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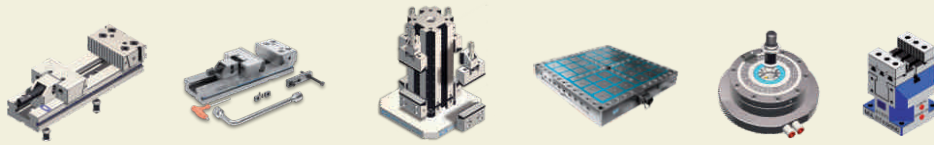


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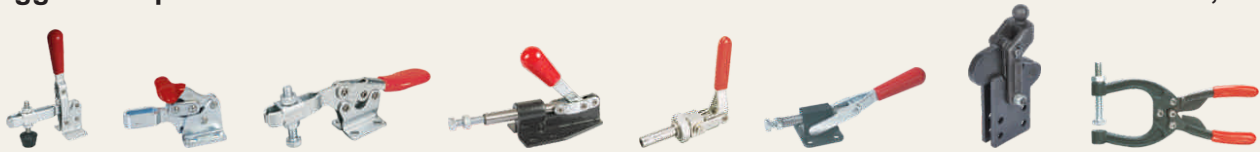
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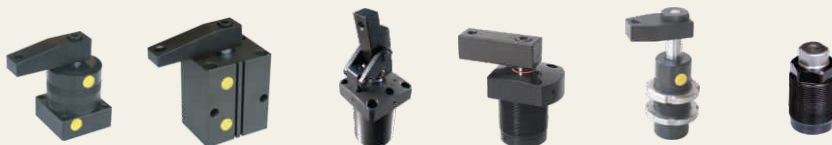
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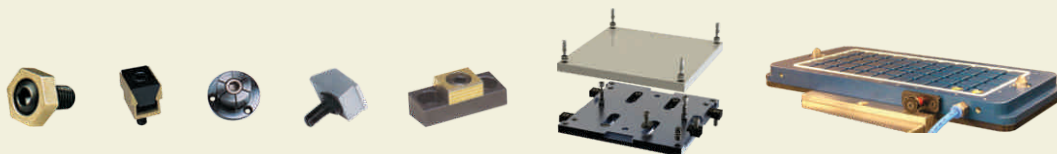
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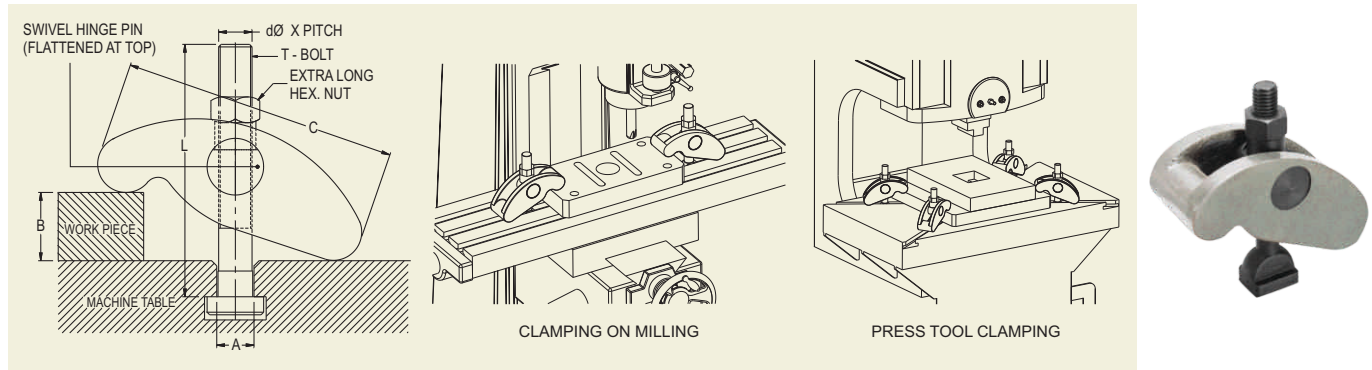


Die And Mould Clamps

UNIVERSAL STRAP CLAMP

FOR POWER PRESSES, MILLING, DRILLING, SHAPING, BORING ETC.

Universal Strap Clamp is most suitable for die clamping on power presses and a very useful clamp for job clamping on 'T' slot table of Drilling, Milling, Shaping, Boring and other machine tools. No supports are required at the rear of the clamp since the body of the clamp is self-positioning as the rear part rests on the table and front holds the job. The body positions itself with the help of swivel hinge pin according to the thickness of the workpiece, the T-Bolt remaining in vertical position and the nut is tightened on the flattened portion of swivel hinge pin. Clamp is supplied complete with hardened T-Bolt & special nut.



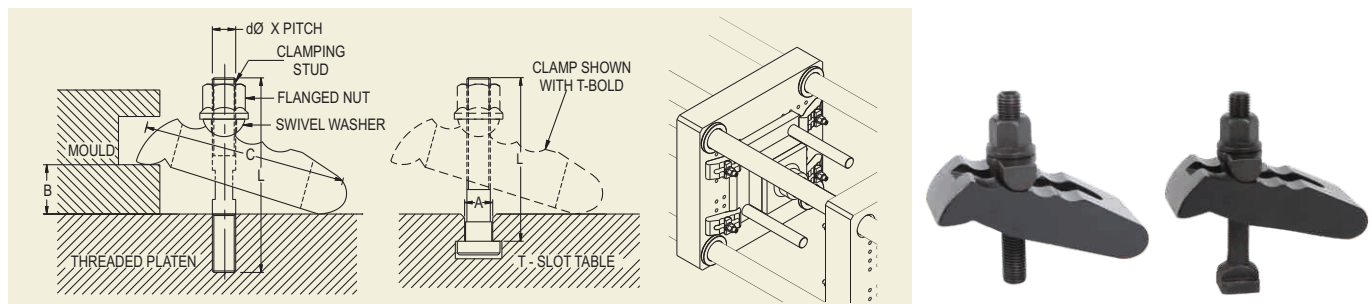
| MODEL | T-SLOT SIZE A | d ϕ x PITCH x L | CLAMPING RANGE B | LENGTH OF CLAMP C | BREADTH OF CLAMP | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. |
|---------|---------------|----------------------|------------------|-------------------|------------------|----------------------------|---------------------|------------|
| USC-12A | 12 | M12 x 1.75 x 100 | 0-60 | 105 | 42 | 90 | 2000 Kgs. | 0.84 |
| USC-12B | 14 | M12 x 1.75 x 100 | 0-60 | 105 | 42 | 90 | 2000 Kgs. | 0.86 |
| USC-16A | 16 | M16 x 2.0 x 130 | 0-80 | 130 | 50 | 210 | 3200 Kgs. | 1.73 |
| USC-16B | 18 | M16 x 2.0 x 130 | 0-80 | 130 | 50 | 210 | 3200 Kgs. | 1.74 |
| USC-20A | 20 | M20 x 2.5 x 150 | 0-100 | 160 | 55 | 410 | 5000 Kgs. | 2.45 |
| USC-20B | 22 | M20 x 2.5 x 150 | 0-100 | 160 | 55 | 410 | 5000 Kgs. | 2.48 |
| USC-24A | 24 | M24 x 3.0 x 210 | 0-120 | 190 | 65 | 730 | 6000 Kgs. | 4.39 |
| USC-24B | 28 | M24 x 3.0 x 210 | 0-120 | 190 | 65 | 730 | 6000 Kgs. | 4.68 |

MOULD CLAMP

FOR PLASTIC INJECTION MOULDING & PRESSURE DIE CASTING MACHINES

Mould Clamp is designed specially for low height applications only such as clamping of moulds on plastic injection moulding machines & pressure die casting machines. The compact front portion of the clamp enables it to penetrate into the limited clamping area of the mould and clamp it. The positioning of forged swivel washer on required curved groove enables the operator to set the center distance between the clamping portion and the clamping bolt as per the nearest tapped hole available on platen (where there are no T-slots). No supports are required at the rear of the clamp as the rear portion rests on the platen and front holds the mould. Flanged nut is tightened on the swivel washer which takes care of the positioning of clamp body. These clamps are equally useful on pressure die casting machines, hydraulic presses & power presses where low height clamping is done.

Clamps are supplied complete with swivel washer, flanged nut & clamping stud or T-Bolt as shown in tables below.



MOULD CLAMP - WITH CLAMPING STUD

| MODEL | d ϕ x PITCH x L | CLAMPING RANGE B | LENGTH OF CLAMP C | BREADTH OF CLAMP | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. |
|-------|------------------------|------------------|-------------------|------------------|----------------------------|---------------------|------------|
| MC-12 | STUD M-12 x 1.75 x 100 | 0-35 | 110 | 50 | 90 | 2000 Kgs. | 0.99 |
| MC-16 | STUD M-16 x 2.0 x 125 | 0-40 | 135 | 60 | 210 | 3200 Kgs. | 1.67 |
| MC-20 | STUD M-20 x 2.5 x 175 | 0-50 | 160 | 70 | 410 | 5000 Kgs. | 2.81 |
| MC-24 | STUD M-24 x 3.0 x 200 | 0-60 | 180 | 80 | 730 | 6000 Kgs. | 4.19 |

MOULD CLAMP - WITH T-BOLT

| MODEL | d ϕ x PITCH x L | T-SLOT SIZE A | CLAMPING RANGE B | LENGTH OF CLAMP C | BREADTH OF CLAMP | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. |
|--------|--------------------------|---------------|------------------|-------------------|------------------|----------------------------|---------------------|------------|
| MC-12A | T-BOLT M-12 x 1.75 x 100 | 12 | 0-35 | 110 | 50 | 90 | 2000 Kgs. | 1.15 |
| MC-12B | T-BOLT M-12 x 1.75 x 100 | 14 | 0-35 | 110 | 50 | 90 | 2000 Kgs. | 1.30 |
| MC-16A | T-BOLT M-16 x 2.0 x 130 | 16 | 0-40 | 135 | 60 | 210 | 3200 Kgs. | 1.76 |
| MC-16B | T-BOLT M-16 x 2.0 x 130 | 18 | 0-40 | 135 | 60 | 210 | 3200 Kgs. | 1.78 |
| MC-20A | T-BOLT M-20 x 2.5 x 150 | 20 | 0-50 | 160 | 70 | 410 | 5000 Kgs. | 2.89 |
| MC-20B | T-BOLT M-20 x 2.5 x 150 | 22 | 0-50 | 160 | 70 | 410 | 5000 Kgs. | 2.92 |
| MC-24A | T-BOLT M-24 x 3.0 x 210 | 24 | 0-60 | 180 | 80 | 730 | 6000 Kgs. | 4.40 |
| MC-24B | T-BOLT M-24 x 3.0 x 210 | 28 | 0-60 | 180 | 80 | 730 | 6000 Kgs. | 4.72 |

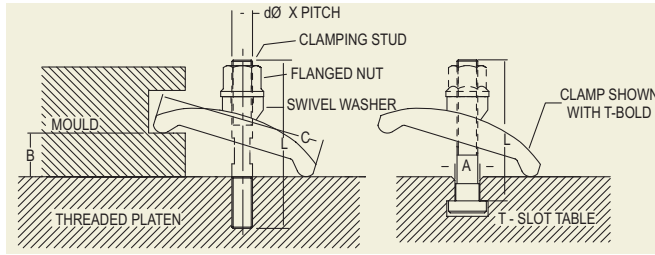
* Exceeding the maximum torque damages the clamp parts and warranty expires.

Die And Mould Clamps

MOULD CLAMP - FORGED

FOR PLASTIC INJECTION MOULDING & PRESSURE DIE CASTING MACHINES

The popular mould clamp is now available in forged steel body for extra strength. All models shown below are similar to the MC models on the previous page.



MOULD CLAMP - FORGED - WITH CLAMPING STUD

| MODEL | dØ | x | PITCH | x | L | CLAMPING RANGE B | LENGTH OF CLAMP C | BREATHD OF CLAMP | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. | |
|--------|------|------|-------|------|---|------------------|-------------------|------------------|----------------------------|---------------------|------------|------|
| MCF-12 | STUD | M-12 | x | 1.75 | x | 100 | 0-35 | 102 | 46 | 90 | 2000 Kgs. | 0.50 |
| MCF-16 | STUD | M-16 | x | 2.0 | x | 125 | 0-50 | 124 | 58 | 210 | 3200 Kgs. | 0.98 |
| MCF-20 | STUD | M-20 | x | 2.5 | x | 175 | 0-65 | 156 | 68 | 410 | 5000 Kgs. | 2.0 |
| MCF-24 | STUD | M-24 | x | 3.0 | x | 200 | 0-75 | 178 | 82 | 730 | 6000 Kgs. | 3.0 |

MOULD CLAMP - FORGED - WITH T- BOLT

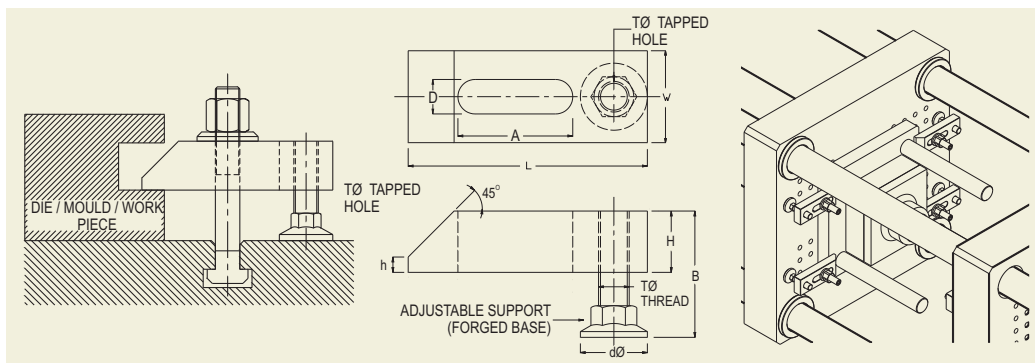
| MODEL | dØ | x | PITCH | x | L | T-SLOT SIZE A | CLAMPING RANGE B | LENGTH OF CLAMP C | BREATHD OF CLAMP | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. | |
|---------|--------|------|-------|------|---|---------------|------------------|-------------------|------------------|----------------------------|---------------------|------------|------|
| MCF-12A | T-BOLT | M-12 | x | 1.75 | x | 100 | 12 | 0-35 | 102 | 46 | 90 | 2000 Kgs. | 0.52 |
| MCF-12B | T-BOLT | M-12 | x | 1.75 | x | 100 | 14 | 0-35 | 102 | 46 | 90 | 2000 Kgs. | 0.54 |
| MCF-16A | T-BOLT | M-16 | x | 2.0 | x | 130 | 16 | 0-50 | 124 | 58 | 210 | 3200 Kgs. | 1.1 |
| MCF-16B | T-BOLT | M-16 | x | 2.0 | x | 130 | 18 | 0-50 | 124 | 58 | 210 | 3200 Kgs. | 1.1 |
| MCF-20A | T-BOLT | M-20 | x | 2.5 | x | 150 | 20 | 0-65 | 156 | 68 | 410 | 5000 Kgs. | 2.0 |
| MCF-20B | T-BOLT | M-20 | x | 2.5 | x | 150 | 22 | 0-65 | 156 | 68 | 410 | 5000 Kgs. | 2.1 |
| MCF-24A | T-BOLT | M-24 | x | 3.0 | x | 210 | 24 | 0-75 | 178 | 82 | 730 | 6000 Kgs. | 3.24 |
| MCF-24B | T-BOLT | M-24 | x | 3.0 | x | 210 | 28 | 0-75 | 178 | 82 | 730 | 6000 Kgs. | 3.34 |

TAPPED END CLAMP - WITH ADJUSTABLE SUPPORT

FOR PLASTIC INJECTION MOULDING & PRESSURE DIE CASTING MACHINES

Pressed End Clamps are Straps having special threaded adjustable support at the rear which can be adjusted to required height. Most useful clamp for plastic injection moulding or pressure die casting machines where mould / die is clamped in vertical position and these clamps with screwed in adjustable support are convenient to the operator as other loose supports tend to fall down while setting. Hardened adjustable support with large diameter forged base gives rigid clamping support and ensures machine bed safety. Extra thick body of the clamp accommodates more number of threads of screwed support.

Supplied with adjustable threaded support only. T-Bolt or Stud with nut, washer etc. to be ordered separately.



| MODEL | D SUITABLE FOR BOLT | L | A | W | H | h | TØ TAPPED HOLE | dØ | B Max | N. W. Kgs. |
|---------|---------------------|-----|-----|----|----|----|----------------|----|-------|------------|
| TTUC-12 | M-12 | 110 | 55 | 38 | 18 | 6 | M-12 | 30 | 60 | 0.54 |
| TTUC-16 | M-16 | 125 | 60 | 48 | 24 | 8 | M-16 | 35 | 70 | 0.98 |
| TTUC-20 | M-20 | 160 | 80 | 62 | 30 | 10 | M-20 | 40 | 80 | 2.45 |
| TTUC-24 | M-24 | 200 | 110 | 72 | 38 | 10 | M-24 | 50 | 85 | 3.67 |

FORGED STRAP CLAMP WITH TAPPED END

Forged, Hardened & Tempered

This clamp is a forged version of above TTUC clamps available only for the most popular size M-16. Most suitable for mould clamping on Plastic Injection Moulding Machine.

| MODEL | SUITABLE FOR BOLT | LENGTH | WIDTH | THICK NESS | SLOT LENGTH | TAPPED END | N. W. Kgs. |
|----------|-------------------|--------|-------|------------|-------------|------------|------------|
| TTFC -16 | M-16 | 152 | 44 | 22 | 52 | M -16 | 0.73 |

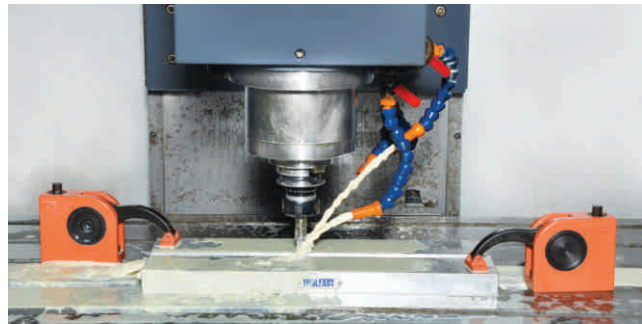
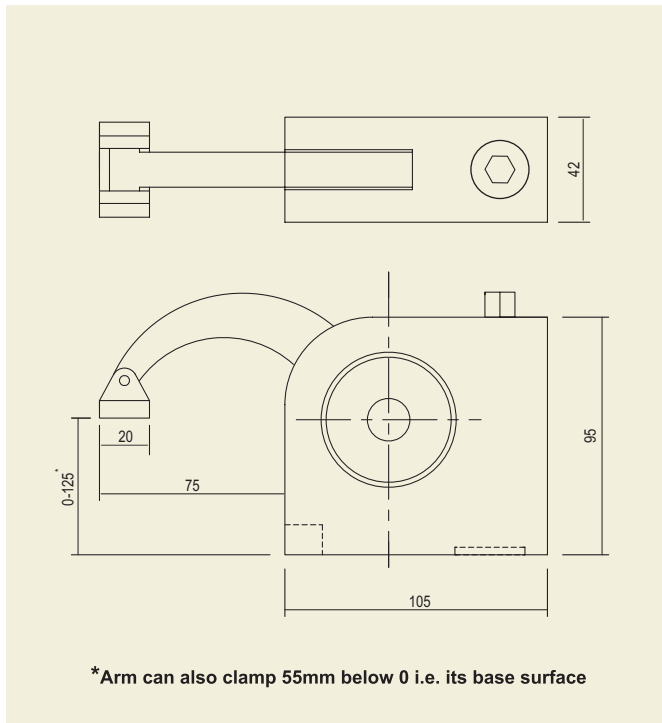


Also available as Model TTFC-16S with threaded support TS-16 (M-16 x 70 long).N.W. 0.87 Kgs.

Compact Milling Clamps

COMPACT MILLING CLAMP

Compact milling clamp is the most multipurpose, quick and easy to use down-hold milling clamp. It is equally suitable for clamping while all kinds of machining operation on Drilling, Milling, Machining Centre, EDM etc. This clamp does not require any support blocks or any kind of adjustment, clamping is done by simple turning of the removable spanner key.

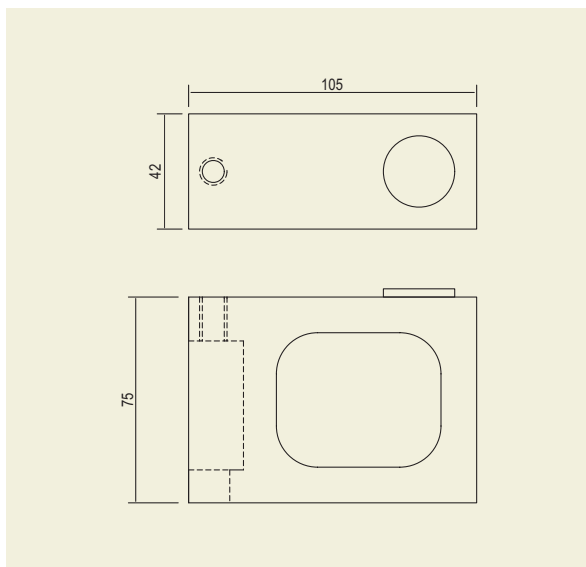


| MODEL | CLAMPING HEIGHT RANGE | SUITABLE FOR T-SLOT SIZE | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. (Including Spanner) |
|--------|-----------------------|--------------------------|----------------------------|---------------------|--------------------------------|
| CMC-12 | 0-125 | 12 | 70 | 1600 kgs. | 2.0 |
| CMC-14 | 0-125 | 14 | 70 | 1600 kgs. | 2.0 |
| CMC-16 | 0-125 | 16 | 70 | 1600 kgs. | 2.0 |
| CMC-18 | 0-125 | 18 | 70 | 1600 kgs. | 2.1 |

* Required torque can be achieved manually by tightening spanner included with CMC clamp. Applying extra torque by using extension pipe or by hammering damages the clamp parts and warranty expires.

HEIGHT BLOCK FOR CMC CLAMP :

By stacking one Height block over another and a CMC clamp at the top can enable clamping of any height of workpiece. Each height block model HB-CMC-75 increases clamping height range by 75mm.



HB-CMC-75 stacked under CMC clamp to increase height by 75 mm. More height blocks can also be stacked over one another to increase height in multiples of 75mm.



Height Block HB-CMC-75 N.W. 1.53 Kgs.

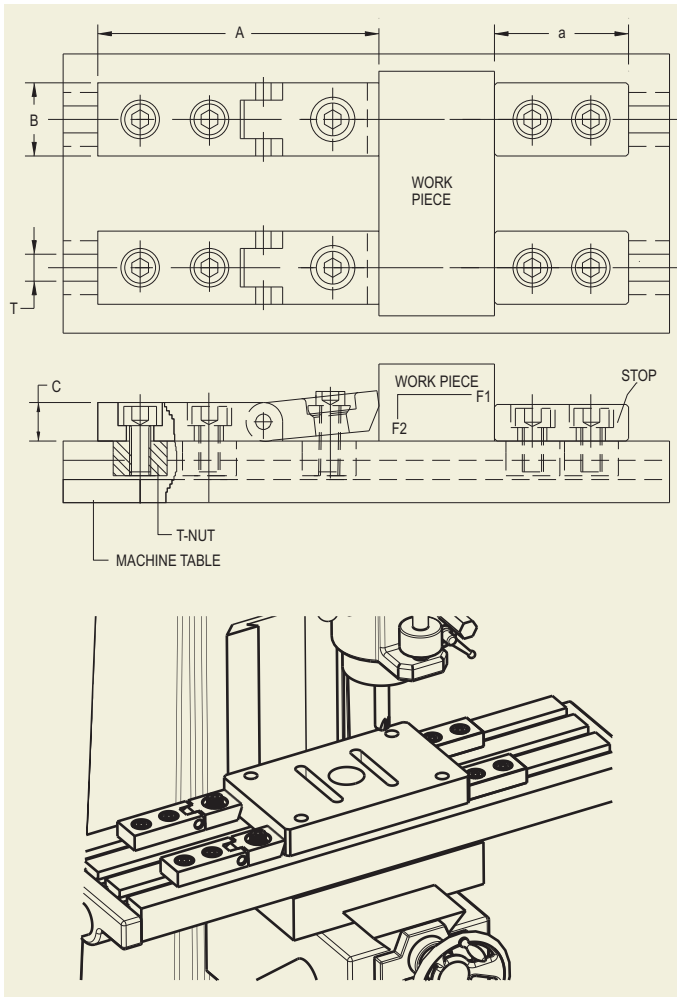
Side Clamps

PINCH CLAMPS AND STOPS

FOR MACHINING CENTER, MILLING, SHAPING, PLANNING, JIG BORING ETC.

Low Height Pinch Clamp

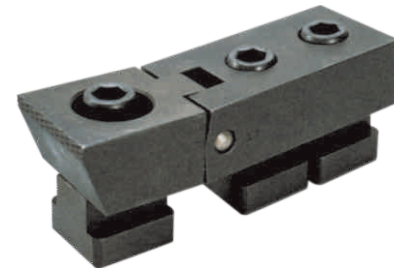
Low Height Pinch Clamp is useful for job clamping where complete top surface of the job is to be machined in one setting and hence can be clamped only from side faces. When serrated front portion is pressed against the job by tightening the front bolt, it gives a downward as well as forward clamping force. Body is made of hardened alloy steel. It is most useful on Milling, Shaping, Planning and Jig boring machines. Supplied complete with hardened T-Nuts & Standard Bolts.



| MODEL | SUITABLE FOR T-SLOT SIZE T | A | B | C | CLAMPING FORCE Max. | | N. W. Kgs. |
|-------|----------------------------|-----|----|----|---------------------|----------|------------|
| | | | | | F1 | F2 | |
| PC-1A | 12 | 105 | 30 | 15 | 1600 Kgs. | 60 Kgs. | 0.44 |
| PC-1B | 14 | 105 | 30 | 15 | 1600 Kgs. | 60 Kgs. | 0.49 |
| PC-2 | 16 | 130 | 38 | 18 | 2500 Kgs. | 100 Kgs. | 0.92 |
| PC-3 | 18 | 130 | 38 | 18 | 2500 Kgs. | 100 Kgs. | 1.00 |
| PC-4A | 20 | 175 | 48 | 24 | 4000 Kgs. | 250 Kgs. | 1.65 |
| PC-4B | 22 | 175 | 48 | 24 | 4000 Kgs. | 250 Kgs. | 2.30 |
| PC-5A | 24 | 175 | 48 | 24 | 4000 Kgs. | 250 Kgs. | 2.31 |
| PC-5B | 28 | 175 | 48 | 24 | 4000 Kgs. | 250 Kgs. | 2.72 |

Heavy Duty Pinch Clamp

Heavy Duty Pinch Clamp is a heavier version of Low Height Pinch Clamp. Basic function is same but this is used for clamping from sides of heavy blocks or thicker plates for facing of top face in one setting. Supplied complete with hardened T-Nuts & Standard Bolts



| MODEL | SUITABLE FOR T-SLOT SIZE T | A | B | C | CLAMPING FORCE Max. | | N. W. Kgs. |
|---------|----------------------------|-----|----|----|---------------------|----------|------------|
| | | | | | F1 | F2 | |
| HDPC-1A | 18 | 185 | 62 | 38 | 4000 Kgs. | 250 Kgs. | 3.35 |
| HDPC-1B | 20 | 185 | 62 | 38 | 4000 Kgs. | 250 Kgs. | 3.39 |
| HDPC-2A | 22 | 185 | 62 | 38 | 4000 Kgs. | 250 Kgs. | 3.36 |
| HDPC-2B | 24 | 185 | 62 | 38 | 4000 Kgs. | 250 Kgs. | 3.96 |
| HDPC-3 | 28 | 185 | 62 | 38 | 4000 Kgs. | 250 Kgs. | 4.42 |

Stop For Pinch Clamps

Stop or stopper blocks in different sizes as shown in table below are available to suit all above models of low height pinch clamps (PC Series) and Heavy Duty Pinch Clamps (HDPC Series). These stops are to be mounted on the opposite side of workpiece as shown in drawing above. All faces are ground for precise stopping of workpiece. Available separately in all below sizes.

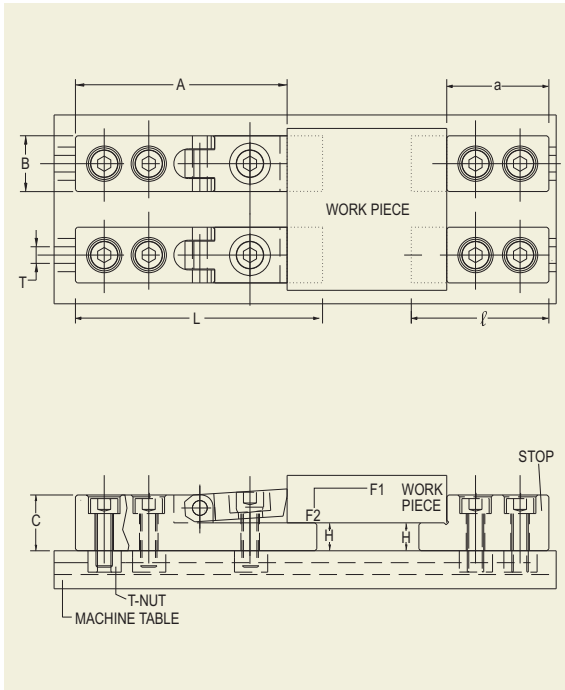


| MODEL | SUITABLE FOR PINCH CLAMP MODEL | SUITABLE FOR T-SLOT SIZE T | TOTAL LENGTH a | BREADTH B | HEIGHT C | N. W. Kgs. |
|------------|--------------------------------|----------------------------|----------------|-----------|----------|------------|
| ST-PC-1A | PC-1(a) | 12 | 55 | 30 | 15 | 0.25 |
| ST-PC-1B | PC-1(b) | 14 | 55 | 30 | 15 | 0.27 |
| ST-PC-2 | PC-2 | 16 | 66 | 38 | 18 | 0.51 |
| ST-PC-3 | PC-3 | 18 | 66 | 38 | 18 | 0.55 |
| ST-PC-4A | PC-4(a) | 20 | 95 | 48 | 24 | 0.91 |
| ST-PC-4B | PC-4(b) | 22 | 95 | 48 | 24 | 1.26 |
| ST-PC-5A | PC-5(a) | 24 | 95 | 48 | 24 | 1.28 |
| ST-PC-5B | PC-5(b) | 28 | 95 | 48 | 24 | 1.50 |
| ST-HDPC-1A | HDPC-1(a) | 18 | 95 | 62 | 38 | 1.85 |
| ST-HDPC-1B | HDPC-1(b) | 20 | 95 | 62 | 38 | 1.86 |
| ST-HDPC-2A | HDPC-2(a) | 22 | 95 | 62 | 38 | 1.87 |
| ST-HDPC-2B | HDPC-2(b) | 24 | 95 | 62 | 38 | 2.18 |
| ST-HDPC-3 | HDPC-3 | 28 | 95 | 62 | 38 | 2.44 |

Side Clamps

LOW HEIGHT PINCH CLAMP AND STOP WITH STEP

This is a new version of low height pinch clamp (PC Series) having step to support the workpiece above the machine table for through milling and drilling. Each PCS series clamp comes with a suitable size step (ST-PCS Series) as standard.



| MODEL | SUITABLE FOR T-SLOT SIZE T | A | L | B | C | H ± 0.01 | CLAMPING FORCE Max. | | N. W. Kgs. |
|--------|----------------------------|-----|-----|----|----|----------|---------------------|----------|------------|
| | | | | | | | F1 | F2 | |
| PCS-1A | 12 | 110 | 125 | 30 | 30 | 14 | 1600 Kgs. | 60 Kgs. | 0.84 |
| PCS-1B | 14 | 110 | 125 | 30 | 30 | 14 | 1600 Kgs. | 60 Kgs. | 0.88 |
| PCS-2 | 16 | 140 | 160 | 38 | 38 | 19 | 2500 Kgs. | 100 Kgs. | 1.75 |
| PCS-3 | 18 | 140 | 160 | 38 | 38 | 19 | 2500 Kgs. | 100 Kgs. | 1.81 |

STOP FOR LOW HEIGHT PINCH CLAMP WITH STEP

These are stepped stops to suit clamping with low height pinch clamps with steps (PCS Series shown above). To be mounted on the opposite side of workpiece for stopping and supporting it on the machine table as shown in drawing. All faces are ground for precise stopping and supporting of workpiece. One stop (ST-PCS Series) comes as standard with each of above model PCS Series Clamps.



| MODEL* | SUITABLE FOR PCS MODEL | SUITABLE FOR T-SLOT SIZE T | LENGTH a | OVERALL LENGTH l | BREADTH B | HEIGHT C | HEIGHT H ± 0.01 | N. W. Kgs. |
|-----------|------------------------|----------------------------|----------|------------------|-----------|----------|-----------------|------------|
| ST-PCS-1A | PCS-1A | 12 | 55 | 70 | 30 | 30 | 14 | 0.49 |
| ST-PCS-1B | PCS-1B | 14 | 55 | 70 | 30 | 30 | 14 | 0.53 |
| ST-PCS-2 | PCS-2 | 16 | 66 | 86 | 38 | 38 | 19 | 0.96 |
| ST-PCS-3 | PCS-3 | 18 | 66 | 86 | 38 | 38 | 19 | 1.02 |

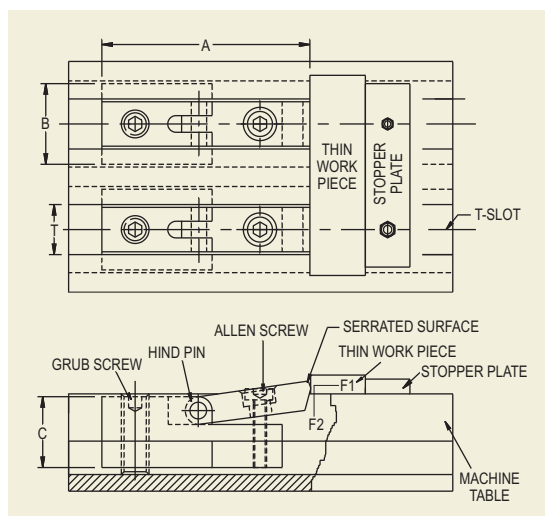
*Are supplied as standard with PCS Series Clamps. To be purchased separately only in case required extra stops.

MINI PINCH CLAMP

FOR MILLING, SHAPING & PLANNING ETC.

Mini Pinch Clamp is useful for clamping of thin plates from side faces. Body made of hardened alloy steel is in the form of a T-Nut which slides easily into the T-slot. When rear screw is tightened, the clamp is held tightly with the T-slot and then by tightening the front bolt, it gives a downward as well as forward clamping force to the job. Only a required small portion of the clamp comes above the surface of T-Slot table, rest of the body of clamp remains under the top surface of the T-Slot table. Hence, it can clamp thinnest plates positively and still remain under the top level of the job. This clamp is most suitable for top facing of thin plates on milling, shaping and planning machines.

Supplied complete with standard front & rear screws.



