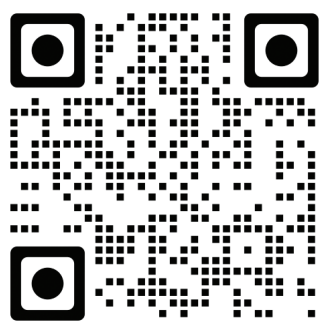




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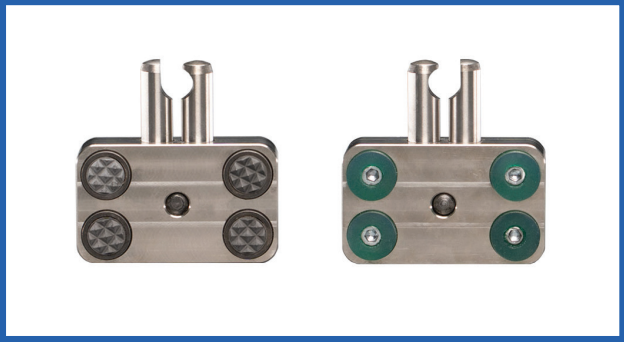
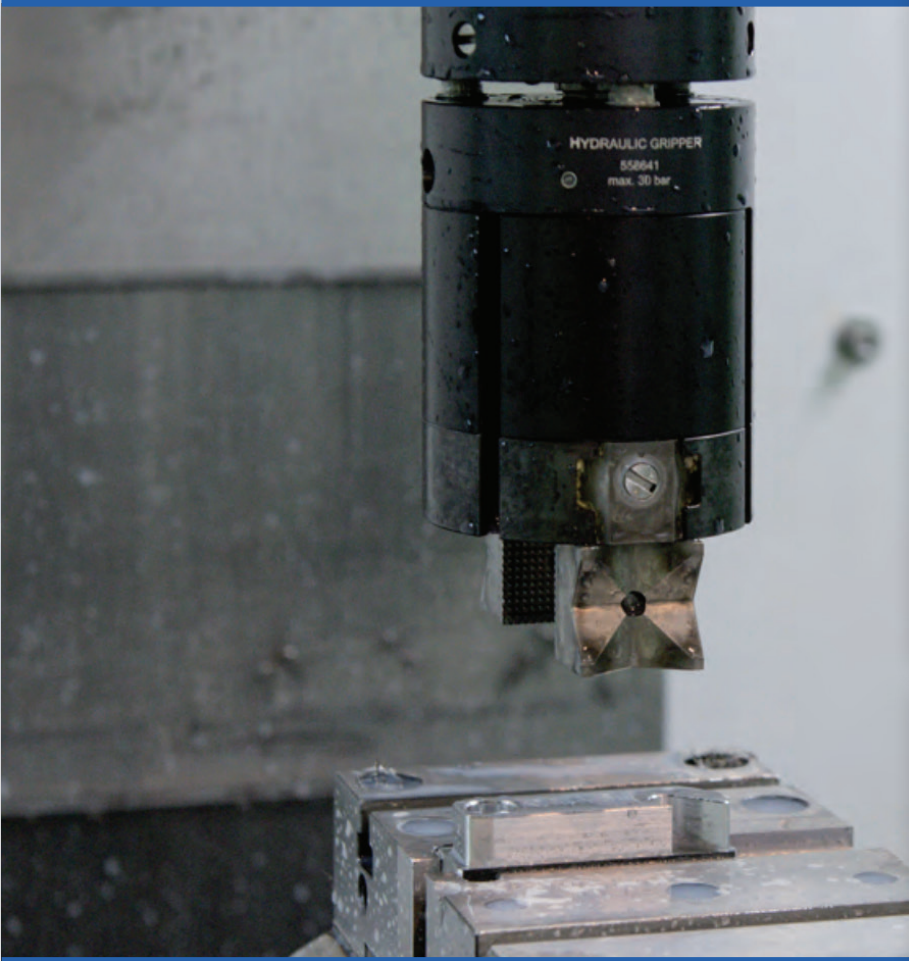
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MT-S: IN-MACHINE GRIPPER SYSTEM

