



**GEARWRENCH®**

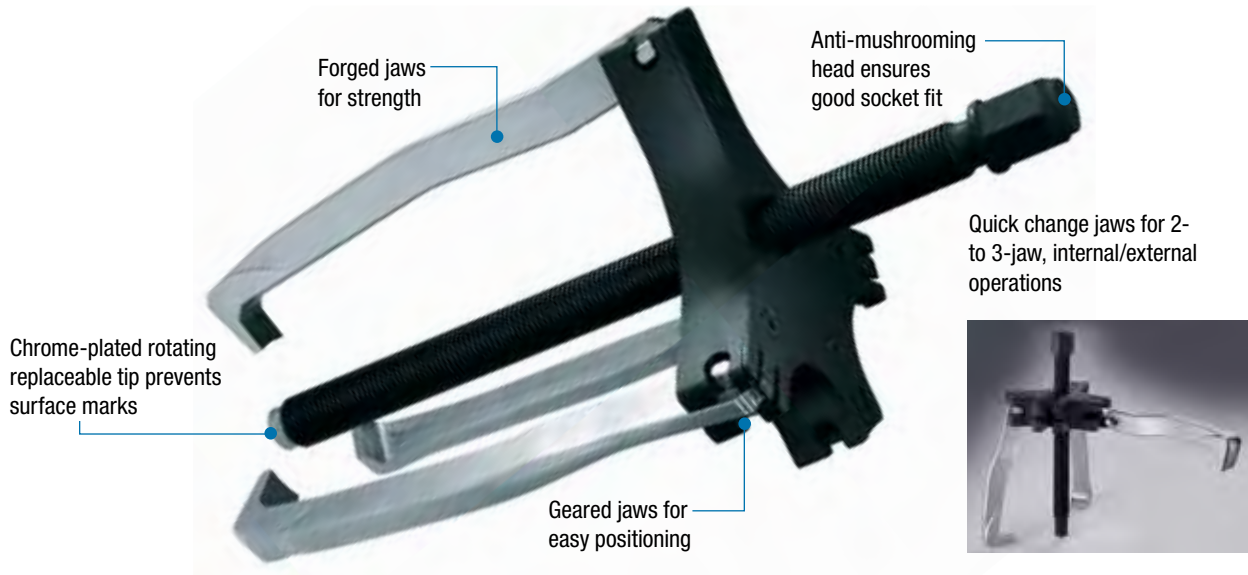
Ratcheting Pullers..... 1137  
 Reversible Puller ..... 1139  
 Combination Pullers..... 1139  
 Slide Hammer Pullers..... 1139

**ARMSTRONG®**

Heavy Duty C-Clamps..... 1141  
 General Service C-Clamps ..... 1142  
 Square Throat C-Clamps..... 1142  
 Deep Throat C-Clamps ..... 1144  
 Hi-Viz Deep Throat C-Clamps ..... 1145  
 Lifting Eyes (Eye Bolts) ..... 1147  
 Set-up Wedges ..... 1150

# GEARWRENCH® Clamping/Pulling

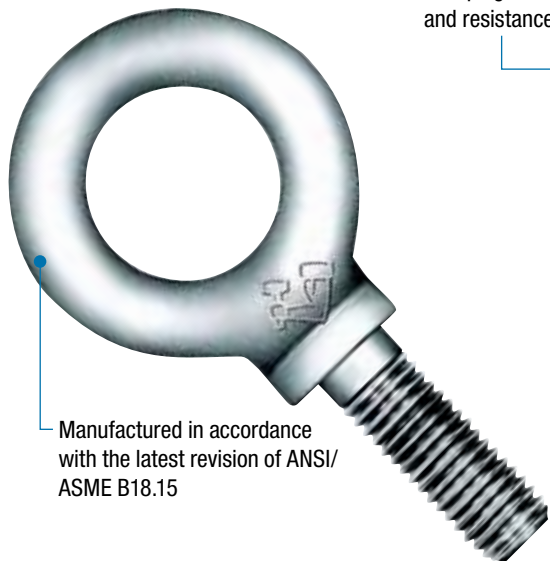
GearWrench® ratcheting pullers have a time-saving, indexing-jaw design. The legs index into position and stay in place, letting you easily support the puller and quickly connect each jaw one at a time to the pulley—without help. The pullers can also be converted to two- and three-leg pullers and the jaws reversed from external to internal style in seconds. Available in 2, 5, and 7-ton models. Maximum spread of 10 inches. Also available: 5-Ton Ratcheting Short / Long Leg Puller.



# ARMSTRONG® Clamping/Pulling

Armstrong® Clamping Tools offer a wide variety of professional C-Clamps and Lifting Eyes for just about any application. All are made to exacting standards with ASME and Federal Spec callouts where applicable. The extensive line of C-Clamps includes deep throat, super deep throat, general service, and heavy duty styles with standard black oxide and high visibility finishes, as well as zinc plated forcing screws for welding. All C-Clamp frames are drop forged from alloy steel and all anvils are produced to ensure a flat surface for proper alignment with the screw. These precision made C-Clamps can handle just about any clamping or holding application while cutting, drilling, welding, or fastening multiple pieces.

## LIFTING EYES

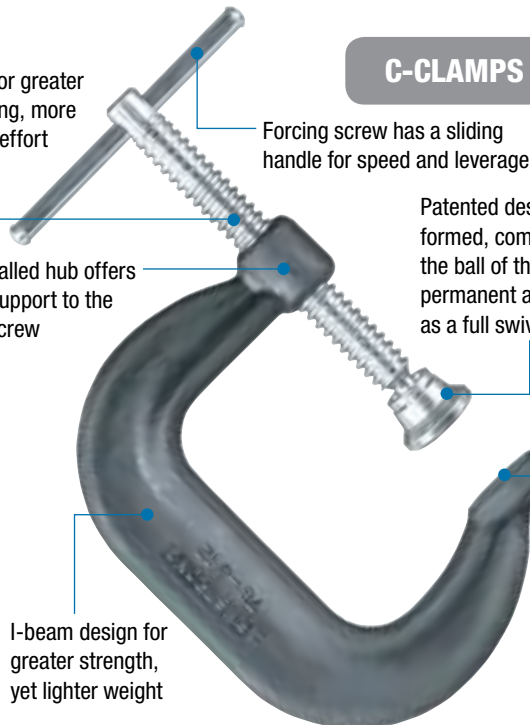


Manufactured in accordance with the latest revision of ANSI/ASME B18.15

Threads are roll formed for greater strength, smoother running, more clamping force with less effort and resistance to nicks

Heavy-walled hub offers greater support to the forcing screw

## C-CLAMPS



Forcing screw has a sliding handle for speed and leverage

Patented design pad is cold-formed, completely encircling the ball of the screw, providing permanent attachment, as well as a full swivel action