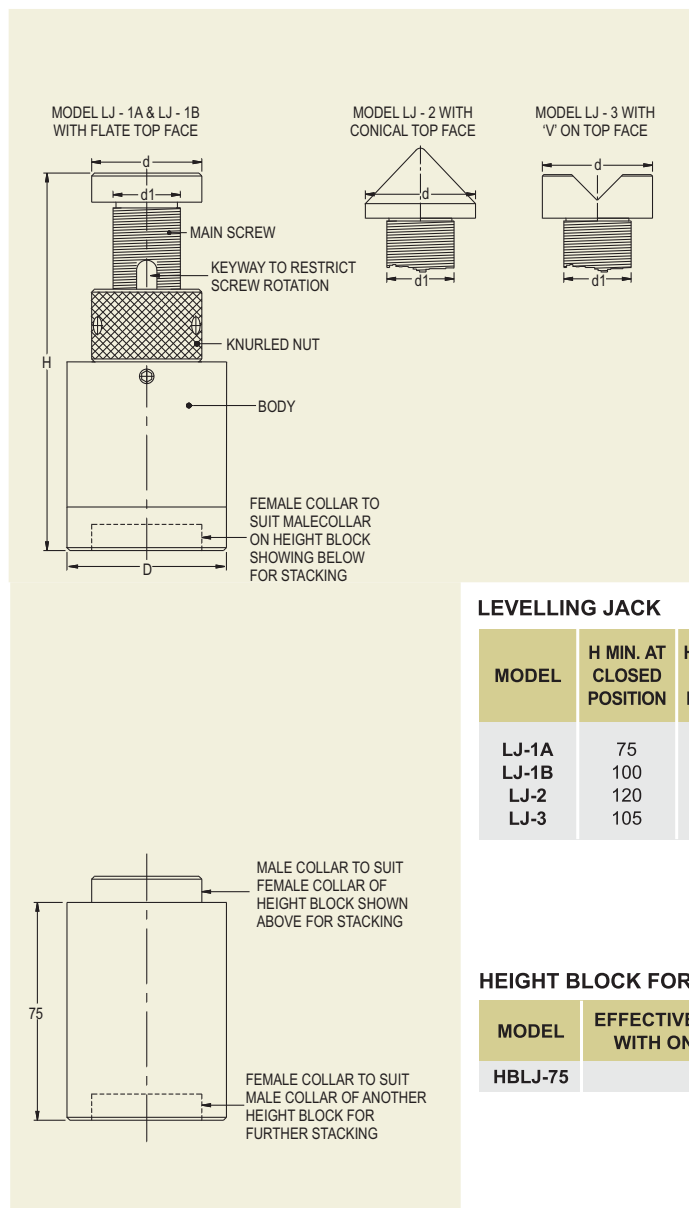
| MODEL | SUITABLE FOR T-SLOT SIZE T | A | B | C | CLAMPING FORCE Max. | | N. W. Kgs. |
|-------|----------------------------|----|----|----|---------------------|---------|------------|
| | | | | | F1 | F2 | |
| MPC-1 | 14 | 65 | 22 | 21 | 400 Kgs. | 20 Kgs. | 0.14 |
| MPC-2 | 16 | 75 | 25 | 23 | 600 Kgs. | 25 Kgs. | 0.20 |
| MPC-3 | 18 | 75 | 28 | 26 | 600 Kgs. | 25 Kgs. | 0.26 |

Screw Jacks

LEVELLING JACKS & HEIGHT BLOCKS

Levelling Jack can be used as an adjustable support block for clamps and as a stopper or levelling block in fixtures or machines, as well as for levelling surface plates or other heavy duty work pieces. **Its unique design does not allow the levelling screw to rotate while adjustment, hence makes it suitable for fine level adjustment.** Also available in conical & V top for other applications such as inspection.

Picture (a) shows levelling jack model LJ-1(b) and picture (c) shows **HEIGHT BLOCK FOR LEVELLING JACK MODEL HBLJ-75** available separately for the purpose of stacking below levelling jack in order to increase its height. Picture (b) shows levelling jack model LJ-1(b) stacked on height block for levelling jack model HBLJ-75 to increase the height range of levelling jack by 75mm. Any required number of height blocks can be stacked one over another to achieve any required height and finally on top, any model of levelling jack can be kept for final height adjustment as shown in picture (b). Bottom female collar of any levelling jack and height block fits with top male collar of the height blocks to enable stacking.



LEVELLING JACK

| MODEL | H MIN. AT CLOSED POSITION | H MAX. AT OPEN POSITION | DIA AT BOTTOM D | DIA AT TOP d | DIA OF SCREW d ₁ | TYPE OF TOP FACE | MAX. LOAD TONS. | N. W. Kgs. |
|-------|---------------------------|-------------------------|-----------------|--------------|-----------------------------|------------------|-----------------|------------|
| LJ-1A | 75 | 100 | 48 | 38 | M-24 | FLAT | 5.0 | 0.76 |
| LJ-1B | 100 | 150 | 48 | 38 | M-24 | FLAT | 5.0 | 1.11 |
| LJ-2 | 120 | 170 | 48 | 38 | M-24 | CONICAL | 5.0 | 1.13 |
| LJ-3 | 105 | 155 | 48 | 38 | M-24 | 'V' | 5.0 | 1.11 |

HEIGHT BLOCK FOR LEVELLING JACK

| MODEL | EFFECTIVE HEIGHT INCREASE WITH ONE HEIGHT BLOCK | N. W. Kgs. |
|---------|---|------------|
| HBLJ-75 | 75 | 0.77 |



LEVELLING JACK - HEAVY DUTY

Levelling Jack-Heavy Duty is a heavier version of Levelling Jack with a heavy body and Levelling Screw & knurled nut. This jack is specially designed for heavy castings & machines. Available in flat head Levelling Screw only.

| MODEL | H MIN. AT CLOSED POSITION | H MAX. AT OPEN POSITION | DIA AT BOTTOM D | DIA AT TOP d | DIA OF SCREW d ₁ | TYPE OF TOP FACE | MAX LOAD TONS. | N. W. Kgs. |
|-------|---------------------------|-------------------------|-----------------|--------------|-----------------------------|------------------|----------------|------------|
| LJ-HD | 160 | 230 | 75 | 50 | 32Ø | FLAT | 8.0 | 2.82 |

HEIGHT BLOCK FOR LEVELLING JACK - HEAVY DUTY

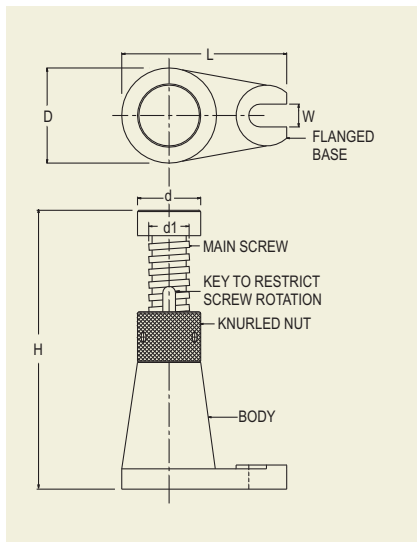
As in case of Levelling Jacks, Height Block for Levelling Jack-Heavy Duty Model HBLJ-HD-75 is available for stacking with Levelling Jack-Heavy Duty.

| MODEL | EFFECTIVE HEIGHT INCREASE WITH ONE HEIGHT BLOCK | N. W. Kgs. |
|------------|---|------------|
| HBLJ-HD-75 | 75 | 1.58 |

Screw Jacks

LEVELLING JACK - HEAVY DUTY - FLANGE MOUNTING

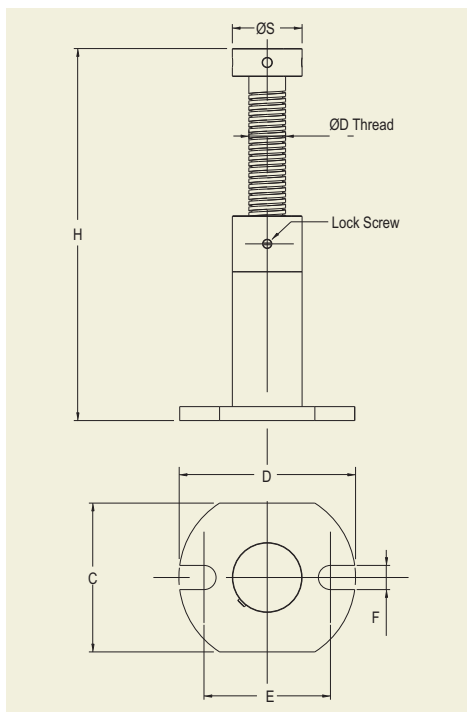
Levelling Jack-Heavy Duty-Flange Mounting is same as LJ-HD but with flanged base for mounting on machine bed for additional rigidity.



| MODEL | H MIN. AT CLOSED POSITION | H MAX. AT OPEN POSITION | DIA AT BOTTOM D | L | MOUNTING SLOT WIDTH W | DIA AT TOP d | DIA OF SCREW d | TYPE OF TOP FACE | MAX LOAD TONS. | N. W. Kgs. |
|----------|---------------------------|-------------------------|-----------------|-----|-----------------------|--------------|----------------|------------------|----------------|------------|
| LJ-HD-FB | 160 | 230 | 75 | 130 | 18 | 50 | 32Ø | FLAT | 8.0 | 3.32 |

SCREW JACK - HEAVY DUTY

Screw Jack-Heavy Duty is meant for heavy applications and with more height upto 660 mm. In this series of screw jacks the screw rotates while going up or down. Body is rigid, steel fabricated.

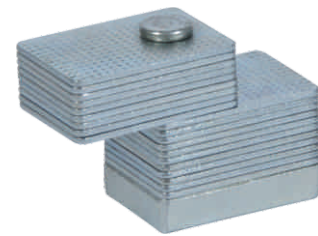
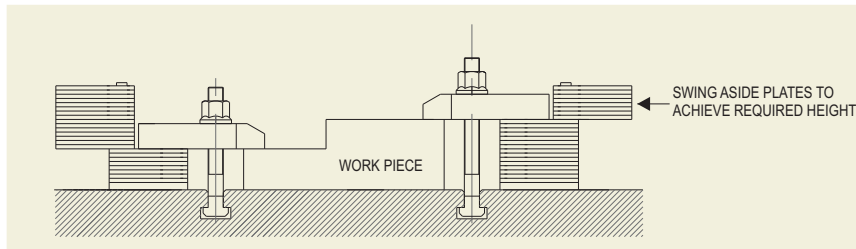


| MODEL | H | | C | D | E | F | ØS | ØD | CAPACITY | NET WEIGHT Kgs. |
|---------|------|------|-----|-----|-----|----|----|----|----------|-----------------|
| | Min. | Max. | | | | | | | | |
| SJ-HD-1 | 250 | 400 | 160 | 190 | 136 | 26 | 75 | 40 | 25 Tons | 9.4 |
| SJ-HD-2 | 380 | 660 | 160 | 190 | 136 | 26 | 75 | 40 | 25 Tons | 11.6 |

Support Elements

ADJUSTABLE SUPPORT PLATES

Adjustable Support Plates are used as adjustable supports at the rear of the clamp. It comprises of a number of plates each 2mm thick hinged together. Desired height is achieved very easily by swinging aside the required number of plates and using the remaining as support block. Different models of support plates can be stacked on each other to achieve extra height.

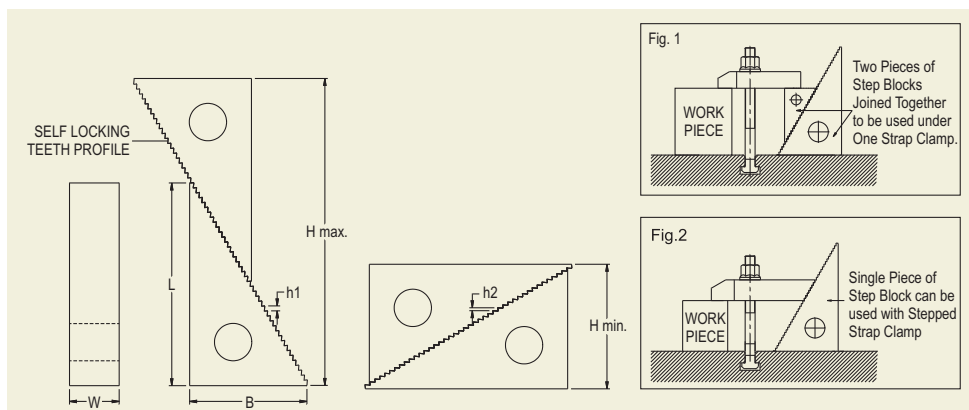


| MODEL | HEIGHT ADJUSTMENT | | PLATES THICKNESS | PLATE OVERALL SIZE | SIZE OF CLAMP REST AREA | N. W. Kgs. |
|-------------|-------------------|------|------------------|--------------------|-------------------------|------------|
| | MIN. | MAX. | | | | |
| TASP-250 | 10 | 50 | 2 | 50 x 35 | 25 X 35 | 0.66 |
| TASP-2100 | 10 | 100 | 2 | 50 x 35 | 25 X 35 | 1.33 |
| TASP-2150 | 10 | 150 | 2 | 50 x 35 | 25 X 35 | 1.99 |
| TASP-L-250 | 10 | 50 | 2 | 60 x 50 | 35 x 50 | 1.15 |
| TASP-L-2100 | 10 | 100 | 2 | 60 x 50 | 35 x 50 | 2.30 |
| TASP-L-2150 | 10 | 150 | 2 | 60 x 50 | 35 x 50 | 3.41 |

STEP BLOCKS Machined Steel, hardened & tempered, Black finish

Step Blocks are used as adjustable supporting Blocks at the rear of the clamp while clamping the workpiece. Different heights can be achieved by using combination of two different sizes of Step Blocks. Available in pairs. (Pair consists of 2 identical Step Blocks)

Combination of two Step Blocks of same or different sizes is kept as support under one Strap Clamp as shown in Fig.1 below. But in case of use of Step Blocks with Stepped Strap Clamp, as shown in Fig.2 below, only one Step Block of suitable size is kept as support under one stepped strap clamp.



STEP BLOCK

| MODEL | L | B | W | HEIGHT ADJUSTMENT | | HEIGHT OF STEP h ₁ | HEIGHT OF STEP h ₂ | N. W. Kgs. (Pair) |
|--------|-----|----|----|-------------------|-----------|-------------------------------|-------------------------------|-------------------|
| | | | | H MINIMUM | H MAXIMUM | | | |
| TSB-1L | 30 | 18 | 24 | 20 | 44 | 2.7 | 1.6 | 0.11 |
| TSB-2L | 66 | 38 | 24 | 40 | 100 | 2.7 | 1.6 | 0.31 |
| TSB-3L | 101 | 58 | 24 | 60 | 155 | 2.7 | 1.6 | 1.10 |
| TSB-1 | 30 | 18 | 30 | 20 | 44 | 2.7 | 1.6 | 0.14 |
| TSB-2 | 66 | 38 | 30 | 40 | 100 | 2.7 | 1.6 | 0.39 |
| TSB-3 | 101 | 58 | 30 | 60 | 155 | 2.7 | 1.6 | 1.36 |

STEP BLOCK - HEAVY DUTY

Step Block-Heavy Duty is different than step blocks above in width only. More width enables use on bigger T-slots and also with bigger sizes of stepped strap clamps.

| MODEL | L | B | W | HEIGHT ADJUSTMENT | | HEIGHT OF STEP h ₁ | HEIGHT OF STEP h ₂ | N. W. Kgs. (Pair) |
|--------|-----|----|----|-------------------|-----------|-------------------------------|-------------------------------|-------------------|
| | | | | H MINIMUM | H MAXIMUM | | | |
| THSB-5 | 66 | 38 | 48 | 40 | 100 | 2.7 | 1.6 | 0.95 |
| THSB-6 | 117 | 68 | 48 | 72 | 180 | 2.7 | 1.6 | 2.83 |

THREADED SUPPORT FOR TAPPED END CLAMPS Forged Base, Hardened & Tempered, Black Finish

These have large resting base and hexagon at bottom for height adjustment.

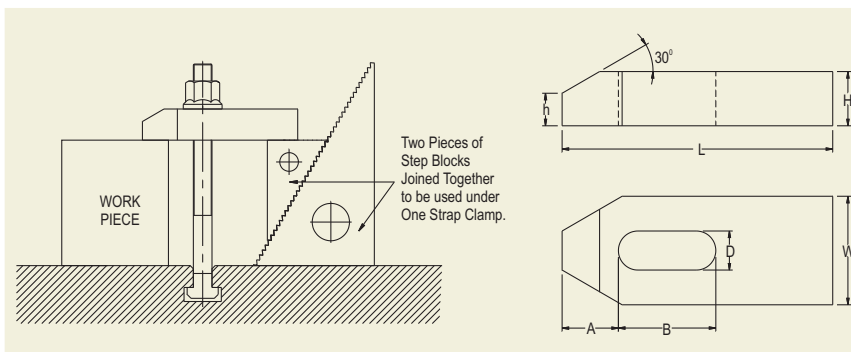
| MODEL | DIA AT BOTTOM | THREAD SIZE | OVERALL LENGTH | N. W. Kgs. |
|-------|---------------|---------------|----------------|------------|
| TS-12 | 30 | M-12 x 1.75 P | 60 | 0.07 |
| TS-16 | 35 | M-16 x 2.0 P | 70 | 0.14 |
| TS-20 | 40 | M-20 x 2.5 P | 80 | 0.23 |
| TS-24 | 50 | M-24 x 3.0 P | 85 | 0.40 |



Clamping Elements

STRAP CLAMP Hardened & Tempered, Black Finish

based on IS : 4292



| MODEL | D SUITABLE FOR BOLT | L | W | H | A | B | h | N. W. Kgs. |
|------------|---------------------|-----|----|----|----|-----|----|------------|
| TSC-8-60 | M-8 | 60 | 24 | 12 | 13 | 22 | 7 | 0.09 |
| TSC-10-80 | M-10 | 80 | 30 | 15 | 15 | 30 | 9 | 0.23 |
| TSC-12-100 | M-12 | 100 | 38 | 18 | 21 | 40 | 12 | 0.43 |
| TSC-12-125 | M-12 | 125 | 38 | 18 | 21 | 50 | 12 | 0.56 |
| TSC-14-125 | M-14 | 125 | 48 | 24 | 26 | 45 | 15 | 0.85 |
| TSC-16-125 | M-16 | 125 | 48 | 24 | 26 | 45 | 15 | 0.85 |
| TSC-16-160 | M-16 | 160 | 48 | 24 | 26 | 65 | 16 | 1.11 |
| TSC-20-160 | M-20 | 160 | 62 | 30 | 30 | 60 | 18 | 1.89 |
| TSC-20-200 | M-20 | 200 | 62 | 30 | 30 | 80 | 18 | 2.40 |
| TSC-24-200 | M-24 | 200 | 72 | 38 | 35 | 80 | 21 | 3.39 |
| TSC-24-250 | M-24 | 250 | 72 | 38 | 35 | 100 | 21 | 4.30 |
| TSC-30-250 | M-30 | 250 | 72 | 48 | 45 | 100 | 28 | 5.26 |

STRAP CLAMP - FORGED BODY Tapped End

The most popular sizes of strap clamps are now made in forged body with additional benefit of tapped end for threaded supports.

| MODEL | SUITABLE FOR BOLT | LENGTH | WIDTH | THICKNESS | SLOT LENGTH | TAPPED END | N. W. Kgs. |
|---------|-------------------|--------|-------|-----------|-------------|------------|------------|
| TSCF-12 | M-12 | 120 | 44 | 19 | 55 | M-12 | 0.55 |
| TSCF-16 | M-16 | 140 | 50 | 22 | 65 | M-16 | 0.86 |
| TSCF-20 | M-20 | 180 | 62 | 28 | 86 | M-20 | 1.61 |
| TSCF-24 | M-24 | 220 | 76 | 35 | 102 | M-24 | 3.28 |



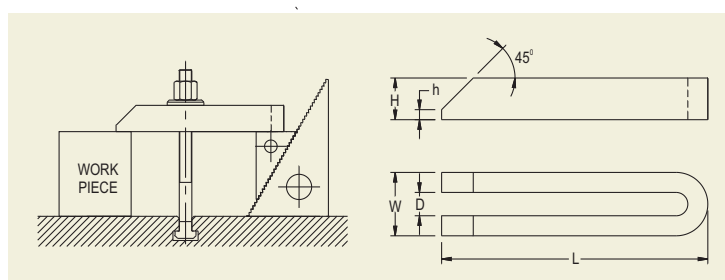
PLAIN CLAMP Hardened & Tempered

These are economy models of strap clamps. Can be used where simple shape of a plain strap can serve the purpose.

| MODEL | SUITABLE FOR BOLT | LENGTH | WIDTH | THICKNESS | SLOT LENGTH | N. W. Kgs. |
|----------|-------------------|--------|-------|-----------|-------------|------------|
| TES - 12 | M-12 | 70 | 38 | 11 | 35 | 0.20 |
| TES - 16 | M-16 | 90 | 48 | 18 | 45 | 0.50 |



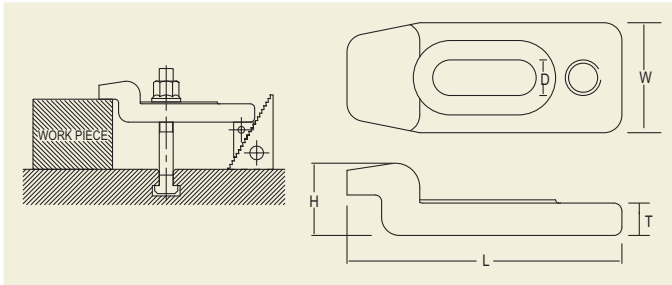
U - CLAMP Hardened & Tempered, Black Finish



| MODEL | D SUITABLE FOR BOLT | L | W | H | h | N. W. Kgs. |
|------------|---------------------|-----|----|----|----|------------|
| TUC-12-160 | M-12 | 160 | 38 | 24 | 6 | 0.68 |
| TUC-16-200 | M-16 | 200 | 50 | 30 | 8 | 1.44 |
| TUC-20-250 | M-20 | 250 | 62 | 38 | 10 | 2.72 |
| TUC-24-250 | M-24 | 250 | 66 | 38 | 10 | 2.72 |

Clamping Elements

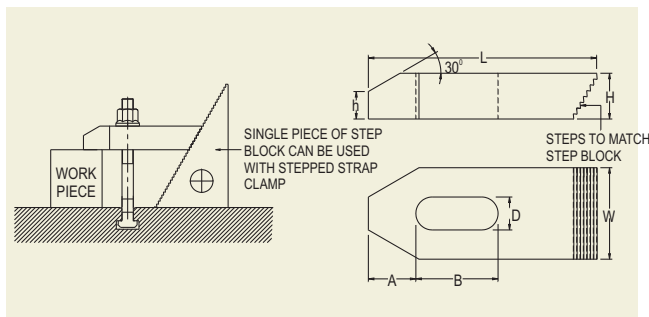
GOOSE NECK CLAMP - FORGED STEEL



| MODEL | D SUITABLE FOR BOLT | L | H | W | T | N. W. Kgs. |
|----------|---------------------|-----|----|----|----|------------|
| TGNCF-16 | M-16 | 125 | 33 | 50 | 18 | 0.65 |
| TGNCF-20 | M-20 | 165 | 47 | 68 | 24 | 1.44 |
| TGNCF-24 | M-24 | 200 | 52 | 76 | 28 | 2.34 |

STEPPED STRAP CLAMP Hardened & Tempered, Black Finish

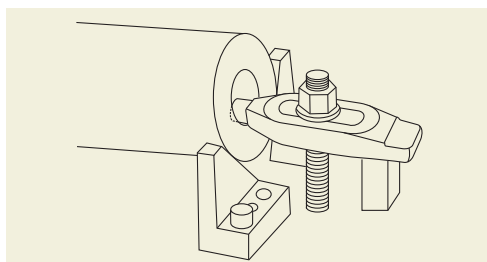
These Strap Clamps have teeth at rear matching to that of Step Blocks for the Step Blocks to be used as supports. Unlike other clamps, single piece of Step Block not a pair can be used as support with Stepped Strap Clamp.



| MODEL | D SUITABLE FOR BOLT | L | W | H | A | B | h | N. W. Kgs. |
|-------------|---------------------|-----|----|----|----|----|----|------------|
| TSSC-10-60 | M-10 | 60 | 30 | 15 | 15 | 20 | 9 | 0.16 |
| TSSC-10-80 | M-10 | 80 | 30 | 15 | 15 | 30 | 9 | 0.22 |
| TSSC-10-120 | M-10 | 120 | 30 | 15 | 15 | 45 | 9 | 0.33 |
| TSSC-12-65 | M-12 | 65 | 30 | 15 | 15 | 25 | 9 | 0.16 |
| TSSC-12-100 | M-12 | 100 | 38 | 18 | 21 | 35 | 12 | 0.42 |
| TSSC-12-125 | M-12 | 125 | 38 | 18 | 21 | 45 | 12 | 0.55 |
| TSSC-16-75 | M-16 | 75 | 38 | 18 | 21 | 32 | 12 | 0.29 |
| TSSC-16-125 | M-16 | 125 | 48 | 24 | 26 | 45 | 15 | 0.75 |
| TSSC-16-160 | M-16 | 160 | 48 | 24 | 26 | 65 | 15 | 1.10 |
| TSSC-20-160 | M-20 | 160 | 62 | 30 | 30 | 60 | 18 | 1.64 |
| TSSC-24-200 | M-24 | 200 | 72 | 38 | 35 | 80 | 21 | 3.21 |

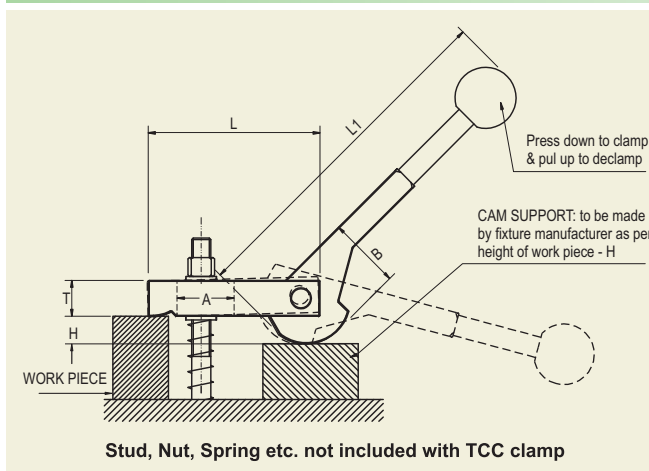
FINGER STRAP CLAMP

Finger clamp is specially designed for holding at curved surfaces or inside holes. Most useful for clamping of heavy blocks while machining where there are no steps for clamping and top surface has to be left clear for machining. In such cases holes are drilled on the side faces and finger clamps can be used for clamping on that holes.



| MODEL | SUITABLE FOR BOLT | LENGTH | WIDTH | THICK NESS | SLOT LENGTH | FINGER DIA | N. W. Kgs. |
|---------|-------------------|--------|-------|------------|-------------|------------|------------|
| TCF -16 | M-16 | 152 | 44 | 22 | 66 | 18 | 0.73 |

CAM CLAMP - HOLD DOWN TYPE - FOR QUICK CLAMPING ON MACHINING FIXTURES



Most ideal for quick Hold Down Clamping in fixtures. Conventional Strap Clamps in fixtures can be replaced by these quick acting Cam clamps without much effort. These clamps have high clamping force suitable for machining fixtures.



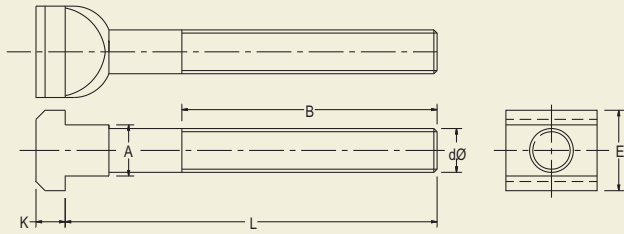
| MODEL | SUITABLE FOR CLAMPING BOLT | L | T | WIDTH OF CLAMP | A | B | L1 | H | HOLDING CAPACITY | N. W. Kgs. |
|--------|----------------------------|-----|----|----------------|----|----|-----|----|------------------|------------|
| TCC-10 | M10 | 90 | 19 | 30 | 30 | 38 | 180 | 14 | 1400 Kgs. | 0.56 |
| TCC-12 | M12 | 100 | 24 | 38 | 35 | 38 | 180 | 12 | 2000 Kgs. | 0.86 |

2D / 3D CAD FILES AVAILABLE

Clamping Elements

T-BOLT Forged Head, Hardened & Tempered, High Tensile Steel, Black Finish

based on IS:2014

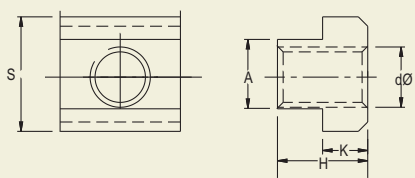


| MODEL | A SUITABLE FOR T-SLOT SIZE | E | K | L | dØ THREAD SIZE | B | N. W. Kgs. |
|--------------|----------------------------|-----|------|-----|----------------|-----|------------|
| TTB-1212-80 | 12 | 18 | 7 | 80 | M12 | 40 | 0.08 |
| TTB-1212-100 | | | | 100 | | 60 | 0.10 |
| TTB-1212-160 | | | | 160 | | 100 | 0.14 |
| TTB-1214-60 | 14 | 22 | 8 | 60 | M12 | 35 | 0.09 |
| TTB-1214-80 | | | | 80 | | 55 | 0.10 |
| TTB-1214-100 | | | | 100 | | 65 | 0.12 |
| TTB-1214-125 | | | | 125 | | 80 | 0.14 |
| TTB-1214-160 | | | | 160 | | 100 | 0.16 |
| TTB-1214-200 | | | | 200 | | 125 | 0.19 |
| TTB-1616-80 | 16 | 25 | 9 | 80 | M16 | 40 | 0.17 |
| TTB-1616-130 | | | | 130 | | 80 | 0.23 |
| TTB-1616-200 | | | | 200 | | 125 | 0.33 |
| TTB-1618-80 | 18 | 28 | 10 | 80 | M16 | 55 | 0.19 |
| TTB-1618-100 | | | | 100 | | 65 | 0.22 |
| TTB-1618-130 | | | | 130 | | 80 | 0.25 |
| TTB-1618-160 | | | | 160 | | 100 | 0.29 |
| TTB-1618-200 | | | | 200 | | 125 | 0.35 |
| TTB-1618-250 | | | | 250 | | 155 | 0.40 |
| TTB-1618-290 | | | | 290 | | 175 | 0.47 |
| TTB-2020-110 | | | | 20 | | 32 | 12 |
| TTB-2020-150 | 150 | 95 | 0.43 | | | | |
| TTB-2020-210 | 210 | 130 | 0.55 | | | | |
| TTB-2022-110 | 22 | 35 | 14 | 110 | M20 | 70 | 0.40 |
| TTB-2022-150 | | | | 150 | | 95 | 0.48 |
| TTB-2022-210 | | | | 210 | | 130 | 0.60 |
| TTB-2022-285 | | | | 285 | | 170 | 0.76 |
| TTB-2424-150 | 24 | 40 | 16 | 150 | M24 | 95 | 0.68 |
| TTB-2424-210 | | | | 210 | | 130 | 0.87 |
| TTB-2428-110 | 28 | 44 | 18 | 110 | M24 | 65 | 0.67 |
| TTB-2428-150 | | | | 150 | | 95 | 0.79 |
| TTB-2428-210 | | | | 210 | | 130 | 0.96 |
| TTB-2428-250 | | | | 250 | | 160 | 1.10 |
| TTB-2428-300 | | | | 300 | | 190 | 1.23 |
| TTB-3036-200 | 36 | 54 | 22 | 200 | M30 | 130 | 1.52 |
| TTB-3036-250 | | | | 250 | | 150 | 1.77 |
| TTB-3036-300 | | | | 300 | | 190 | 2.02 |



T- NUT Hardened & Tempered, Black Finish

based on IS : 2015



| MODEL | A SUITABLE FOR T-SLOT SIZE | dØ THREAD SIZE | H | K | S | N. W. Kgs. |
|------------|----------------------------|----------------|----|----|----|------------|
| TTN-10-8 | 10 | M-8 | 12 | 6 | 15 | 0.015 |
| TTN-12-10* | 12 | M-10 | 14 | 7 | 18 | 0.02 |
| TTN-14-10 | 14 | M-10 | 16 | 8 | 22 | 0.04 |
| TTN-14-12* | 14 | M-12 | 16 | 8 | 22 | 0.035 |
| TTN-16-12 | 16 | M-12 | 18 | 9 | 25 | 0.055 |
| TTN-16-14* | 16 | M-14 | 18 | 9 | 25 | 0.05 |
| TTN-18-12 | 18 | M-12 | 20 | 10 | 28 | 0.085 |
| TTN-18-16* | 18 | M-16 | 20 | 10 | 28 | 0.07 |

| MODEL | A SUITABLE FOR T-SLOT SIZE | dØ THREAD SIZE | H | K | S | N. W. Kgs. |
|------------|----------------------------|----------------|----|----|----|------------|
| TTN-20-16 | 20 | M-16 | 24 | 12 | 32 | 0.12 |
| TTN-22-16 | 22 | M-16 | 28 | 14 | 35 | 0.18 |
| TTN-22-20* | 22 | M-20 | 28 | 14 | 35 | 0.15 |
| TTN-24-20 | 24 | M-20 | 32 | 16 | 40 | 0.24 |
| TTN-28-24 | 28 | M-24 | 36 | 18 | 44 | 0.33 |
| TTN-36-24 | 36 | M-24 | 44 | 22 | 54 | 0.64 |
| TTN-36-30 | 36 | M-30 | 44 | 22 | 54 | 0.55 |

* marked models are not recommended for heavy duty use because of less wall thickness outside the threading.

T-Slot size mentioned in these pages is size 'A' of the T-Slot as shown here.

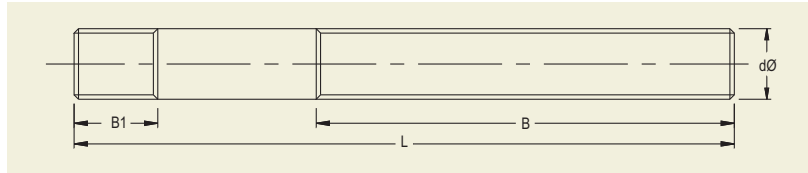
Clamping Elements

CLAMPING STUD - FOR USE WITH T-NUTS

based on IS : 1862

Hardened & Tempered, High Tensile Steel, Black Finish.

These Studs are meant to be used with T-nuts to be tightened on smaller threaded length B1 shown in figure below and longer threaded length B shown in figure below is to accommodate Clamp / Nut / Washer etc.



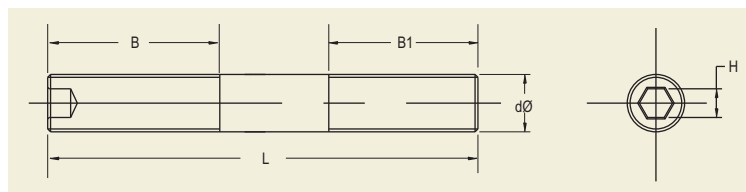
| MODEL | dØ THREAD SIZE | L | B1 | B | N. W. Kgs |
|------------|----------------|-----|----|-----|-----------|
| TCS-8-75 | M-8 | 75 | 11 | 48 | 0.025 |
| TCS-8-100 | | 100 | | 63 | 0.03 |
| TCS-8-150 | | 150 | | 95 | 0.05 |
| TCS-10-75 | M-10 | 75 | 13 | 48 | 0.04 |
| TCS-10-100 | | 100 | | 63 | 0.05 |
| TCS-10-125 | | 125 | | 75 | 0.065 |
| TCS-10-150 | | 150 | | 95 | 0.075 |
| TCS-10-175 | | 175 | | 110 | 0.09 |
| TCS-10-200 | | 200 | | 125 | 0.10 |
| TCS-12-75 | M-12 | 75 | 15 | 48 | 0.055 |
| TCS-12-100 | | 100 | | 63 | 0.075 |
| TCS-12-125 | | 125 | | 75 | 0.09 |
| TCS-12-150 | | 150 | | 95 | 0.11 |
| TCS-12-175 | | 175 | | 110 | 0.13 |
| TCS-12-200 | | 200 | | 125 | 0.15 |
| TCS-12-250 | | 250 | | 160 | 0.19 |
| TCS-12-300 | | 300 | | 190 | 0.23 |
| TCS-14-100 | M-14 | 100 | 17 | 63 | 0.10 |
| TCS-14-150 | | 150 | | 95 | 0.15 |
| TCS-14-200 | | 200 | | 125 | 0.21 |
| TCS-14-250 | | 250 | | 160 | 0.26 |
| TCS-16-75 | M-16 | 75 | 19 | 50 | 0.10 |
| TCS-16-100 | | 100 | | 63 | 0.13 |
| TCS-16-125 | | 125 | | 75 | 0.17 |
| TCS-16-150 | | 150 | | 95 | 0.20 |
| TCS-16-175 | | 175 | | 110 | 0.24 |
| TCS-16-200 | | 200 | | 125 | 0.27 |
| TCS-16-250 | | 250 | | 160 | 0.34 |
| TCS-16-300 | | 300 | | 190 | 0.41 |

| MODEL | dØ THREAD SIZE | L | B1 | B | N. W. Kgs. |
|------------|----------------|-----|----|-----|------------|
| TCS-20-100 | M-20 | 100 | 27 | 60 | 0.21 |
| TCS-20-150 | | 150 | | 95 | 0.31 |
| TCS-20-200 | | 200 | | 125 | 0.42 |
| TCS-20-250 | | 250 | | 160 | 0.53 |
| TCS-20-300 | | 300 | | 190 | 0.63 |
| TCS-20-400 | | 400 | | 250 | 0.86 |
| TCS-20-500 | | 500 | | 250 | 1.11 |
| TCS-24-150 | M-24 | 150 | 35 | 95 | 0.41 |
| TCS-24-200 | | 200 | | 120 | 0.61 |
| TCS-24-250 | | 250 | | 160 | 0.76 |
| TCS-24-300 | | 300 | | 190 | 0.92 |
| TCS-24-400 | | 400 | | 250 | 1.23 |
| TCS-24-500 | | 500 | | 250 | 1.58 |
| TCS-30-150 | M-30 | 150 | 43 | 95 | 0.69 |
| TCS-30-200 | | 200 | | 120 | 0.95 |
| TCS-30-250 | | 250 | | 160 | 1.18 |
| TCS-30-300 | | 300 | | 190 | 1.40 |
| TCS-30-400 | | 400 | | 250 | 1.93 |
| TCS-30-500 | | 500 | | 250 | 2.47 |

CLAMPING STUD - FOR USE ON MACHINE BEDS HAVING TAPPED HOLES

Hardened & Tempered, High Tensile Steel, Black Finish.

