-18-25-12.00	22	4.0
15 (15.006 / 15.017)	22 (22.048 / 22.035)	16 28 36	HM-22-16-15.00 HM-22-28-15.00 HM-22-36-15.00	26	4.0
18 (18.006 / 18.017)	26 (26.048 / 26.035)	16 28 36	HM-26-16-18.00 HM-26-28-18.00 HM-26-36-18.00	30	4.0
22 (22.007 / 22.020)	30 (30.048 / 30.035)	20 36 45	HM-30-20-22.00 HM-30-36-22.00 HM-30-45-22.00	34	5.0
26 (26.007 / 26.020)	35 (35.059 / 35.043)	20 36 45	HM-35-20-26.00 HM-35-36-26.00 HM-35-45-26.00	39	5.0
30 (30.007 / 30.020)	42 (42.059 / 42.043)	25 45 56	HM-42-25-30.00 HM-42-45-30.00 HM-42-56-30.00	46	5.0
35 (35.009 / 35.025)	48 (48.059 / 48.043)	25 45 56	HM-48-25-35.00 HM-48-45-35.00 HM-48-56-35.00	52	5.0
42 (42.009 / 42.025)	55 (55.072 / 55.053)	30 56 67	HM-55-30-42.00 HM-55-56-42.00 HM-55-67-42.00	59	5.0
48 (48.009 / 48.025)	62 (62.072 / 62.053)	30 56 67	HM-62-30-48.00 HM-62-56-48.00 HM-62-67-48.00	66	6.0

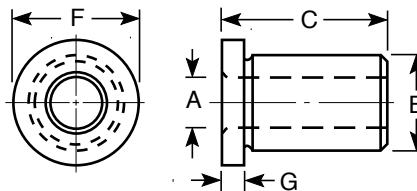
All dimensions are in millimeters.



Type HM



Head Liners are dimensionally the same as Head Press Fit Bushings so they both have the same type designation "HM". Some catalogs may refer to Head Liners as type "HLM". Please note that the length on type "HM" bushings and liners is measured overall.



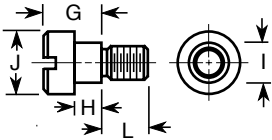
A Inside Diameter Range of Standard Drill Sizes	B Outside Diameter (Actual O.D.)	C Length Overall	ANSI Symbol Type "HM"	Head Dimensions	
				F	G
55 (55.010 / 55.029)	70 (70.078 / 70.059)	30 56 67	HM-70-30-55.00 HM-70-56-55.00 HM-70-67-55.00	74	6.0
62 (62.010 / 62.029)	78 (78.078 / 78.059)	35 67 78	HM-78-35-62.00 HM-78-67-62.00 HM-78-78-62.00	82	6.0
70 (70.010 / 70.029)	85 (85.093 / 85.071)	35 67 78	HM-85-35-70.00 HM-85-67-70.00 HM-85-78-70.00	90	6.0
78 (78.010 / 78.029)	95 (95.093 / 95.071)	40 78 105	HM-95-40-78.00 HM-95-78-78.00 HM-95-105-78.00	100	6.0
85 (85.012 / 85.034)	105 (105.101 / 105.079)	40 78 105	HM-105-40-85.00 HM-105-78-85.00 HM-105-105-85.00	110	6.0
95 (95.012 / 95.034)	115 (115.101 / 115.079)	45 89 112	HM-115-45-95.00 HM-115-89-95.00 HM-115-112-95.00	120	6.0
105 (105.012 / 105.034)	125 (125.117 / 125.092)	45 89 112	HM-125-45-105.00 HM-125-89-105.00 HM-125-112-105.00	130	6.0

All dimensions are in millimeters.

No-Counterbore (Full Bearing Surface) Bushings are Standard at ACME.



Lock Screws



Standard Mounting

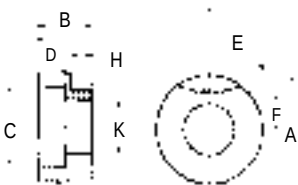
Symbol	G	H	I	J	L	Thread
LSM-1	6	3.0	7.5	13	9	M5x0.8
LSM-3	8	4.0	9.5	16	10	M6x1.0
LSM-5	10	5.5	12.0	20	12	M8x1.25
LSM-7	12	7.0	15.0	24	20	M10x1.5

Projected Mounting

Symbol	G	H	I	J	L	Thread
LSM-2	9	6.0	7.5	13	9	M5x0.8
LSM-4	12	8.0	9.5	16	10	M6x1.0
LSM-6	15	10.5	12.0	20	12	M8x1.25
LSM-8	18	13.0	15.0	24	20	M10x1.5

All dimensions are in millimeters.