I-beam design for greater strength, yet lighter weight

Extra large anvil provides a greater gripping area for securing work

## **GEARWRENCH® 2-Ton and 5-Ton Ratcheting Puller Set**

- Ratcheting Pullers Have a Time-Saving, Indexing-Jaw Design
- Legs Index Into Position and Stay in Place, Letting You Easily Support the Puller and Quickly Connect Each Jaw One at a Time to the Pulley—Without Help
- Pullers Can Also Be Converted to Two- and Three-Leg Pullers and the Jaws Reversed From External to Internal Style in Seconds



Cat. No.	UPC No.	Packaging	Product Weight
3627	082171036279	Boxed	5.13 lb

Cat. No.	Description	Cat. No.	Description
3624D	2 Ton Ratcheting Puller	3625	5 Ton Ratcheting Puller

## **GEARWRENCH® 2-Ton Ratcheting Puller**

- Ratcheting Pullers Have a Time-Saving, Indexing-Jaw Design
- Legs Index Into Position and Stay in Place, Letting You Easily Support the Puller and Quickly Connect Each Jaw One at a Time to the Pulley—Without Help
- Pullers Can Also Be Converted to Two- and Three-Leg Pullers and the Jaws Reversed From External to Internal Style in Seconds



Cat. No.	UPC No.	Packaging	Ton	Reach/Length	Jaw Capacity	Screw Size	Screw Length	Jaw Thickness	Jaw Width	Product Weight	Shelf Pack Qty.
3624D	082171362408	Boxed	2 t	2-5/8 in	3-1/4 in	3/8 in - 24	4-1/2 in	3/8 in	5/8 in	2.55 lb	1

Cat. No.	Description	Cat. No.	Description
362401	3 Pc. Legs Replacement Set	362403	Screw Replacement
362402	Yoke Replacement		

## **GEARWRENCH® 5-Ton Ratcheting Puller**

- Ratcheting Pullers Have a Time-Saving, Indexing-Jaw Design
- Legs Index Into Position and Stay in Place, Letting You Easily Support the Puller and Quickly Connect Each Jaw One at a Time to the Pulley—Without Help
- Pullers Can Also Be Converted to Two- and Three-Leg Pullers and the Jaws Reversed From External to Internal Style in Seconds



Cat. No.	UPC No.	Packaging	Ton	Reach/Length	Jaw Capacity	Screw Size	Screw Length	Jaw Thickness	Jaw Width	Product Weight	Shelf Pack Qty.
3625	082171362507	Boxed	5 t	4 in	5 in	9/16 in - 12	8-1/4 in	9/16 in	11/16 in	3.31 lb	1

Cat. No.	Description	Cat. No.	Description
362501	3 Pc. Legs Replacement Set	362503	Screw Replacement
362502	Yoke Replacement		

## **GEARWRENCH® 5-Ton Ratcheting Short / Long Leg Puller**

- Ratcheting Pullers Have a Time-Saving, Indexing-Jaw Design
- Legs Index Into Position and Stay in Place, Letting You Easily Support the Puller and Quickly Connect Each Jaw One at a Time to the Pulley—Without Help
- Pullers Can Also Be Converted to Two- and Three-Leg Pullers and the Jaws Reversed From External to Internal Style in Seconds
- For Short Leg Specifications see 3625, Table below Shows Long Leg Specifications



Cat. No.	UPC No.	Packaging	Ton	Reach/Length	Jaw Capacity	Screw Size	Screw Length	Jaw Thickness	Jaw Width	Product Weight	Shelf Pack Qty.
<b>3628D</b>	082171036286	Boxed	5 t	6-3/4 in	7-1/2 in	9/16 in - 12	8-1/4 in	9/16 in	11/16 in	6.22 lb	1

Cat. No.	Description	Cat. No.	Description
<b>362502</b>	Yoke Replacement	<b>362801</b>	3 Pc. Long Legs Replacement Set
<b>362503</b>	Screw Replacement		

## **GEARWRENCH® 7-Ton Ratcheting Puller**

- Ratcheting Pullers Have a Time-Saving, Indexing-Jaw Design
- Legs Index Into Position and Stay in Place, Letting You Easily Support the Puller and Quickly Connect Each Jaw One at a Time to the Pulley—Without Help
- Pullers Can Also Be Converted to Two- and Three-Leg Pullers and the Jaws Reversed From External to Internal Style in Seconds
- Maximum Spread of 10 Inches



Cat. No.	UPC No.	Packaging	Ton	Reach/Length	Jaw Capacity	Screw Size	Screw Length	Jaw Thickness	Jaw Width	Product Weight	Shelf Pack Qty.
<b>3626</b>	082171036262	Boxed	7 t	6-3/4 in	10 in	3/4 in - 12	12 in	9/16 in	11/16 in	6.80 lb	1

Cat. No.	Description	Cat. No.	Description
<b>362601</b>	3 Pc. Legs Replacement Set	<b>362603</b>	Screw Replacement
<b>362602</b>	Yoke Replacement		

## **GEARWRENCH®** Combination 2 Jaw Reversible (Internal/External)

■ Reversible Jaws for Internal and External Applications



Cat. No.	UPC No.	Packaging	Ton	Reach/Length	Jaw Capacity	Screw Size	Screw Length	Upper Jaw Thickness	Lower Jaw Thickness	Upper Jaw Width	Lower Jaw Width	Product Weight	Shelf Pack Qty.
3551D	082171035517	Carded	2 t	3-1/2 in	5 in	3/8 in - 24	4-7/8 in	3/16 in	1/8 in	5/16 in	1/2 in	1.02 lb	1
3552	082171035524	Carded	5 t	5-3/4 in	8 in	9/16 in - 20	7 in	1/4 in	5/16 in	3/8 in	3/4 in	2.52 lb	1
3553D	082171035531	Carded	7 t	5 in	9 in	11/16 in - 18	7-1/2 in	3/8 in	3/8 in	1 in	1 in	4.52 lb	1

## **GEARWRENCH®** Combination 2 & 3 Jaw Reversible (Internal/External) Pullers

- Reversible Jaws for Internal and External Applications
- Includes Blow Mold Case for Storage



Cat. No.	UPC No.	Packaging	Ton	Reach/Length	Jaw Capacity	Screw Size	Screw Length	Upper Jaw Thickness	Lower Jaw Thickness	Upper Jaw Width	Lower Jaw Width	Product Weight	Shelf Pack Qty.
3561	082171035616	Carded	2 t	3-1/2 in	5.0 in	3/8 in - 24	4-7/8 in	3/16 in	1/8 in	5/16 in	1/2 in	1.30 lb	1
3562D	082171035623	Carded	5 t	5-3/4 in	8.0 in	9/16 in - 20	7 in	3/8 in	3/4 in	3/8 in	3/4 in	2.50 lb	1
3563	082171035630	Carded	7 t	5 in	9.0 in	11/16 in - 18	7-1/2 in	3/8 in	3/8 in	1 in	1 in	6.05 lb	1

## **GEARWRENCH®** 10 Way Slide Hammer Puller Set

- Provides a Wide Range of Puller Applications Such as: Flange Type Axles, Oil Seals & Other Press Fit Parts
- Jaws Can Be Set Up for 2 or 3 Jaw Internal or External Pulling Jobs
- Includes Blow Mold Case for Storage