These Studs having longer threaded length of side B1 shown in figure below which enables use on threaded platens of moulding machines or threaded beds of presses for longer insertion in the tapped holes. These studs also have a **hex key hole at top face for tightening & loosening** with of a hex key.



| MODEL | dØ THREAD SIZE | L | B1 | B | H | N. W. Kgs. |
|-------------|----------------|-----|----|-----|---|------------|
| TCSB-12-100 | M-12 | 100 | 30 | 40 | 6 | 0.07 |
| TCSB-12-125 | | 125 | | 50 | | 0.09 |
| TCSB-12-150 | | 150 | | 65 | | 0.12 |
| TCSB-12-175 | | 175 | | 80 | | 0.13 |
| TCSB-16-125 | M-16 | 125 | 40 | 50 | 8 | 0.17 |
| TCSB-16-150 | | 150 | | 65 | | 0.20 |
| TCSB-16-175 | | 175 | | 80 | | 0.23 |
| TCSB-16-200 | | 200 | | 100 | | 0.27 |
| TCSB-18-150 | M-18 | 150 | 40 | 65 | 8 | 0.30 |
| TCSB-18-175 | | 175 | | 80 | | 0.35 |
| TCSB-18-200 | | 200 | | 100 | | 0.40 |

| MODEL | dØ THREAD SIZE | L | B1 | B | H | N. W. Kgs. |
|-------------|----------------|-----|----|----|----|------------|
| TCSB-20-150 | M-20 | 150 | 50 | 60 | 10 | 0.31 |
| TCSB-20-175 | | 175 | | 70 | | 0.37 |
| TCSB-20-200 | | 200 | | 80 | | 0.43 |
| TCSB-22-150 | M-22 | 150 | 50 | 60 | 10 | 0.45 |
| TCSB-22-175 | | 175 | | 70 | | 0.53 |
| TCSB-22-200 | | 200 | | 80 | | 0.60 |
| TCSB-24-175 | M-24 | 175 | 60 | 70 | 12 | 0.52 |
| TCSB-24-200 | | 200 | | 80 | | 0.60 |
| TCSB-24-225 | | 225 | | 90 | | 0.68 |

Clamping Elements

EXTRA LONG NUT Hardened & Tempered, Black Finish

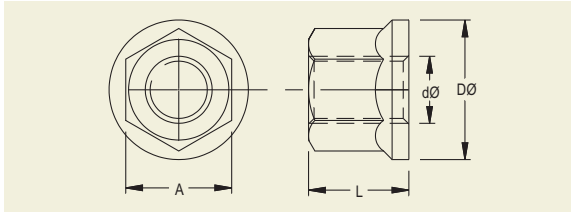
These nuts have longer life as they have more number of threads than ordinary nuts.

| MODEL | THREAD SIZE | TOTAL LENGTH | TIGHTENING TORQUE Nm Max.* | N. W. Kgs. |
|---------|-------------|--------------|----------------------------|------------|
| TELN-8 | M-8 | 12 | 25 | 0.01 |
| TELN-10 | M-10 | 15 | 50 | 0.02 |
| TELN-12 | M-12 | 18 | 90 | 0.03 |
| TELN-14 | M-14 | 21 | 140 | 0.045 |
| TELN-16 | M-16 | 24 | 210 | 0.06 |
| TELN-18 | M-18 | 27 | 290 | 0.08 |
| TELN-20 | M-20 | 30 | 410 | 0.12 |
| TELN-22 | M-22 | 32 | 560 | 0.17 |
| TELN-24 | M-24 | 36 | 730 | 0.20 |
| TELN-30 | M-30 | 45 | 1450 | 0.41 |



FLANGED NUT Forged, Hardened & Tempered, Black Finish

These nuts have flanged face for larger face contact with the surface to be tightened on.



| MODEL | dØ THREAD SIZE | DØ | A | L | TIGHTENING TORQUE Nm Max.* | N. W. Kgs. |
|--------|----------------|----|----|----|----------------------------|------------|
| TFN-10 | M-10 | 22 | 17 | 15 | 50 | 0.02 |
| TFN-12 | M-12 | 25 | 19 | 18 | 90 | 0.035 |
| TFN-16 | M-16 | 32 | 24 | 24 | 210 | 0.07 |
| TFN-20 | M-20 | 40 | 30 | 30 | 410 | 0.14 |
| TFN-24 | M-24 | 47 | 36 | 36 | 730 | 0.23 |



* Exceeding maximum torque could damage threads.

EXTENSION NUT Hardened & Tempered, Black Finish

These nuts are used to couple the studs with studs or T- Bolts in order to increase their length.

| MODEL | THREAD SIZE | TOTAL LENGTH | N. W. Kgs. |
|--------|-------------|--------------|------------|
| TEN-8 | M-8 | 24 | 0.02 |
| TEN-10 | M-10 | 30 | 0.04 |
| TEN-12 | M-12 | 36 | 0.06 |
| TEN-14 | M-14 | 42 | 0.09 |
| TEN-16 | M-16 | 48 | 0.12 |
| TEN-20 | M-20 | 60 | 0.23 |
| TEN-24 | M-24 | 72 | 0.41 |
| TEN-30 | M-30 | 90 | 0.82 |



PLAIN WASHER Case Hardened, Black Finish

based on IS : 4291

| MODEL | SUITABLE FOR BOLT | THICKNESS | OUTSIDE DIA. | N. W. Kgs. |
|--------|-------------------|-----------|--------------|------------|
| TPW-8 | M-8 | 4 | 23 | 0.01 |
| TPW-10 | M-10 | 4 | 28 | 0.015 |
| TPW-12 | M-12 | 5 | 35 | 0.03 |
| TPW-14 | M-14 | 6 | 40 | 0.05 |
| TPW-16 | M-16 | 7 | 45 | 0.07 |
| TPW-18 | M-18 | 7 | 48 | 0.07 |
| TPW-20 | M-20 | 7 | 48 | 0.07 |
| TPW-22 | M-22 | 8 | 48 | 0.07 |
| TPW-24 | M-24 | 9 | 60 | 0.15 |
| TPW-30 | M-30 | 11 | 70 | 0.25 |



C-WASHER Case Hardened, Ground Faces, Black Finish

based on IS : 4291

Knurled outside diameter for easy gripping while quick insertion or removal.

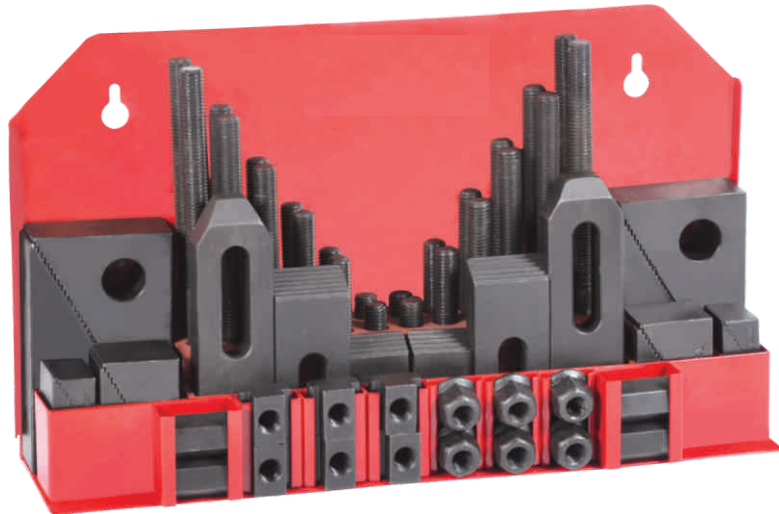
| MODEL | SUITABLE FOR BOLT | THICKNESS | OUTSIDE DIA. | N. W. Kgs. |
|--------|-------------------|-----------|--------------|------------|
| TCW-10 | M-10 | 9 | 40 | 0.07 |
| TCW-12 | M-12 | 9 | 48 | 0.11 |
| TCW-14 | M-14 | 11 | 63 | 0.20 |
| TCW-16 | M-16 | 11 | 63 | 0.20 |
| TCW-20 | M-20 | 11 | 80 | 0.36 |
| TCW-24 | M-24 | 12 | 100 | 0.59 |
| TCW-30 | M-30 | 14 | 100 | 0.64 |



Clamping Kit

CLAMPING KIT - 58 PIECE (WITH STEP BLOCKS & STEPPED STRAP CLAMPS)

Clamping Kit - 58 piece is available in an attractive powder coated metallic rack which can be hanged on machines or a wall or kept on a table. Each kit consists of all important clamping elements required to clamp a variety of work pieces. Following table shows the contents of each model of clamping kit suitable for different T-Slot sizes. All the items of clamping kit are taken from our range of products given in this catalogue.

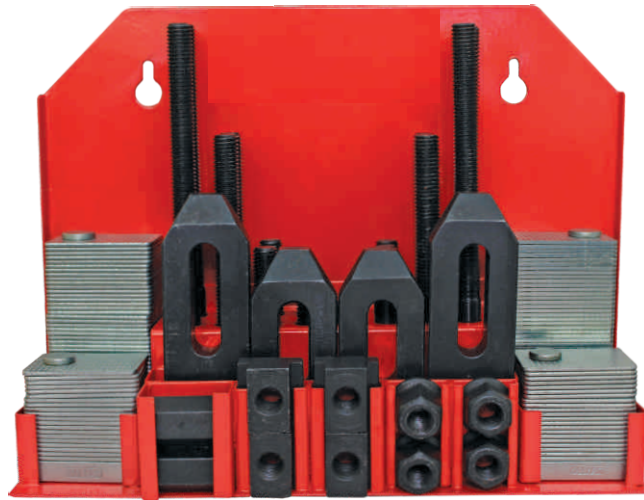


| MODEL | TCK-58-1210 | TCK-58-1410 | TCK-58-1412L | TCK-58-1412 | TCK-58-1612L | TCK-58-1612 | TCK-58-1812 | TCK-58-1816 | TCK-58-2016 | TCK-58-2216 |
|---|---|---|---|---|---|---|---|---|---|---|
| CONTENTS | T-SLOT SIZE 12MM (M-10) | T-SLOT SIZE 14MM (M-10) | T-SLOT SIZE 14MM (M-12) | T-SLOT SIZE 14MM (M-12) | T-SLOT SIZE 16MM (M-12) | T-SLOT SIZE 16MM (M-12) | T-SLOT SIZE 18MM (M-12) | T-SLOT SIZE 18MM (M-16) | T-SLOT SIZE 20MM (M-16) | T-SLOT SIZE 22MM (M-16) |
| T-NUTS (6 nos.) | TTN-12-10 | TTN-14-10 | TTN-14-12 | TTN-14-12 | TTN-16-12 | TTN-16-12 | TTN-18-12 | TTN-18-16 | TTN-20-16 | TTN-22-16 |
| CLAMPING STUDS (4 nos. each size) | TCS-10-75 TCS-10-100 TCS-10-125 TCS-10-150 TCS-10-175 TCS-10-200 | TCS-10-75 TCS-10-100 TCS-10-125 TCS-10-150 TCS-10-175 TCS-10-200 | TCS-12-75 TCS-12-100 TCS-12-125 TCS-12-150 TCS-12-175 TCS-12-200 | TCS-12-75 TCS-12-100 TCS-12-125 TCS-12-150 TCS-12-175 TCS-12-200 | TCS-12-75 TCS-12-100 TCS-12-125 TCS-12-150 TCS-12-175 TCS-12-200 | TCS-12-75 TCS-12-100 TCS-12-125 TCS-12-150 TCS-12-175 TCS-12-200 | TCS-12-75 TCS-12-100 TCS-12-125 TCS-12-150 TCS-12-175 TCS-12-200 | TCS-16-75 TCS-16-100 TCS-16-125 TCS-16-150 TCS-16-175 TCS-16-200 | TCS-16-75 TCS-16-100 TCS-16-125 TCS-16-150 TCS-16-175 TCS-16-200 | TCS-16-75 TCS-16-100 TCS-16-125 TCS-16-150 TCS-16-175 TCS-16-200 |
| FLANGED NUTS (6 nos.) | TFN-10 | TFN-10 | TFN-12 | TFN-12 | TFN-12 | TFN-12 | TFN-12 | TFN-16 | TFN-16 | TFN-16 |
| EXTENSION NUTS (4 nos.) | TEN-10 | TEN-10 | TEN-12 | TEN-12 | TEN-12 | TEN-12 | TEN-12 | TEN-16 | TEN-16 | TEN-16 |
| STEPPED STRAP CLAMPS (2 nos. each size) | TSSC-10-60 TSSC-10-80 TSSC-10-120 | TSSC-10-60 TSSC-10-80 TSSC-10-120 | TSSC-12-65 TSSC-12-100 TSSC-12-125 | TSSC-12-65 TSSC-12-100 TSSC-12-125 | TSSC-12-65 TSSC-12-100 TSSC-12-125 | TSSC-12-65 TSSC-12-100 TSSC-12-125 | TSSC-12-65 TSSC-12-100 TSSC-12-125 | TSSC-16-75 TSSC-16-125 TSSC-16-160 | TSSC-16-75 TSSC-16-125 TSSC-16-160 | TSSC-16-75 TSSC-16-125 TSSC-16-160 |
| STEP BLOCKS 2 pairs (4 nos. each size) | TSB-1L TSB-2L TSB-3L | TSB-1L TSB-2L TSB-3L | TSB-1L TSB-2L TSB-3L | TSB-1 TSB-2 TSB-3 | TSB-1L TSB-2L TSB-3L | TSB-1 TSB-2 TSB-3 | TSB-1 TSB-2 TSB-3 | TSB-1 TSB-2 TSB-3 | TSB-1 TSB-2 TSB-3 | TSB-1 TSB-2 TSB-3 |
| TOTAL NO. OF PIECES | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |
| N.W. Kgs. | 9 | 9 | 12 | 13 | 12 | 13 | 13 | 18 | 18.5 | 19 |

Clamping Kit

CLAMPING KIT - 34 PIECE (WITH ADJUSTABLE SUPPORT PLATES & STRAP CLAMPS)

Clamping Kit - 34 piece is an economical clamping kit housed in an attractive metal rack. Following table shows the contents of each model of clamping kit suitable for different T-Slot sizes. All the items of clamping kit are taken from our range of products given in this catalogue



Also Included T-Slot Cleaner **FREE**



| MODEL | TCK-34-1412 T-SLOT SIZE 14MM (M-12) | TCK-34-1612 T-SLOT SIZE 16MM (M-12) | TCK-34-1812 T-SLOT SIZE 18MM (M-12) |
|----------------------------------|---|---|---|
| CONTENTS | | | |
| T-NUTS | TTN-14-12 - 4 nos. | TTN-16-12 - 4 nos. | TTN-18-12 - 4 nos. |
| CLAMPING STUDS | TCS-12-75 - 4 nos. TCS-12-100 - 4 nos. TCS-12-150 - 4 nos. TCS-12-200 - 4 nos. | TCS-12-75 - 4 nos. TCS-12-100 - 4 nos. TCS-12-150 - 4 nos. TCS-12-200 - 4 nos. | TCS-12-75 - 4 nos. TCS-12-100 - 4 nos. TCS-12-150 - 4 nos. TCS-12-200 - 4 nos. |
| FLANGED NUTS | TFN-12 - 4 nos. | TFN-12 - 4 nos. | TFN-12 - 4 nos. |
| EXTENSION NUTS | TEN-12 - 2 nos. | TEN-12 - 2 nos. | TEN-12 - 2 nos. |
| STRAP CLAMPS | TSC-12-100 - 2 nos. TSC-12-125 - 2 nos. | TSC-12-100 - 2 nos. TSC-12-125 - 2 nos. | TSC-12-100 - 2 nos. TSC-12-125 - 2 nos. |
| ADJUSTABLE SUPPORT PLATES | TASP-250 - 2 nos. TASP-2100 - 2 nos. | TASP-250 - 2 nos. TASP-2100 - 2 nos. | TASP-250 - 2 nos. TASP-2100 - 2 nos. |
| TOTAL NO. OF PIECES | 34 PIECES | 34 PIECES | 34 PIECES |
| N.W. Kgs. | 9.2 | 9.3 | 9.4 |

CMM Clamping Kit

CMM CLAMPING KIT - 62 PIECE (WITH ALUMINIUM / PLASTIC ELEMENTS) MODEL CMMCK - 62

CMM clamping kit is especially designed for 3D coordinate measuring machine and other inspection and gauging applications. The weight construction of the aluminium clamps and aluminium / plastic elements prevent damage to granite plates and delicate workpieces. M-8* elements with hand-tightening design allows the user to apply a limited hold down force most suitable for inspection clamping. All pieces are suitably housed in an elegant wooden box N.W. 2.0 kgs.



Each Kit Contains :

- 28 nos. **Studs** of M-8 threads made out of suitable aluminium Alloy - 4nos. each of 50mm, 75mm, 100mm, 125mm, 150mm, 175mm and 200 mm length.



- 8nos. of M-8 **Flanged Nuts** made of suitable aluminium alloy designed for hand-tightening without spanner. These nuts can also be used as extension nuts for joining studs.



- 6nos. **Strap Clamps** suitable for M-8 studs made out of suitable aluminium alloy - 2nos. each of 60mm, 100mm and 140mm length.



- 8nos. Aluminium **Screw Jacks**
 Closed Height = 38 mm
 Max open Height = 56 mm
 Top = Flat face having M-8 female thread
 Bottom = M-8 screw-in type for thread mounting on the granite plate of CMM.



- 4nos. Aluminium **Top Rest Pads** for Screw Jacks
 2nos. with 'V' on top face and 2nos. having conical top face



- 8nos. Plastic **Bottom Rest Pads** with M-8 blind hole for use as rest pads at the bottom of screw jacks when screw jacks have to be used directly on the granite surface as shown in picture (a) or for use as rest pads at the bottom of studs when the studs have to be used as threaded supports of strap clamps as shown in picture (b).

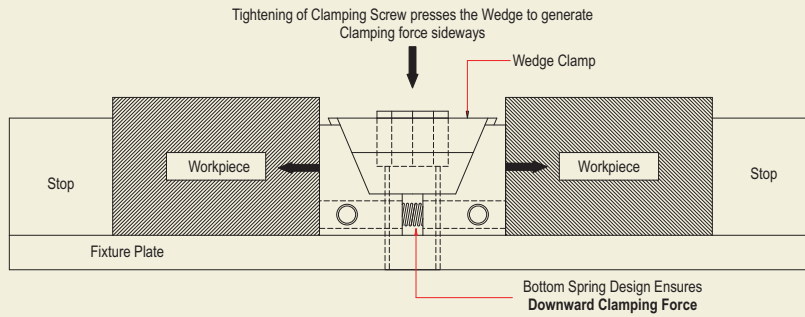


* FOR CMM BEDS WITH M-10 OR M-12 THREAD, ADAPTORS ARE AVAILABLE ON REQUEST TO ENABLE USE OF ABOVE CLAMPING KIT.

Wedge Clamps

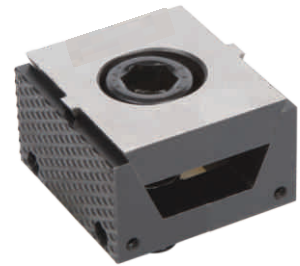
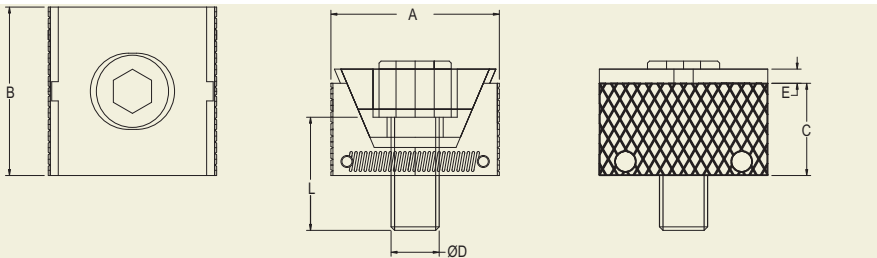
WEDGE CLAMP - RIGID BODY, HARDENED TOOL STEEL, DOWNWARD FORCE

Factory manufactures all models of wedge clamps with new patented design now in India.



- Improved **PATENTED** design with bottom spring ensures downward Clamping force
- Hidden spring eliminates clogging of chips in spring coil

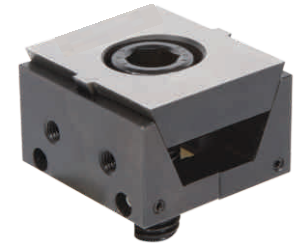
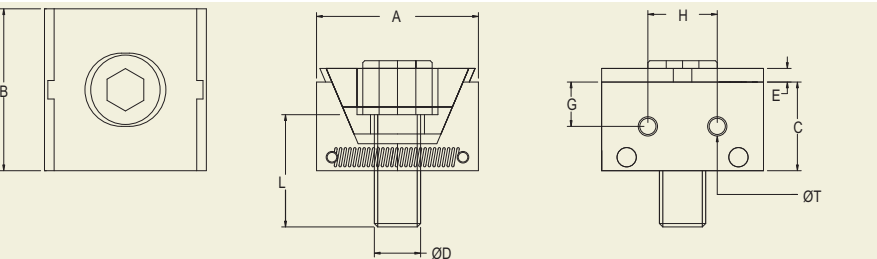
WEDGE CLAMP - TWC Series - Serrated Hardened Jaws



| MODEL | A | | | B | C | ØD X L | E | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. (Including Clamping bolt) |
|--------|------|---------|------|----|----|----------|-----|----------------------------|---------------------|--------------------------------------|
| | min. | optimum | max. | | | | | | | |
| TWC-8 | 27 | 29 ~ 30 | 32 | 31 | 16 | M8 X 20 | 2 | 25 | 1500 Kgs. | 0.09 |
| TWC-12 | 42 | 45 ~ 46 | 49 | 42 | 23 | M12 X 30 | 3.5 | 90 | 3000 Kgs. | 0.26 |
| TWC-16 | 57 | 61 ~ 63 | 66 | 58 | 30 | M16 X 35 | 4 | 210 | 6000 Kgs. | 0.66 |

WEDGE CLAMP - TWC-P Series - Plain Hardened Jaws with Tapped holes

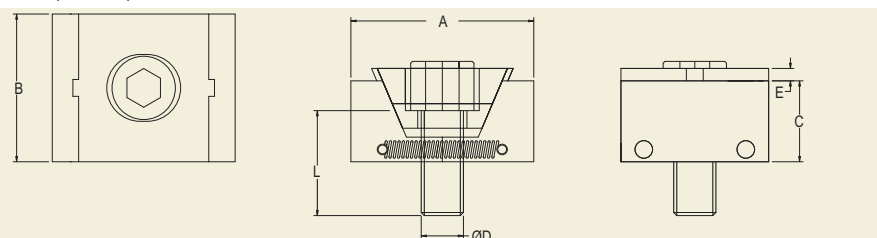
These have plain hardened jaws with added two tapped holes for attaching additional jaw inserts if need be.



| MODEL | A | | | B | C | ØD X L | E | G | H | ØT | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. (Including Clamping bolt) |
|---------|------|---------|------|----|----|----------|-----|------|----|-----|----------------------------|---------------------|--------------------------------------|
| | min. | optimum | max. | | | | | | | | | | |
| TWC-8P | 27 | 29 ~ 30 | 32 | 31 | 16 | M8 X 20 | 2 | 7.5 | 12 | M-5 | 25 | 1500 Kgs. | 0.09 |
| TWC-12P | 42 | 45 ~ 46 | 49 | 42 | 23 | M12 X 30 | 3.5 | 11.5 | 18 | M-5 | 90 | 3000 Kgs. | 0.26 |
| TWC-16P | 57 | 61 ~ 63 | 66 | 58 | 30 | M16 X 35 | 4 | 15 | 26 | M-5 | 210 | 6000 Kgs. | 0.66 |

WEDGE CLAMP - TWC-M Series - Machinable Jaws

These have extra material on jaws(soft) to machine as per the workpiece shape enabling fixturing of uneven or unusual shape workpieces.



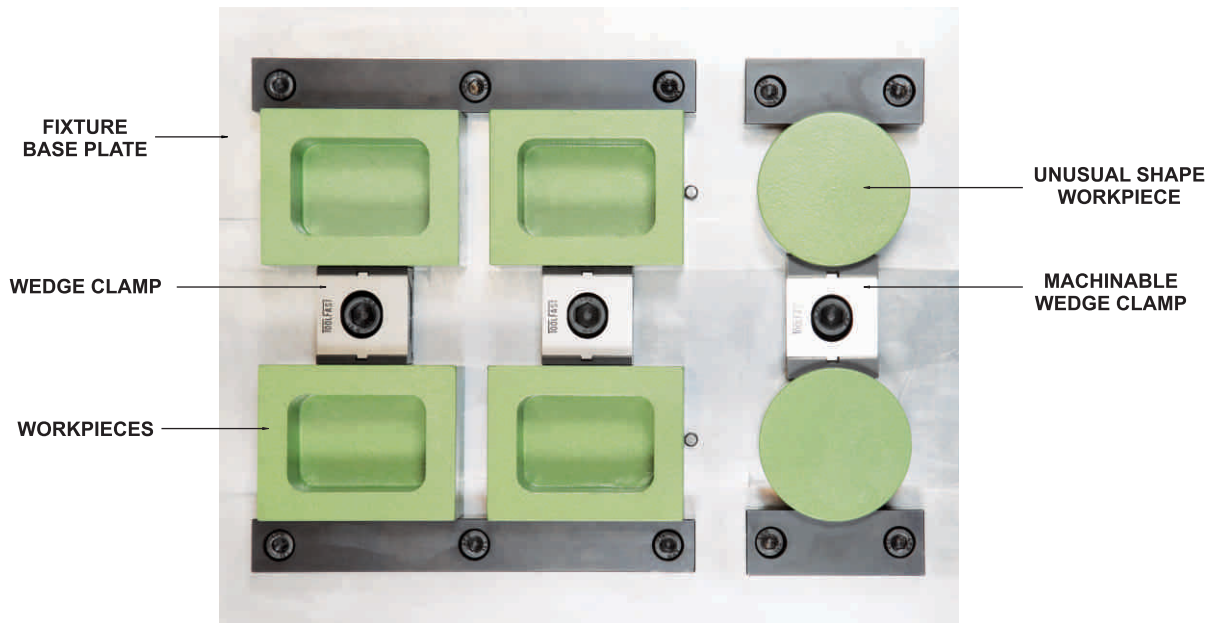
| MODEL | A | | | B | C | ØD X L | E | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N. W. Kgs. (Including Clamping bolt) |
|---------|------|---------|------|----|----|----------|-----|----------------------------|---------------------|--------------------------------------|
| | min. | optimum | max. | | | | | | | |
| TWC-8M | 33 | 35 ~ 36 | 38 | 31 | 16 | M8 X 20 | 2 | 25 | 1500 Kgs. | 0.12 |
| TWC-12M | 52 | 55 ~ 56 | 59 | 42 | 23 | M12 X 30 | 3.5 | 90 | 3000 Kgs. | 0.34 |
| TWC-16M | 67 | 71 ~ 73 | 76 | 58 | 30 | M16 X 35 | 4 | 210 | 6000 Kgs. | 0.86 |

2D / 3D CAD FILES AVAILABLE ON REQUEST

*Exceeding the maximum Torque damages the clamp parts and warranty expires. Lesser Torque may be applied for achieving proportionate clamping force.

Wedge Clamping Vice And Fixtures

MULTIPLE WORKPIECE CLAMPING FIXTURES WITH TWC SERIES WEDGE CLAMPS DESIGNED & MANUFACTURED

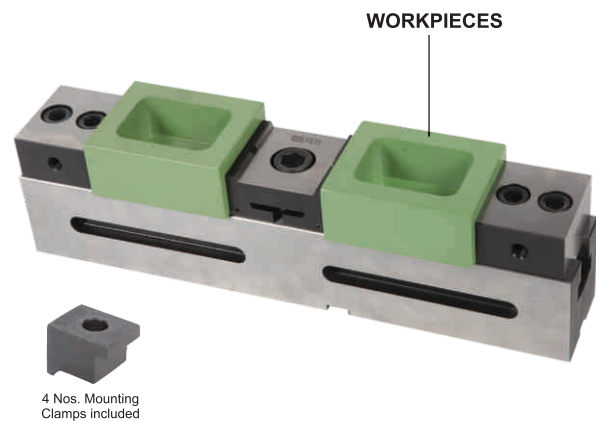
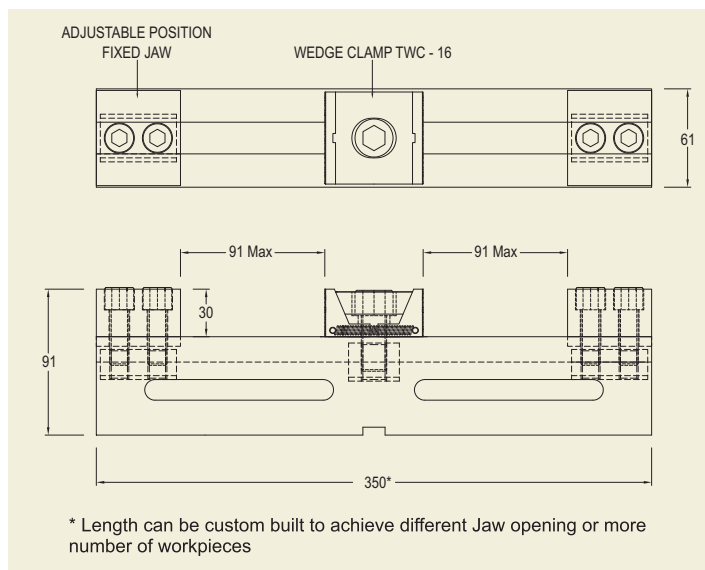


If your workpiece is suitable for clamping with Wedge Clamps, our team can design and manufacture a multiple clamping fixture for you as the one shown in the picture.

Please send in your enquiries with workpiece / machine table specifications of your Machining Center to enable us check suitability of our WEDGE CLAMPS and submit an offer to you.

MULTIPLE CLAMPING VICE WITH TWC-16 WEDGE CLAMPS

Factory offers a standard 60mm jaw width vice which is capable of clamping multiple workpieces. All parts such as TWC wedge clamp, fixed jaws and the main body are modular and interchangeable.



- Model VTWC-16-60-350 available as standard having overall length 350mm capable of jaw opening 91mm in case of two workpieces.
- This vice can also be supplied in custom built lengths to suit different sizes of workpieces. Send your enquiries to us if you feel that 60mm jaw width vice is suitable for your workpiece. Additional fixed jaws and TWC series clamps can be included in the vice if more than two workpieces to be clamped.
- For uneven or unusual shape workpieces, TWC-M and TWC-P series wedge clamps can also be used in above vice.

Wire Cut EDM Workholders

WEDM CLAMP

Material SS440, Hardened & Ground

| MODEL | OVERALL SIZE | SUITABLE FOR CLAMPING SCREW |
|----------|--------------|-----------------------------|
| TWEC - 1 | 70 X 23 X 8 | M-8 |
| TWEC - 2 | 70 X 23 X 12 | M-8 |



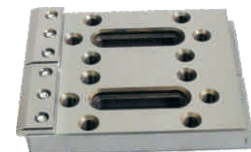
WEDM EXTENSIONS

Material SS440, Hardened & Ground
Parallelism within ± 0.005 mm

| MODEL | OVERALL SIZE |
|----------|----------------|
| TWEE - 1 | 120 X 50 X 15 |
| TWEE - 2 | 120 X 100 X 15 |



TWEE - 1

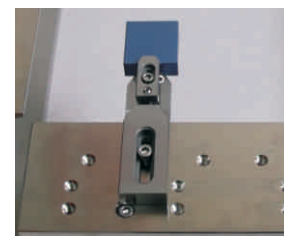


TWEE - 2

WEDM EXTENSION WITH CLAMP

Material SS440, Hardened & Ground
Parallelism within ± 0.005 mm

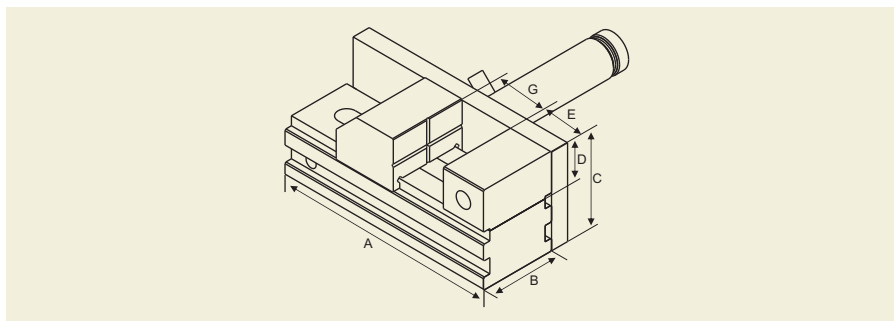
| MODEL | OVERALL WIDTH | OVERALL LENGTH |
|-----------|---------------|----------------|
| TWEEC - 1 | 40 | 140 |



Application View

EDM ELECTRODE HOLDER

Material SS440, Hardened & Ground
Parallelism and Squareness within ± 0.005 mm

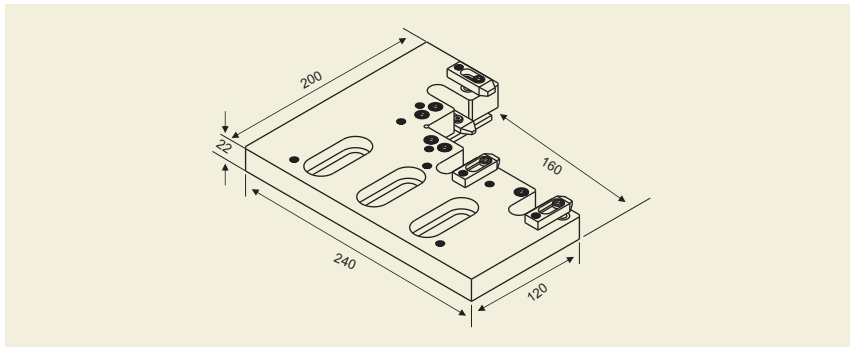


| MODEL | A | B | C | D | E | G Max. |
|----------|-----|----|----|----|----|--------|
| EDV - 20 | 65 | 25 | 32 | 12 | 20 | 20 |
| EDV - 45 | 100 | 35 | 35 | 16 | 25 | 45 |

Wire Cut EDM Workholders

WEDM ADJUSTABLE FIXTURE Model TWEF-1

Material SS440, Hardened & Ground
Parallelism within ± 0.005 mm



WEDM CORNER FIXTURE

Material SS440, Hardened & Ground
Parallelism within ± 0.005 mm

| MODEL | CLAMPING RANGE | OVERALL SIZE |
|----------|----------------|--------------|
| TWCF - 1 | 0 - 50 | 100 x 120 |
| TWCF - 2 | 0 - 100 | 150 x 170 |



WEDM RULER

Material SS440, Hardened & Ground
Parallelism within ± 0.005 mm
Mounting hole CD can be customized as per requirement

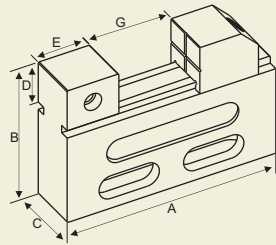


| MODEL | LENGTH | BREADTH | HEIGHT |
|------------|--------|---------|--------|
| TWER - 370 | 370 | 45 | 30 |
| TWER - 450 | 450 | 60 | 30 |
| TWER - 550 | 550 | 60 | 30 |
| TWER - 650 | 650 | 80 | 36 |
| TWER - 750 | 750 | 80 | 36 |
| TWER - 950 | 950 | 80 | 40 |

Wire Cut EDM Vices

WEDM VICE - Type A

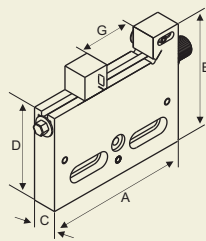
Material SS440, Hardened & Ground
Parallelism and Squareness within ± 0.005 mm



| MODEL | A | B | C | D | E | G Max. |
|------------|-----|-----|----|----|----|--------|
| WEVA - 50 | 120 | 85 | 28 | 25 | 30 | 50 |
| WEVA - 150 | 225 | 100 | 32 | 35 | 30 | 150 |

WEDM VICE - Type B

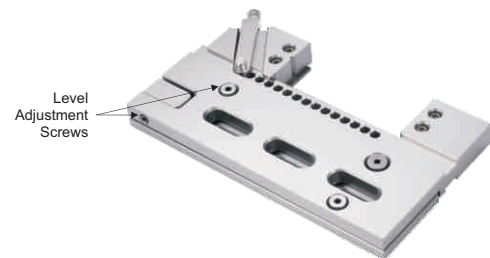
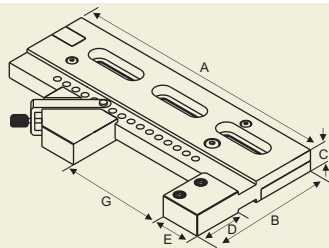
Material SS440, Hardened & Ground
Parallelism and Squareness within ± 0.005 mm



| MODEL | A | B | C | D | G Max. |
|------------|-----|-----|----|----|--------|
| WEVB - 75 | 127 | 100 | 21 | 72 | 75 |
| WEVB - 100 | 152 | 100 | 21 | 72 | 100 |

WEDM VICE - 3 Axis Level Adjustable

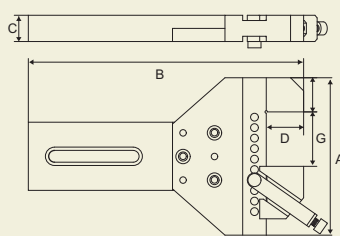
Material SS440, Hardened & Ground
Parallelism and Squareness within ± 0.005 mm



| MODEL | A | B | C | D | E | G Max. |
|------------|-----|-----|----|----|----|--------|
| WEVB - 160 | 300 | 170 | 24 | 50 | 60 | 160 |

WEDM VICE WITH EXTENSION

Material SS440, Hardened & Ground
Parallelism and Squareness within ± 0.005 mm



| MODEL | A | B | C | D | G Max. |
|------------|-----|-----|----|----|--------|
| WEVE - 75 | 140 | 210 | 20 | 28 | 75 |
| WEVE - 100 | 165 | 210 | 20 | 28 | 100 |

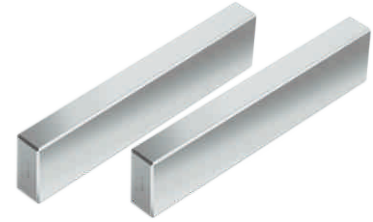
MILLING & GRINDING ACCESSORIES

PRECISION STEEL PARALLELS

Steel Parallels are used as precision packing supports under jobs or fixtures. Made from tool steel, hardened, tempered & precision ground in matched pairs. Matched pairs are marked with identical serial numbers. All sides are chamfered. Overall sizes are nominal.