Round Clamps



Standard Mounting

Symbol	A	B	C	D	E	F	H	K	Used With Thread
RCM-1	13	8	10	4	9.5	3.7	3.0	5.4	M5x0.8
RCM-3	16	10	12	5	15.0	4.7	4.0	6.4	M6x1.0
RCM-5	20	12	15	5	30.0	6.2	5.5	8.4	M8x1.25
RCM-7	24	16	18	7	80.0	7.5	7.0	10.5	M10x1.5

Projected Mounting

Symbol	A	B	C	D	E	F	H	K	Used With Thread
RCM-2	13	11	10	4	9.5	3.7	3.0	5.4	M5x0.8
RCM-4	16	14	12	5	15.0	4.7	4.0	6.4	M6x1.0
RCM-6	20	17	15	5	30.0	6.2	5.5	8.4	M8x1.25
RCM-8	24	22	18	7	80.0	7.5	7.0	10.5	M10x1.5

All dimensions are in millimeters.



Inch Equivalents of Standard Millimeter Drill Sizes

mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
.35	.0138	1.95	.0768	4.30	.1693	7.25	.2854	10.50	.4134	27.00	1.0630
.38	.0150	2.00	.0787	4.40	.1732	7.30	.2874	10.80	.4252	28.00	1.1024
.40	.0157	2.05	.0807	4.50	.1772	7.40	.2913	11.00	.4331	29.00	1.1417
.42	.0165	2.10	.0827	4.60	.1811	7.50	.2953	11.20	.4409	30.00	1.1811
.45	.0177	2.15	.0846	4.70	.1850	7.60	.2992	11.50	.4528	31.00	1.2205
.48	.0189	2.20	.0866	4.75	.1870	7.70	.3031	11.80	.4646	32.00	1.2598
.50	.0197	2.25	.0886	4.80	.1890	7.75	.3051	12.00	.4724	33.00	1.2992
.55	.0217	2.30	.0906	4.90	.1929	7.80	.3071	12.20	.4803	34.00	1.3386
.60	.0236	2.35	.0925	5.00	.1969	7.90	.3110	12.50	.4921	35.00	1.3780
.65	.0256	2.40	.0945	5.10	.2008	8.00	.3150	13.00	.5118	36.00	1.4173
.70	.0276	2.45	.0965	5.20	.2047	8.10	.3189	13.50	.5315	37.00	1.4567
.75	.0295	2.50	.0984	5.25	.2067	8.20	.3228	14.00	.5512	38.00	1.4961
.80	.0315	2.55	.1004	5.30	.2087	8.25	.3248	14.50	.5709	39.00	1.5354
.85	.0335	2.60	.1024	5.40	.2126	8.30	.3268	15.00	.5906	40.00	1.5748
.90	.0354	2.65	.1043	5.50	.2165	8.40	.3307	15.50	.6102	41.00	1.6142
.95	.0374	2.70	.1063	5.60	.2205	8.50	.3346	16.00	.6299	42.00	1.6535
1.00	.0394	2.75	.1083	5.70	.2244	8.60	.3386	16.50	.6496	43.00	1.6929
1.05	.0413	2.80	.1102	5.75	.2264	8.70	.3425	17.00	.6693	44.00	1.7323
1.10	.0433	2.90	.1142	5.80	.2283	8.75	.3445	17.50	.6890	45.00	1.7717
1.15	.0453	3.00	.1181	5.90	.2323	8.80	.3465	18.00	.7087	46.00	1.8110
1.20	.0472	3.10	.1220	6.00	.2362	8.90	.3504	18.50	.7283	47.00	1.8504
1.25	.0492	3.20	.1260	6.10	.2402	9.00	.3543	19.00	.7480	48.00	1.8898
1.30	.0512	3.25	.1280	6.20	.2441	9.10	.3583	19.50	.7677	49.00	1.9291
1.35	.0531	3.30	.1299	6.25	.2461	9.20	.3622	20.00	.7874	50.00	1.9685
1.40	.0551	3.40	.1339	6.30	.2480	9.25	.3642	20.50	.8071	55.00	2.1654
1.45	.0571	3.50	.1378	6.40	.2520	9.30	.3661	21.00	.8268	60.00	2.3622
1.50	.0591	3.60	.1417	6.50	.2559	9.40	.3701	21.50	.8465	65.00	2.5591
1.55	.0610	3.70	.1457	6.60	.2598	9.50	.3740	22.00	.8661	70.00	2.7559
1.60	.0630	3.75	.1476	6.70	.2638	9.60	.3780	22.50	.8858	75.00	2.9528
1.65	.0650	3.80	.1496	6.75	.2657	9.70	.3819	23.00	.9055	80.00	3.1496
1.70	.0669	3.90	.1535	6.80	.2677	9.75	.3839	23.50	.9252	85.00	3.3465
1.75	.0689	4.00	.1575	6.90	.2717	9.80	.3858	24.00	.9449	90.00	3.5433
1.80	.0709	4.10	.1614	7.00	.2756	9.90	.3898	24.50	.9646	95.00	3.7402
1.85	.0728	4.20	.1654	7.10	.2795	10.00	.3937	25.00	.9843	100.00	3.9370
1.90	.0748	4.25	.1673	7.20	.2835	10.20	.4016	26.00	1.0236	105.00	4.1339