Cat. No.	UPC No.	Packaging	Product Weight	Shelf Pack Qty.
41700D	082171041709	Boxed	17.0 lb	1

Cat. No.	Description	Cat. No.	Description	Cat. No.	Description
3591D	5-1/2 lb. Slide Hammer Only	41706	Center Bolt & Cone	230071D	Shallow Flange
41704	2 Way Yoke	41707	3 Pc. Adapter Set	230075D	Deep Flange
41705	3 Way Yoke	41708	Leg Package & Screws		



## **GEARWRENCH® Rear Axle Bearing Puller Set**

- Three Pullers Designed to Make the Removal of Semi-Floating Rear Axle Bearings Easier
- 1" X 1-7/8" Puller
- 1-5/16" X 2-3/8" Puller
- 1-3/8" X 2-7/8" Puller



Cat. No.	UPC No.	Packaging	Description	Product Weight	Shelf Pack Qty.
41710	082171417108	Boxed	Rear Axle Bearing Puller Set	3.3 lb	1

## **GEARWRENCH® 24" Basic Slide Hammer Unit**

- 5 lb Hammer with a 5/8" - 18 Threaded End
- May Be Used With an Internal Pulling Attachment With Female or Male Female Threaded Adapters



Cat. No.	UPC No.	Packaging	Product Weight	Shelf Pack Qty.
3591D	082171035913	Carded	7.05 lb	1

## **GEARWRENCH® Split Bearing Attachments**

- Attachments are Used for the Removal of Bearings, Thin-Faced and Cone-Shaped Gears
- Beveled Edge Allows Insertion Behind Pulleys, Gears or Bearings Where Space Limits the Use of a Standard Puller Jaw
- Grip the Part to be Pulled, then Pull with a Gear Puller



Cat. No.	UPC No.	Packaging	Spread (Min, Max)	Width	Screw Size	Product Weight	Shelf Pack Qty.
83600	099575836008	Carded	1/8 in, 2 in	2-7/16 in	3/8 in - 16	1.30 lb	1
83601	099575836015	Carded	1/2 in, 4-5/8 in	4-3/8 in	5/8 in - 18	5.90 lb	1
83602	099575836022	Carded	1/2 in, 9 in	6 in	5/8 in - 18	12.70 lb	1

## ARMSTRONG® C-Clamp Heavy Duty Pattern

- Made in the USA - Quality and Availability
- Strongest C-Clamp Produced
- Forcing Screw has a Square Head, Does Not Include a Handle
- Square Head is Deigned to be Turned with a Wrench or a 4 / 8 Point Socket Due to High Load Capacity
- Extra Long, Heavy Walled Hub Prevents Springing Under Full Recommended Load
- Forcing Screw Has a Hardened Tip, Standard V Threads
- Meets or Exceeds US Federal Spec. GGG-C-406D



Cat. No.	UPC No.	Packaging	Capacity Max.	Capacity Min.	Full Length Screw	Throat Depth	Thread Size	Length of Screw	Min. Proof	Product Weight	Shelf Pack Qty.
78-000	781412780000	Bulk	13/16 in	0 in	Yes	5/8 in	3/8 in - 16	2-1/4 in	2800 lb	0.33 lb	1
78-010	781412780109	Bulk	1-5/16 in	0 in	Yes	15/16 in	7/16 in - 14	2-13/16 in	5600 lb	0.72 lb	1
78-015	781412780154	Bulk	1-3/4 in	0 in	Yes	1-7/16 in	5/8 in - 11	4-3/16 in	8750 lb	2.33 lb	1
78-020	781412780208	Bulk	2-3/8 in	1/2 in	No	1-9/16 in	3/4 in - 10	4-1/4 in	12500 lb	3.56 lb	1
78-021*	781412780215	Bulk	2-3/8 in	0 in	Yes	1-9/16 in	3/4 in - 10	5 in	12500 lb	2.99 lb	1
78-030	781412780307	Bulk	3-5/16 in	5/8 in	No	2 in	7/8 in - 9	5-3/4 in	16250 lb	5.85 lb	1
78-031*	781412780314	Bulk	3-5/16 in	0 in	Yes	2 in	7/8 in - 9	6-11/16 in	16250 lb	5.53 lb	1
78-040	781412780406	Bulk	4-5/8 in	1 in	No	2-7/16 in	1 in - 8	7-1/16 in	20000 lb	9.66 lb	1
78-041*	781412780413	Bulk	4-5/8 in	0 in	Yes	2-7/16 in	1 in - 8	8-11/16 in	20000 lb	8.00 lb	1
78-050	781412780505	Bulk	5-3/8 in	1-1/4 in	No	2-7/8 in	1 in - 8	7-3/4 in	23800 lb	14.56 lb	1
78-051*	781412780512	Bulk	5-3/8 in	0 in	Yes	2-7/8 in	1 in - 8	9-13/16 in	23800 lb	15.79 lb	1
78-060	781412780604	Bulk	6-5/8 in	2-1/2 in	No	3-1/4 in	1-1/8 in - 7	8-3/16 in	27500 lb	14.03 lb	1
78-061*	781412780611	Bulk	6-5/8 in	0 in	Yes	3-1/4 in	1-1/8 in - 7	11-3/8 in	27500 lb	23.01 lb	1
78-080	781412780802	Bulk	8-1/4 in	2-1/4 in	No	3 in	1-1/4 in - 7	10-5/16 in	31250 lb	26.12 lb	1
78-081*	781412780819	Bulk	8-1/4 in	0 in	Yes	3 in	1-1/4 in - 7	13-9/16 in	31250 lb	27.66 lb	1
78-090	781412780901	Bulk	10-3/8 in	4-1/4 in	No	3-1/8 in	1-1/4 in - 7	10-5/16 in	35000 lb	32.29 lb	1
78-091*	781412780918	Bulk	10-3/8 in	0 in	Yes	3-1/8 in	1-1/4 in - 7	15-9/16 in	35000 lb	32.80 lb	1
78-092	781412780925	Bulk	12-1/2 in	6-3/8 in	No	3-1/2 in	1-1/4 in - 7	10-5/16 in	40000 lb	38.43 lb	1
78-093*	781412780932	Bulk	12-1/2 in	0 in	Yes	3-1/2 in	1-1/4 in - 7	15-3/8 in	40000 lb	38.27 lb	1

\* Frame of clamp is marked with equivalent non-full length forcing screw part number

## ARMSTRONG® C-Clamp General Service Pattern

- Made in the USA - Quality and Availability
- Designed for Use Where the Depth of a Deep Throat or the Extreme Strength of a Heavy Duty Pattern are Not Required
- Forcing Screw has a Square Head and a Sliding Handle, Standard V Threads
- Swivel Pad Completely Encircles the Ball Joint Providing Permanent Attachment as well as Full Swivel Action
- Heavy Walled Hub Supports Forcing Screw Reducing Distortion
- Extra Large Anvil for Greater Gripping Area
- Anvil is Produced to Insure a Flat Surface for Proper Alignment With Screw
- Meets or Exceeds US Federal Spec. GGG-C-406D