- Hardened & Tempered 52 - 56 HRC.
- Parallelism within 0.005mm upto 200mm length.
- Inspection certificate is furnished.

| MODEL | SIZE | N.W. Kgs. (Per Pair) |
|------------|---------------|----------------------|
| TSP-20 | 10 x 20 x 150 | 0.47 |
| TSP-35 | 15 x 35 x 150 | 1.24 |
| TSP-45 | 20 x 45 x 200 | 2.80 |
| TSP-55 | 25 x 55 x 250 | 5.34 |
| TSP-60 | 30 x 60 x 300 | 8.50 |
| TSP-75 | 45 x 75 x 300 | 15.80 |
| TSP-75-450 | 45 x 75 x 450 | 23.70 |



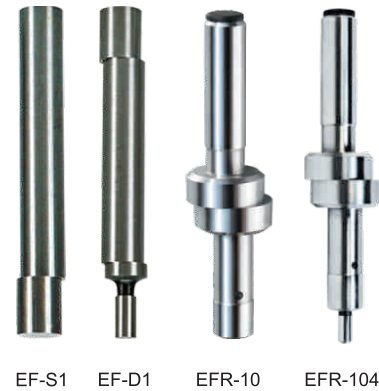
EDGE FINDER

Edge Finder is used for fast and accurate location of starting point of work pieces with respect to the machine spindle on milling or jig boring machine tables.

Application: Edge finder is used for location of edges, shoulders, grooves etc. of work pieces kept on machine table with respect to the machine spindle. Shank of the Edge Finder is held in the collet or chuck and work table is traversed to cause the rotating tip of the edge finder make contact with the edge of the work piece to be located. Once the rotating tip comes in contact with the work piece, work table is further traversed so that the rotating tip shifts to a concentric position with respect to the shank. Now any movement to "off centre" will cause a distinct 'wobble'. At this point, the distance from the work edge to the centre of machine spindle is equal to half the diameter of the tip of the edge finder. Available in single & double ended tip. In double ended tip, Edge Finder can be held from both ends and both the tips of two different sizes can be used for edge finding.

Shank and tip of the edge finder are coupled together with the help of an internal spring for independent rotation of both. It is hardened and accurately ground all over to ensure repeatability of work location within 0.01 mm.

| MODEL | SHANK DIA | TIP DIA | TYPE | N. W. Kgs. |
|---------|-----------|---------|------------------------|------------|
| EF-S1 | 10 | 10 | Edge Finder-single end | 0.03 |
| EF-D1 | 10 | 5 & 10 | Edge Finder-double end | 0.03 |
| EFR-10 | 10 | 10 | Edge Finder-disc type | 0.06 |
| EFR-104 | 10 | 4 & 10 | Disc Type - double end | 0.06 |

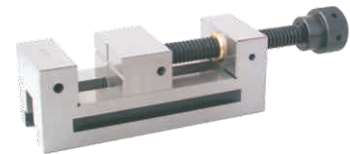


GRINDING VICE - SCREW TYPE

Grinding Vice - screw type is a precision machine vice. Body & jaw made of tool steel, hardened, tempered & precision ground.

- Hardened & Tempered to 52 - 56 HRC.
- All sides Parallelism & Squareness within ± 0.005 mm.
- Inspection certificate is furnished.

| MODEL | JAW WIDTH | JAW DEPTH | MAX. JAW OPENING | OVERALL LENGTH | OVERALL HEIGHT | N. W. Kgs. |
|--------|-----------|-----------|------------------|----------------|----------------|------------|
| GV-65 | 63 | 32 | 85 | 190 | 65 | 4.4 |
| GV-75 | 73 | 35 | 100 | 210 | 74 | 6.2 |
| GV-90 | 88 | 40 | 125 | 250 | 88 | 10.0 |
| GV-100 | 100 | 45 | 125 | 260 | 95 | 13.0 |
| GV-125 | 125 | 50 | 158 | 300 | 110 | 20.0 |
| GV-150 | 150 | 50 | 175 | 315 | 110 | 24.5 |



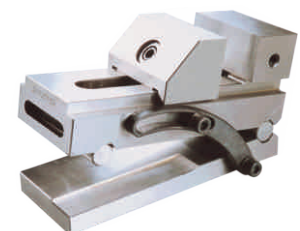
PRECISION SINE VICE

Precision Sine Vice is used to obtain precise angles by means of gauge blocks. Apart from its use on milling and grinding machine, this Sine Vice can also be used as a reference for inspection.

- All Hardened & Tempered to 52 - 56 HRC.
- All side Parallelism & Squareness within ± 0.005 mm.
- Centre distance of rollers within ± 0.005 mm.
- Inspection certificate is furnished.

Chart for setting sine angles with the help of gauge blocks is provided.

| MODEL | JAW WIDTH | JAW DEPTH | MAX. JAW OPENING | OVERALL LENGTH | OVERALL HEIGHT | N. W. Kgs. |
|-------|-----------|-----------|------------------|----------------|----------------|------------|
| PSV-2 | 50 | 25 | 65 | 140 | 80 | 3.2 |
| PSV-3 | 73 | 35 | 100 | 190 | 104 | 7.2 |
| PSV-4 | 100 | 45 | 125 | 245 | 134 | 16.5 |



Grinding Accessories

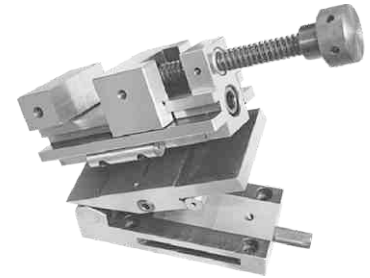
PRECISION COMPOUND SINE VICE - SCREW TYPE

Precision compound Sine Vice has compound sine angle setting on two sine plates. Both the tiltings are controlled by fine screws.

- All Hardened & Tempered to 52 - 56 HRC.
- All side Parallelism & Squareness within $\pm 0.005\text{mm}$.
- Centre distance of rollers within $\pm 0.005\text{mm}$.
- Inspection certificate is furnished.

Charts for setting both sine angles with the help of gauge blocks is provided.

| MODEL | JAW WIDTH | JAW DEPTH | MAX. JAW OPENING | OVERALL LENGTH | OVERALL HEIGHT | N. W. Kgs. |
|--------|-----------|-----------|------------------|----------------|----------------|------------|
| CSGV-3 | 75 | 30 | 76 | 160 | 124 | 9.0 |

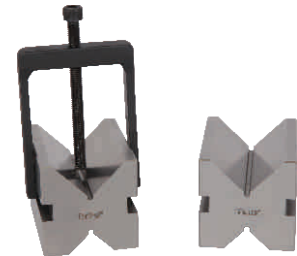


STEEL V-BLOCK

Steel V-Blocks are made of tool steel, hardened, tempered & precision ground on all sides. These are supplied in matched pairs having both sides 'V' with one clamp.

- Unbreakable Steel Clamp.
- All Hardened & Tempered 52 - 56 HRC.
- Parallelism & Squareness of all faces & 'V' within $\pm 0.005\text{mm}$.
- Inspection certificate is furnished.

| MODEL | LENGTH | HEIGHT | WIDTH | HOLDING CAPACITY Ø MAX | N. W. Kgs. (Pair with one clamp) |
|---------|--------|--------|-------|------------------------|----------------------------------|
| SVB-50 | 50 | 37 | 37 | 35 | 1.1 |
| SVB-80 | 80 | 60 | 60 | 60 | 3.8 |
| SVB-100 | 100 | 75 | 75 | 75 | 7.6 |
| SVB-125 | 125 | 95 | 95 | 90 | 14.3 |
| SVB-150 | 150 | 98 | 98 | 95 | 19.0 |



MAGNETIC V-BLOCK

Magnetic V-Blocks are precision ground V-Blocks with high power magnets. Accurately fitted magnet ensures easy movement of knob. Available in single as well as matched pairs. These V-blocks have main holding 'V' and bottom face fitted with hardened steel plates having hardness 52-56 HRC.

- Parallelism & Squareness of all faces & 'V' within $\pm 0.005\text{mm}$.
- Most suitable for inspection and tool room applications.
- Inspection certificate is furnished.

| MODEL | LENGTH | HEIGHT | WIDTH | N. W. Kgs. (Pair) |
|---------|--------|--------|-------|-------------------|
| MVB-4-H | 100 | 95 | 75 | 9.0 |
| MVB-6-H | 150 | 95 | 75 | 13.5 |



C. I. ANGLE PLATE - SLOTTED

C. I. Angle Plate-Slotted is made out of high quality seasoned casting having precision ground outside faces & ends. Machined slots for clamping on both faces.

- Accuracy in parallelism & squareness within $\pm 0.01\text{mm}$ per 200 mm length.
- Inspection certificate is furnished.

| MODEL | SIZE | N. W. Kgs. |
|---------|-----------------|------------|
| APS-110 | 110 x 85 x 75 | 2.9 |
| APS-150 | 150 x 125 x 110 | 4.7 |
| APS-175 | 175 x 135 x 110 | 5.5 |
| APS-200 | 200 x 150 x 125 | 8.0 |
| APS-225 | 225 x 175 x 150 | 13.0 |
| APS-250 | 250 x 200 x 150 | 15.0 |
| APS-300 | 300 x 225 x 200 | 25.0 |

Sizes APS-110 to APS-200 are in open ends type as shown in picture.
 Sizes APS-225 to APS-300 are in webbed ends type .

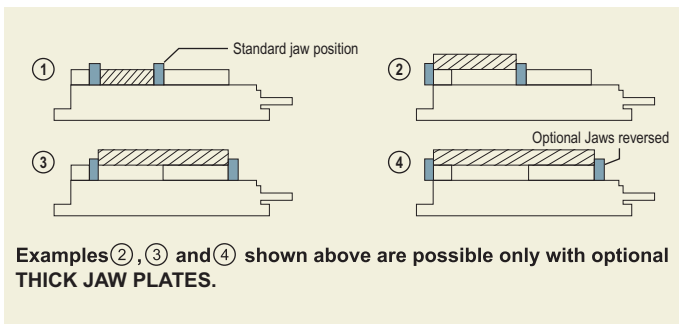
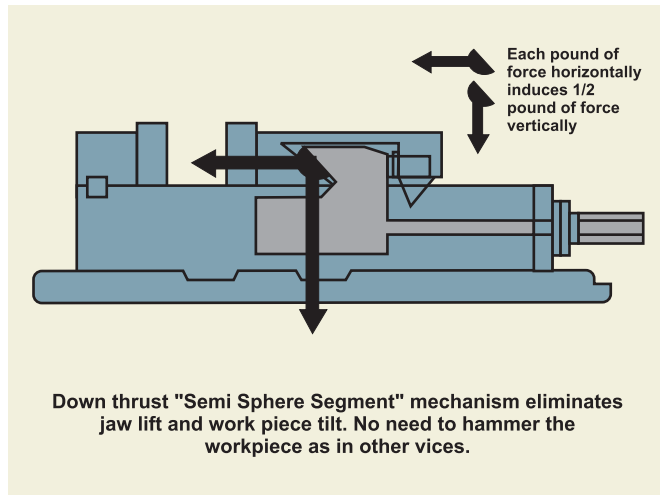
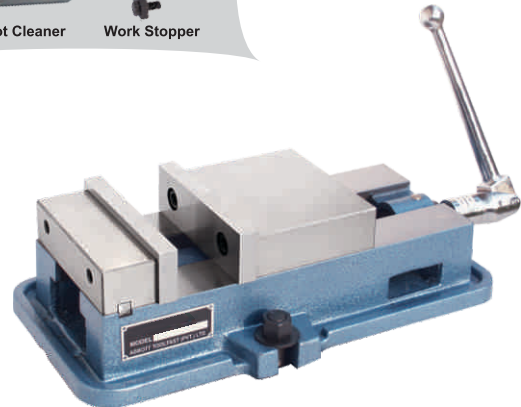


Milling & MC Vices

LOCK DOWN JAW MACHINE VICE

FOR MACHINING CENTRE AND MILLING MACHINE

- Flame hardened bed
- Accuracy in Parallelism & Squareness within 0.02 mm
- No work piece tilt after clamping
- All parts interchangeable and available as spares
- Tenons and tenon slots provided for effortless truing of vice on machine table



| MODEL | JAW WIDTH | MAX. JAW OPENING WITH STANDARD JAW POSITION | MAX. JAW OPENING WITH JAWS REVERSED | JAW DEPTH | OVERALL LENGTH | OVERALL HEIGHT WITH SWIVAL BASE | OVERALL HEIGHT WITHOUT SWIVAL BASE | TIGHTENING TORQUE Nm Max.* | CLAMPING FORCE Max. | N.W. WITH SWIVAL BASE Kgs. | N.W. WITHOUT SWIVAL BASE Kgs. |
|-----------|-----------|---|-------------------------------------|-----------|----------------|---------------------------------|------------------------------------|----------------------------|---------------------|----------------------------|-------------------------------|
| MMV-6-HXL | 160 | 190 | 395 | 48 | 430 | 160 | 115 | 580 | 3500 Kgs. | 49 | 38 |
| MMV-8-H | 210 | 210 | 480 | 60 | 550 | 190 | 145 | 650 | 4000 Kgs. | 80 | 62 |

* Required torque can be achieved by tightening handle included with vice. Applying extra torque by using extension pipe or by hammering damages the vice parts and warranty expires.

OPTIONAL ACCESSORIES

SWIVAL BASE:

Available separately for above vices.



OPTIONAL JAWS FOR MMV-6HXL

SERRATED JAW PLATE

Dimensions same as standard plain Jaw but having serrations for extra grip.



V-JAW PLATE



MACHINABLE JAW PLATE

- Extra thick (40mm) for carving part shapes into jaw plate.
- Reversible top to bottom and front to back, (counter bore both sides) for customizing of four different applications.
- Available in **Aluminium** or **Steel**



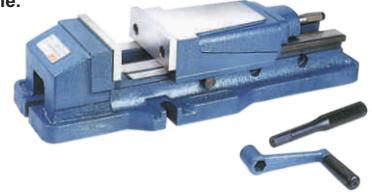
MILLING AND MC ACCESSORIES

HYDRAULIC MACHINE VICE

Hydraulic Machine Vice is a suitable hydraulic vice for Milling machine. Can also be used on a machining centre.

- Operates on handle movement as in mechanical vices.
- High clamping force can be achieved by effortless handle movement which eliminates hammering on handle.

| MODEL | JAW WIDTH | JAW DEPTH | MAX. JAW OPENING |
|----------------|-----------|-----------|------------------|
| GIN-HVA-100-01 | 100 | 36 | 170 |
| GIN-HVA-125-01 | 125 | 46 | 220 |
| GIN-HVA-150-01 | 150 | 51 | 300 |
| GIN-HVA-200-01 | 200 | 62 | 300 |



LOCK DOWN JAW HYDRAULIC MACHINE VICE

Lock Down Jaw Design eliminates jaw lift and work piece tilt.

| MODEL | JAW WIDTH | JAW DEPTH | MAX. JAW OPENING | OVERALL LENGTH |
|----------|-----------|-----------|------------------|----------------|
| GPHV-125 | 130 | 55 | 220 | 570 |
| GPHV-160 | 160 | 58 | 310 | 625 |
| GPHV-200 | 200 | 63 | 310 | 725 |



MC COMPACT HYDRAULIC VICE

Compact version of GPHV model above.

| MODEL | JAW WIDTH | JAW DEPTH | MAX. JAW OPENING | OVERALL LENGTH |
|------------|-----------|-----------|------------------|----------------|
| GCHV-100 V | 101 | 48 | 125 | 470 |
| GCHV-130 V | 131 | 55 | 180 | 535 |
| GCHV-160 V | 161 | 58 | 240 | 625 |
| GCHV-200 V | 201 | 63 | 280 | 700 |



UNIVERSAL 3-WAY ANGLE VICE

| MODEL | JAW WIDTH | JAW DEPTH | MAX. JAW OPENING |
|---------|-----------|-----------|------------------|
| GIN-VW3 | 80 | 30 | 90 |
| GIN-VW4 | 106 | 48 | 105 |
| GIN-VW5 | 132 | 40 | 140 |



ELECTRONIC (OPTICAL) EDGE FINDER

Electronic edge finder with LED is most convenient to use as the tip of the Touch Probe is brought near the edge of the job, red light powered by enclosed battery glows as the ball probe comes in contact with the edge.

- Concentricity of ball-probe and shank within 0.005 mm.
- Repeatability of work location within 0.01mm.
- Spring loaded Ball-probe to prevent damage of probe.

| MODEL | SHANK DIA | BALL DIA | TOTAL LENGTH | TYPE |
|---------------|-----------|----------|--------------|---------------------|
| GIN TSOE 20S | 20 | 10 | 120 | WITH LED ONLY |
| GIN TSOE 20L | 20 | 10 | 158 | WITH LED ONLY |
| GIN TSOE 20LB | 20 | 10 | 158 | WITH LED AND BEEPER |



Z-AXIS PRESET GAUGE - OPTICAL TYPE Model GIN-ZOP-50

Used for setting tool height 50mm. Its base has a built-in magnet hence can be used vertically as well as horizontally. The red lamp lights up when touched. Height can be micro adjusted by gauge block.



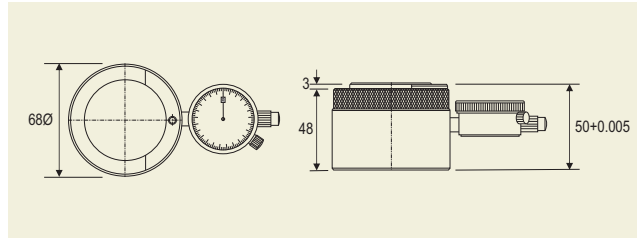
MILLING AND MC ACCESSORIES

Z-AXIS ZERO SETTER - Model Z-50

Z-Axis Zero Setter is used for zero setting of tool height from the machine table on machining centres.
Setting height : 50.00±0.01mm

FEATURES

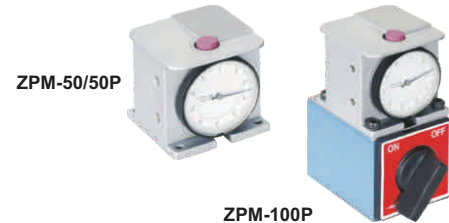
- Large measuring surface to assure high measuring accuracy.
- Low Spring force to avoid breakage of small end mill and drill.
- Easy to calibrate by a ground parallel or gauge block.



Z-AXIS ZERO SETTER - ZPM SERIES - CERAMIC

- Least measuring diameter of cutting tool : 0.1mm
- Scratch proof ceramic measuring face

| MODEL | BASE TYPE |
|-----------|-----------------|
| ZPM-50 | Plain |
| ZPM-50 P | Magnetic |
| ZPM-100 P | Magnetic ON/OFF |

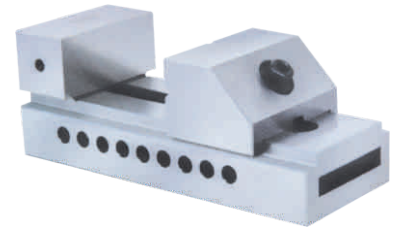


GRINDING ACCESSORIES

TOOL MAKER VICE GIN VB

All hardened and tempered 50-60 HRC having parallelism and squareness within 0.005 mm. It has improved design where the pin is not required to change position for changing jaw opening.

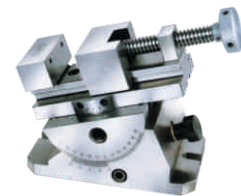
| MODEL | OVERALL WIDTH | JAW DEPTH | MAX. JAW OPENING | OVERALL LENGTH |
|-----------|---------------|-----------|------------------|----------------|
| GIN-VB 15 | 36 | 20 | 40 | 100 |
| GIN-VB 20 | 50 | 25 | 80 | 150 |
| GIN-VB 25 | 63 | 32 | 90 | 175 |
| GIN-VB 30 | 73 | 35 | 100 | 190 |
| GIN-VB 35 | 88 | 40 | 130 | 235 |
| GIN-VB 40 | 100 | 45 | 130 | 245 |
| GIN-VB 50 | 125 | 50 | 160 | 285 |



PRECISION UNIVERSAL VICE

Model GIN-CHM has horizontal swivel 360° and tilts 45° vertically. Most suitable for precision grinding, milling, EDM etc. having micro adjustment of tilt angle.

| MODEL | JAW WIDTH | JAW DEPTH | MAX. JAW OPENING |
|---------|-----------|-----------|------------------|
| CHM-80 | 70 | 30 | 80 |
| CHM-125 | 125 | 43 | 150 |



PRECISION STEEL PARALLELS SET MODEL GIN-P100

Precision steel parallels set consists of 8 pairs (16 pieces) of flat steel parallels as per sizes given below and one pair (2 pieces) of thin edged parallels for use where minimum contact area with the job is required.

MODEL GIN-P100 HAVING TOTAL 18 PCS.

| SIZES OF FLAT STEEL PARALLELS | PCS. |
|--------------------------------------|------|
| 5X 16X100 | 2 |
| 6X 18X100 | 2 |
| 8X24X100 | 2 |
| 10X30X100 | 2 |
| 12 X 36 X 150 | 2 |
| 14 X 48 X 150 | 2 |
| 18 X 60 X 150 | 2 |
| 22 X 62 X 150 | 2 |
| 15 X 31 X 2.5 X 200 (THIN EDGE TYPE) | 2 |

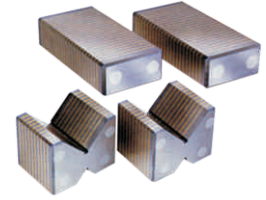


GRINDING ACCESSORIES

MAGNETIC INDUCTION BLOCKS

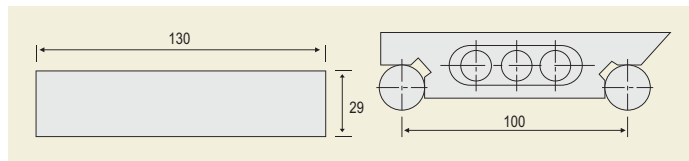
Nonmagnetic GT1 , GT2 can be magnetic after being inducted on any magnetic chuck.

| MODEL | A x B x L x Pcs. | TYPE |
|----------|------------------------|--------|
| GIN-GT 1 | 25 x 50 x 100 x 2 pcs. | Plain |
| GIN-GT 2 | 46 x 49 x 58 x 2 pcs. | V-Type |



SINE BAR MODEL GIN-S100

Accuracy 0.005mm in parallelism and center distance of rollers.



SINE PLATE WITH MAGNETIC CHUCK

Accuracy 0.005mm in parallelism, squareness and center distance of rollers.

| MODEL | MAGNETIC TOP SIZE | OVERALL HEIGHT IN CLOSED POSITION |
|--------|-------------------|-----------------------------------|
| SP47M | 175 x 100 | 87 |
| SP66M | 150 x 150 | 87 |
| SP510M | 250 x 125 | 87 |
| SP612M | 300 x 150 | 87 |



COMPOUND SINE PLATE WITH MAGNETIC CHUCK

| MODEL | MAGNETIC TOP SIZE | OVERALL HEIGHT IN CLOSED POSITION |
|---------|-------------------|-----------------------------------|
| CSP47M | 175 x 100 | 122 |
| CSP66M | 150 x 150 | 122 |
| CSP510M | 250 x 125 | 122 |
| CSP612M | 300 x 150 | 122 |



OTHER PRODUCTS



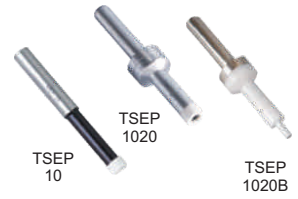
**PRECISION
KEYLESS DRILL CHUCK**



**NC DRILL CHUCK
- INTEGRATED TYPE**



BT TYPE TAPER WIPER



CERAMIC EDGE FINDER

BORING HEAD SETS AND BORING TOOLS



MODEL GIN-BHC2 (SET) WITH THREE NOS.
INDEXABLE INSERTS TYPE BORING BARS.



MODEL GIN-BHC3 (SET) WITH THREE NOS.
INDEXABLE INSERTS TYPE BORING BARS.



PRECISION BORING TOOLS
WITH INDEXABLE CARBIDE INSERTS



MODEL GIN-BH2084 (SET)



**BORING HEAD
BHC Series**



**BORING HEAD
HIGH PRECISION
FOR SMALL DIAMETER**



**UNIVERSAL BORING AND
FACING MASTER HEAD**



ANGLE SINE DRESSER



**PUNCH FORMER WITH
RADIUS DRESSING ATTACHMENT
MODEL GIN-PFB**



**PUNCH GRINDER
MODEL GIN-PGA**



**PUNCH GRINDER
MODEL GIN-PGAS**



**MOTOR PUNCH GRINDER
MODEL GIN-PGAM**



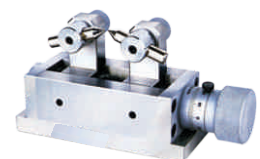
**RADIUS AND
ANGLE DRESSER
MODEL GIN-RDB**



**RADIUS AND
ANGLE DRESSER
MODEL GIN-RDA**



**RADIUS DRESSER
MODEL GIN-RD40**



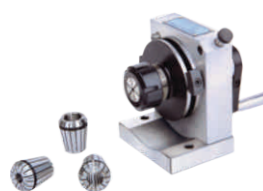
**PRECISION
DUPLEX DRESSER**



PUNCH FORMER (BIG)



3 JAWS PUNCH FORMER



ER COLLET PUNCH FORMER



MOTOR PUNCH FORMER

OTHER PRODUCTS



UNIVERSAL WHEEL DRESSER



**DIAMOND CBN
FLAT WHEEL TRUER**



**FLANGES FOR
GRINDING MACHINES**



WHEEL BALANCING STAND



**PERMANENT
MAGNETIC CHUCK**



**PERMANENT MAGNETIC
CHUCK (VERTICAL TYPE)**



**ROTARY PERMANENT
MAGNETIC CHUCK**



**ELECTRICALLY CONTROLLED
PERMANENT MAGNETIC CHUCK**



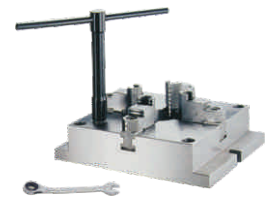
GAUGE BLOCKS



PIN GAUGE SET



**DEMAGNETIZER - HANDY
TYPE & STANDARD TYPE**



**SUPER THIN CHUCKS
FOR MILLING**



SUPER INDEX SPACER



**UNIVERSAL TILTING
ROTARY TABLE**



CHAMFERING MACHINES



UNIVERSAL CUTTER GRINDER



**ADJUSTABLE FIXTURES AND
VICES FOR WIRE EDM**



WIRE EDM DIVIDING DEVICE



ELECTRODE VICE



SELF-CENTERING VICE



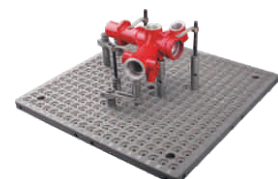
CENTER PUNCH FORMER



THREAD GRINDING SLIDER



**PRECISION UNIVERSAL
THIN CHUCK PAEDESTAL**



**FIXTURES AND ELEMENTS
FOR CMM**

OTHER PRODUCTS



3D TASTER



CENTERING INDICATOR



CONCENTRICITY
MEASURING INSTRUMENT



TOOL PRE-SETTER



SMALL DIA FINE
BORING HEAD



LARGE DIA BORING HEAD



MICRO BORING HEAD



QUICK CHANGE
TAPPING CHUCKS



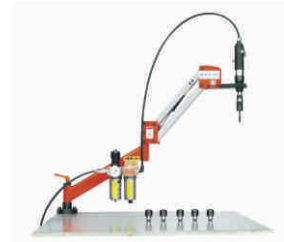
CUTTING-OFF MACHINE



BALL ENDMILL GRINDER

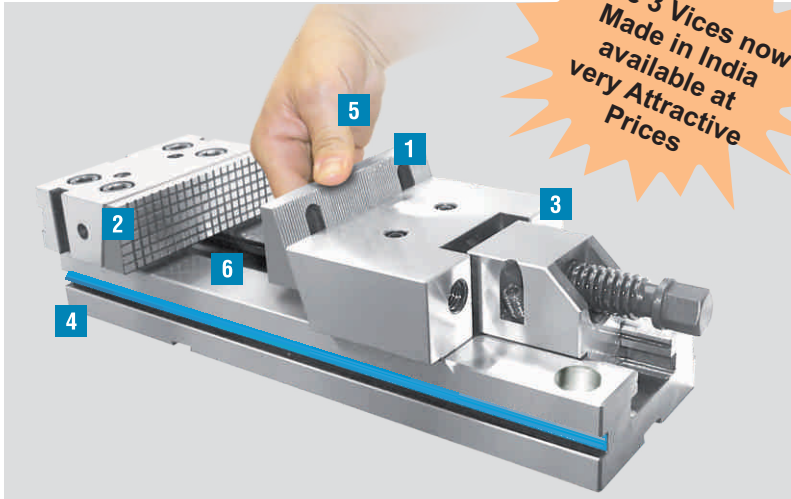


SCREW TAP GRINDER



AIR TAPPING MACHINE

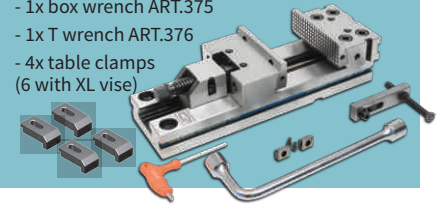
STANDARD FLEX VISES - ART. 1AZ



Size 3 Vices now
Made in India
available at
very Attractive
Prices

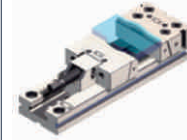
Supplied with StandardFLEX Machine Vise:

- 1x workstop ART.370
- 1x pair of positioning keys (16mm)
- 1x box wrench ART.375
- 1x T wrench ART.376
- 4x table clamps (6 with XL vise)



Endless Clamping Possibilities!