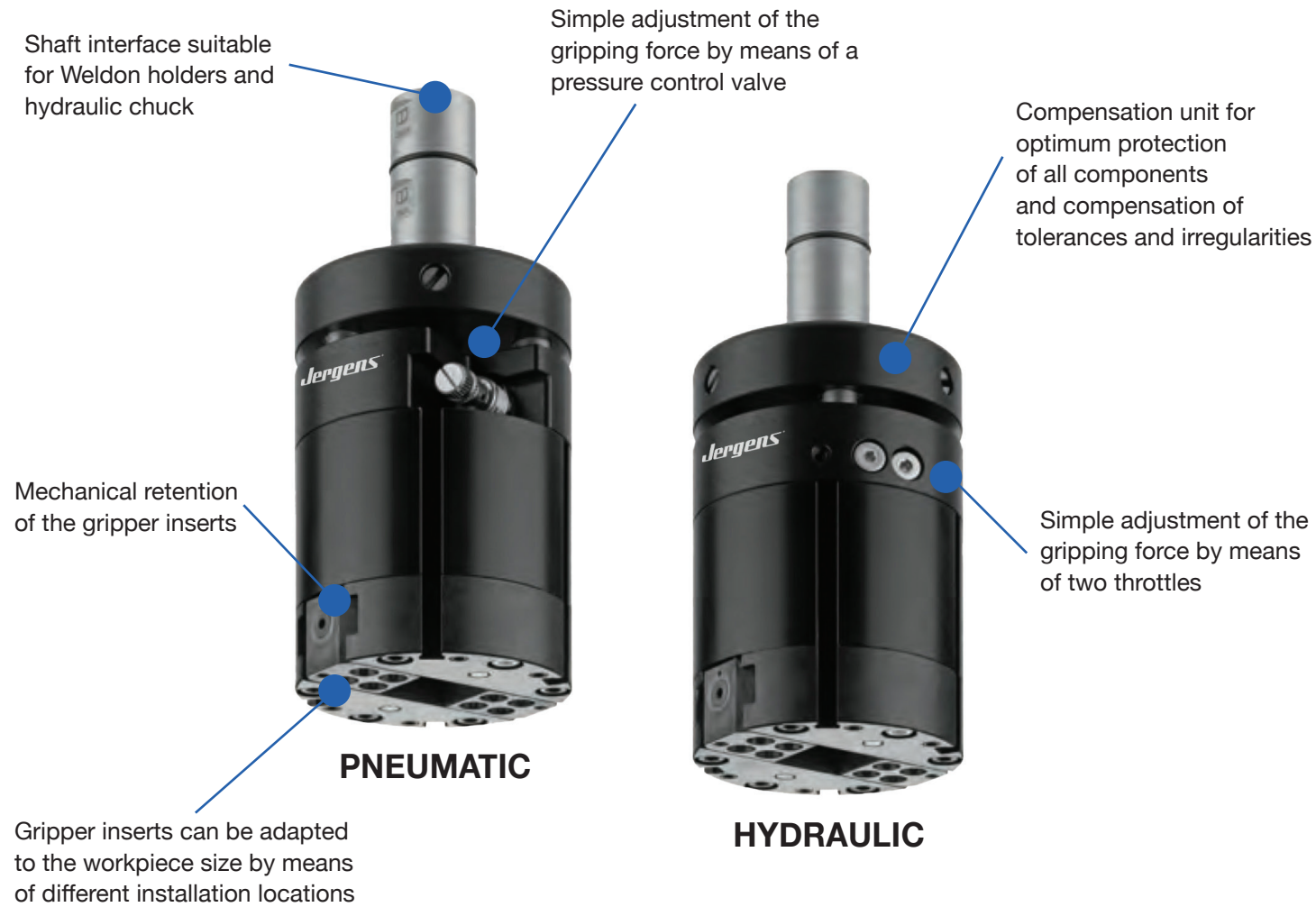


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NO ROBOT? NO PROBLEM!

The modularly designed gripper system enables the automated handling of workpieces during the machining process on a machine tool. Fully automated workpiece changes, longer machine running times - unmanned production shifts become possible without any high investments in a complete robot cell or large machining centers. No Robot? No problem!