Cat. No.	UPC No.	Packaging	Capacity Max.	Capacity Min.	Full Length Screw	Throat Depth	Thread Size	Length of Screw	Min. Proof	Product Weight	Shelf Pack Qty.
78-102	781412781021	Bulk	2 in	0 in	Yes	1-3/8 in	1/2 in - 13	4-7/8 in	7500 lb	1.45 lb	1
78-103	781412781038	Bulk	3 in	0 in	Yes	1-3/4 in	5/8 in - 11	6-3/8 in	8750 lb	2.45 lb	1
78-104	781412781045	Bulk	4 in	0 in	Yes	2 in	3/4 in - 10	7-7/8 in	10000 lb	4.12 lb	1
78-106D	781412781069	Bulk	6 in	2 in	No	2-1/4 in	3/4 in - 10	7-7/8 in	11250 lb	6.34 lb	1
78-107*	781412781076	Bulk	6 in	0 in	Yes	2-1/4 in	3/4 in - 10	9-5/8 in	11250 lb	5.62 lb	1
78-108	781412781083	Bulk	8 in	4 in	No	2-1/4 in	3/4 in - 10	7-7/8 in	12500 lb	7.34 lb	1
78-109*	781412781090	Bulk	8 in	0 in	Yes	2-1/4 in	3/4 in - 10	11-11/16 in	12500 lb	7.44 lb	1
78-110	781412781106	Bulk	10 in	6 in	No	2-3/8 in	3/4 in - 10	7-7/8 in	13750 lb	8.68 lb	1
78-111*	781412781113	Bulk	10 in	0 in	Yes	2-3/8 in	3/4 in - 10	13-9/16 in	13750 lb	8.82 lb	1
78-112	781412781120	Bulk	12 in	8 in	No	2-5/8 in	7/8 in - 9	10-1/4 in	15000 lb	11.88 lb	1
78-113*	781412781137	Bulk	12 in	0 in	Yes	2-5/8 in	7/8 in - 9	16-1/4 in	15000 lb	12.73 lb	1
78-115	781412781151	Bulk	15 in	10 in	No	2-3/4 in	7/8 in - 9	10-1/4 in	16250 lb	15.50 lb	1
78-116*	781412781168	Bulk	15 in	0 in	Yes	2-3/4 in	7/8 in - 9	19-1/4 in	16250 lb	16.18 lb	1
78-118	781412781182	Bulk	18 in	13 in	No	2-7/8 in	7/8 in - 9	10-1/4 in	17500 lb	19.40 lb	1
78-119*	781412781199	Bulk	18 in	0 in	Yes	2-7/8 in	7/8 in - 9	22-1/4 in	17500 lb	19.22 lb	1

\* Frame of clamp is marked with equivalent non-full length forcing screw part number



## ARMSTRONG® C-Clamp Square Throat Pattern, Black Finish

- Made in the USA - Quality and Availability
- Designed for use Where a Super Deep Throat is Required
- Super Deep Square Throat Offers up to 89% More Capacity than other Patterns
- Forcing Screw has a Sliding Handle
- Swivel Pad Completely Encircles the Ball Joint Providing Permanent Attachment as well as Full Swivel Action
- Heavy Walled Hub Supports Forcing Screw Reducing Distortion
- Forcing Screw has Roll Formed Acme Threads For Greater Strength, Smoother Running, Reduced Thread Damage, Producing More Clamping Force With Less Effort
- Extra Large Anvil for Greater Gripping Area
- Anvil is Produced to Insure a Flat Surface for Proper Alignment with Screw
- Meets or Exceeds US Federal Spec. GGG-C-406D



Cat. No.	UPC No.	Packaging	Capacity Max.	Capacity Min.	Full Length Screw	Throat Depth	Thread Size	Length of Screw	Min. Proof	Product Weight	Shelf Pack Qty.
78-303	781412783032	Bulk	3 in	0 in	Yes	3-1/2 in	1/2 in - 8	4-7/8 in	3500 lb	2.92 lb	1
78-304	781412783049	Bulk	4 in	0 in	Yes	4-1/2 in	3/4 in - 6	7-5/8 in	4100 lb	5.33 lb	1
78-306	781412783063	Bulk	6 in	0 in	Yes	6-1/2 in	3/4 in - 6	9-7/8 in	5400 lb	8.54 lb	1
78-308	781412783087	Bulk	8 in	0 in	Yes	8-1/2 in	3/4 in - 6	12-3/8 in	5900 lb	16.34 lb	1

## ARMSTRONG® C-Clamp Square Throat Pattern, Zinc Plated

- Made in the USA - Quality and Availability
- Zinc Plated Forcing Screw for use in Welding - Resists Adhesion of Welding Spatter
- Designed for use Where a Super Deep Throat is Required
- Super Deep Square Throat Offers up to 89% More Capacity than other Patterns
- Forcing Screw has a Sliding Handle
- Swivel Pad Completely Encircles the Ball Joint Providing Permanent Attachment as well as Full Swivel Action
- Heavy Walled Hub Supports Forcing Screw Reducing Distortion
- Forcing Screw has Roll Formed Acme Threads For Greater Strength, Smoother Running, Reduced Thread Damage, Producing More Clamping Force With Less Effort
- Extra Large Anvil for Greater Gripping Area, Produced to Insure a Flat Surface for Proper Alignment with Screw
- Meets or Exceeds US Federal Spec. GGG-C-406D



Cat. No.	UPC No.	Packaging	Capacity Max.	Capacity Min.	Full Length Screw	Throat Depth	Thread Size	Length of Screw	Min. Proof	Product Weight	Shelf Pack Qty.
78-333*	781412783339	Bulk	3 in	0 in	Yes	3-1/2 in	1/2 in - 8	4-7/8 in	3500 lb	3.03 lb	1
78-334*	781412783346	Bulk	4 in	0 in	Yes	4-1/2 in	3/4 in - 6	7-5/8 in	4100 lb	5.24 lb	1
78-336*	781412783360	Bulk	6 in	0 in	Yes	6-1/2 in	3/4 in - 6	9-7/8 in	5400 lb	8.76 lb	1
78-338*	781412783384	Bulk	8 in	0 in	Yes	8-1/2 in	3/4 in - 6	12-3/8 in	5900 lb	13.11 lb	1

\* Frame of clamp is marked with standard square throat part number

## ARMSTRONG® C-Clamp Deep Throat Pattern

- Made in the USA - Quality and Availability
- Most Popular and Versatile Style C-Clamp
- Forcing Screw has a Sliding Handle
- Swivel Pad Completely Encircles the Ball Joint Providing Permanent Attachment as well as Full Swivel Action
- Heavy Walled Hub Supports Forcing Screw Reducing Distortion
- Forcing Screw has Roll Formed Acme Threads For Greater Strength, Smoother Running, Reduced Thread Damage, Producing More Clamping Force With Less Effort
- Extra Large Anvil for Greater Gripping Area, Produced to Insure a Flat Surface for Proper Alignment with Screw
- Meets or Exceeds US Federal Spec. GGG-C-406D