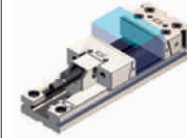
Soft Jaw



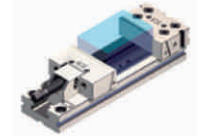
Prismatic



Hard Jaw



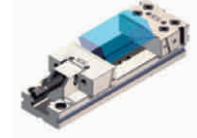
Stop Jaw



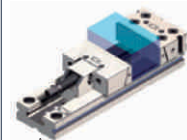
Step Jaw



Angle Jaw



Serrated Jaw

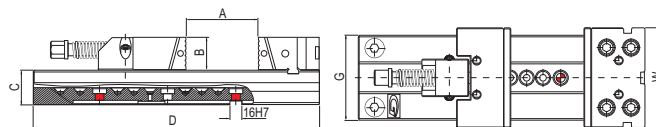
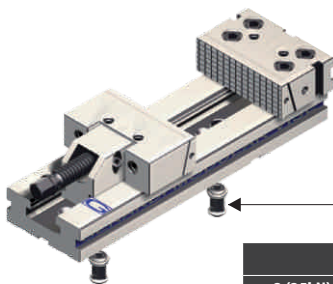


Intermediate Jaw

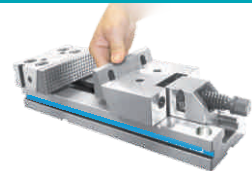


| | | |
|---|-----------------------------------|---|
| 1 | MODULAR | The world's largest range of modular accessories means clamping almost ANYTHING is possible with standard jaws. |
| 2 | NO WEAR | Made 100% from high quality, case hardened alloyed resistance steel in order to give maximum rigidity, high performance and no wear. |
| 3 | QUICK CLAMPING | Sliding movable jaw is pushed close to the work piece then fully tightened with 1/4 turn of the wrench. Also available with Hydraulic, Pneumatic, Manual hydraulic & Electrical hydraulic clamping. |
| 4 | HIGHEST ACCURACY +/-0.02mm | Every sliding and working surface is ground. Centesimal tolerances are guaranteed by checking cycles with CNC measuring machine. The perfect alignment with the machine axis is given by longitudinal and cross keyways (16H7) |
| 5 | QUICK HAND CHANGE JAWS | ONLY with Standard Flex vises is it possible to change the vise jaw plates in under 5 seconds. The special comb design ensures jaw plates slide into place. All working surfaces are ground and hardened as standard on jaw plates. |
| 6 | BETTER PULL DOWN ACTION | Increased and better pull down straight action and better protection from chips. |

Standard Flex Vises - Art. 1AZ



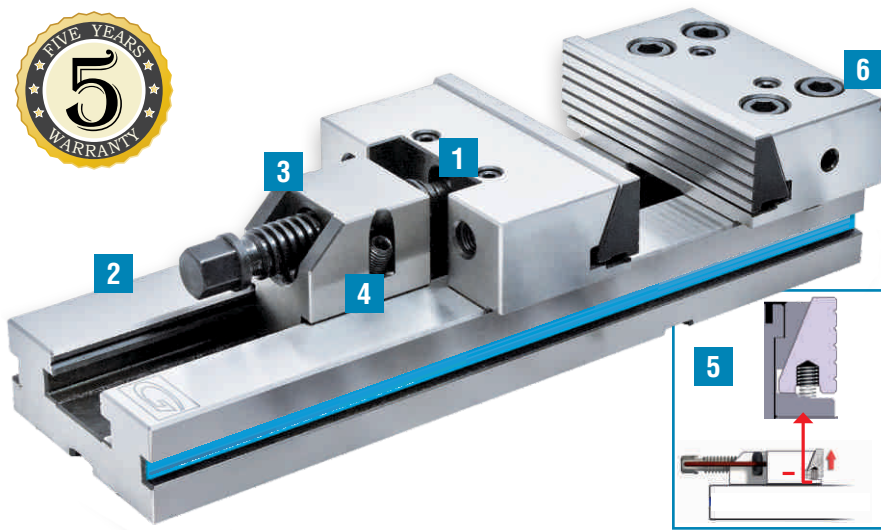
Adaptable to zero point system



| | SIZE | | | | | | | | |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 2 (25kN) | | 3 (30kN) | | 4 (30kN) | | | 5 (40kN) | |
| A | 150 | 200 | 300 | 200 | 300 | 400 | 200 | 300 | 400 |
| W | 121 | 146 | | 171 | | | 196 | | |
| B | 38 | 48 | | 58 | | | 63 | | |
| C | 40 | 50 | | 60 | | | 70 | | |
| D | 345 | 420 | 520 | 455 | 555 | 655 | 495 | 595 | 695 |
| G | 95 | 125 | | 145 | | | 170 | | |
| kg | 12,9 | 25 | 29 | 37 | 42 | 47 | 64 | 69 | 75 |
| ART. 1AZ ORDER CODES | 1.1A.Z2000 | 1.1A.Z3200 | 1.1A.Z3300 | 1.1A.Z4200 | 1.1A.Z4300 | 1.1A.Z4400 | 1.1A.Z5200 | 1.1A.Z5300 | 1.1A.Z5400 |

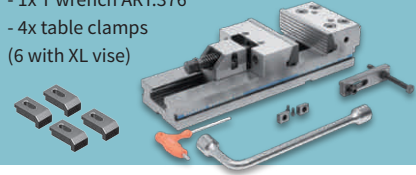
MADE IN INDIA

STANDARD SERIES VISES - ART. 1

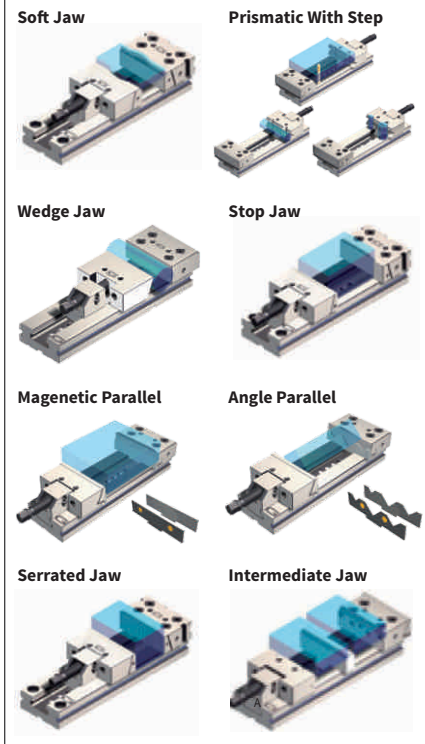


Supplied with Standard Series Machine Vise:

- 1x workstop ART.370
- 1x pair of positioning keys (16mm)
- 1x box wrench ART.375
- 1x T wrench ART.376
- 4x table clamps (6 with XL vise)

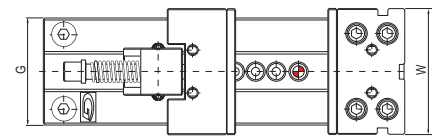
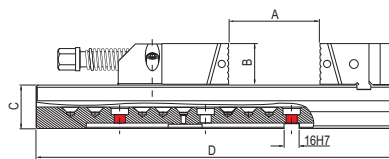
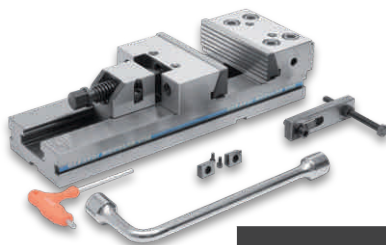


Endless Clamping Possibilities!



| | | |
|---|-----------------------------------|--|
| 1 | MODULAR | The world's largest range of modular accessories means clamping almost ANYTHING is possible with standard jaws. |
| 2 | NO WEAR | Made 100% from high quality, case hardened HRC 60 alloyed resistance steel in order to give maximum rigidity, high performance and no wear. As evidence we give 5 YEARS WARRANTY on all the vises and mechanical components. |
| 3 | QUICK CLAMPING | Sliding movable jaw is pushed close to the work piece then fully tightened with 1/4 turn of the wrench. NO WINDING! Also available with Hydraulic, Pneumatic, Manual hydraulic & Electrical hydraulic clamping. |
| 4 | HIGHEST ACCURACY +/-0.02mm | Every sliding and working surface is ground. Centesimal tolerances are guaranteed by checking cycles with CNC measuring machine. The perfect alignment with the machine axis is given by longitudinal and cross keyways (16H7) |
| 5 | 'ON/OFF' PULL DOWN JAWS | ONLY with Standard Series vises is it possible to change from pull down action to non-pull down action. By turning the screw 1/4 turn in the rear of the jaw, the pull-down action can be turned on or off. |
| 6 | 5mm STEP ON FIXED JAW | The fixed jaw is supplied as standard with a 5mm step on the rear. Reverse the jaw and combine with ART.217 (Prismatic Jaw with Step) for through hole drilling/tapping operations. |

Standard Series Vises - Art. 1



| | SIZE | | | | | | | | |
|----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 2 (25kN) | | 3 (30kN) | | 4 (30kN) | | | 5 (40kN) | |
| A | 150 | 200 | 300 | 200 | 300 | 400 | 300 | 400 | 500 |
| W | 125 | 150 | | | 175 | | | 200 | |
| B | 40 | 50 | | | 60 | | | 65 | |
| C | 40 | 50 | | | 58 | | | 70 | |
| D | 345 | 420 | 520 | 455 | 555 | 655 | 595 | 695 | 795 |
| G | 95 | 125 | | | 145 | | | 170 | |
| kg | 12.9 | 25.5 | 29 | 37 | 42 | 47 | 69 | 74 | 79 |
| ART. 1A ORDER CODES | 3.02.10000 | 3.03.20000 | 3.03.30000 | 3.04.20000 | 3.04.30000 | 3.04.40000 | 3.05.30000 | 3.05.40000 | 3.05.50000 |

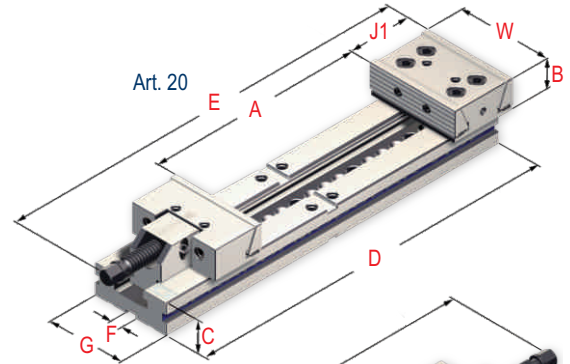
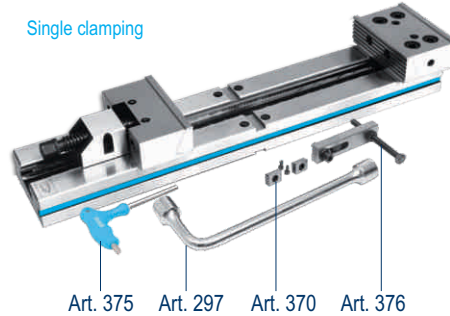
XL series EXTRA LARGE MACHINING

Vises with much longer base than standard ones
A range of vises without any opening limit

Art. 20

Single opening XL vise with solid movable guided Jaw

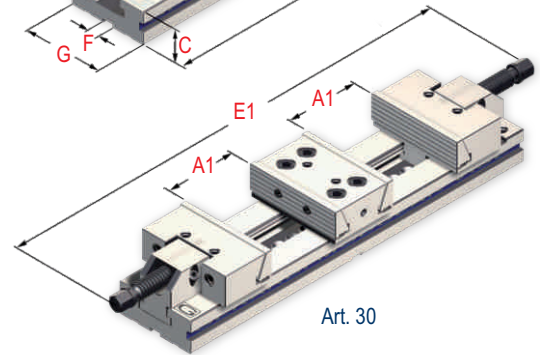
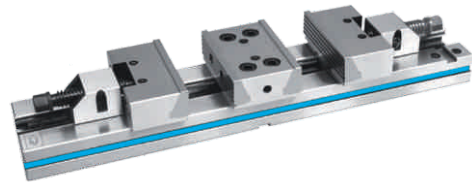
Single clamping



Art. 30

Double opening XL vise with solid movable guided Jaw

Double clamping

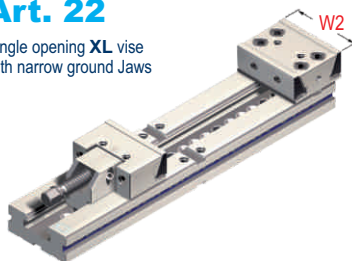


| Vise (type) size | | 1 | 2 | 3 | 4 | | | | | |
|------------------|--------------------|--------|---------|---------|---------|---------|---------|---------|---------|----|
| Maximum spread | A | 290 | 320 | 360 | 460 | 400 | 500 | 600 | 700 | |
| | A1 | 2 x 90 | 2 x 100 | 2 x 110 | 2 x 160 | 2 x 120 | 2 x 170 | 2 x 220 | 2 x 270 | |
| | W | 100 | 125 | 150 | | | 175 | | | |
| | W1 | 96 | 121 | 146 | | | 171 | | | |
| | W2 | 75 | 95 | 125 | | | 145 | | | |
| | B | 30 | 40 | 50 | | | 60 | | | |
| | B1 | 28 | 38 | 48 | | | 58 | | | |
| | C | 35 | 40 | 50 | | | 58 | | | |
| | D | 460 | 520 | 580 | 680 | 666 | 766 | 866 | 966 | |
| | E | 510 | 585 | 660 | 760 | 740 | 840 | 940 | 1040 | |
| | E1 | 546 | 640 | 730 | 830 | 786 | 886 | 986 | 1086 | |
| | F | 16 | 16 | 16 | | | 16 | | | |
| | G | 75 | 95 | 125 | | | 145 | | | |
| | J1 | 84,78 | 84,78 | 101,78 | | | 110,78 | | | |
| Weight | Art. 20 - Art. 20A | kg | 10 | 17 | 31 | 34 | 46 | 51 | 56 | 61 |
| Weight | Art. 30 - Art. 30A | kg | 14 | 20,5 | 38 | 42 | 58 | 63 | 68 | 73 |

- HIGHEST ACCURACIES $\pm 0,02mm$
- VERSATILITY
- RIGIDITY & SAFETY
- QUICK CLAMPING
- NO WEAR
- MODULARITY
- SPACE SAVING DESIGN & HANDY
- HIGHEST REPOSITIONING ACCURACY (Art. 20A - 30A)
- INCREASED AND BETTER PULL DOWN ACTION AND BETTER PROTECTION FROM CHIPS FOR Art. 20A - 30A
- GREAT SAVINGS IN VISE RESETTIMES (Art. 20A - 30A)
- VERTICAL GANG OPERATION (Art. 20A - 30A)

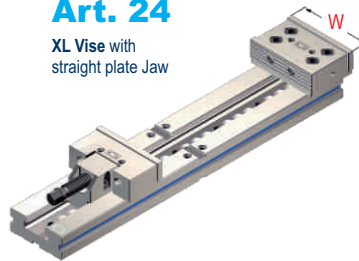
Art. 22

Single opening XL vise with narrow ground Jaws



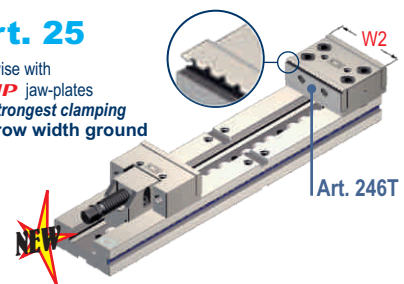
Art. 24

XL Vise with straight plate Jaw



Art. 25

XL vise with GRIP jaw-plates for strongest clamping narrow width ground

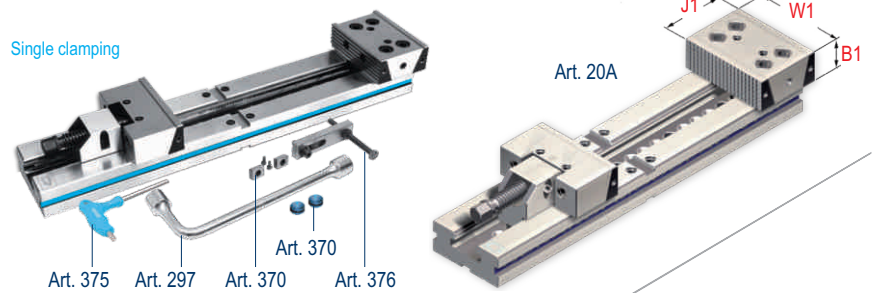


XL series EXTRA LARGE MACHINING

Vises with much longer base than standard ones
A range of vises without any opening limit

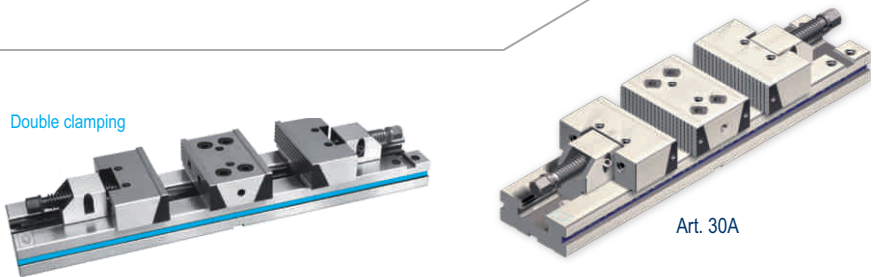
Art. 20A

Single opening XL vise
with quick manual change jaw plates
(Comb System)



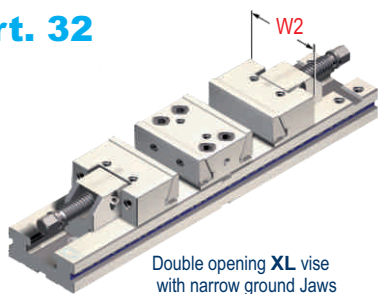
Art. 30A

Double opening XL vise
with quick manual change jaw plates
(Comb system)



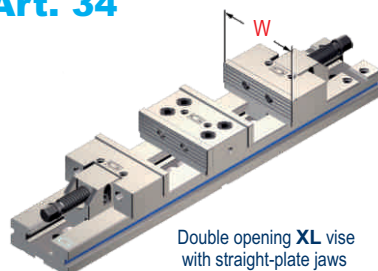
| 5 | | | | | 6 | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| 500 | 600 | 700 | 800 | 900 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | |
| 2 x 150 | 2 x 200 | 2 x 250 | 2 x 300 | 2 x 350 | 2 x 160 | 2 x 210 | 2 x 260 | 2 x 310 | 2 x 360 | 2 x 410 | 2 x 460 | |
| | | 200 | | | | | | | 300 | | | |
| | | 196 | | | | | | | 296 | | | |
| | | 170 | | | | | | | 195 | | | |
| | | 70 | | | | | | | 78 | | | |
| | | 63 | | | | | | | 78 | | | |
| | | 70 | | | | | | | 78 | | | |
| 805 | 905 | 1005 | 1105 | 1205 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | |
| 890 | 990 | 1090 | 1190 | 1290 | 995 | 1095 | 1195 | 1295 | 1395 | 1495 | 1595 | |
| 965 | 1065 | 1165 | 1265 | 1365 | 1060 | 1160 | 1260 | 1360 | 1460 | 1560 | 1660 | |
| | | 16 | | | | | | | 16 | | | |
| | | 170 | | | | | | | 195 | | | |
| | | 132,78 | | | | | | | 146,78 | | | |
| 85 | 92 | 99 | 106 | 113 | 127 | 137 | 147 | 157 | 167 | 177 | 187 | |
| 95 | 101 | 107 | 113 | 119 | 154 | 162 | 170 | 178 | 186 | 194 | 212 | |

Art. 32



Double opening XL vise
with narrow ground Jaws

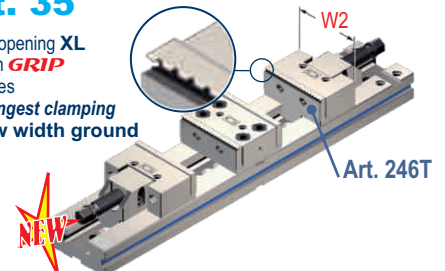
Art. 34



Double opening XL vise
with straight-plate jaws

Art. 35

Double opening XL
vise with **GRIP**
jaw-plates
for **strongest clamping**
narrow width ground



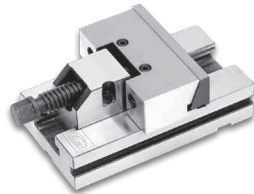
Art. 246T

MODULAR ELEMENTS

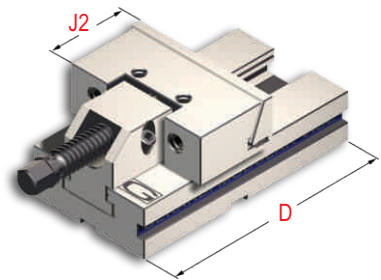
MODULAR ELEMENTS are simply standard vises sections, the movable section and the fixed one, which in this way result completely independent for an extreme versatility

Art. 102

Movable section

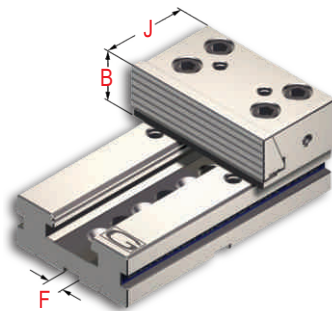
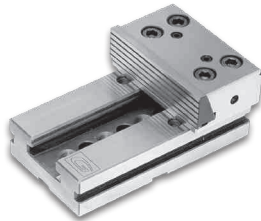


OPTION:
Ground holes $\varnothing 12$ o $\varnothing 16$
only for jaws with **COMB SYSTEM**



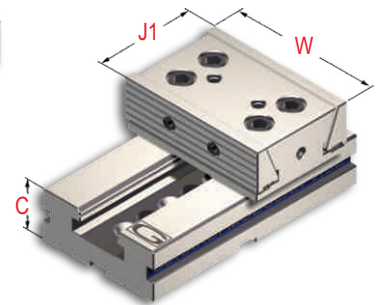
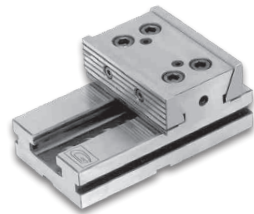
Art. 103

Fixed section



Art. 104

Double fixed section

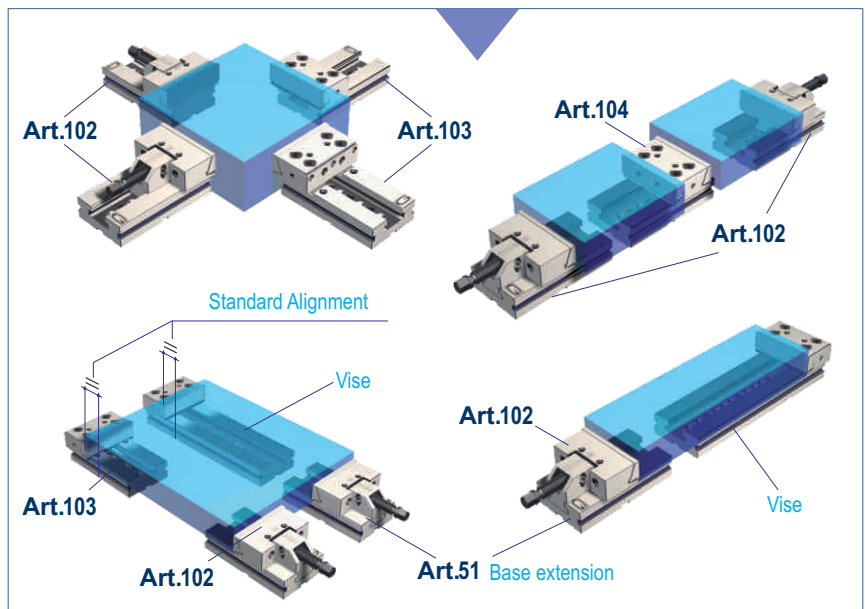


Without accessory equipment

Vise (type) size

| mm | 1 | 2 | 3 | 4 | 5 | 6 |
|----|-------|-------|--------|--------|--------|--------|
| W | 100 | 125 | 150 | 175 | 200 | 300 |
| B | 30 | 40 | 50 | 60 | 65 | 80 |
| C | 35 | 40 | 50 | 58 | 70 | 78 |
| D | 140 | 160 | 230 | 240 | 330 | 350 |
| F | 16 | 16 | 16 | 16 | 16 | 16 |
| J | 77,9 | 77,9 | 89,4 | 96,9 | 113,4 | 120,4 |
| J1 | 84,78 | 84,78 | 101,78 | 110,78 | 132,78 | 146,78 |
| J2 | 50 | 60 | 80 | 90 | 100 | 120 |

Typical arrangements

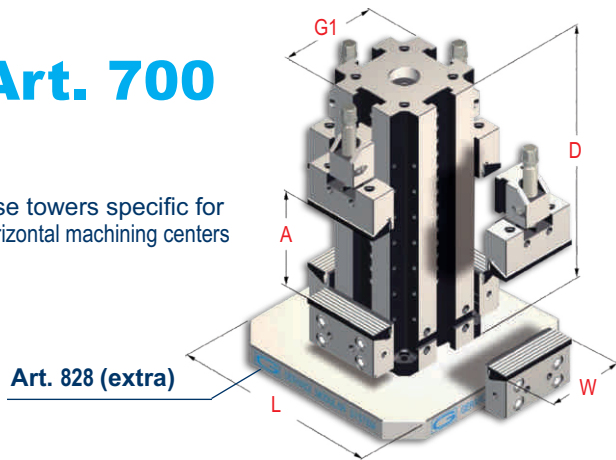


- **HIGHEST ACCURACIES $\pm 0,02\text{mm}$**
- **VERSATILITY**
- **RIGIDITY & SAFETY**
- **QUICK CLAMPING**
- **NO WEAR**
- **MODULARITY**
- **SPACE SAVING DESIGN & HANDY**
- **HIGHEST REPOSITIONING ACCURACY (Art. 20A - 30A)**
- **INCREASED AND BETTER PULL DOWN ACTION AND BETTER PROTECTION FROM CHIPS FOR Art. 20A - 30A**
- **GREAT SAVINGS IN VISE RESETTING TIMES (Art. 20A - 30A)**
- **VERTICAL GANG OPERATION (Art. 20A - 30A)**

WISE TOWERS: Standard Series

Art. 700

Vise towers specific for horizontal machining centers

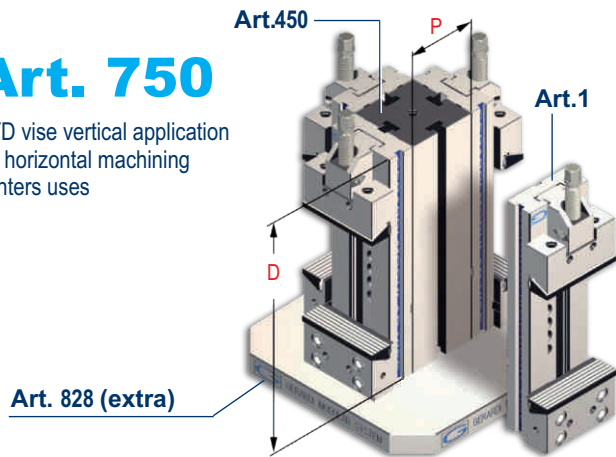


Art. 700

| mm | 1 | | 2 | | 3 | | 4 | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A | 80 | 130 | 155 | 205 | 180 | 280 | 380 | 145 | 245 | 345 | 445 |
| W | 120 | | 160 | | 190 | | 230 | | | | |
| D | 250 | 300 | 350 | 400 | 400 | 500 | 600 | 400 | 500 | 600 | 700 |
| G1 | 100 | | 125 | | 150 | | 175 | | | | |
| L | 300 | | 350 | | 400 | | 450 | | | | |

Art. 750

STD vise vertical application for horizontal machining centers uses



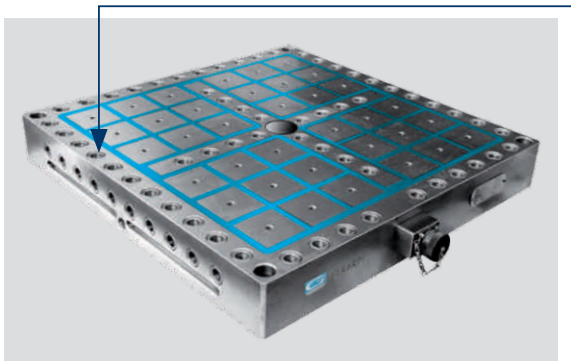
Art. 750 Composed by 1 Art. 450 + 4 Art. 1

| mm | 1 | 2 | 3 | 4 | 5 | 6 |
|----|-----|-----|-----|-----|-----|-----|
| D | 270 | 345 | 420 | 455 | 495 | 635 |
| P | 75 | 95 | 125 | 145 | 170 | 195 |

SQUARE POLARITY MAGNETIC CHUCKS

Electro-permanent system for milling

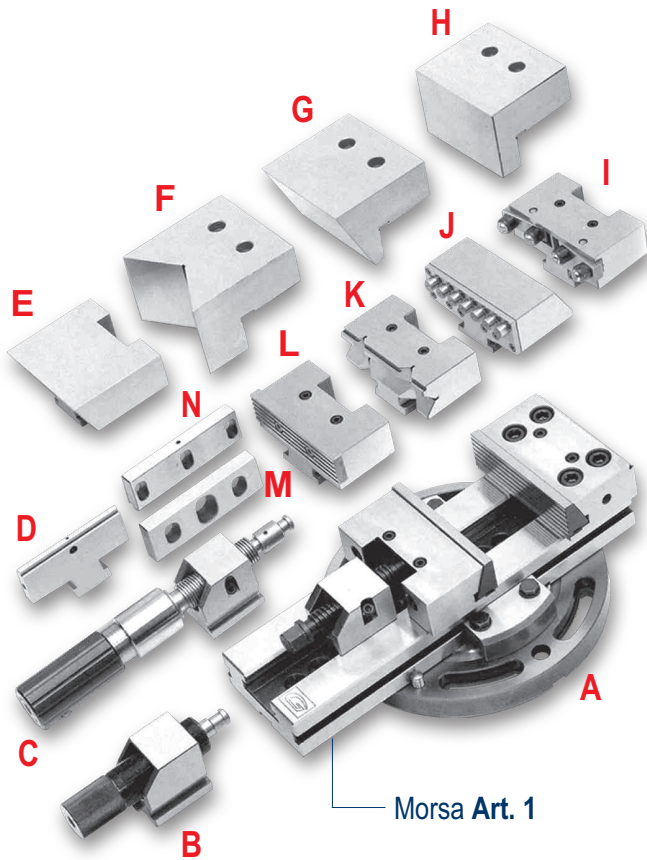
Magnetic chuck with bushings and helicoils



Ten good reasons for choosing the electro permanent system

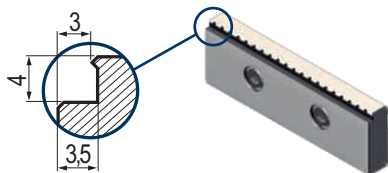
- 1 No energy consumption
- 2 Always safe
- 3 Immediate work loading/unloading piece
- 4 Simple and practical
- 5 Extremely accurate machining
- 6 Perfect clamping
- 7 Totally free working surface
- 8 Flexibility
- 9 Reduction of other costs
- 10 Machine full exploitation

SPARE PARTS AND ACCESSORIES



- A.** Swivel base - **ART. 105**
- B.** Blocking support with hydraulic cylinder - **ART. 271**
- C.** Hydraulic hand screw blocking device - **ART. 257**
- D.** Intermediate movable jaw with double step - **ART. 212**
- E.** Floating movable jaw for round parts - **ART. 210**
- F.** Fixed stack type prismatic jaw - **ART. 150**
- G.** Fixed and movable stack-type jaws for round parts - **ART. 131**
- H.** Square stack-type jaws - **ART. 138**
- I.** Movable jaw with 2 floating segments - **ART. 190**
- J.** Floating movable jaw - hydraulic control - **ART. 188**
- K.** Step-prismatic guided movable jaw - **ART. 217**
- L.** Guided movable jaw - straight plate - **ART. 146**
- M/N.** Extension for fixed and movable jaw with screws - **ART. 132/133**

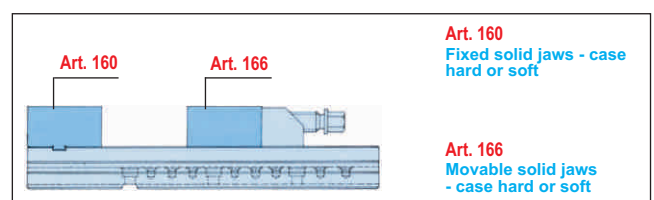
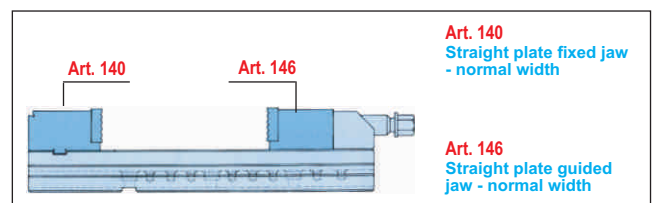
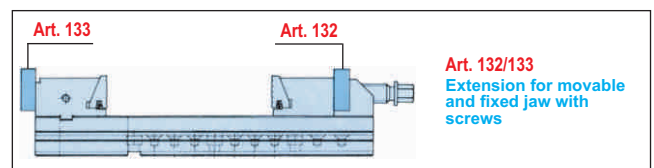
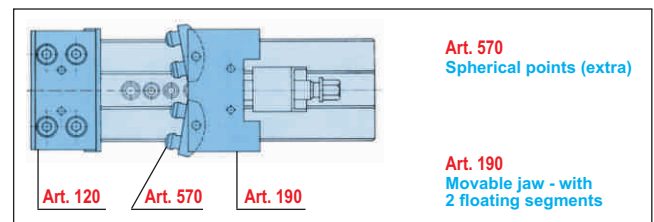
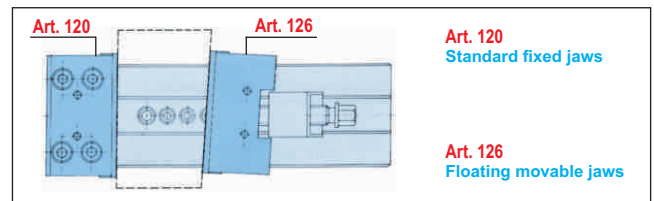
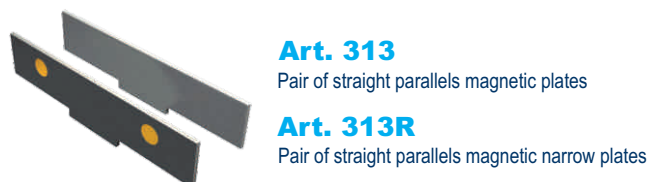
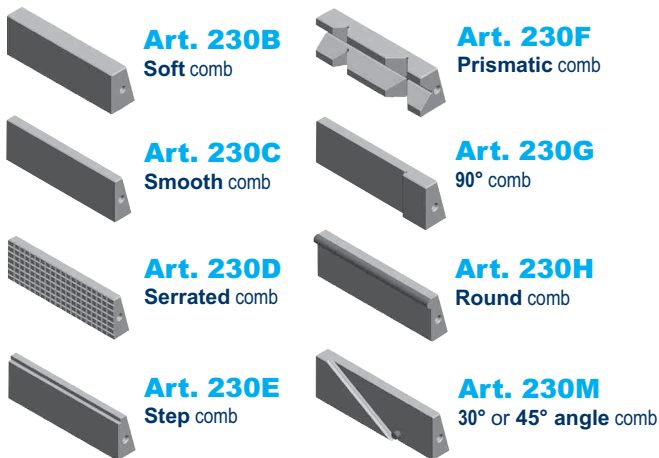
Hardened straight jaw plates **GRIP** for fixed and movable jaw - Art. 140, 143, 146



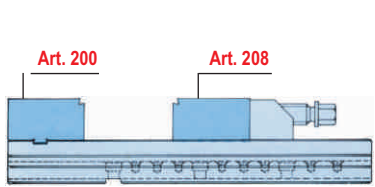
Art. 246T
Normal width

Art. 247T
Narrow width

ONLY FOR Art. 1A VISES (StandardFLEX quick change jaw plates)

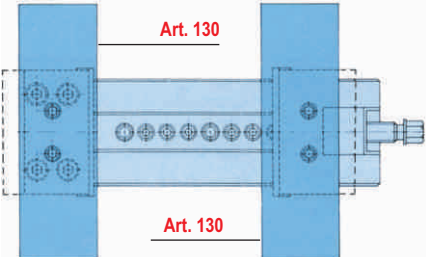


SPARE PARTS AND ACCESSORIES



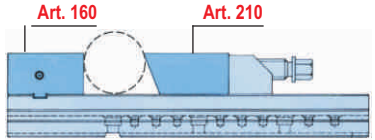
Art. 200
Step solid fixed jaws

Art. 208
Step solid movable jaws



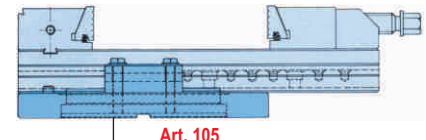
Art. 130
Stack-type extra large plain jaw, hardened or soft

| TIPO | TYPE | 3 | 4 |
|-------|------|----|----|
| Ø MAX | | 65 | 50 |




Art. 160
Fixed solid jaws - case hardened or soft

Art. 210
Floating movable jaw for round parts



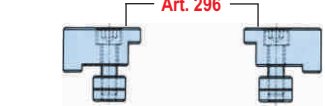
Art. 105
Swivel base

| TIPO | TYPE | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|------|----|----|----|----|----|----|
| Ø MAX | | 16 | 24 | 38 | 40 | 42 | 46 |



Art. 120
Standard fixed jaw

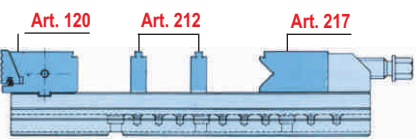
Art. 217
Step prismatic movable guided jaw



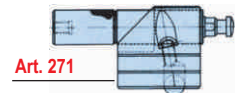
Art. 296
Clamping blocks



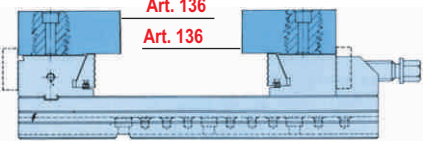
Art. 258
Mechanical clamping device



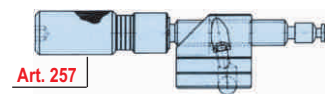
Art. 212
Intermediate movable jaw with double step



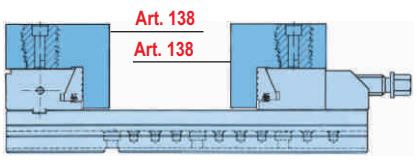
Art. 271
Hydraulic clamping device



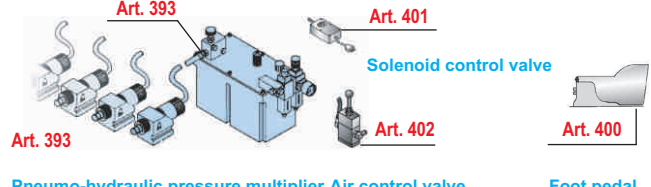
Art. 136
Stack-type plain jaws



Art. 257
Hydraulic hand screw clamping device



Art. 138
Stack-type angle plate jaw

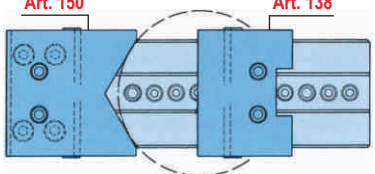


Art. 393
Pneumo-hydraulic pressure multiplier

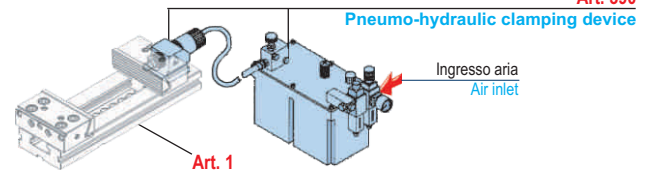
Art. 401
Solenoid control valve

Art. 402
Air control valve

Art. 400
Foot pedal



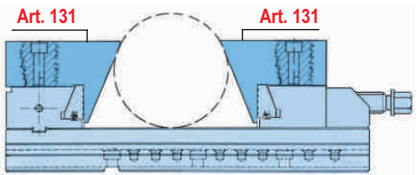
Art. 150
Fixed stack-type prismatic jaw



Art. 390
Pneumo-hydraulic clamping device

Ingresso aria
Air inlet

Art. 1



Art. 131
Stack-type for round parts jaws

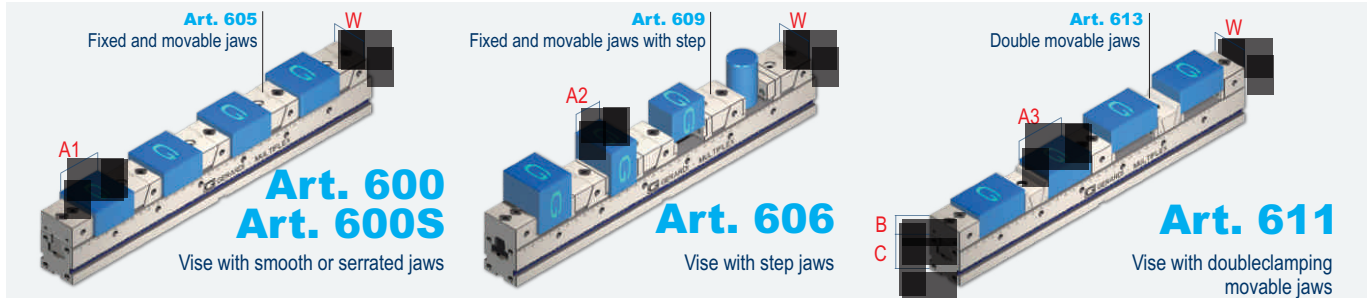


Art. 267
Hydraulic clamping device with motor-power unit

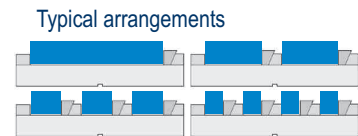
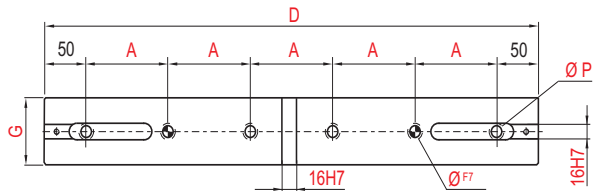
MULTIFLEX VISES AND VISE-TOWER SERIES

MULTIFLEX series THE MOST VERSATILE

For multiple clamping from **1** to **12** workpieces of various sizes



EACH VISE IS SUPPLIED FOR 4 WORKPIECES CLAMPING



| Vise (type) size | | | | | | | | Art. 600 | Art. 606 | Art. 611 |
|------------------|-------|--------------|------|-----|----|----|------------------|----------|----------|----------|
| mm | B | C ± 0.02 | D | G | P | W | $\varnothing F7$ | A1 mm | A2 mm | A3 mm |
| 1 | 32/25 | 50 | 300 | 50 | 16 | 49 | 10 | 4 x 8 | 3 x 19 | 4 x 21 |
| | 32/25 | 50 | 400 | 50 | 16 | 49 | 10 | 4 x 33 | 4 x 23 | 4 x 46 |
| | 32/25 | 50 | 500 | 50 | 16 | 49 | 10 | 4 x 58 | 4 x 48 | 4 x 71 |
| | 32/25 | 50 | 600 | 50 | 16 | 49 | 10 | 4 x 83 | 4 x 73 | 4 x 96 |
| | 32/25 | 50 | 700 | 50 | 16 | 49 | 10 | 4 x 108 | 4 x 97 | 4 x 121 |
| 2 | 40 | 75 | 400 | 75 | 16 | 74 | 16 | 4 x 12 | 3 x 28 | 4 x 34 |
| | 40 | 75 | 500 | 75 | 16 | 74 | 16 | 4 x 37 | 4 x 24 | 4 x 59 |
| | 40 | 75 | 600 | 75 | 16 | 74 | 16 | 4 x 62 | 4 x 49 | 4 x 84 |
| | 40 | 75 | 700 | 75 | 16 | 74 | 16 | 4 x 87 | 4 x 74 | 4 x 109 |
| | 40 | 75 | 800 | 75 | 16 | 74 | 16 | 4 x 112 | 4 x 99 | 4 x 134 |
| 3 | 60 | 100 | 700 | 100 | 16 | 99 | 16 | 4 x 59 | 4 x 44 | 4 x 77 |
| | 60 | 100 | 800 | 100 | 16 | 99 | 16 | 4 x 84 | 4 x 69 | 4 x 102 |
| | 60 | 100 | 900 | 100 | 16 | 99 | 16 | 4 x 109 | 4 x 94 | 4 x 127 |
| | 60 | 100 | 1000 | 100 | 16 | 99 | 16 | 4 x 134 | 4 x 119 | 4 x 152 |

The MULTIFLEX precision modular vises are a totally new concept of modular clamping system able to maximize the machine table capacity and increase its productivity.