Jergens Conversion Charts

Decimal Equivalents of Standard Drill Sizes

Size	Decimal Conversion	Size	Decimal Conversion	Size	Decimal Conversion	Size	Decimal Conversion	Size	Decimal Conversion	Size	Decimal Conversion
80	.0135	5/64	.0781	17	.1730	N	.3020	43/64	.6719	1-7/32	1.2188
79	.0145	47	.0785	16	.1770	5/16	.3125	11/16	.6875	1-15/64	1.2344
1/64	.0156	46	.0810	15	.1800	O	.3160	45/64	.7031	1-1/4	1.2500
78	.0160	45	.0820	14	.1820	P	.3230	23/32	.7188	1-17/64	1.2656
77	.0180	44	.0860	13	.1850	21/64	.3281	47/64	.7344	1-9/32	1.2812
76	.0200	43	.0890	3/16	.1875	Q	.3320	3/4	.7500	1-19/64	1.2969
75	.0210	42	.0935	12	.1890	R	.3390	49/64	.7656	1-5/16	1.3125
74	.0225	3/32	.0938	11	.1810	11/32	.3438	25/32	.7812	1-21/64	1.3281
73	.0240	41	.0960	10	.1935	S	.3480	51/64	.7969	1-11/32	1.3438
72	.0250	40	.0980	9	.1960	T	.3580	13/16	.8125	1-23/64	1.3594
71	.0260	39	.0995	8	.1990	23/64	.3594	53/64	.8281	1-3/8	1.3750
70	.0280	38	.1015	7	.2010	U	.3680	27/32	.8438	1-25/64	1.3906
69	.0292	37	.1040	13/64	.2031	3/8	.3750	55/64	.8594	1-13/32	1.4062
68	.0310	36	.1065	6	.2040	V	.3770	7/8	.8750	1-27/64	1.4219
1/32	.0312	7/64	.1094	5	.2055	W	.3860	57/64	.8906	1-7/16	1.4375
67	.0320	35	.1100	4	.2090	25/64	.3906	29/32	.9062	1-29/64	1.4531
66	.0330	34	.1110	3	.2130	X	.3970	59/64	.9219	1-15/32	1.4688
65	.0350	33	.1130	7/32	.2188	Y	.4040	15/16	.9375	1-31/64	1.4844
64	.0360	32	.1160	2	.2210	13/32	.4062	61/64	.9531	1-1/2	1.5000
63	.0370	31	.1200	1	.2280	Z	.4130	31/32	.9688	1-33/64	1.5156
62	.0380	1/8	.1250	A	.2340	27/64	.4219	63/64	.9844	1-17/32	1.5312
61	.0390	30	.1285	15/64	.2344	7/16	.4375	1"	1.0000	1-35/64	1.5469
60	.0400	29	.1360	B	.2380	29/64	.4531	1-1/64	1.0156	1-9/16	1.5625
59	.0410	28	.1405	C	.2420	15/32	.4688	1-1/32	1.0312	1-37/64	1.5781
58	.0420	9/64	.1406	D	.2460	31/64	.4844	1-3/64	1.0469	1-19/32	1.5938
57	.0430	27	.1440	1/4	.2500	1/2	.5000	1-1/16	1.0625	1-39/64	1.6094
56	.0465	26	.1470	F	.2570	33/64	.5156	1-5/64	1.0781	1-5/8	1.6250
3/64	.0469	25	.1495	G	.2610	17/32	.5312	1-3/32	1.0938	1-41/64	1.6406
55	.0520	24	.1520	17/64	.2656	35/64	.5469	1-7/64	1.1094	1-21/32	1.6562
54	.0550	23	.1540	H	.2660	9/16	.5625	1-1/8	1.1250	1-43/64	1.6719
53	.0595	5/32	.1562	I	.2720	37/64	.5781	1-9/64	1.1406	1-11/16	1.6875
1/16	.0625	22	.1570	J	.2770	19/32	.5938	1-5/32	1.1562	1-45/64	1.7031
52	.0635	21	.1590	K	.2810	39/64	.6094	1-11/64	1.1719	1-23/32	1.7188
51	.0670	20	.1610	9/32	.2812	5/8	.6250	1-3/16	1.1875	1-47/64	1.7344
50	.0700	19	.1660	L	.2900	41/64	.6406	1-13/64	1.2031	1-3/4	1.7500
49	.0730	18	.1695	M	.2950	21/32	.6562				
48	.0760	11/64	.1719	19/64	.2969						