Cat. No.	UPC No.	Packaging	Capacity Max.	Capacity Min.	Full Length Screw	Throat Depth	Thread Size	Length of Screw	Min. Proof	Product Weight	Shelf Pack Qty.
78-401	781412784015	Bulk	1-1/2 in	0 in	Yes	1-5/8 in	3/8 in - 16	3-1/4 in	1400 lb	0.45 lb	1
78-402	781412784022	Bulk	2 in	0 in	Yes	2-5/16 in	1/2 in - 8	4-3/4 in	3300 lb	6.41 lb	1
78-403	781412784039	Bulk	3 in	0 in	Yes	2-3/4 in	1/2 in - 8	5-3/4 in	3500 lb	8.20 lb	1
78-404	781412784046	Bulk	4 in	0 in	Yes	3-1/16 in	3/4 in - 6	7-5/8 in	4100 lb	3.55 lb	1
78-406	781412784060	Bulk	6 in	0 in	Yes	4-1/16 in	3/4 in - 6	9-7/8 in	5400 lb	4.95 lb	1
78-408	781412784084	Bulk	8 in	0 in	Yes	5 in	3/4 in - 6	12-3/8 in	5900 lb	7.56 lb	1
78-410	781412784107	Bulk	10 in	3 in	No	5-15/16 in	3/4 in - 6	12-3/8 in	6200 lb	10.35 lb	1
78-411	781412784114	Bulk	10 in	0 in	Yes	5-15/16 in	3/4 in - 6	14-1/2 in	6200 lb	11.51 lb	1
78-412	781412784121	Bulk	12 in	4 in	No	6-3/8 in	7/8 in - 6	13-1/2 in	9300 lb	15.00 lb	1
78-413	781412784138	Bulk	12 in	0 in	Yes	6-3/8 in	7/8 in - 6	16-1/2 in	9300 lb	15.37 lb	1

## ARMSTRONG® C-Clamp Deep Throat Pattern, Zinc Plated

- Made in the USA - Quality and Availability
- Zinc Plated Forcing Screw for use in Welding - Resists Adhesion of Welding Spatter
- Most Popular and Versatile Style C-Clamp
- Forcing Screw has a Sliding Handle
- Swivel Pad Completely Encircles the Ball Joint Providing Permanent Attachment as well as Full Swivel Action
- Heavy Walled Hub Supports Forcing Screw Reducing Distortion
- Forcing Screw has Roll Formed Acme Threads For Greater Strength, Smoother Running, Reduced Thread Damage, Producing More Clamping Force With Less Effort
- Extra Large Anvil for Greater Gripping Area, Produced to Insure a Flat Surface for Proper Alignment with Screw
- Meets or Exceeds US Federal Spec. GGG-C-406D



Cat. No.	UPC No.	Packaging	Capacity Max.	Capacity Min.	Full Length Screw	Throat Depth	Thread Size	Length of Screw	Min. Proof	Product Weight	Shelf Pack Qty.
78-431*	781412784312	Bulk	1-1/2 in	0 in	Yes	1-3/8 in	3/8 in - 16	3-1/4 in	1400 lb	0.44 lb	1
78-432*	781412784329	Bulk	2 in	0 in	Yes	2 in	1/2 in - 8	4-3/4 in	3300 lb	1.36 lb	1
78-433*	781412784336	Bulk	3 in	0 in	Yes	2-3/8 in	1/2 in - 8	5-3/4 in	3500 lb	2.11 lb	1
78-434*	781412784343	Bulk	4 in	0 in	Yes	2-3/4 in	3/4 in - 6	7-5/8 in	4100 lb	3.50 lb	1
78-436*	781412784367	Bulk	6 in	0 in	Yes	3-5/8 in	3/4 in - 6	9-7/8 in	5400 lb	6.61 lb	1
78-438*	781412784381	Bulk	8 in	0 in	Yes	4-1/2 in	3/4 in - 6	12-3/8 in	5900 lb	7.50 lb	1
78-440*	781412784404	Bulk	10 in	3 in	No	5-3/8 in	3/4 in - 6	12-3/8 in	6200 lb	10.34 lb	1
78-441*	781412784411	Bulk	10 in	0 in	Yes	5-3/8 in	3/4 in - 6	14-1/2 in	6200 lb	9.90 lb	1
78-442*	781412784428	Bulk	12 in	4 in	No	5-3/4 in	7/8 in - 6	13-1/2 in	9300 lb	15.05 lb	1
78-443*	781412784435	Bulk	12 in	0 in	Yes	5-3/4 in	7/8 in - 6	16-1/2 in	9300 lb	15.32 lb	1

\* Frame of clamp is marked with standard deep throat part number

# ARMSTRONG® C-Clamp Deep Throat Pattern, High Visibility Finish, Safety Yellow

- Made in the USA - Quality and Availability
- Finished in a Safety Yellow Baked-on High-Gloss Enamel Finish for High Visibility
- Product is Marked with Deep Throat Pattern Part Number
- Most Popular and Versatile Style C-Clamp
- Forcing Screw has a Sliding Handle
- Swivel Pad Completely Encircles the Ball Joint Providing Permanent Attachment as well as Full Swivel Action
- Heavy Walled Hub Supports Forcing Screw Reducing Distortion
- Forcing Screw has Roll Formed Acme Threads For Greater Strength, Smoother Running, Reduced Thread Damage, Producing More Clamping Force With Less Effort
- Extra Large Anvil for Greater Gripping Area, Produced to Insure a Flat Surface for Proper Alignment with Screw
- Meets or Exceeds US Federal Spec. GGG-C-406D



Cat. No.	UPC No.	Packaging	Capacity Max.	Capacity Min.	Full Length Screw	Throat Depth	Thread Size	Length of Screw	Min. Proof	Product Weight	Shelf Pack Qty.
78-601*	781412786019	Bulk	1-1/2 in	0 in	Yes	1-5/8 in	3/8 in - 16	3-1/4 in	1400 lb	0.48 lb	1
78-602*	781412786026	Bulk	2 in	0 in	Yes	2-15/16 in	1/2 in - 8	4-3/4 in	3300 lb	1.38 lb	1
78-603*	781412786033	Bulk	3 in	0 in	Yes	2-3/4 in	1/2 in - 8	5-3/4 in	3500 lb	2.14 lb	1
78-604*	781412786040	Bulk	4 in	0 in	Yes	3-13/16 in	3/4 in - 6	7-5/8 in	4100 lb	3.41 lb	1
78-606*	781412786064	Bulk	6 in	0 in	Yes	4-1/16 in	3/4 in - 6	9-7/8 in	5400 lb	4.77 lb	1
78-608*	781412786088	Bulk	8 in	0 in	Yes	5 in	3/4 in - 6	12-3/8 in	5900 lb	6.72 lb	1
78-610*	781412786101	Bulk	10 in	3 in	No	5-15/16 in	3/4 in - 6	12-3/8 in	6200 lb	10.52 lb	1
78-612*	781412786125	Bulk	12 in	4 in	No	6-3/8 in	7/8 in - 6	13-1/2 in	9300 lb	14.77 lb	1