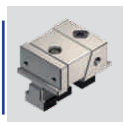
The comb system is used even between the fixed and movable jaw, it increases and improves the clamping capacity

Max opening according to number of pieces be clamped

| Type | Art. 600/600S n. pcs: | | | | | | | | | | | Art. 606 n. pcs: | | | | | | | | | Art. 611 n. pcs: | | | | | | | | | | | | | | | | | | | | | | | |
|----------|-----------------------|-----|-----|-----|-----|----|----|----|----|----|----|------------------|-----|-----|-----|-----|-----|----|----|----|------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|--|--|--|--|--|
| | A mm | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | | | | | |
| 1 | 300 | 208 | 75 | 30 | 8 | | | | | | | | 193 | 63 | 19 | | | | | | | | 174 | 87 | 28 | 21 | | | | | | | | | | | | | | | | | | |
| | 400 | 308 | 125 | 64 | 33 | 15 | 3 | | | | | | 293 | 113 | 53 | 23 | | | | | | | 274 | 137 | 62 | 46 | 19 | 16 | | | | | | | | | | | | | | | | |
| | 500 | 408 | 175 | 96 | 58 | 35 | 19 | 8 | | | | | 393 | 163 | 86 | 48 | 25 | | | | | | | 374 | 185 | 95 | 71 | 39 | 33 | 15 | 13 | 2 | | | | | | | | | | | | |
| | 600 | 508 | 225 | 129 | 83 | 55 | 36 | 22 | 12 | 5 | | | | 493 | 213 | 119 | 73 | 45 | 26 | 13 | | | | | | | 474 | 237 | 128 | 96 | 59 | 49 | 30 | 26 | 13 | 12 | 3 | 2 | | | | | | |
| | 700 | 608 | 275 | 161 | 108 | 75 | 52 | 36 | 24 | 16 | 8 | 2 | 593 | 263 | 152 | 97 | 64 | 42 | 26 | 14 | 5 | | | | | | | 574 | 287 | 162 | 121 | 79 | 66 | 44 | 38 | 24 | 22 | 12 | 11 | | | | | |
| 2 | 400 | 275 | 100 | 41 | 12 | | | | | | | | 262 | 87 | 28 | | | | | | | | 242 | 121 | 45 | 34 | 5 | | | | | | | | | | | | | | | | | |
| | 500 | 375 | 150 | 75 | 37 | 15 | | | | | | | 362 | 137 | 62 | 24 | 2 | | | | | | | 342 | 171 | 78 | 59 | 25 | 21 | 3 | | | | | | | | | | | | | | |
| | 600 | 475 | 200 | 108 | 62 | 35 | 16 | 3 | | | | | 462 | 187 | 95 | 49 | 22 | 3 | | | | | | | 442 | 221 | 112 | 84 | 45 | 38 | 17 | 15 | 1 | | | | | | | | | | | |
| | 700 | 575 | 250 | 141 | 87 | 55 | 33 | 17 | 6 | | | | | 562 | 237 | 128 | 74 | 42 | 20 | 4 | | | | | | | 542 | 271 | 145 | 109 | 65 | 54 | 31 | 27 | 12 | 11 | | | | | | | | |
| 3 | 800 | 675 | 300 | 175 | 112 | 75 | 50 | 32 | 18 | 8 | | | | 662 | 287 | 162 | 99 | 62 | 37 | 19 | 5 | | | | | | | 642 | 321 | 178 | 134 | 85 | 71 | 46 | 40 | 23 | 21 | 10 | 9 | | | | | |
| | 700 | 532 | 217 | 112 | 59 | 28 | 7 | | | | | | 517 | 202 | 97 | 44 | 13 | | | | | | | 470 | 235 | 103 | 77 | 30 | 25 | | | | | | | | | | | | | | | |
| | 800 | 632 | 267 | 145 | 84 | 48 | 23 | 6 | | | | | 617 | 252 | 130 | 69 | 33 | 8 | | | | | | | 570 | 285 | 136 | 102 | 50 | 41 | 12 | 11 | | | | | | | | | | | | |
| | 900 | 732 | 317 | 178 | 109 | 68 | 39 | 20 | 5 | | | | | 717 | 302 | 163 | 94 | 53 | 25 | 5 | | | | | | | 670 | 335 | 169 | 127 | 70 | 57 | 26 | 23 | 3 | | | | | | | | | |
| 1000 | 832 | 367 | 211 | 134 | 88 | 55 | 34 | 18 | 5 | | | | | 817 | 352 | 196 | 119 | 73 | 42 | 19 | 3 | | | | | | | 770 | 285 | 202 | 152 | 90 | 73 | 40 | 35 | 14 | | | | | | | | |



Art. 605
Fixed and movable jaws with comb system

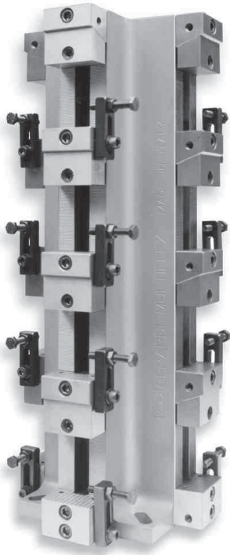


Art. 609
Fixed and movable jaws with step



Art. 613
Double movable jaw

MULTIFLEX VISES AND VISE-TOWER SERIES



Art. 602 /602S

Vise-tower with smooth or serrated jaws

Art. 602
Art. 602S

| Art. | N° |
|------|----|
| 603 | 1 |
| 604 | 4 |
| 605 | 16 |

Art. 828 (Extra)

Art. 607
With step jaws

| Art. | N° |
|------|----|
| 603 | 1 |
| 608 | 4 |
| 609 | 16 |

Art. 828 (Extra)

Art. 612
With double jaws

| Art. | N° |
|------|----|
| 603 | 1 |
| 604 | 12 |
| 613 | 8 |

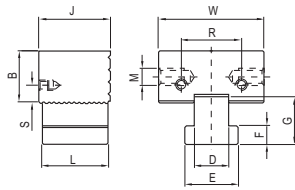
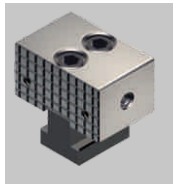
Art. 828 (Extra)

Art. 603
Vise bade body

| mm | B ⁻⁰ _{-0,02} | C ⁻⁰ _{-0,02} | D |
|----------|----------------------------------|----------------------------------|------|
| Type | 50 | 100 | 300 |
| | 50 | 100 | 400 |
| 1 | 50 | 100 | 500 |
| | 50 | 100 | 600 |
| Type | 75 | 150 | 400 |
| | 75 | 150 | 500 |
| 2 | 75 | 150 | 230* |
| | 75 | 150 | 240* |
| | 75 | 150 | 700 |
| Type | 100 | 240 | 700 |
| | 100 | 240 | 800 |
| 3 | 100 | 240 | 900 |
| | 100 | 240 | 1000 |

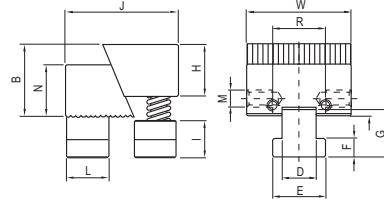
* Included the solid head plate

Art. 604 Fixed jaws



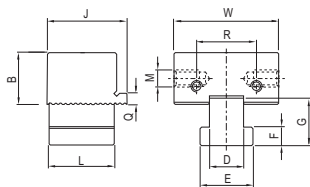
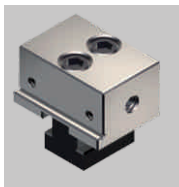
| mm | W | B | D | E | F | G | J | L | M | R |
|---------------|----|----|----|----|----|----|----|----|-----|----|
| Type 1 | 49 | 25 | 14 | 22 | 8 | 21 | 38 | 30 | M10 | 30 |
| 2 | 74 | 40 | 22 | 35 | 14 | 33 | 50 | 45 | M10 | 50 |
| 3 | 99 | 60 | 30 | 48 | 21 | 46 | 70 | 60 | M10 | 50 |

Art. 605 Fixed and movable jaw with comb system



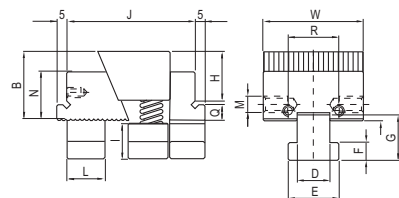
| mm | W | B | D | E | F | G | H | I | J | L | M | N | R |
|---------------|----|-------|----|----|----|----|----|----|-----------|----|-----|----|----|
| Type 1 | 49 | 35/25 | 14 | 22 | 8 | 25 | 25 | 18 | 54/58 | 22 | M10 | 25 | 30 |
| 2 | 74 | 53/40 | 22 | 35 | 14 | 33 | 34 | 26 | 70/75 | 26 | M10 | 40 | 50 |
| 3 | 99 | 60 | 30 | 48 | 21 | 46 | 50 | 42 | 94,5/98,5 | 35 | M10 | 60 | 50 |

Art. 608 Fixed jaw with step



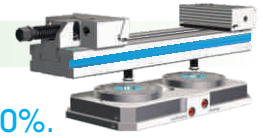
| mm | W | B | D | E | F | G | J | L | M | Q | R |
|---------------|----|----|----|----|----|----|----|----|-----|----|----|
| Type 1 | 49 | 25 | 14 | 22 | 8 | 21 | 43 | 30 | M10 | 5 | 30 |
| 2 | 74 | 40 | 22 | 35 | 14 | 33 | 55 | 45 | M10 | 8 | 50 |
| 3 | 99 | 60 | 30 | 48 | 21 | 46 | 70 | 60 | M10 | 10 | 50 |

Art. 609 Fixed and movable jaw comb system with step



| mm | W | B | D | E | F | G | H | I | J | L | M | N | Q | R |
|---------------|----|-------|----|----|----|----|----|----|-----------|----|-----|----|----|----|
| Type 1 | 49 | 35/25 | 14 | 22 | 8 | 25 | 25 | 18 | 65/68 | 22 | M10 | 25 | 5 | 30 |
| 2 | 74 | 46/40 | 22 | 35 | 14 | 33 | 34 | 26 | 83/88 | 26 | M10 | 40 | 8 | 50 |
| 3 | 99 | 60 | 30 | 48 | 21 | 46 | 50 | 42 | 94,5/98,5 | 35 | M10 | 60 | 10 | 50 |

ZERO POINT MODULAR SYSTEM



The new immediate positioning & clamping system. Set up times reduced 90%. All the components are built completely with high resistance steel and case hardened

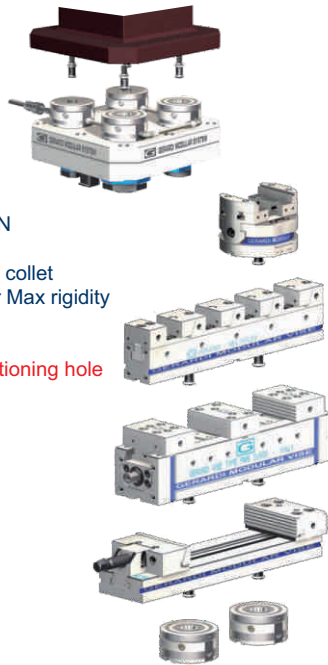
ZERO POINT system REPETABILITY <math>< 5\mu</math>



Art. 662

Independent mounting

- Clamping force 25 kN
- Holding force more than 60 kN
- Hydraulic release 200bar
- Positioning shank with elastic collet
- Double pull-stud centering for Max rigidity
- Manually emergency release
- Water drain
- **Key ways and calibrated positioning hole**
- Weight 4,3 Kg each



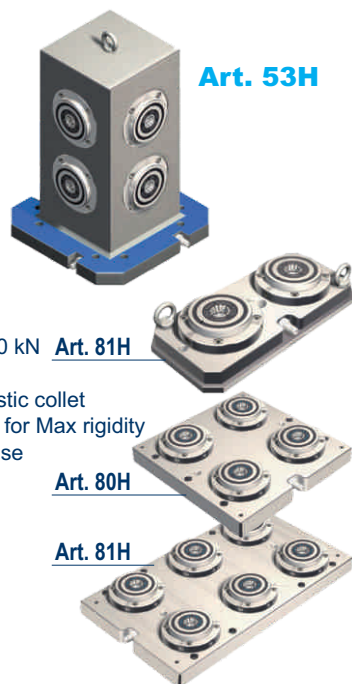
* Art. 11A Pull stud included



Art. 663

Built-in mounting

- Clamping force 25 kN
- Holding force more than 60 kN
- Hydraulic release 200bar
- Positioning shank with elastic collet
- Double pull-stud centering for Max rigidity
- Manually emergency release
- Weight 5,6 Kg each



Art. 81H

Art. 80H

Art. 81H



Art. 664

Mounting with flange

- Clamping force 15 kN
- Holding force more than 60 kN
- Pneumatic release 7bar
- Positioning shank with elastic collet
- Double pull-stud centering for Max rigidity
- Air cleaning
- Weight 6 Kg each



* Art. 11A Pull stud included



Art. 665

Built-in mounting

- Clamping force 15 kN
- Holding force more than 60 kN
- Pneumatic release 7bar
- Positioning shank with elastic collet
- Double pull-stud centering for Max rigidity
- Air cleaning
- Weight 2,5 Kg each



Art. 81P

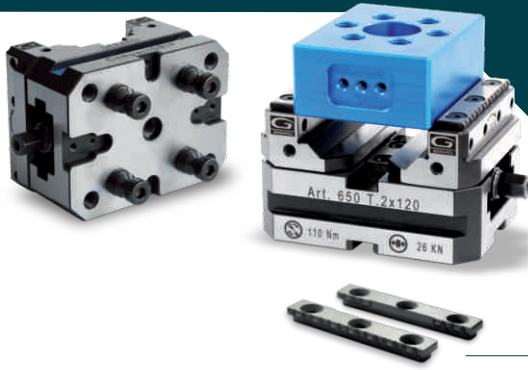
Art. 80P

Art. 81P

COMPACT GRIP VISES: SELF CENTERING VISE

**IDEAL FOR 5 AXIS
MACHINING CENTRES**

COMPACT, RIGID & ACCURATE

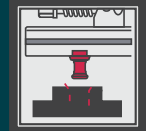


Grip Inserts

TOP JAW
INSERTS

5 AXIS
MACHINE

ZERO POINT
READY



Art.650

Manual Control - Mechanical Clamping



Example 1



Example 2



Example 3

The absolute news for 5 axis machine centres and new multiclamping system are the self-centering Compact Grip vises. Their name identifies the main vise features which are the extreme compactness and easiest handling and the system of inserts which it adopts, so called "GRIP". This system includes a range of jaw inserts assembled on the top of the main jaw with the function of clamping the workpiece through sharp or duly shaped teeth according to the material type and hardness to clamp.

SELF-CENTERING VISE WITH REVERSIBLE JAWS: Ideal For 5 Axis Machining Centres

| Vise (type) size | | 1 | | 2 | |
|--|------------|------------|------------|-------|--|
| | kN | 12 kN | | 22 kN | |
| Art. 650 <i>Type 1x120</i> Example 1 | A | 48 | 88 | 128 | |
| | A1 | 6 | | | |
| | W | 50 | | | |
| | B | 65 | | | |
| | C | 45 | | | |
| | C1 | 53 | | | |
| | C2 | 61 | | | |
| | D | 80 | | | |
| | E | 80 | 120 | 160 | |
| | F | 52 | | | |
| | L | 12 | | | |
| | L1 | M8 | | | |
| | kg | 1,8 | 2,6 | 3,4 | |
| Cod. | 7.65.01080 | 7.65.01120 | 7.65.01160 | | |

| | | | | | |
|--|------------|------------|------------|-----|--|
| Art. 650 <i>Type 2x160</i> Example 1 | A | 48 | 88 | 128 | |
| | A1 | 6 | | | |
| | W | 50 | | | |
| | B | 65 | | | |
| | C | 45 | | | |
| | C1 | 53 | | | |
| | C2 | 61 | | | |
| | D | 80 | | | |
| | E | 80 | 120 | 160 | |
| | F | 52 | | | |
| | L | 12 | | | |
| | L1 | M8 | | | |
| | kg | 1,8 | 2,6 | 3,4 | |
| Cod. | 7.65.01080 | 7.65.01120 | 7.65.01160 | | |

| | | | | | |
|---|------------|------------|------------|-----|--|
| Art. 651H <i>Type 1</i> Simple Riser | A | 48 | 88 | 128 | |
| | A1 | 6 | | | |
| | W | 50 | | | |
| | B | 65 | | | |
| | C | 45 | | | |
| | C1 | 53 | | | |
| | C2 | 61 | | | |
| | D | 80 | | | |
| | E | 80 | 120 | 160 | |
| | F | 52 | | | |
| | L | 12 | | | |
| | L1 | M8 | | | |
| | kg | 1,8 | 2,6 | 3,4 | |
| Cod. | 7.65.01080 | 7.65.01120 | 7.65.01160 | | |

| | | | | | |
|---|------------|------------|------------|-----|--|
| Art. 651H <i>Type 2</i> Simple Riser | A | 48 | 88 | 128 | |
| | A1 | 6 | | | |
| | W | 50 | | | |
| | B | 65 | | | |
| | C | 45 | | | |
| | C1 | 53 | | | |
| | C2 | 61 | | | |
| | D | 80 | | | |
| | E | 80 | 120 | 160 | |
| | F | 52 | | | |
| | L | 12 | | | |
| | L1 | M8 | | | |
| | kg | 1,8 | 2,6 | 3,4 | |
| Cod. | 7.65.01080 | 7.65.01120 | 7.65.01160 | | |

| Type | 1&2 | Pitch: 52mm |
|-----------|-----------------|-------------|
| A | 150 | |
| B | 27 | |
| C | 100 | |
| D | 156 | |
| D1 | 116 | |
| E | 190 | |
| kg | 3 | |
| Art. 660 | Cod. 9.66.05200 | |
| Art. 661H | kg 5 | |
| Art. 661H | Cod. 9.66.1H100 | |

Art. 660
Quick change table

Art. 661H
Simple aluminum riser for quick change table

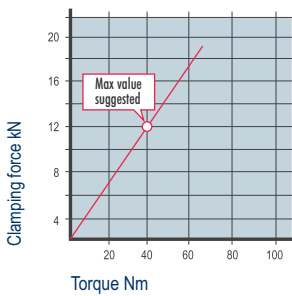
Example 2

NEW ADAPTING PLATE !!

It allows to reduce the pull studs distance from 96 mm to 52 mm

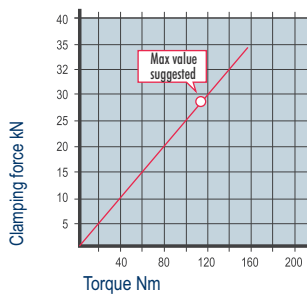
Type 1

Screw TPF14 - Pitch 2mm



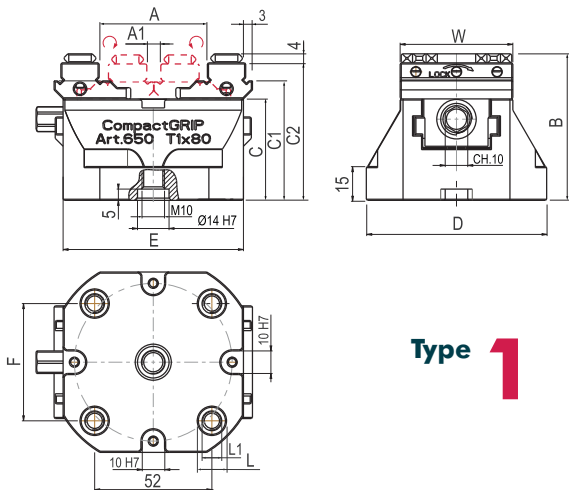
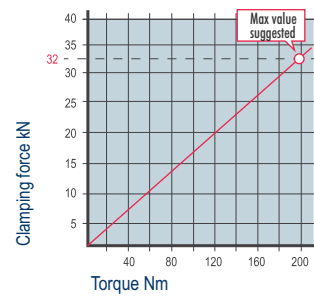
Type 2

Screw TPF18 - Pitch 2mm



Type 3

Screw TPF24 - Pitch 2mm

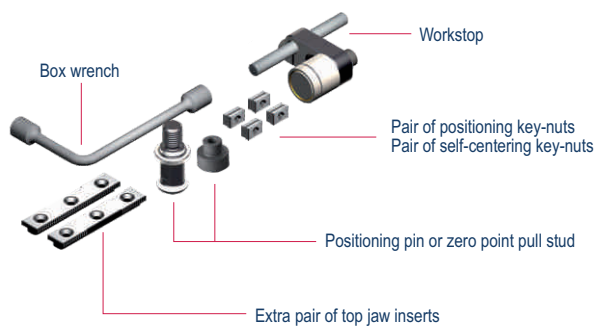


Type 1

STANDARD EQUIPMENT

USE SIDE CLAMPS

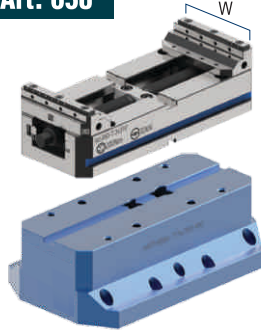
Type - 1xM10 / 1xM12 / 1xM16



SELF-CENTERING VISE WITH REVERSIBLE JAWS: Ideal For 5 Axis Machining Centres

| | | 2 | | | |
|--|-----|-------|-----|-----|--|
| kN | | 22 kN | | | |
| A | 96 | 136 | 176 | 216 | |
| A1 | | | 10 | | |
| W | | | 88 | | |
| B | | | 65 | | |
| C | | | 38 | | |
| C1 | | | 51 | | |
| C2 | | | 61 | | |
| D | | | 90 | | |
| E | 120 | 160 | 200 | 240 | |
| F | | | 52 | | |
| L | | | 12 | | |
| L1 | | | M8 | | |
| kg | 3,6 | 4,4 | 5,2 | 5,8 | |
| Cod. 7.65.02120 7.65.02160 7.65.02200 7.65.02240 | | | | | |

Art. 650



Type 3x310

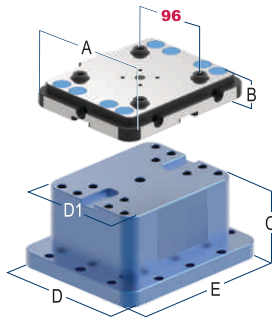
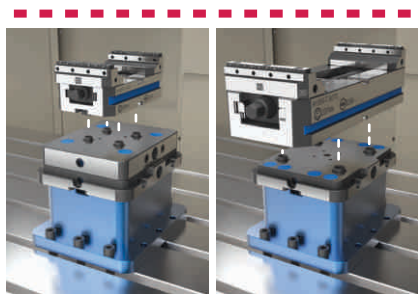
Example 1

Art. 651H

Type 3

Simple Riser

| | | 3 | | | | |
|---|-----|-------|------|------|-----|--|
| kN | | 32 kN | | | | |
| A | 126 | 176 | 226 | 276 | 326 | |
| A1 | | | 10 | | | |
| W | | | 123 | | | |
| B | | | 89 | | | |
| C | | | 57 | | | |
| C1 | | | 75 | | | |
| C2 | | | 85 | | | |
| D | | | 125 | | | |
| E | 160 | 210 | 260 | 310 | 360 | |
| F | | | 96 | | | |
| L | | | 16 | | | |
| L1 | | | M10 | | | |
| kg | 9,1 | 10,9 | 12,8 | 14,8 | 17 | |
| Cod. 7.65.03160 7.65.03210 7.65.03260 7.65.03310 7.65.03360 | | | | | | |



Art. 660

Quick change table

Art. 661H

Simple aluminum riser for quick change table

Type 3

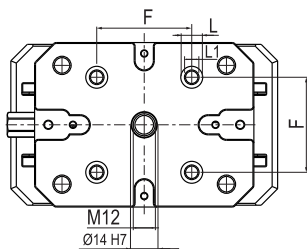
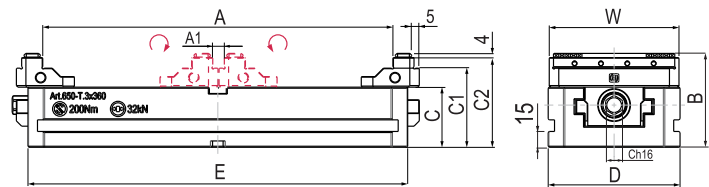
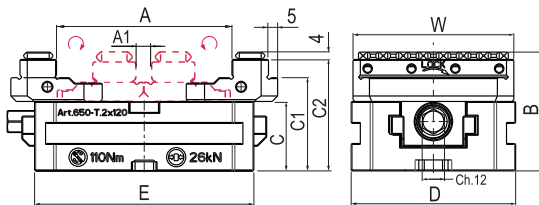
Pitch: 96mm

| | |
|----|------------|
| A | 190 |
| A1 | 27 |
| B | 100 |
| C | 176 |
| C1 | 136 |
| C2 | 210 |
| D | 5,2 |
| E | 9.66.09600 |
| F | 6,5 |
| L | 9.66.1H200 |

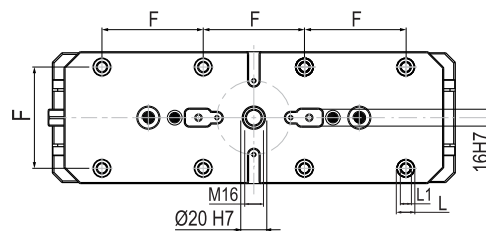
Example 2

Designed for 5 axis machines, CompactGRIP series of vises allow machining operations on the 5 workpieces sides with perfect alignment in a space saving design, extremely high wear resistance, with reduced deflection.

- No Wear HRC 58 ±2
- Quick clamping operation
- Modularity & Versatility
- Rigidity & safety thanks to the solid jaws
- Space saving design & handy
- Highest accuracies ± 0,02 mm
- Direct vise set-up or through vise clamps
- Solid and rigid construction and maximum clamping ratio to the total length
- Self-centering vise for clamping parts on outside or inside (by reversing jaw plates)
- Double sided top jaw inserts with full work piece contact on one side and partial on the other
- Front through holes for customized applications (plates, points, etc..)



Type 2



Type 3

WIDE RANGE OF TOP JAW INSERTS FOR VISES Art.650

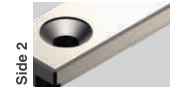
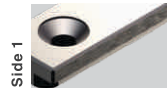
Double sided top jaw inserts with full work piece contact on one side and partial on the other

Pair of top jaw inserts

Art. 650S

SMOOTH + ROUGH

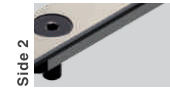
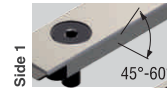
Soft material clamping and final machining



Art. 650R

DOVE TAIL

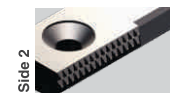
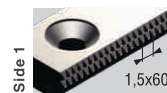
Best workpiece clamping



Art. 650T G01

GRIP (Pitch 1,5mm)

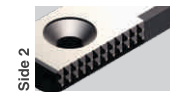
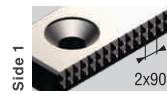
For standard workpieces hardness clamping



Art. 650T

GRIP (Pitch 2mm)

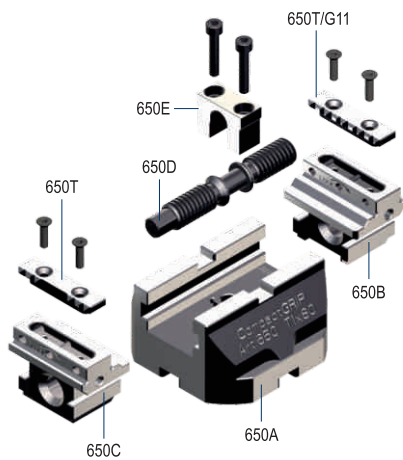
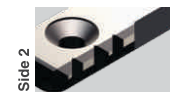
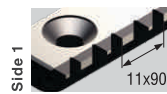
For hardened workpieces clamping



Art. 650T G11

GRIP (Pitch 11mm)

For soft material clamping



Compatibility

Max compatibility with the most popular pallet change systems.



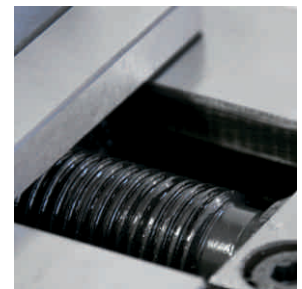
Risers

By the Compact risers it's possible machining areas usually hard to reach.