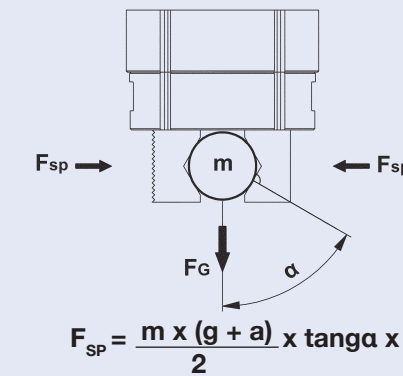


FEATURES & BENEFITS:

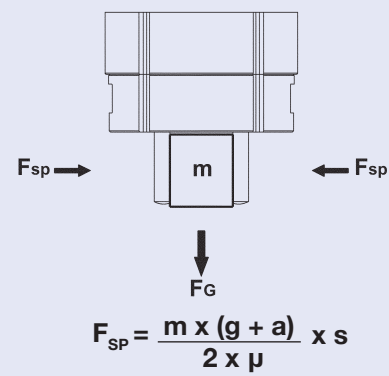
- Stored in the tool magazine of the CNC machine
- The gripper is directly actuated hydraulically with cooling lubricant via the machine spindle or pneumatically by the applied compressed air
- High gripping forces, easily adjustable by means of setting screw
 - up to 1000 N (225 lb) in the hydraulic version
 - up to 700 N (157 lb) in the pneumatic version
- Surfaces are burnished for steel parts and anodized for aluminum parts

CALCULATION OF THE GRIPPING FORCE

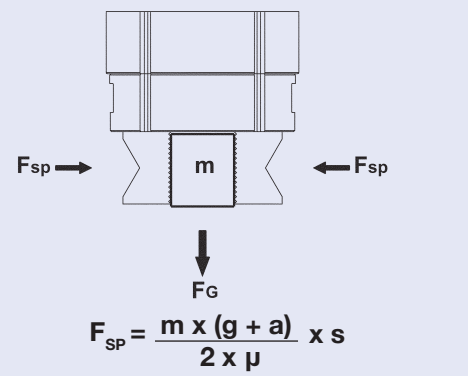
Positive contact with gripper insert - prism



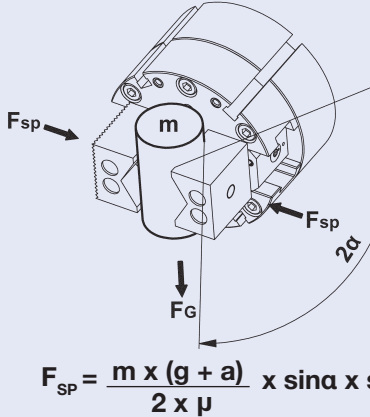
Frictionally connected with gripper insert - finger



Frictionally connected with gripper insert - prisma/grooved



Frictionally connected with gripper insert - prism



Sign Legend

- F_{SP}** Clamping/gripping force [N]
m Workpiece mass [kg]
g Gravity (~10 m/s²)
a Acceleration [m/s²] from the dynamic movement
μ Friction coefficient between workpiece and gripper inserts
α Draft of the gripper insert
s Safety factor



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PNEUMATIC MT-S WITHOUT COMPENSATION UNIT



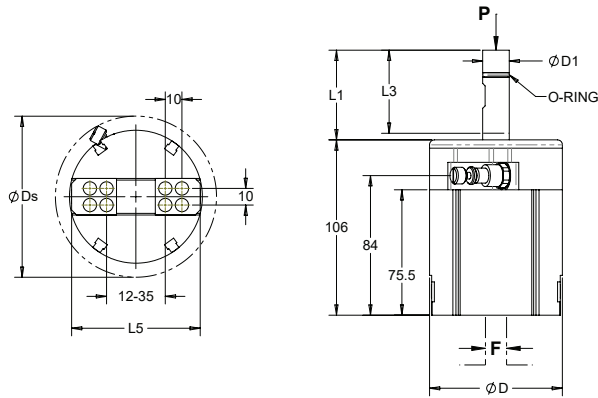
The MT-S achieves a fully automatic workpiece change during the machining process on a machine tool. It is changed from the tool magazine of the milling machine and enables workpiece handling between the part storage and the clamping device. It is actuated by means of compressed air, which is routed through the machine spindle. The gripper closes pneumatically and opening takes place by means of spring force.