\* Frame of clamp is marked with standard deep throat part number

# ARMSTRONG® C-Clamp Deep Throat Pattern, High Visibility Finish, Safety Orange

- Made in the USA - Quality and Availability
- Finished in a Safety Orange Baked-on High-Gloss Enamel Finish for High Visibility
- Product is Marked with Deep Throat Pattern Part Number
- Most Popular and Versatile Style C-Clamp
- Forcing Screw has a Sliding Handle
- Swivel Pad Completely Encircles the Ball Joint Providing Permanent Attachment as well as Full Swivel Action
- Heavy Walled Hub Supports Forcing Screw Reducing Distortion
- Forcing Screw has Roll Formed Acme Threads For Greater Strength, Smoother Running, Reduced Thread Damage, Producing More Clamping Force With Less Effort
- Extra Large Anvil for Greater Gripping Area, Produced to Insure a Flat Surface for Proper Alignment with Screw
- Meets or Exceeds US Federal Spec. GGG-C-406D

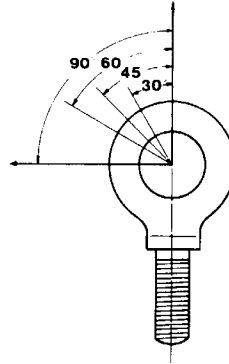


Cat. No.	UPC No.	Packaging	Capacity Max.	Capacity Min.	Full Length Screw	Throat Depth	Thread Size	Length of Screw	Min. Proof	Product Weight	Shelf Pack Qty.
78-631*	781412786316	Bulk	1-1/2 in	0 in	Yes	1-5/8 in	3/8 in - 16	3-1/4 in	1400 lb	0.48 lb	1
78-632*	781412786323	Bulk	2 in	0 in	Yes	2-5/16 in	1/2 in - 8	4-3/4 in	3300 lb	1.38 lb	1
78-633*	781412786330	Bulk	3 in	0 in	Yes	2-3/4 in	1/2 in - 8	5-3/4 in	3500 lb	2.26 lb	1
78-634*	781412786347	Bulk	4 in	0 in	Yes	3-13/16 in	3/4 in - 6	7-5/8 in	4100 lb	3.63 lb	1
78-636*	781412786361	Bulk	6 in	0 in	Yes	4-1/16 in	3/4 in - 6	9-7/8 in	5400 lb	5.05 lb	1
78-638*	781412786385	Bulk	8 in	0 in	Yes	5 in	3/4 in - 6	12-3/8 in	5900 lb	7.24 lb	1
78-640*	781412786408	Bulk	10 in	3 in	No	5-15/16 in	3/4 in - 6	12-3/8 in	6200 lb	10.67 lb	1
78-642*	781412786422	Bulk	12 in	4 in	No	6-3/8 in	7/8 in - 6	13-1/2 in	9300 lb	14.79 lb	1

\* Frame of clamp is marked with standard deep throat part number

## ARMSTRONG® Shoulder Pattern Lifting Eyes

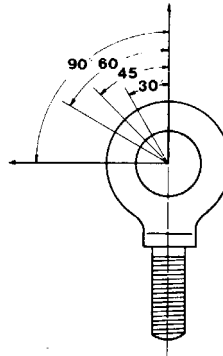
- Made in the USA - Quality and Availability
- Maximum Working Loads Were Determined and Actual Lifts Should be Accomplished By Using a Very Slow, Steady Pull
- Lifting Eyes Are Available In 2 Styles; Shoulder Pattern and Plain Pattern With Both Patterns Suitable for Vertical Lifts
- Angular Lifts Place Additional Stress On a Lifting Eye and Should be Avoided
- Shoulder Pattern Lifting Eyes Are Recommended for Use Whenever Possible Since There is No Guarantee That a Load Will Not be Subjected to An Angular Lift and Forces
- Plain Pattern Lifting Eyes Should be Firmly Seated With At Least 90% Of the Thread Engaged With the Treads Close to the Eye Fully Engaged
- Lifting Eyes Should Never be Ground, Machined, Metal Stamped, or Altered in Any Way
- Lifting Eyes Capabilities Can be Affected by Temperature
- Lifting Eyes Should be Routinely Inspected
- Meets or Exceeds ASME B18.15-2008



Cat. No.	UPC No.	Packaging	Thread Size	Length Under Eye	Eye Diameter; Inside	Eye Diameter; Outside	Max. Load 0°	Max. Load 30°	Max. Load 45°	Product Weight	Shelf Pack Qty.
89-021	781412890211	Bagged	1/4 in -20	1 in	3/4 in	1-3/16 in	500 lb	75 lb	N/A	0.05 lb	1
89-022	781412890228	Bagged	5/16 in -18	1-1/8 in	7/8 in	1-7/16 in	800 lb	225 lb	N/A	0.08 lb	1
89-023	781412890235	Bagged	3/8 in -16	1-1/4 in	1 in	1-21/32 in	1400 lb	650 lb	350 lb	0.13 lb	1
89-024	781412890242	Bagged	7/16 in -14	1-3/8 in	1-3/32 in	1-27/32 in	2000 lb	1000 lb	500 lb	0.25 lb	1
89-025	781412890259	Bagged	1/2 in -13	1-1/2 in	1-3/16 in	2-1/16 in	2600 lb	1200 lb	650 lb	0.35 lb	1
89-026	781412890266	Bagged	9/16 in -12	1-5/8 in	1-9/32 in	2-9/32 in	3000 lb	1600 lb	900 lb	0.54 lb	1
89-027	781412890273	Bagged	5/8 in -11	1-3/4 in	1-3/8 in	2-1/2 in	4000 lb	2000 lb	1200 lb	0.83 lb	1
89-028	781412890280	Bagged	3/4 in -10	2 in	1-1/2 in	2-13/16 in	6000 lb	3200 lb	2200 lb	1.36 lb	1
89-029	781412890297	Bagged	7/8 in -9	2-1/4 in	1-11/16 in	3-1/4 in	7200 lb	3800 lb	2500 lb	2.09 lb	1
89-030	781412890303	Bagged	1 in -8	2-1/2 in	1-13/16 in	3-9/16 in	9500 lb	5000 lb	3600 lb	2.92 lb	1
89-031	781412890310	Bagged	1-1/8 in -7	2-3/4 in	2 in	4 in	11800 lb	5500 lb	4500 lb	3.40 lb	1
89-032	781412890327	Bagged	1-1/4 in -7	3 in	2-3/16 in	4-7/16 in	15000 lb	7000 lb	5200 lb	4.67 lb	1
89-034	781412890341	Bagged	1-1/2 in -6	3-1/2 in	2-1/2 in	5-3/16 in	21700 lb	10500 lb	7200 lb	7.28 lb	1
89-035	781412890358	Bulk with UPC	1-3/4 in -5	3-3/4 in	2-7/8 in	6-1/16 in	29500 lb	14000 lb	10500 lb	11.79 lb	1
89-036	781412890365	Bulk with UPC	2 in -4-1/2	4 in	3-1/4 in	6-7/8 in	38500 lb	18000 lb	13500 lb	14.55 lb	1