Decimal Equivalents of Millimeter Sizes

mm	Decimal	mm	Decimal	mm	Decimal	mm	Decimal	mm	Decimal	mm	Decimal
.35	.0138	1.75	.0689	3.4	.1339	5.75	.2264	8.1	.3189	12.5	.4921
.4	.0157	1.8	.0709	3.5	.1378	5.8	.2283	8.2	.3228	13.0	.5118
.45	.0177	1.85	.0728	3.6	.1417	5.9	.2323	8.25	.3248	13.5	.5315
.5	.0197	1.9	.0748	3.7	.1457	6.0	.2362	8.3	.3268	14.0	.5512
.55	.0217	1.95	.0768	3.75	.1477	6.1	.2401	8.4	.3307	14.5	.5709
.6	.0236	2.0	.0787	3.8	.1496	6.2	.2441	8.5	.3346	15	.5906
.65	.0256	2.05	.0807	3.9	.1535	6.25	.2461	8.6	.3386	15.5	.6102
.7	.0276	2.1	.0827	4.0	.1575	6.3	.2480	8.7	.3425	16	.6299
.75	.0295	2.15	.0846	4.1	.1614	6.4	.2520	8.75	.3445	16.5	.6496
.8	.0315	2.2	.0866	4.2	.1654	6.5	.2559	8.8	.3465	17	.6693
.85	.0335	2.25	.0886	4.25	.1674	6.6	.2598	8.9	.3504	17.5	.6890
.9	.0354	2.3	.0905	4.3	.1693	6.7	.2638	9.0	.3543	18.0	.7087
.95	.0374	2.35	.0925	4.4	.1732	6.75	.2658	9.1	.3583	18.5	.7283
1.0	.0394	2.4	.0945	4.5	.1772	6.8	.2677	9.2	.3622	19.0	.7480
1.05	.0413	2.45	.0965	4.6	.1811	6.9	.2716	9.25	.3642	19.5	.7677
1.1	.0433	2.5	.0984	4.7	.1850	7.0	.2756	9.3	.3661	20.0	.7874
1.15	.0453	2.55	.1004	4.75	.1870	7.1	.2795	9.4	.3701	20.5	.8071
1.2	.0472	2.6	.1024	4.8	.1890	7.2	.2835	9.5	.3740	21.0	.8268
1.25	.0492	2.65	.1043	4.9	.1929	7.25	.2855	9.6	.3780	21.5	.8465
1.3	.0512	2.7	.1063	5.0	.1968	7.3	.2874	9.7	.3819	22.0	.8661
1.35	.0531	2.75	.1083	5.1	.2008	7.4	.2913	9.75	.3839	22.5	.8858
1.4	.0551	2.8	.1102	5.2	.2047	7.5	.2953	9.8	.3859	23.0	.9055
1.45	.0571	2.9	.1142	5.25	.2067	7.6	.2992	9.9	.3898	23.5	.9252
1.5	.0591	3.0	.1181	5.3	.2087	7.7	.3031	10.0	.3937	24.0	.9449
1.55	.0610	3.1	.1220	5.4	.2126	7.75	.3051	10.5	.4134	24.5	.9646
1.6	.0629	3.2	.1260	5.5	.2165	7.8	.3071	11.0	.4330	25.0	.9843
1.65	.0650	3.25	.1280	5.6	.2205	7.9	.3110	11.5	.4528		
1.7	.0669	3.3	.1299	5.7	.2244	8.0	.3150	12.0	.4724		