Versatility

Versatility also thanks to the reversible jaws and to the 4 base positions option (90°)



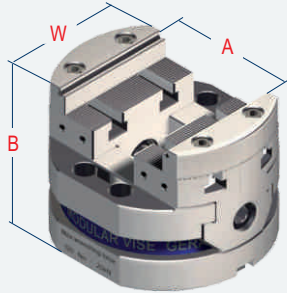
Clamping Power

Much higher clamping power than the existing vises thanks to the clamping screw design

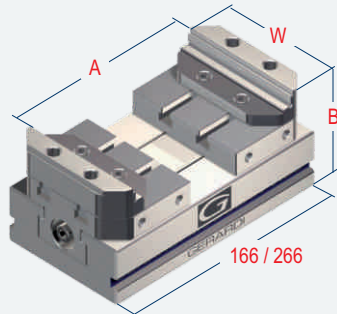
MULTITASKING VISES SERIES

Vises advanced applications on 5 axis machining centres. Self-centering or eccentric
Manual control - Mechanical clamping

Art. 640 type 1 e 2



Art. 640 type 3 x 266

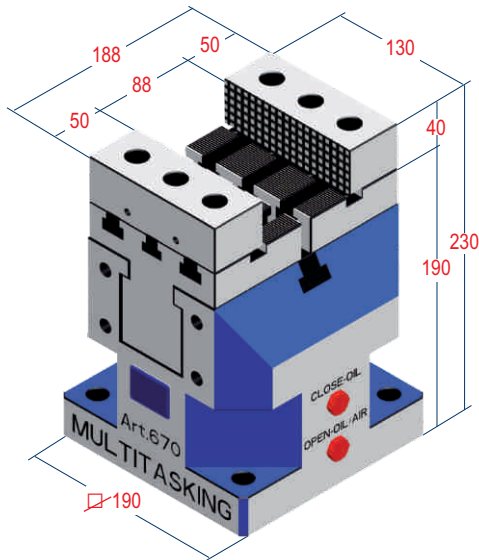


| Type | A | W | B |
|---------|-----|-----|-----|
| 1 | 74 | 74 | 85 |
| 2 | 104 | 89 | 115 |
| 3 x 166 | 111 | 138 | 113 |
| 3 x 266 | 211 | | |

Art. 640J type 1 e 2

With prismatic jaws for round $\varnothing 30+$ 100

Art. 670



(*) Use only pneumatic tools with adjustable clutch

Art. 670PN

PNEUMATIC

Pneumatic clamping
 Pneumatic opening

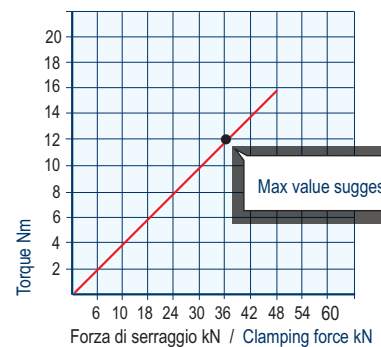
The following diagrams give the clamping force

Art. 670ME

Manual mechanical clamping
 Pneumatic screw EXTRA (*)

Manual opening

Clamping force 40 - 50 kN



Art. 670MO

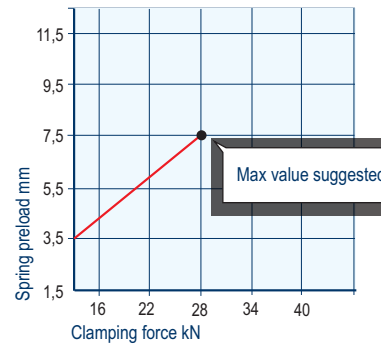
Centralina EXTRA

Power unit EXTRA

Mechanical clamping with spring

Hydraulic opening

Clamping force 20 - 30 kN



Art. 670ID

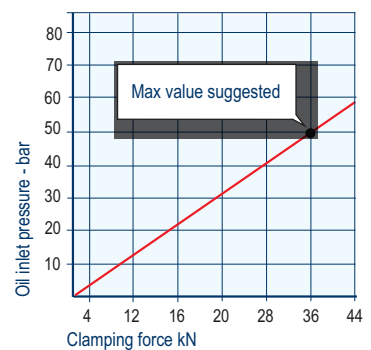
Centralina EXTRA

MECHANICAL-HYDRAULIC
 Power unit EXTRA

Hydraulic clamping

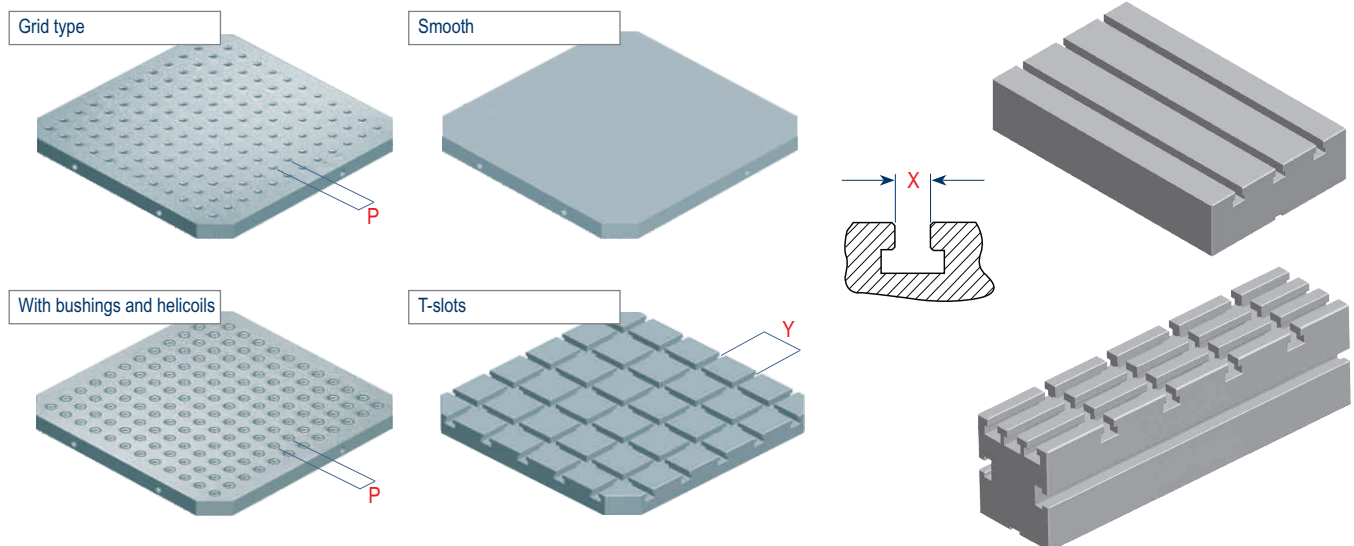
Hydraulic opening

Clamping force 40 - 50 kN



HEAD PLATES, MODULAR PLATES

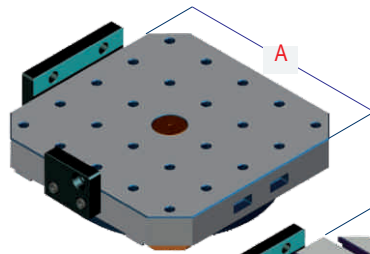
Cast iron or steel, interfaced



COMPLETE PALLET FOR HORIZONTAL MACHINING CENTRES

Art. 85

Grid pallet type with solid threads M16

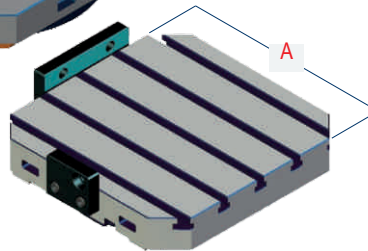


| | | | | |
|----|-----|-----|-----|-----|
| A | 400 | 500 | 630 | 800 |
| kg | 85 | 165 | 270 | 300 |

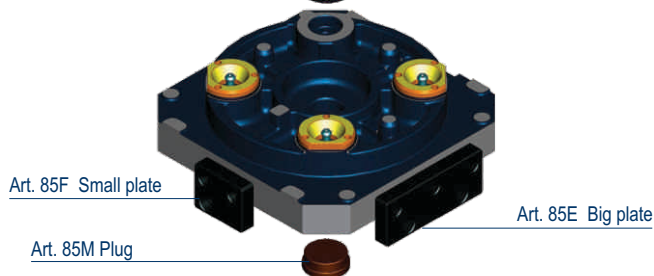
Solid cast iron cast G30 with double stress relieving heat treatment. Highest accuracy

Art. 86

Pallet with T H7 slot

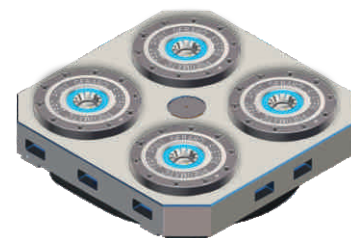


| | | | | |
|----|-----|-----|-----|-----|
| A | 400 | 500 | 630 | 800 |
| kg | 82 | 160 | 247 | 275 |



QUICK CHANGE UNIVERSAL CLAMPING PALLET SYSTEM

Zero Point assembled on machining centres pallet

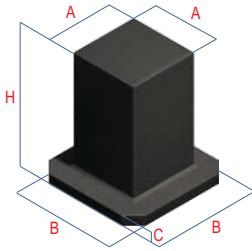


■ All accessories are supplied completely hardened and ground HRC 60

MODULAR TOMBSTONES

CUBES

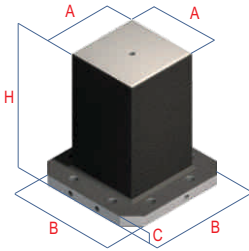
Art. 53A
Rough milled



General tolerance ± 2 mm

| Dimensions | | | | | |
|------------|-----|----|------|-----|--|
| A | B | C | H | kg | |
| 170 | 260 | 50 | 300 | 66 | |
| 210 | 325 | 50 | 310 | 96 | |
| 210 | 360 | 50 | 380 | 119 | |
| 210 | 510 | 50 | 610 | 217 | |
| 260 | 410 | 50 | 460 | 179 | |
| 260 | 460 | 50 | 460 | 195 | |
| 260 | 410 | 50 | 560 | 207 | |
| 260 | 410 | 50 | 670 | 239 | |
| 260 | 510 | 50 | 620 | 258 | |
| 260 | 510 | 50 | 660 | 270 | |
| 260 | 510 | 50 | 760 | 280 | |
| 260 | 640 | 50 | 710 | 337 | |
| 260 | 510 | 50 | 1010 | 397 | |
| 280 | 410 | 50 | 520 | 210 | |
| 310 | 510 | 50 | 610 | 293 | |
| 310 | 510 | 50 | 760 | 345 | |
| 310 | 510 | 50 | 910 | 397 | |
| 340 | 510 | 50 | 670 | 350 | |
| 360 | 510 | 50 | 420 | 252 | |
| 360 | 510 | 50 | 460 | 268 | |
| 360 | 510 | 50 | 560 | 310 | |
| 360 | 510 | 50 | 620 | 334 | |
| 360 | 510 | 50 | 710 | 372 | |
| 360 | 640 | 50 | 710 | 425 | |
| 360 | 640 | 50 | 830 | 496 | |
| 360 | 510 | 50 | 830 | 470 | |
| 360 | 640 | 50 | 960 | 529 | |
| 460 | 640 | 50 | 560 | 431 | |
| 460 | 640 | 50 | 660 | 486 | |
| 510 | 640 | 50 | 870 | 655 | |
| 560 | 760 | 50 | 860 | 763 | |
| 510 | 810 | 50 | 810 | 704 | |

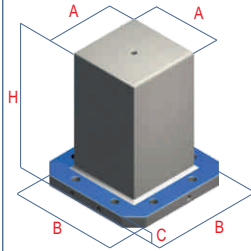
Art. 53B
Base finished



General tolerance ± 2 mm

| Dimensions | | | | | |
|------------|-----|----|------|-----|--|
| A | B | C | H | kg | |
| 170 | 250 | 45 | 290 | 61 | |
| 210 | 315 | 45 | 300 | 89 | |
| 210 | 350 | 45 | 370 | 112 | |
| 210 | 500 | 45 | 600 | 203 | |
| 260 | 400 | 45 | 450 | 169 | |
| 260 | 450 | 45 | 450 | 183 | |
| 260 | 400 | 45 | 550 | 197 | |
| 260 | 400 | 45 | 660 | 228 | |
| 260 | 500 | 45 | 610 | 244 | |
| 260 | 500 | 45 | 650 | 255 | |
| 260 | 500 | 45 | 750 | 283 | |
| 260 | 630 | 45 | 700 | 316 | |
| 260 | 500 | 45 | 1000 | 354 | |
| 280 | 400 | 45 | 510 | 198 | |
| 310 | 500 | 45 | 600 | 278 | |
| 310 | 500 | 45 | 750 | 330 | |
| 310 | 500 | 45 | 900 | 383 | |
| 340 | 500 | 45 | 660 | 324 | |
| 360 | 500 | 45 | 410 | 236 | |
| 360 | 500 | 45 | 450 | 253 | |
| 360 | 500 | 45 | 550 | 294 | |
| 360 | 500 | 45 | 610 | 319 | |
| 360 | 500 | 45 | 700 | 356 | |
| 360 | 630 | 45 | 700 | 403 | |
| 360 | 630 | 45 | 820 | 453 | |
| 360 | 500 | 45 | 820 | 420 | |
| 360 | 630 | 45 | 950 | 508 | |
| 460 | 630 | 45 | 550 | 409 | |
| 460 | 630 | 45 | 650 | 463 | |
| 510 | 630 | 45 | 860 | 631 | |
| 560 | 750 | 45 | 850 | 732 | |
| 510 | 800 | 45 | 800 | 671 | |

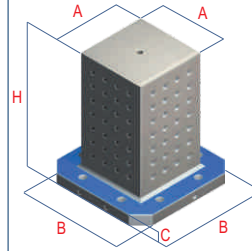
Art. 53C
Completely machined



General tolerance $\pm 0,02$ mm

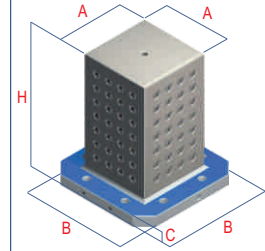
| Dimensions | | | | | |
|------------|-----|----|------|-----|--|
| A | B | C | H | kg | |
| 160 | 250 | 40 | 290 | 54 | |
| 200 | 315 | 40 | 300 | 79 | |
| 200 | 350 | 40 | 370 | 99 | |
| 200 | 500 | 40 | 600 | 179 | |
| 250 | 400 | 40 | 450 | 150 | |
| 250 | 450 | 40 | 450 | 164 | |
| 250 | 400 | 40 | 550 | 174 | |
| 250 | 400 | 40 | 660 | 201 | |
| 250 | 500 | 40 | 610 | 215 | |
| 250 | 500 | 40 | 650 | 225 | |
| 250 | 500 | 40 | 750 | 250 | |
| 250 | 630 | 40 | 700 | 279 | |
| 260 | 500 | 45 | 1000 | 311 | |
| 270 | 400 | 40 | 510 | 176 | |
| 300 | 500 | 40 | 600 | 247 | |
| 300 | 500 | 40 | 750 | 293 | |
| 300 | 500 | 40 | 900 | 338 | |
| 330 | 500 | 40 | 660 | 288 | |
| 350 | 500 | 40 | 410 | 212 | |
| 350 | 500 | 40 | 450 | 226 | |
| 350 | 500 | 40 | 550 | 263 | |
| 350 | 500 | 40 | 610 | 284 | |
| 350 | 500 | 40 | 700 | 317 | |
| 350 | 630 | 40 | 700 | 359 | |
| 350 | 630 | 40 | 820 | 402 | |
| 350 | 500 | 40 | 820 | 370 | |
| 350 | 630 | 40 | 950 | 450 | |
| 450 | 630 | 40 | 550 | 367 | |
| 450 | 630 | 40 | 650 | 415 | |
| 500 | 630 | 40 | 860 | 565 | |
| 550 | 750 | 40 | 850 | 656 | |
| 500 | 800 | 40 | 800 | 600 | |

Art. 53E
Grid cube



Art. 53E 40
Art. 53E 50
Same dimensions of Art. 53C

Art. 53F
Grid cube with bushing



Art. 53F 40
Art. 53F 50
Weight: - 5% about of Art. 53C

Specifications

Art. 53A

One integral G30 cast iron casting rough milled with double stress relieving heat treatment.
Wall thickness 43-45mm (10mm stock)

Art. 53B

Rough milled casting with base face machined and hand scraped for direct clamping on European or Japanese standard pallet.

Art. 53C

Cube completely finished with wall thickness roughly 38-40mm

Art. 53E 40 / 50

Cube with calibrated holes and solid threads
Tolerance $\pm 0,02$ mm

- Grid pitch 40mm = $\varnothing 12 / M10$
- Grid pitch 50mm = $\varnothing 16 / M12$

Art. 53F 40 / 50

Cube with hardened bushing 100Cr6 and stainless steel helicoils / Tolerance $\pm 0,02$ mm

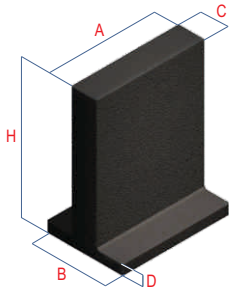
- Grid pitch 40mm = $\varnothing 12 / M10$
- Grid pitch 50mm = $\varnothing 16 / M12$

! For different finishing and materials (aluminium), ask for specific quotation

MODULAR TOMBSTONES

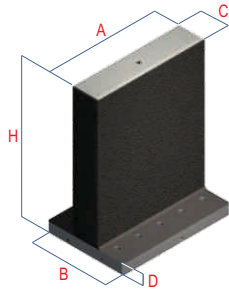
2 SIDES TOMBSTONES

Art. 55A Rough milled



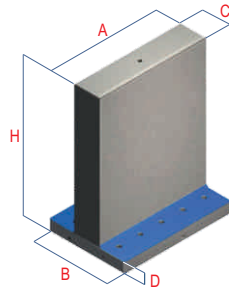
General tolerance ± 2 mm

Art. 55B Base finished



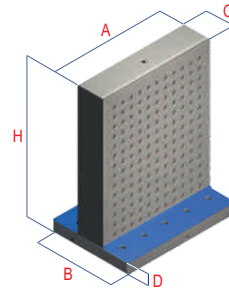
General tolerance ± 2 mm

Art. 55C Completely machined



General tolerance $\pm 0,02$ mm

Art. 55E Grid cube

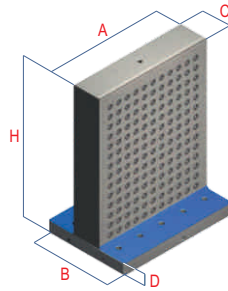


Art. 55E 40

Art. 55E 50

Same dimensions of Art. 55C

Art. 55F Grid cube with bushing



Art. 55F 40

Art. 55F 50

Weight: $- 5\%$ about of Art. 55C

| Dimensions | | | | | | |
|------------|-----|-----|----|-----|-----|--|
| A | B | C | D | H | kg | |
| 170 | 210 | 80 | 55 | 235 | 31 | |
| 360 | 260 | 90 | 60 | 425 | 124 | |
| 410 | 360 | 110 | 60 | 535 | 221 | |
| 410 | 410 | 160 | 60 | 510 | 215 | |
| 410 | 410 | 160 | 55 | 670 | 262 | |
| 510 | 510 | 160 | 55 | 710 | 350 | |
| 510 | 510 | 210 | 60 | 610 | 340 | |
| 460 | 360 | 110 | 60 | 535 | 241 | |
| 460 | 360 | 110 | 60 | 630 | 283 | |
| 560 | 360 | 110 | 70 | 660 | 368 | |
| 510 | 360 | 160 | 60 | 660 | 307 | |
| 460 | 360 | 160 | 60 | 620 | 289 | |
| 460 | 360 | 160 | 60 | 760 | 316 | |
| 560 | 360 | 160 | 70 | 680 | 352 | |
| 560 | 460 | 160 | 60 | 830 | 430 | |
| 640 | 460 | 160 | 60 | 830 | 486 | |
| 640 | 460 | 260 | 70 | 910 | 586 | |
| 640 | 640 | 210 | 60 | 870 | 579 | |
| 640 | 640 | 260 | 60 | 710 | 521 | |
| 360 | 460 | 160 | 70 | 660 | 250 | |
| 810 | 460 | 160 | 70 | 860 | 649 | |
| 810 | 810 | 310 | 60 | 810 | 782 | |

| Dimensions | | | | | | |
|------------|-----|-----|----|-----|-----|--|
| A | B | C | D | H | kg | |
| 160 | 200 | 80 | 50 | 225 | 29 | |
| 350 | 250 | 90 | 55 | 415 | 114 | |
| 400 | 350 | 110 | 55 | 525 | 207 | |
| 400 | 400 | 160 | 55 | 500 | 199 | |
| 400 | 400 | 160 | 50 | 660 | 244 | |
| 500 | 500 | 160 | 50 | 700 | 331 | |
| 500 | 500 | 210 | 55 | 600 | 316 | |
| 450 | 350 | 110 | 55 | 525 | 227 | |
| 450 | 350 | 110 | 55 | 620 | 267 | |
| 550 | 350 | 110 | 65 | 650 | 350 | |
| 500 | 350 | 160 | 55 | 650 | 289 | |
| 450 | 350 | 160 | 55 | 610 | 271 | |
| 450 | 350 | 160 | 55 | 750 | 297 | |
| 550 | 350 | 160 | 65 | 670 | 332 | |
| 550 | 450 | 160 | 55 | 820 | 406 | |
| 630 | 450 | 160 | 55 | 820 | 460 | |
| 630 | 450 | 260 | 65 | 900 | 551 | |
| 630 | 630 | 210 | 55 | 850 | 545 | |
| 630 | 630 | 260 | 55 | 700 | 485 | |
| 350 | 450 | 160 | 65 | 650 | 232 | |
| 800 | 450 | 160 | 65 | 850 | 610 | |
| 800 | 800 | 310 | 55 | 800 | 732 | |

| Dimensions | | | | | | |
|------------|-----|-----|----|-----|-----|--|
| A | B | C | D | H | kg | |
| 160 | 200 | 70 | 45 | 225 | 24 | |
| 350 | 250 | 80 | 50 | 415 | 103 | |
| 400 | 350 | 100 | 50 | 525 | 190 | |
| 400 | 400 | 150 | 50 | 500 | 193 | |
| 400 | 400 | 150 | 45 | 660 | 222 | |
| 500 | 500 | 150 | 45 | 700 | 290 | |
| 500 | 500 | 200 | 50 | 600 | 287 | |
| 450 | 350 | 100 | 50 | 525 | 208 | |
| 450 | 350 | 100 | 50 | 620 | 245 | |
| 550 | 350 | 100 | 60 | 650 | 321 | |
| 500 | 350 | 150 | 50 | 650 | 263 | |
| 450 | 350 | 150 | 50 | 610 | 250 | |
| 450 | 350 | 150 | 50 | 750 | 271 | |
| 550 | 350 | 150 | 60 | 670 | 303 | |
| 550 | 450 | 150 | 50 | 820 | 369 | |
| 630 | 450 | 150 | 50 | 820 | 418 | |
| 630 | 450 | 250 | 60 | 900 | 508 | |
| 630 | 630 | 200 | 50 | 850 | 504 | |
| 630 | 630 | 250 | 50 | 700 | 447 | |
| 350 | 450 | 150 | 60 | 650 | 213 | |
| 800 | 450 | 150 | 60 | 850 | 555 | |
| 800 | 800 | 300 | 50 | 800 | 674 | |

Specifications

Art. 55A

One integral G30 cast iron casting rough milled with double stress relieving heat treatment.
Wall thickness 43-45mm (10mm stock)

Art. 55B

Rough milled casting with base face machined and hand scraped for direct clamping on European or Japanese standard pallet.

Art. 55C

2 sides tombstone completely finished with wall thickness roughly 38-40mm

Art. 55E 40 / 50

2 sides tombstone with calibrated holes and solid threads
Tolerance $\pm 0,02$ mm

- Grid pitch 40mm = $\emptyset 12 / M10$
- Grid pitch 50mm = $\emptyset 16 / M12$

Art. 55F 40 / 50

2 sides tombstone with hardened bushing 100Cr6 and stainless steel helicoils / Tolerance $\pm 0,02$ mm

- Grid pitch 40mm = $\emptyset 12 / M10$
- Grid pitch 50mm = $\emptyset 16 / M12$

! For different finishing and materials (aluminium), ask for specific quotation

OTHER PRODUCTS

ANGLE HEADS AND SPINDLE SPEEDERS



DRIVEN TOOLS



VDI HOLDER DIN 69880



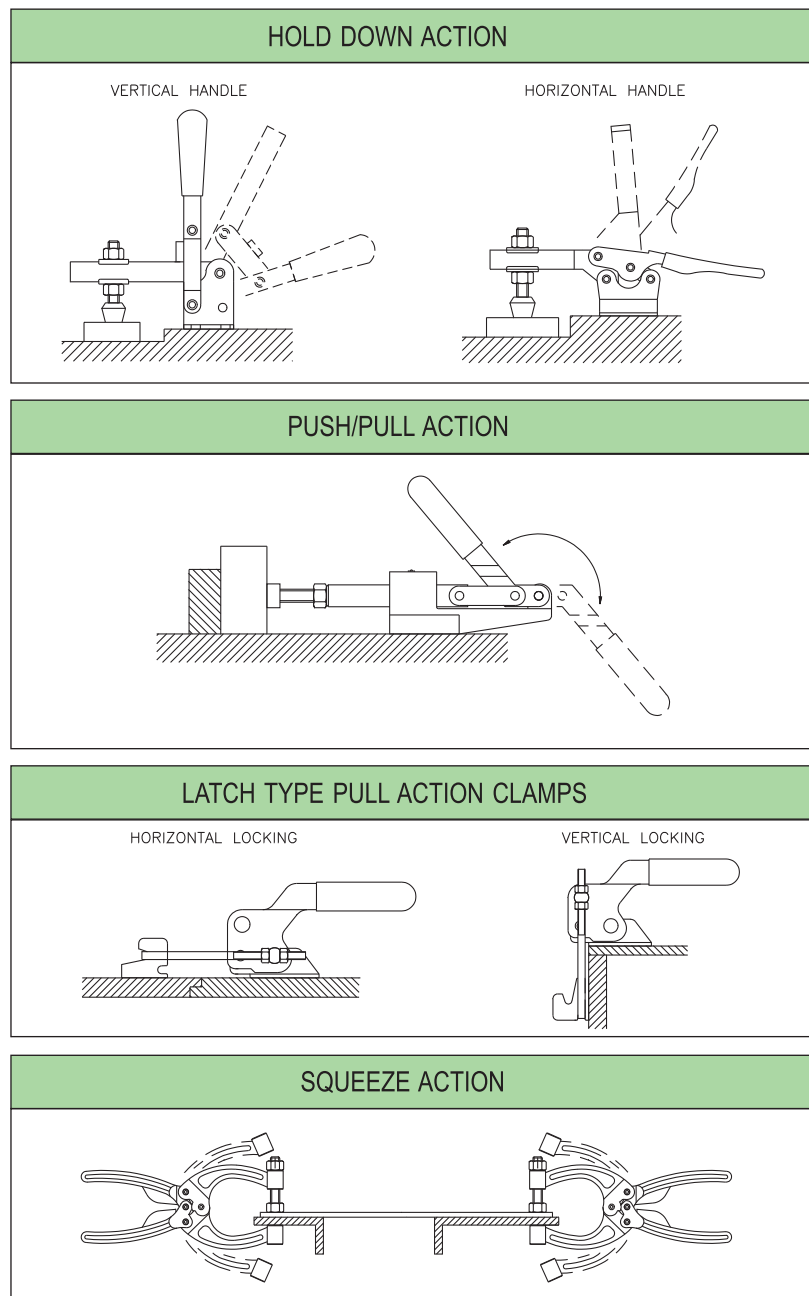
SELF-CENTERING & PLATFORM



TOGGLE CLAMPS

INTRODUCTION

There are four basic types of toggle actions as shown below:



Stainless Steel Rivets as Pivot Pins

Rivets Housed in Reamed Hole Bushes

Hardened & Ground Plungers

Red Vinyl Grip Handles

Features of Toggle Clamps

- Most rivets as pivot pins are of stainless steel for long life of clamps.
- Rivets are housed in reamed hole bushes for accuracy and longer life in most of the models.
- Red Vinyl grip handles for easy identification and operator comfort.
- Pressings from low carbon-cold rolled sheet, zinc plated with blue-brite finish for longer rust prevention.
- Hardened & Ground Plungers & precision machined bearing surfaces in Push/Pull Action Clamps.
- **2D/3D cad files available on request.**

In the following pages of this catalogue different models of above types of toggle clamps manufactured by us to suit different applications are illustrated.

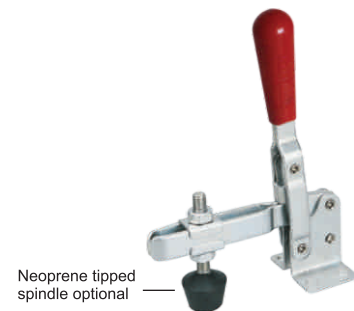
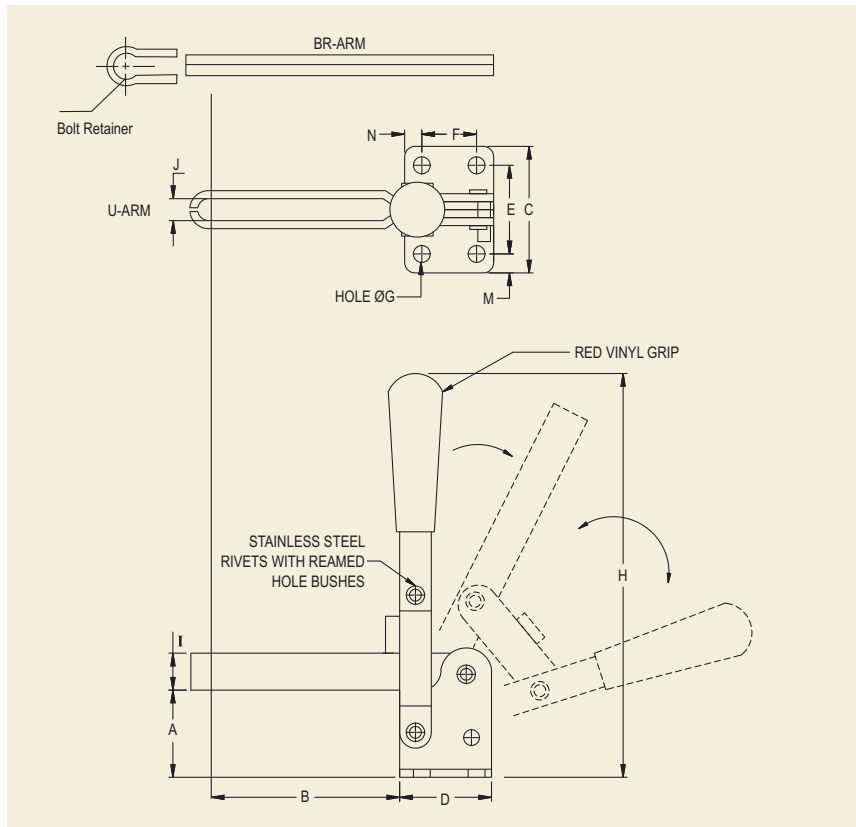
Toggle Clamps

HOLD DOWN TOGGLE CLAMP - VERTICAL HANDLE - FLANGED BASE

These toggle clamps have a flanged base with holes for mounting on the fixture plate. Handle remains in vertical position while clamping. Available in two types of clamping arms as shown below:

U - Arm : This is the most widely used type which permits to locate the clamping spindle anywhere along the length of the arm.

BR - Arm : This type of Arm has Strip Arm onto which the bolt retainer can be welded by the user at any desire angle. Bolt retainer is supplied loose with this model.



U-ARM MODEL



BR-ARM MODEL

| MODEL | ARM TYPE | A | B MAX. | MOUNTING BASE | | | | | | | I | J SUITABLE FOR SPINDLE DIA | H | HOLDING CAPACITY | N. W. Kgs. |
|------------|----------|----|-----------|---------------|----|----|------|------|------|-------|----|-------------------------------|-----|---------------------|---------------|
| | | | | C | D | E | F | M | N | ØG | | | | | |
| VHDT-19-U | U-ARM | 19 | 35 | 32 | 26 | 24 | 15 | 4 | 5.5 | 4.5Ø | 12 | M-6 | 90 | 70 Kgs. | 0.11 |
| VHDT-19-BR | BR-ARM | | 50 | | | | | | | | | | | | 0.11 |
| VHDT-25-U | U-ARM | 25 | 35 | 40 | 26 | 27 | 13 | 6.5 | 6.5 | 5.5Ø | 10 | M-6 | 100 | 100 Kgs. | 0.18 |
| VHDT-25-BR | BR-ARM | | 50 | | | | | | | | | | | | 0.19 |
| VHDT-26-U | U-ARM | 25 | 43 | 38 | 30 | 27 | 16 | 5.5 | 7 | 5.5Ø | 10 | M-6 | 100 | 100 Kgs. | 0.18 |
| VHDT-26-BR | BR-ARM | | 60 | | | | | | | | | | | | 0.19 |
| VHDT-32-U | U-ARM | 32 | 65 | 43 | 35 | 32 | 19 | 5.5 | 8 | 6.8Ø | 16 | M-8 | 145 | 200 Kgs. | 0.34 |
| VHDT-32-BR | BR-ARM | | 90 | | | | | | | | | | | | 0.35 |
| VHDT-36-U | U-ARM | 36 | 65 | 58 | 35 | 38 | 19 | 10 | 8 | 6.8Ø | 16 | M-8 | 150 | 200 Kgs. | 0.35 |
| VHDT-36-BR | BR-ARM | | 90 | | | | | | | | | | | | 0.36 |
| VHDT-45-U | U-ARM | 45 | 95 | 62 | 45 | 44 | 28 | 9 | 8.5 | 8.5Ø | 18 | M-10 | 210 | 400 Kgs. | 0.74 |
| VHDT-45-BR | BR-ARM | | 120 | | | | | | | | | | | | 0.75 |
| VHDT-46-U | U-ARM | 46 | 95 | 82 | 45 | 55 | 25 | 13.5 | 10 | 8.5Ø | 18 | M-10 | 206 | 400 Kgs. | 0.74 |
| VHDT-46-BR | BR-ARM | | 120 | | | | | | | | | | | | 0.75 |
| VHDT-50-U | U-ARM | 50 | 130 | 72 | 45 | 45 | 25 | 13.5 | 10 | 8.5Ø | 18 | M-10 | 210 | 350 Kgs. | 0.79 |
| VHDT-50-BR | BR-ARM | | 150 | | | | | | | | | | | | 0.81 |
| VHDT-60-U | U-ARM | 60 | 120 | 70 | 55 | 53 | 36.5 | 8.5 | 9 | 8.5Ø | 20 | M-10 | 270 | 500 Kgs. | 1.35 |
| VHDT-60-BR | BR-ARM | | 140 | | | | | | | | | | | | 1.37 |
| VHDT-80-U | U-ARM | 80 | 135 | 95 | 75 | 70 | 50 | 12.5 | 12.5 | 10.5Ø | 32 | M-16 | 340 | 700 Kgs. | 2.28 |
| VHDT-80-BR | BR-ARM | | 155 | | | | | | | | | | | | 2.31 |
| VHDT-85-U | U-ARM | 85 | 150 | 90 | 76 | 60 | 45 | 15 | 15.5 | 8.5Ø | 32 | M-16 | 346 | 700 Kgs. | 2.30 |
| VHDT-85-BR | BR-ARM | | 170 | | | | | | | | | | | | 2.34 |

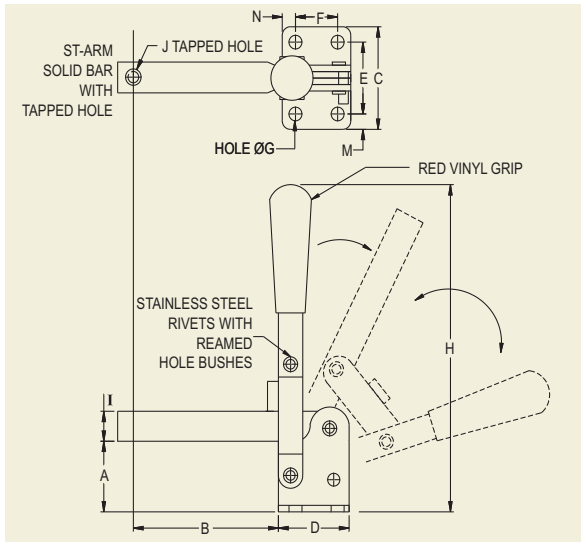
Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly is provided as standard accessory with all above clamps. U-Arm models are provided with 2 nos. U-Flanged Washers also along with clamping spindle assembly and BR-arm models are provided with bolt retainers along with clamping spindle assembly.

Optional Accessories : User can select an optional clamping spindle assembly as per the application from the different types of clamping spindle assemblies shown on one of the following pages and order these separately.

Toggle Clamps

HOLD DOWN TOGGLE CLAMP - VERTICAL HANDLE - SOLID ARM

These toggle clamps have a Solid Arm with a tapped hole at the end. This arm can also be cut to any length and hole can be made at any desired position or a separate clamping assembly can be welded at any desired point as per the application.

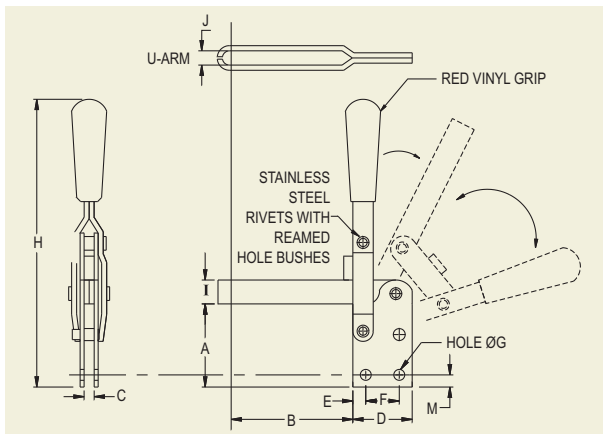


| MODEL | ARM TYPE | A | B | MOUNTING BASE | | | | | | | I | J TAPPED HOLE | H | HOLDING CAPACITY | N. W. Kgs. |
|------------|----------|----|-----|---------------|----|----|------|------|------|-------|----|---------------|-----|------------------|------------|
| | | | | C | D | E | F | M | N | ØG | | | | | |
| VHDT-25-ST | ST-ARM | 25 | 35 | 40 | 26 | 27 | 13 | 6.5 | 6.5 | 5.5Ø | 10 | M-6 | 100 | 150 Kgs. | 0.17 |
| VHDT-32-ST | ST-ARM | 32 | 65 | 43 | 35 | 32 | 19 | 5.5 | 8 | 6.8Ø | 16 | M-8 | 145 | 250 Kgs. | 0.41 |
| VHDT-45-ST | ST-ARM | 45 | 95 | 62 | 45 | 44 | 28 | 9 | 8.5 | 8.5Ø | 18 | M-10 | 210 | 500 Kgs. | 0.84 |
| VHDT-60-ST | ST-ARM | 60 | 120 | 70 | 55 | 53 | 36.5 | 8.5 | 9 | 8.5Ø | 20 | M-10 | 270 | 600 Kgs. | 1.60 |
| VHDT-80-ST | ST-ARM | 80 | 135 | 95 | 75 | 70 | 50 | 12.5 | 12.5 | 10.5Ø | 28 | M-16 | 340 | 800 Kgs. | 2.71 |

Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly is provided as standard accessory with all above clamps.