## ARMSTRONG Plain Pattern Lifting Eyes

- Made in the USA - Quality and Availability
- Maximum Working Loads Were Determined and Actual Lifts Should be Accomplished By Using a Very Slow, Steady Pull
- Lifting Eyes Are Available In 2 Styles; Shoulder Pattern and Plain Pattern With Both Patterns Suitable for Vertical Lifts
- Angular Lifts Place Additional Stress On a Lifting Eye and Should be Avoided
- Shoulder Pattern Lifting Eyes Are Recommended for Use Whenever Possible Since There is No Guarantee That a Load Will Not be Subjected to An Angular Lift and Forces
- Plain Pattern Lifting Eyes Should be Firmly Seated With At Least 90% Of the Thread Engaged With the Treads Close to the Eye Fully Engaged
- Lifting Eyes Should Never be Ground, Machined, Metal Stamped, or Altered in Any Way
- Lifting Eyes Capabilities Can be Affected by Temperature
- Lifting Eyes Should be Routinely Inspected
- Meets or Exceeds ASME B18.15-2008



Cat. No.	UPC No.	Packaging	Thread Size	Length Under Eye	Eye Diameter; Inside	Eye Diameter; Outside	Max. Load 0°	Max. Load 30°	Max. Load 45°	Product Weight	Shelf Pack Qty.
89-001	781412890013	Bagged	1/4 in -20	1 in	3/4 in	1-3/16 in	500 lb	N/A	N/A	0.10 lb	1
89-002	781412890020	Bagged	5/16 in -18	1-1/8 in	7/8 in	1-7/16 in	800 lb	N/A	N/A	0.17 lb	1
89-003	781412890037	Bagged	3/8 in -16	1-1/4 in	1 in	1-21/32 in	1400 lb	N/A	N/A	0.19 lb	1
89-004	781412890044	Bagged	7/16 in -14	1-3/8 in	1-3/32 in	1-27/32 in	2000 lb	N/A	N/A	0.23 lb	1
89-005	781412890051	Bagged	1/2 in -13	1-1/2 in	1-3/16 in	2-1/16 in	2600 lb	N/A	N/A	0.30 lb	1
89-006	781412890068	Bagged	9/16 in -12	1-5/8 in	1-9/32 in	2-9/32 in	3000 lb	N/A	N/A	0.44 lb	1
89-007	781412890075	Bagged	5/8 in -11	1-3/4 in	1-3/8 in	2-1/2 in	4000 lb	N/A	N/A	0.62 lb	1
89-008	781412890082	Bagged	3/4 in -10	2 in	1-1/2 in	2-13/16 in	6000 lb	N/A	N/A	0.82 lb	1
89-009	781412890099	Bagged	7/8 in -9	2-1/4 in	1-11/16 in	3-1/4 in	7200 lb	N/A	N/A	1.50 lb	1
89-010	781412890105	Bagged	1 in -8	2-1/2 in	1-13/16 in	3-9/16 in	9500 lb	N/A	N/A	2.06 lb	1
89-011	781412890112	Bagged	1-1/8 in -7	2-3/4 in	2 in	4 in	11800 lb	N/A	N/A	2.96 lb	1
89-012	781412890129	Bagged	1-1/4 in -7	3 in	2-3/16 in	4-7/16 in	15000 lb	N/A	N/A	3.87 lb	1
89-014	781412890143	Bagged	1-1/2 in -6	3-1/2 in	2-1/2 in	5-3/16 in	21700 lb	N/A	N/A	6.73 lb	1

### ⚠ LIFTING EYE SAFETY

The dangers inherent in any lifting operation are obvious. Yet every year, accidents occur which could have been avoided by applying the simplest, most fundamental safety precautions.

1. Read and follow all of the suggestions stated in the "Manual of Proper Uses of Forged Lifting Eyes (Eye Bolts)," BEFORE attempting to use Lifting Eyes in any application. A copy is on the following page of this catalog.
2. ALWAYS stay well clear of the load.
3. DO NOT use Lifting Eyes for angular lifts unless ABSOLUTELY necessary. If angular lifts CANNOT be avoided, then ONLY Shoulder Pattern Lifting Eyes-which are specifically designed for this application-should be used.
4. Armstrong Carbon Steel Lifting Eyes must NEVER be welded.
5. DO NOT use Carbon Steel Lifting Eyes at temperatures below 32°F (0°C).
6. NEVER exceed the MAXIMUM Working Load of a Lifting Eye.



# Proper Uses of Forged Lifting Eyes (Eye Bolts)

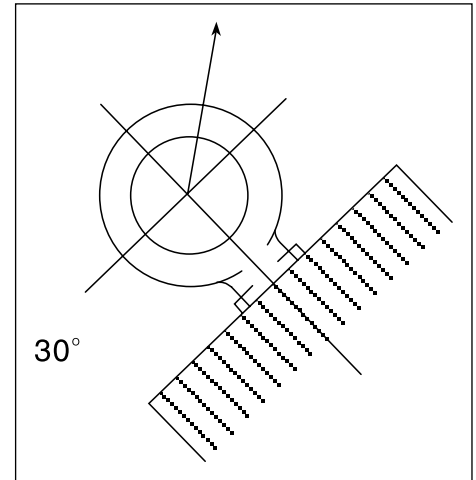
## HOW RECOMMENDED STATIC WORKING LOADS ARE DETERMINED

Lifting Eye manufacturers provided recommended static working loads for their standard lifting eyes. These static working loads are shown in the manufacturers' catalogs and have been determined by multiplying the tensile strength of the lifting eye material, after heat treating, by the tensile stress area of the threaded lifting eye shank. The product of this multiplication is the maximum ultimate strength of the lifting eye. Dividing this figure by a factor of five provides the recommended static working load for a straight vertical lift. More complete information may be found in ASTM A 489, Standard Spec. for Carbon Steel Lifting Eyes.

## ANGULAR LIFTS

An angular lift (see figure 1) places additional stresses on a lifting eye, above that of the load to be hoisted. For this reason, use of angular lifts should be avoided whenever possible. If, however, the situation necessitates an angular lift, *a properly selected and inserted lifting eye must be used*, and a reduction in the rated capacity must be applied.

Angular lifts of 30° (figure 1) apply additional stresses and *necessitate* reduced working loads.