- The gripping force can easily be adjusted by means of a pressure control valve and thereby adapted to the relevant requirements of the workpieces
- Easily exchangeable gripper inserts for handling various workpiece geometries
- Easy implementation of unmanned shifts, which means greater machine utilization and more flexibility
- Tremendous reduction of set-up times for smaller to medium-sizes batches

Notes

- Max permitted speed: 20 rpm
- Suitable for weldon holders and hydraulic expansion chucks
- Designed for ambient temperatures from 32°F to 140°F
- Transportation of workpieces up to a max of 8 kg (17.6 lb)

Part Number	Min Operating Pressure bar (psi)	Max Operating Pressure bar (psi)	Stroke mm	Gripping Force N (lbs)	D mm	D1 mm	Interference Zone Ds mm	L1 mm	L3 mm	Gripper Extension L5 mm	Weight kg
569961	2 (29)	8 (116)	23	200-700 (45-157)	80	16	95	53	50	80	1.72



PNEUMATIC MT-S WITH COMPENSATION UNIT



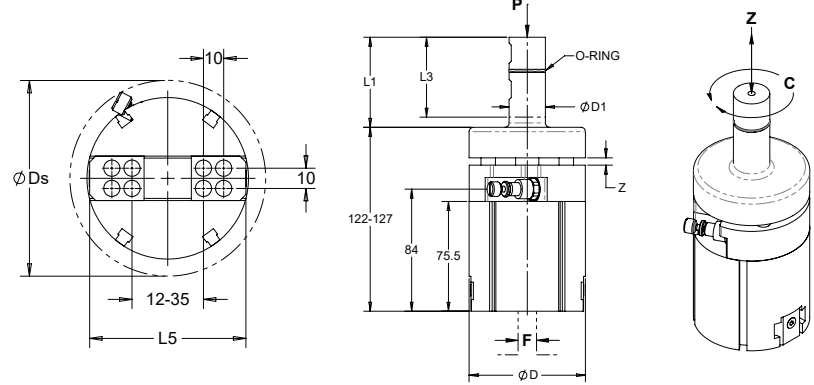
The MT-S achieves a fully automatic workpiece change during the machining process on a machine tool. It is changed from the tool magazine of the milling machine and enables workpiece handling between the part storage and the clamping device. It is actuated by means of compressed air, which is routed through the machine spindle. The gripper closes pneumatically and opening takes place by means of spring force. The integrated spring-loaded CX counterbalance function protects the tool, machine spindle and workpiece, and compensates for tolerances and unevenness.

- The counterbalance function (Z: 5 mm, C: +/-3°) ensures that all components are optimally protected and provides compensation for tolerances and unevenness
- The gripping force can be easily adjusted using the pressure control valve and thereby adapted to the relevant requirements of the workpieces
- Easily exchangeable gripper inserts for handling various workpiece geometries
- Easy implementation of unmanned shifts, which means greater machine utilization and more flexibility
- Tremendous reduction of set-up times for smaller to medium-sized batches

Notes

- Max permitted speed: 20 rpm
- Suitable for weldon holders and hydraulic expansion chucks
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Part Number	Min Operating Pressure bar (psi)	Max Operating Pressure bar (psi)	Stroke mm	Gripping Force F N (lbs)	C deg	D mm	D1 mm	Interference Zone Ds mm	L1 mm	L3 mm	Gripper Extension L5 mm	Z mm	Weight kg
569962	2 (29)	8 (116)	23	200-700 (45-157)	±3	80	25	95	60.5	55	80	5	2.16





HYDRAULIC MT-S WITHOUT COMPENSATION UNIT



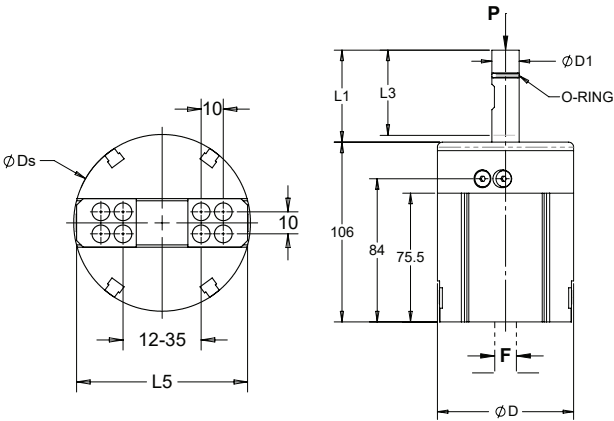
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- The gripping force can easily be adjusted by means of throttles and thereby adapted to the relevant requirements of the workpieces
- Easily exchangeable gripper inserts for handling various workpiece geometries
- Easy implementation of unmanned shifts, which means greater machine utilization and more flexibility
- Tremendous reduction of set-up times for smaller to medium-sizes batches

Notes

- Max permitted speed: 20 rpm
- Suitable for weldon holders and hydraulic expansion chucks
- Designed for ambient temperatures from 32°F to 140°F
- Transportation of workpieces up to a max of 8 kg (17.6 lb)