## SHOULDER PATTERN LIFTING EYES (EYE BOLTS) ARE PREFERABLE

In theory, plain pattern and shoulder pattern lifting eyes are equally suitable for vertical lifts. But since there is no guarantee that a load will never be subjected to an angular lift, *shoulder pattern lifting eyes are recommended for use wherever possible*.

When a shoulder pattern lifting eye is properly seated in the receiving hole, the shoulder bears against the seat and reduces bending stress on the shank.

## SEATING OF LIFTING EYES (EYE BOLTS)

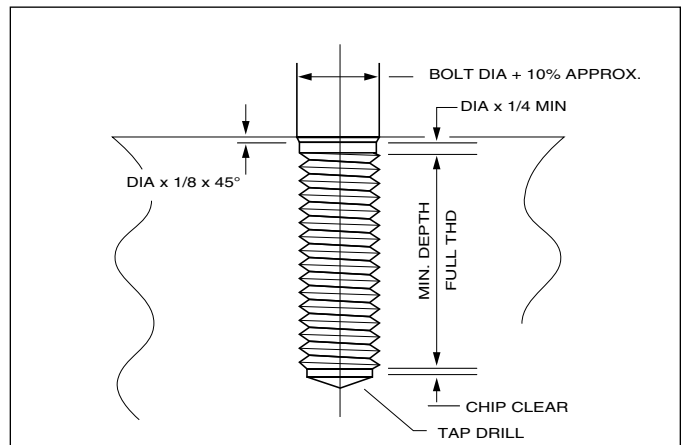
Shoulder pattern lifting eyes should always be screwed in so as to **firmly seat the shoulder**, with at least 90% of the thread engaged. To facilitate this, the receiving hole should be machine countersunk. (See figure 2.) If countersinking is impossible, a minimum number of washers should be used to build up the surface of the load until the shoulder can be firmly seated by hand. *Be sure at least 90% of the threads are engaged in the receiving hole with a minimum thread engagement of at least 1-1/2 times the thread diameter in steel when this method is used.*

When using a plain pattern lifting eye, be sure the bolt is firmly seated by hand with at least 90% of the thread engaged in the receiving hole with the full threads close to the eye fully engaged.

Loads should always be applied to lifting eyes in the plane of the eye, not at some angle to this plane. Therefore, the direction of the load should be taken into account when seating the lifting eye. Before lifting the load, but with the load lines under tension, check to see if the lifting eyes are properly positioned.

## RECEIVING HOLE

In order to obtain the maximum strength from an eye bolt, considerable care must be given to the receiving hole into which the bolt will be screwed. (See Figure 2) Tap the correct class fit thread to accommodate the full length of the lifting eye shank. This is important because recommended capacities apply only when a minimum 90% of the threaded shank is engaged. For shoulder pattern lifting eyes, counterbore the hole to insure proper seating of the shoulder, as described previously.



### CHECK SEATING AFTER APPLYING ANGULAR LIFT

Immediately after applying an angular load to a shoulder pattern lifting eye, check to be sure the shoulder is still firmly engaged. This is important, since the initial lift may cause the bolt to back off, away from the load. In such cases, the lifting eye should be unloaded and the lifting eye properly resealed.

### THREAD ENGAGEMENT

The minimum thread engagement should be at least 1-1/2 times the thread diameter in steel. Refer to ASME/ASME B18.15, Forged Lifting Eyes (Eye Bolts), for engagements in other materials.

### UNDERCUT LIFTING EYES (EYE BOLTS)

Undercutting of lifting eyes to provide clearance in a noncounterbore/countersunk hole is not recommended.

### DYNAMIC LOADING

Shock or rapid loading is inherently dangerous. All loads should be applied in a gradually increasing manner.

### ALWAYS STAND CLEAR

Never stand, work or crawl under the load. If the load could swing, or if the pieces could fly in the event of a drop, allow for this possibility by establishing a safe distance between yourself and the load.

### DON'T OVERLOAD

Follow carefully the working load recommendations of the manufacturer of the lifting eye you are using.

### ALTERING OF LIFTING EYES (EYE BOLTS)

Lifting eyes should never be ground, machined, metal stamped or altered in any way, since such operation is likely to weaken the bolt. Lifting eyes showing signs of having been so treated should immediately be destroyed.

### EXTREME HEAT

Lifting eyes should never be welded, used at, or subjected to temperatures above 275°F (135°C). Important physical properties are likely to be changed by such heating, creating an unsafe bolt. Lifting eyes showing signs of such heating should be immediately destroyed.

### LOW TEMPERATURE SERVICE

Low temperature service poses additional problems. It is mandatory that all safety precautions be rigidly adhered to.

At temperatures below 300F(-10C), carbon steel, normally used for standard lifting eyes, is subject to a decrease in shock resistance and ductility at the lower temperatures.

(a) To minus 400F (-400C): Heat treated low carbon alloy steel ASTM specification F541, Alloy Steel Lifting Eyes, should be used as a guide.

(b) Under minus 400F (-400C) Use austenitic type steel. A reduction in rated load may occur.

### DAMAGED THREADS

Lifting eyes with worn, chipped, or otherwise damaged threads should be immediately destroyed. Such damage weakens the lifting eye and can cause improper seating.

### INSPECTION

Lifting eyes should be routinely inspected for such conditions as:

- A. Elongated or bent eye section.
- B. Elongated or bent shank.
- C. Nicks and gouges.
- D. Obvious wear.
- E. Worn, corroded and/or distorted threads.
- F. Cracks found by non-destructive testing.
- G. Absence of sufficient identifying markings.

If any of these conditions exist, the lifting eye should be removed from service and destroyed.

In addition, the receiving hole should be carefully cleaned and inspected for worn threads or other thread deterioration prior to each insertion of the lifting eye.

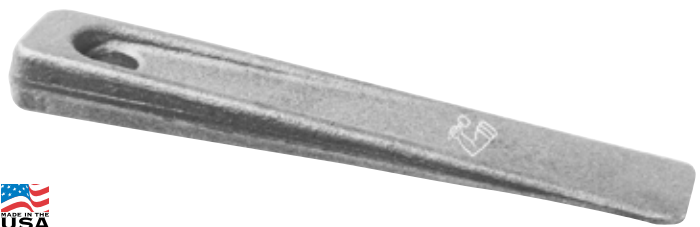
Any lifting eye should be removed from service and destroyed when the manufacturer's identifying marks are no longer readily identifiable to guarantee proper reference for continued safe usage.

### HOW TO DESTROY

Lifting eyes that are being replaced should be rendered unusable. Crushing or cutting across the eye is recommended.

## ARMSTRONG® Set-Up Wedges

■ Made in the USA - Quality and Availability



Cat. No.	UPC No.	Packaging	Length	Width	Height	Product Weight	Shelf Pack Qty.
79-493	781412794939	Bagged	3.000 in	1.000 in	0.250 in	0.11 lb	1
79-495	781412794953	Bagged	5.000 in	1.000 in	0.500 in	0.31 lb	1
79-496	781412794960	Bagged	6.000 in	1.250 in	0.750 in	0.68 lb	1