Part Number	Min Operating Pressure bar (psi)	Max Operating Pressure bar (psi)	Stroke mm	Gripping Force N (lbs)	D mm	D1 mm	Interference Zone Ds mm	L1 mm	L3 mm	Gripper Extension L5 mm	Weight kg
569963	45 (652)	50 (725)	23	250, 500, 1000 (56, 112, 225)	80	16	80	53	50	80	1.76



HYDRAULIC MT-S WITH COMPENSATION UNIT



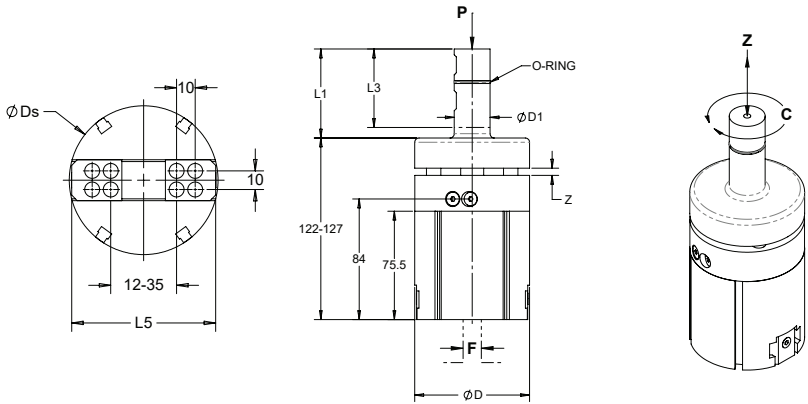
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- The counterbalance function (Z: 5 mm, C: +/-3°) ensures that all components are optimally protected and provides compensation for tolerances and unevenness
- The gripping force can easily be adjusted by means of throttles and thereby adapted to the relevant requirements of the workpieces
- Easily exchangeable gripper inserts for handling various workpiece geometries
- Easy implementation of unmanned shifts, which means greater machine utilization and more flexibility
- Tremendous reduction of set-up times for smaller to medium-sized batches

Notes

- Max permitted speed: 20 rpm
- Suitable for weldon seat and hydraulic expansion chucks
- Designed for ambient temperatures from 32°F to 140°F
- Transportation of workpieces up to a max of 8 kg (17.6 lb)

Part Number	Min Operating Pressure bar (psi)	Max Operating Pressure bar (psi)	Stroke mm	Gripping Force N (lbs)	C deg	D mm	D1 mm	Interference Zone Ds mm	L1 mm	L3 mm	Gripper Extension L5 mm	Z mm	Weight kg
569964	45 (652)	50 (725)	23	250, 500, 1000 (56, 112, 225)	±3	80	25	80	60.5	55	80	5	2.2





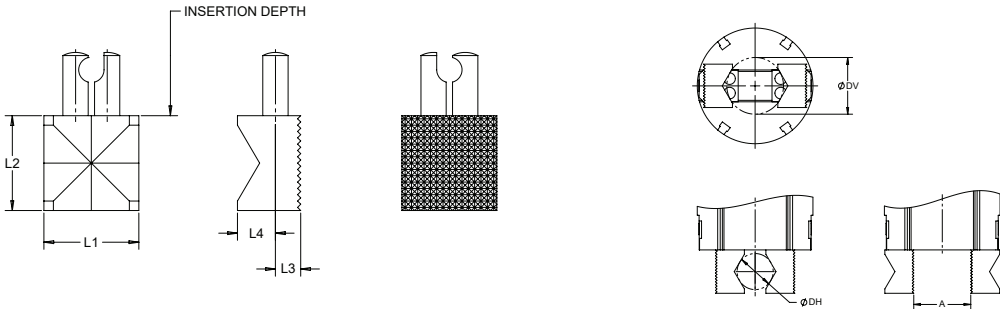
PRISM INSERTS FOR MT-S



Multi-use gripper inserts that can be reversed to utilize different contact faces. V-jaw style faces are ideal for handling round or cylindrical workpieces. The serrated faces are designed for general purpose handling of square and rectangular workpieces.

- Set includes 2 gripper inserts
- Hardened steel with wear-resistant surface
- First side with horizontal and vertical V features, second side serrated.

Part Number	L1 mm	L2 mm	L3 mm	L4 mm	A mm	DH mm	DV mm	Weight g
569978	30	30	8	12	0-40	12.5-28	12.5-39	200



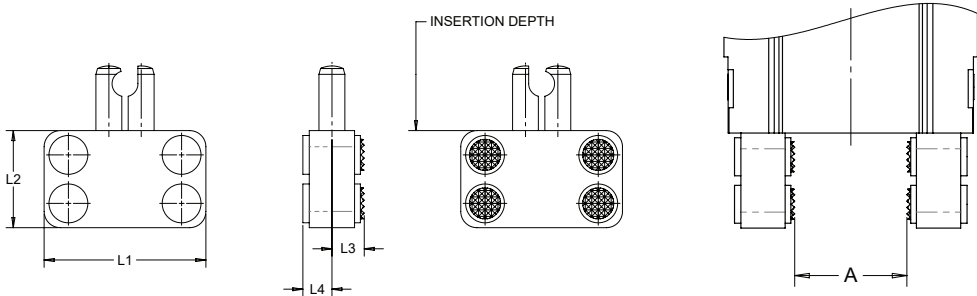
UNIVERSAL INSERTS FOR MT-S



Multi-use gripper inserts that can be reversed to utilize different contact faces. Soft plastic contact pads resist slippage and are designed for delicate workpieces that cannot be marked from handling. The serrated contact pads are designed for general purpose handling of square and rectangular workpieces.

- Set includes 2 gripper inserts
- Hardened steel insert body and serrated pads
- First side with soft plastic pads, second side serrated pads.

Part Number	L1 mm	L2 mm	L3 mm	L4 mm	A mm	Weight g
569979	50	30	10	9	0-34	220



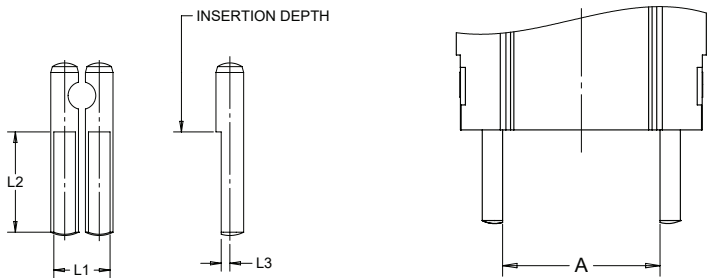
FINGER INSERTS FOR MT-S



Low profile gripper inserts that use two fingers per side. One side of each finger has a flat clamping surface. These inserts occupy minimal space, which makes them ideal for applications where clearance is limited around the workholding setup and part storage. Hardened steel with wear resistant surface.

- Set includes:
- 2x Left Finger Grippers
 - 2x Right Finger Grippers

Part Number	L1 mm	L2 mm	L3 mm	A mm	Weight g
569982	16	29	2.5	7.5-50	70



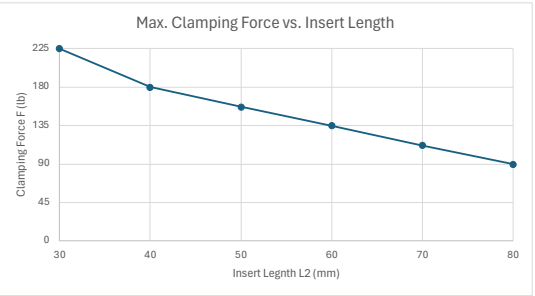
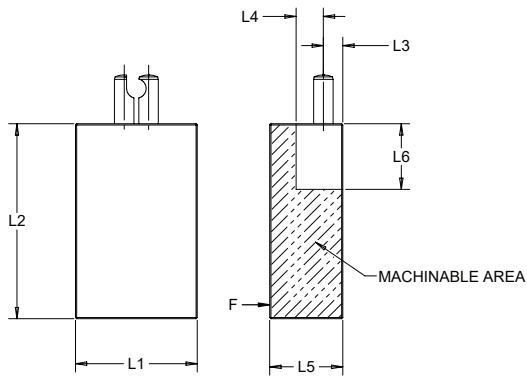
BLANK INSERTS FOR MT-S



Aluminum or steel blanks for customized gripper inserts. The interface to the gripper is integrated in the blanks. The geometry of the blanks can be adapted to the workpiece similar to using soft jaws.

- Set includes 2 blanks

Part Number	L1 mm	L2 mm	L3 mm	L4 mm	L5 mm	L6 mm	Material	Weight g
569980	50	80	8	12	30	30	Steel	950
569981	50	80	8	12	30	30	Aluminum	350



L2 mm	Clamping Force lb
30	225
40	180
50	157
60	135
70	112
80	90