HOLD DOWN TOGGLE CLAMP - VERTICAL HANDLE - BASE STRAIGHT

These toggle clamps are similar to VHDT models but with Base Straight. Straight Base design enables mounting on a vertical surface.



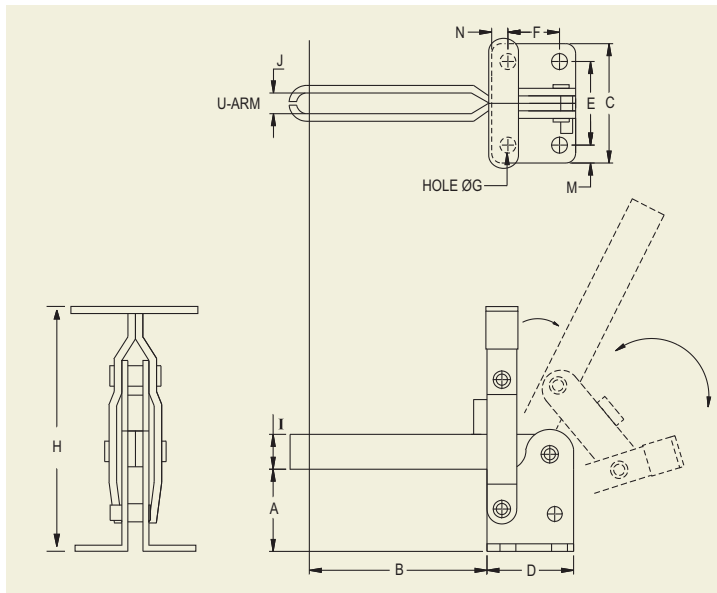
| MODEL | ARM TYPE* | A | B MAX. | MOUNTING BASE | | | | | | | I | J SUITABLE FOR SPINDLE DIA | H | HOLDING CAPACITY | N. W. Kgs. |
|--------------|-----------|-----|--------|---------------|----|------|------|------|-------|----|------|----------------------------|----------|------------------|------------|
| | | | | C | D | E | F | M | ØG | | | | | | |
| VHDT-19-U-BS | U-ARM | 50 | 35 | 4 | 26 | 5.5 | 15 | 4 | 4.5Ø | 12 | M-6 | 100 | 70 Kgs. | 0.11 | |
| VHDT-25-U-BS | U-ARM | 40 | 35 | 6 | 26 | 6.5 | 13 | 6.5 | 5.5Ø | 10 | M-6 | 115 | 100 Kgs. | 0.18 | |
| VHDT-26-U-BS | U-ARM | 36 | 43 | 6 | 30 | 7 | 16 | 5.5 | 5.5Ø | 10 | M-6 | 110 | 100 Kgs. | 0.18 | |
| VHDT-32-U-BS | U-ARM | 47 | 65 | 6 | 35 | 8 | 19 | 5.5 | 6.8Ø | 16 | M-8 | 160 | 200 Kgs. | 0.34 | |
| VHDT-36-U-BS | U-ARM | 57 | 65 | 6 | 35 | 8 | 19 | 10 | 6.8Ø | 16 | M-8 | 173 | 200 Kgs. | 0.35 | |
| VHDT-45-U-BS | U-ARM | 70 | 95 | 8 | 45 | 8.5 | 28 | 9 | 8.5Ø | 18 | M-10 | 235 | 400 Kgs. | 0.74 | |
| VHDT-46-U-BS | U-ARM | 77 | 95 | 8 | 45 | 10 | 25 | 13.5 | 8.5Ø | 18 | M-10 | 235 | 400 Kgs. | 0.74 | |
| VHDT-50-U-BS | U-ARM | 76 | 130 | 8 | 45 | 10 | 25 | 13.5 | 8.5Ø | 18 | M-10 | 235 | 350 Kgs. | 0.79 | |
| VHDT-60-U-BS | U-ARM | 88 | 120 | 8 | 55 | 9 | 36.5 | 8.5 | 8.5Ø | 20 | M-10 | 298 | 500 Kgs. | 1.35 | |
| VHDT-80-U-BS | U-ARM | 125 | 135 | 10 | 75 | 12.5 | 50 | 12.5 | 10.5Ø | 32 | M-16 | 385 | 700 Kgs. | 2.28 | |
| VHDT-85-U-BS | U-ARM | 119 | 150 | 10 | 76 | 15.5 | 45 | 15 | 8.5Ø | 32 | M-16 | 380 | 700 Kgs. | 2.31 | |

* All above base straight models are available with BR ARM or ST ARM also on request.

Toggle Clamps

HOLD DOWN TOGGLE CLAMP - T HANDLE - FLANGED BASE

Smaller sizes of VHDT models are also available in T-Handles. These are available in U-arm models only as shown in table below.

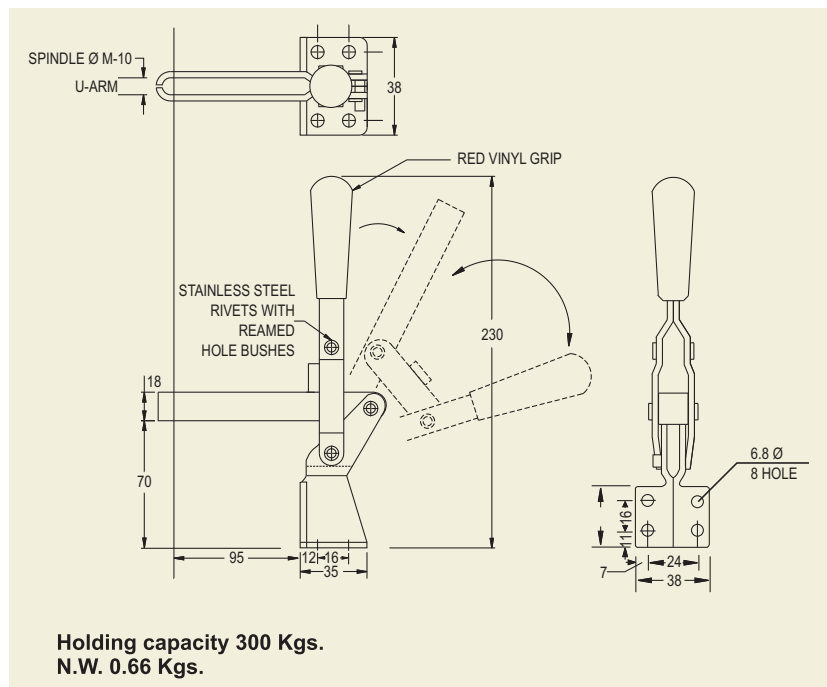


| MODEL | ARM TYPE | A | B MAX. | MOUNTING BASE | | | | | | | I | J SUITABLE FOR SPINDLE DIA | H | HOLDING CAPACITY | N. W. Kgs. |
|------------|----------|----|-----------|---------------|----|----|----|-----|-----|------|----|-------------------------------|-----|---------------------|---------------|
| | | | | C | D | E | F | M | N | ØG | | | | | |
| VHDT-25-TU | U-ARM | 25 | 35 | 40 | 26 | 27 | 13 | 6.5 | 6.5 | 5.5Ø | 10 | M-6 | 80 | 100 Kgs. | 0.18 |
| VHDT-32-TU | U-ARM | 32 | 65 | 43 | 35 | 32 | 19 | 5.5 | 8 | 6.8Ø | 16 | M-8 | 115 | 200 Kgs. | 0.34 |

Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly complete with U-Flanged washers and lock nuts is provided as standard accessory with above clamps.

HOLD DOWN TOGGLE CLAMP - VERTICAL HANDLE - RIGHT ANGLE BASE - Model RATC-70

This model has vertical handle with a right angled dual mounting base which can be base flange mounted as well as front mounted on side wall of a fixture.

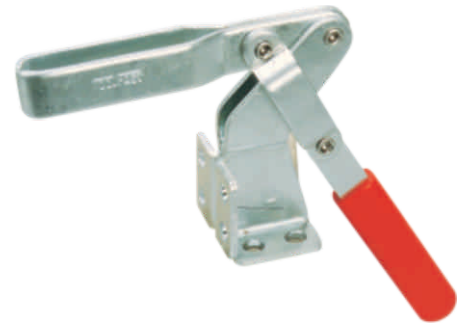
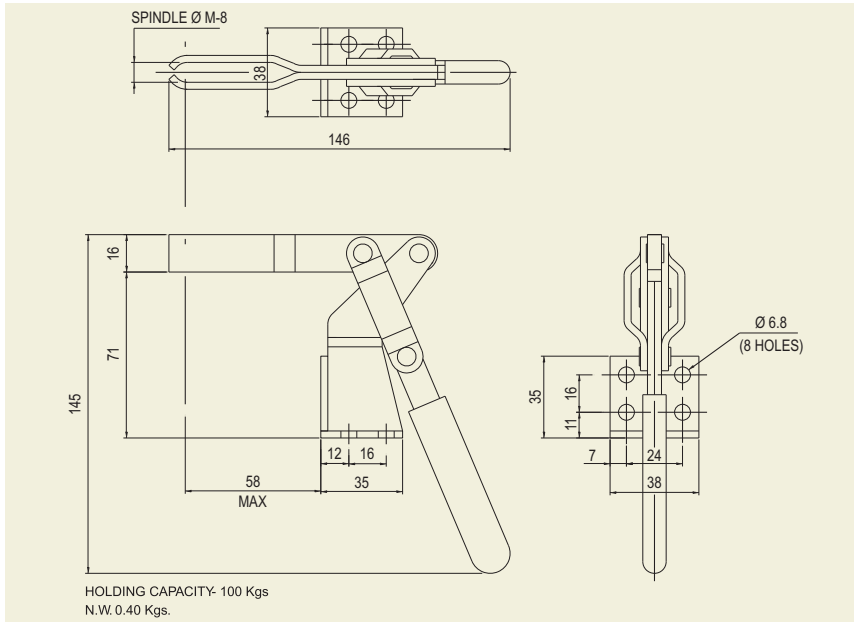


Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly complete with U-Flanged washers and lock nuts is provided as standard accessory with above clamps.

Toggle Clamps

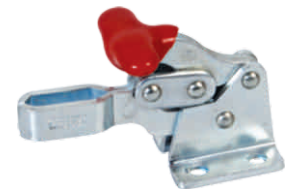
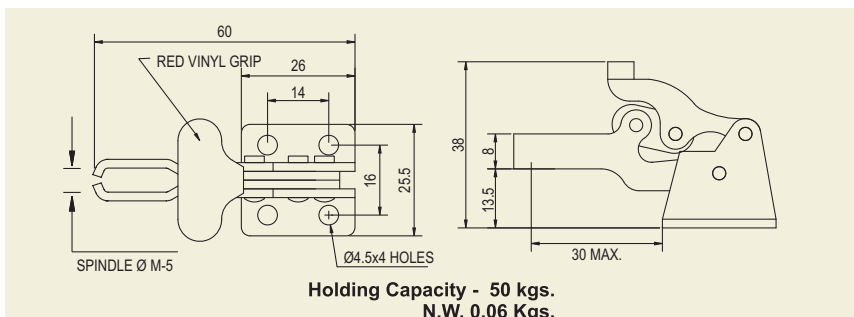
HOLD DOWN TOGGLE CLAMP - DROP HANDLE - Model DTC-70

These are low silhouette clamps with mounting flexibility of front as well as base mounting. Its unique design keeps the arm and handle clear for easy loading and unloading of parts.

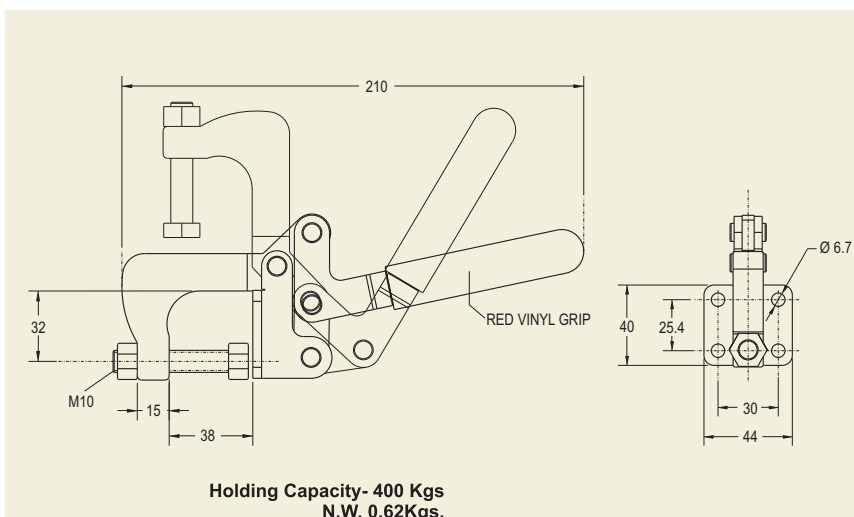


Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly complete with U-Flanged washers and lock nuts is provided as standard accessory with above clamps.

HOLD DOWN TOGGLE CLAMP - FORWARD HANDLE - Model FHTC-13

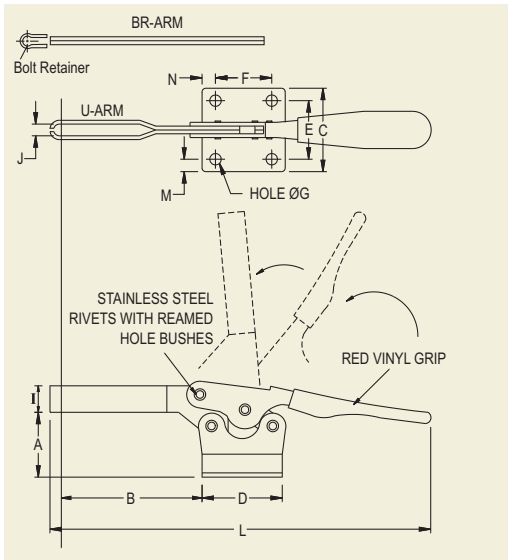


PULL BACK CLAMP - Model PBC-38

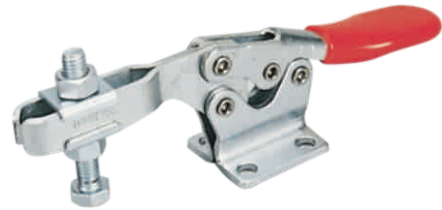


Toggle Clamps

HOLD DOWN TOGGLE CLAMP - HORIZONTAL HANDLE - THUMB TYPE



Low height design of these hold down toggle clamps requires less overhead clearance as the handle remains in horizontal position while clamping.



U-ARM MODEL

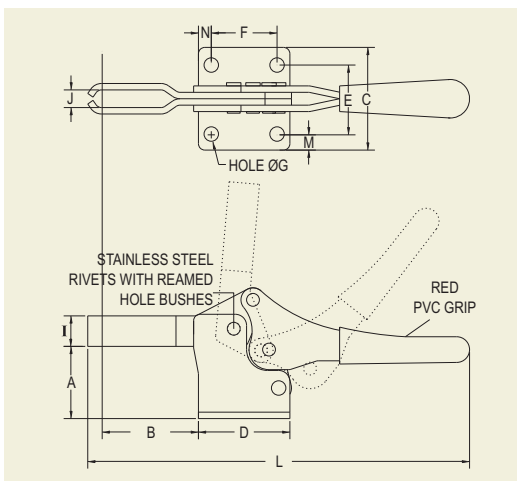


BR-ARM MODEL

| MODEL | ARM TYPE | A | B MAX. | MOUNTING BASE | | | | | | | I | J SUITABLE FOR SPINDLE DIA | L | HOLDING CAPACITY | N. W. Kgs. |
|--------------------------------|----------|----|-----------|---------------|----|------|------|-----|-----|------|----|-------------------------------|-----|---------------------|---------------|
| | | | | C | D | E | F | M | N | ØG | | | | | |
| HDTC-25 | U-ARM | 27 | 59 | 33 | 35 | 21 | 21 | 6 | 7 | 5.5Ø | 12 | M-6 | 150 | 150 Kgs. | 0.15 |
| HDTC-25-BR | BR-ARM | | 68 | | | | | | | | | | | | |
| HDTC-27 | U-ARM | 27 | 59 | 33 | 35 | 22 | 24 | 5.5 | 5.5 | 4.5Ø | 12 | M-6 | 150 | 150 Kgs. | 0.15 |
| HDTC-27-BR | BR-ARM | | 70 | | | | | | | | | | | | |
| HDTC-35 | U-ARM | 37 | 63 | 37 | 38 | 23 | 25 | 7 | 6.5 | 6.8Ø | 13 | M-8 | 172 | 250 Kgs. | 0.26 |
| HDTC-35-BR | BR-ARM | | 75 | | | | | | | | | | | | |
| HDTC-35-HA (High Arm Model) | U-ARM | 54 | 75 | 36 | 38 | 22.2 | 22.2 | 7 | 8 | 6.8Ø | 13 | M-8 | 172 | 250 Kgs. | 0.30 |
| HDTC-36 | U-ARM | 36 | 63 | 40 | 44 | 26 | 29 | 7 | 7.5 | 6.8Ø | 13 | M-8 | 173 | 250 Kgs. | 0.27 |
| HDTC-36-BR | BR-ARM | | 75 | | | | | | | | | | | | |

Standard Accessories provided with Clamp: Standard Hex. Head Clamping Spindle assembly complete with U-Flanged washers and lock nuts is provided as standard accessory with above clamps. Br-arm models are provided with bolt retainers along with clamping spindle assembly.

HOLD DOWN TOGGLE CLAMP - HORIZONTAL HANDLE - LONG TYPE



Low height design of these hold down toggle clamps requires less overhead clearance as the handle remains in horizontal position while clamping. BR Arm models are also available.



U-ARM MODEL

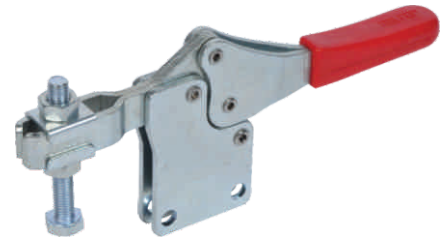
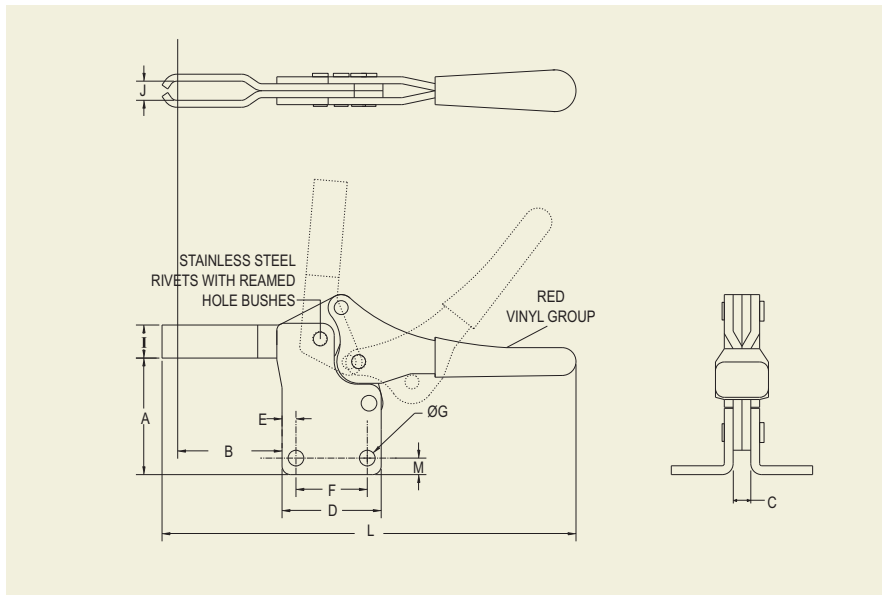


BR-ARM MODEL

| MODEL | ARM TYPE | A | B MAX. | MOUNTING BASE | | | | | | | I | J SUITABLE FOR SPINDLE DIA | L | HOLDING CAPACITY | N. W. Kgs. |
|------------|----------|----|-----------|---------------|----|----|----|-----|-----|------|----|-------------------------------|-----|---------------------|---------------|
| | | | | C | D | E | F | M | N | ØG | | | | | |
| HDTC-45 | U-ARM | 45 | 60 | 64 | 57 | 44 | 41 | 9.5 | 8 | 9Ø | 19 | M-10 | 238 | 500 Kgs. | 0.74 |
| HDTC-45-BR | BR-ARM | | 80 | | | | | | | | | | | | |
| HDTC-46 | U-ARM | 46 | 106 | 55 | 57 | 38 | 40 | 8.5 | 8.5 | 8.3Ø | 19 | M-10 | 302 | 500 Kgs. | 0.76 |
| HDTC-46-BR | BR-ARM | | 120 | | | | | | | | | | | | |
| HDTC-50 | U-ARM | 50 | 105 | 56 | 57 | 37 | 41 | 9.5 | 8 | 9Ø | 19 | M-10 | 285 | 500 Kgs. | 0.80 |
| HDTC-50-BR | BR-ARM | | 125 | | | | | | | | | | | | |
| HDTC-57 | U-ARM | 61 | 142 | 62 | 65 | 40 | 45 | 11 | 10 | 8.3Ø | 19 | M-10 | 322 | 500 Kgs. | 0.91 |
| HDTC-57-BR | BR-ARM | | 160 | | | | | | | | | | | | |

Toggle Clamps

HOLD DOWN TOGGLE CLAMP - HORIZONTAL HANDLE - BASE STRAIGHT



| MODEL | ARM TYPE* | A | B MAX. | MOUNTING BASE | | | | | | I | J SUITABLE FOR SPINDLE DIA | L | HOLDING CAPACITY | N. W. Kgs. |
|------------|-----------|----|--------|---------------|----|---|----|-----|----|----|----------------------------|-----|------------------|------------|
| | | | | C | D | E | F | M | ØG | | | | | |
| HDTC-45-BS | U-ARM | 67 | 60 | 8 | 57 | 8 | 41 | 9.5 | 9 | 19 | M-10 | 238 | 500 Kgs. | 0.74 |
| HDTC-50-BS | U-ARM | 67 | 105 | 8 | 57 | 8 | 41 | 9.5 | 9 | 19 | M-10 | 285 | 500 Kgs. | 0.80 |

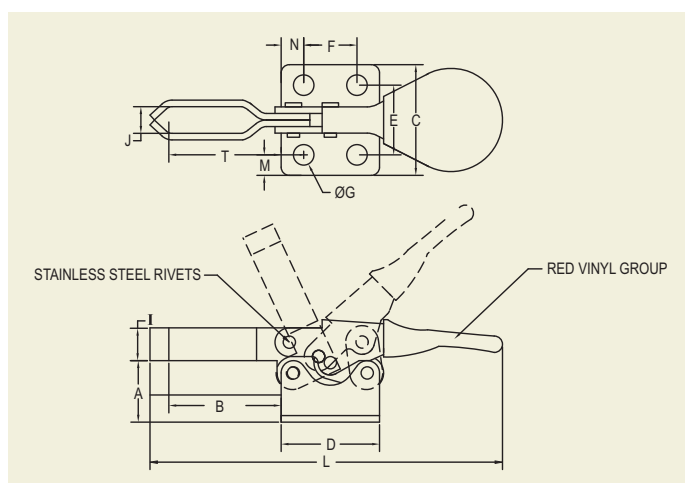
Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly is provided as standard accessory with all above clamps. U-Arm models are provided with 2 nos. U-Flanged Washers also along with clamping spindle assembly and BR-arm models are provided with bolt retainers along with clamping spindle assembly.

Optional Accessories : User can select an optional clamping spindle assembly as per the application from the different types of clamping spindle assemblies shown on one of the following pages and order these separately.

* ABOVE BASE STRAIGHT MODELS ARE AVAILABLE WITH BR ARM ALSO ON REQUEST

HOLD DOWN TOGGLE CLAMP - HORIZONTAL HANDLE - MINIATURE SERIES

These two models are miniature versions of horizontal handle clamps useful for light and miniature applications.



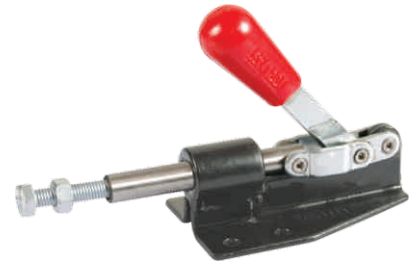
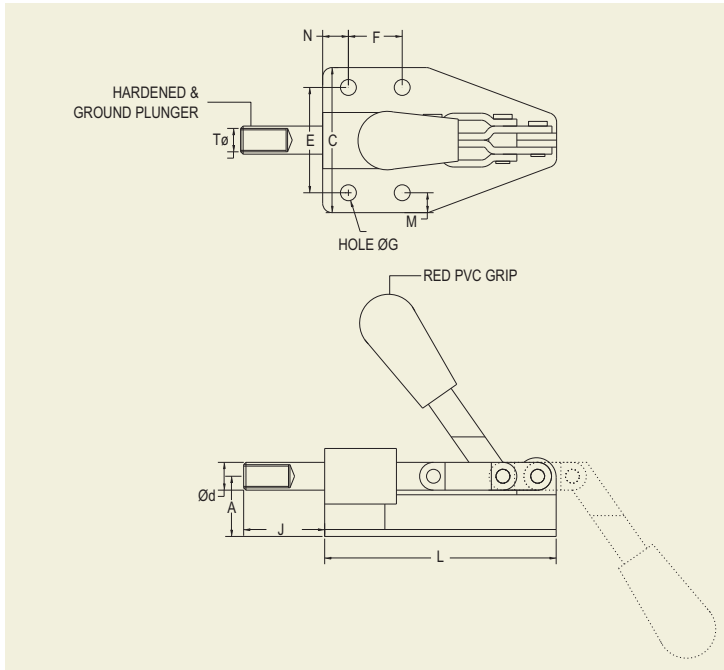
| MODEL | ARM * TYPE | A | B MAX. | MOUNTING BASE | | | | | | I | J SUITABLE FOR SPINDLE DIA | L | HOLDING CAPACITY | N. W. Kgs. | |
|---------|------------|----|--------|---------------|----|----|----|---|-----|------------|----------------------------|-----|------------------|------------|-------|
| | | | | C | D | E | F | M | N | | | | | | ØG |
| HDTC-8 | U-ARM | 8 | 16 | 24 | 24 | 16 | 14 | 4 | 5 | Slot 7x4.5 | 6 | M-4 | 68 | 25 Kgs. | 0.03 |
| HDTC-15 | U-ARM | 15 | 27 | 27 | 24 | 17 | 13 | 5 | 5.5 | 5Ø | 8 | M-6 | 86 | 50 Kgs. | 0.055 |

Toggle Clamps

PUSH / PULL ACTION TOGGLE CLAMP - FRONT BASE - STEEL FABRICATED BODY

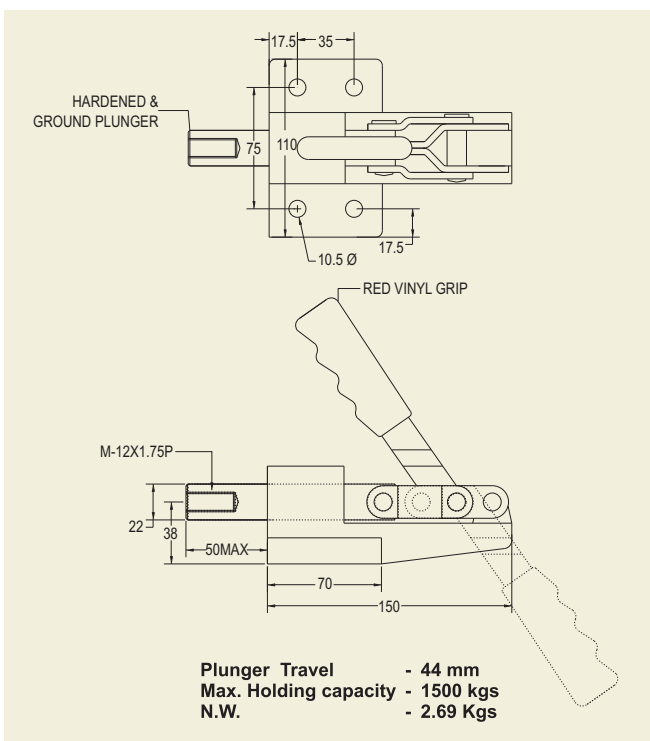
Push/Pull Action Toggle Clamps have a straight line action as the plunger moves in straight line forward & backward with easy to operate handle. The plunger moves forward and locks as the handle is moved forward and plunger also locks in retracted position when handle is moved backward. Hence these clamps can be used as push as well as pull action clamps. Hardened & ground plunger moves in precision machined bore.

This model with front base is most popular because of its rigidity due to mounting base just under the load bearing surface of plunger movement.



| MODEL | PLUNGER Ø dØ | TØ | A | PLUNGER TRAVEL | MOUNTING BASE | | | | | | J MAX. | L | HOLDING CAPACITY | N. W. Kgs. |
|------------|--------------|----------|----|----------------|---------------|----|----|-----|----|------|--------|-----|------------------|------------|
| | | | | | C | E | F | M | N | ØG | | | | |
| PATC-9-FB | 9Ø | M-5x0.8 | 15 | 28 | 50 | 36 | 20 | 7 | 8 | 5Ø | 32 | 80 | 200 Kgs. | 0.18 |
| PATC-12-FB | 12Ø | M-8x1.25 | 26 | 30 | 62 | 45 | 23 | 8.5 | 11 | 6.8Ø | 35 | 100 | 600 Kgs. | 0.47 |
| PATC-16-FB | 16Ø | M-10x1.5 | 30 | 36 | 80 | 60 | 28 | 10 | 14 | 8.5Ø | 42 | 125 | 1000 Kgs. | 0.92 |

PUSH / PULL ACTION TOGGLE CLAMP - FRONT BASE - C.I. BODY - PATC-22-FB



Standard Accessories provided with Clamp:

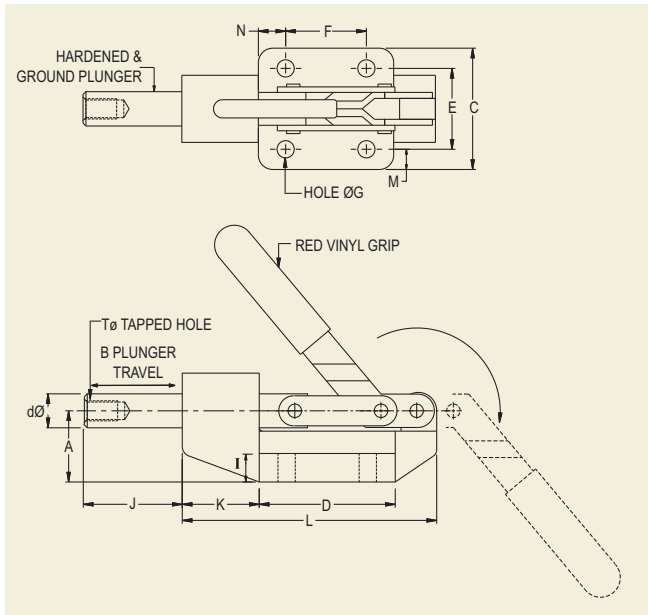
Standard Hex. Head Clamping Spindle assembly is provided as standard accessory.

Optional Accessories:

User can select an optional clamping spindle assembly as per the application from the different types of clamping spindle assemblies shown on one of the following pages and order these separately.

Toggle Clamps

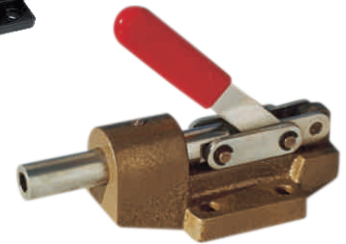
PUSH / PULL ACTION TOGGLE CLAMP - CENTRE BASE



Push/Pull Action Toggle Clamp - Centre Base has its base at the centre and the bigger sizes have more centre height than the front base model to accommodate larger work pieces. Width of the mounting base is also less in this case which makes this type of push action clamp more compact. Other features of this clamp are same as in case of front base model.



PATC-12-CB - STEEL BODY
PATC-16-CB - STEEL BODY



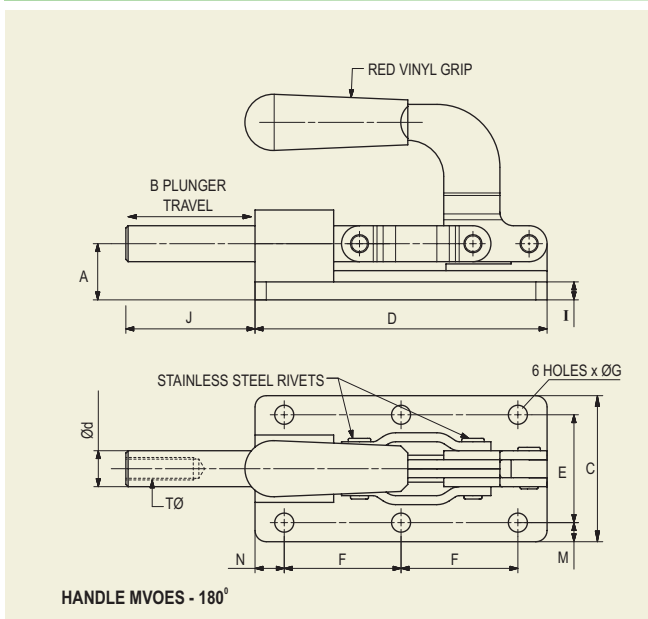
PATC-22-CB - C.I. BODY

| MODEL | PLUNGER DIA dØ | TØ | A | PLUNGER TRAVEL B | MOUNTING BASE | | | | | | | | I | J MAX. | K | L | HOLDING CAPACITY | BODY | N. W. Kgs. |
|--------------|----------------|-----------|----|------------------|---------------|----|----|----|------|------|-------|----|----|--------|-----|-----------|------------------|------|------------|
| | | | | | C | D | E | F | M | N | ØG | | | | | | | | |
| PATC-12-CB | 12Ø | M-8x1.25 | 26 | 30 | 55 | 55 | 35 | 35 | 10 | 10 | 6.8Ø | 6 | 35 | 28 | 100 | 400 Kgs. | STEEL | 0.51 | |
| PATC-1238-CB | 12Ø | M-8x1.25 | 26 | 30 | 55 | 55 | 38 | 38 | 8.5 | 8.5 | 6.8Ø | 6 | 35 | 28 | 100 | 400 Kgs. | STEEL | 0.51 | |
| PATC-16-CB | 16Ø | M-10x1.5 | 35 | 36 | 60 | 67 | 40 | 40 | 10 | 13.5 | 8.5Ø | 7 | 43 | 38 | 125 | 700 Kgs. | STEEL | 1.00 | |
| PATC-1642-CB | 16Ø | M-10x1.5 | 35 | 36 | 60 | 67 | 42 | 42 | 9 | 12.5 | 6.8Ø | 7 | 43 | 38 | 125 | 700 Kgs. | STEEL | 1.00 | |
| PATC-22-CB | 22Ø | M-12x1.75 | 45 | 60 | 75 | 75 | 50 | 50 | 12.5 | 12.5 | 10.5Ø | 16 | 62 | 46 | 162 | 1000 Kgs. | C.I. | 2.80 | |

Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly is provided as standard accessory.

Optional Accessories : User can select an optional clamping spindle assembly as per the application from the different types of clamping spindle assemblies shown on one of the following pages and order these separately.

PUSH / PULL ACTION TOGGLE CLAMP - LONG TRAVEL



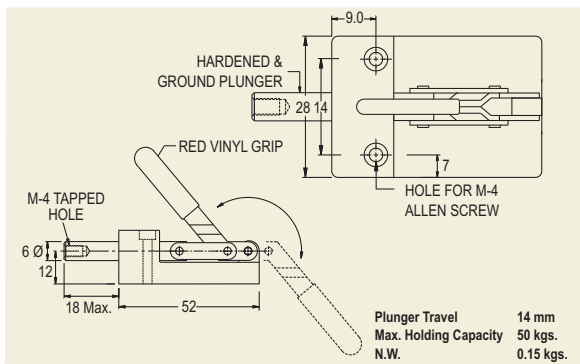
HANDLE MOVES - 180°



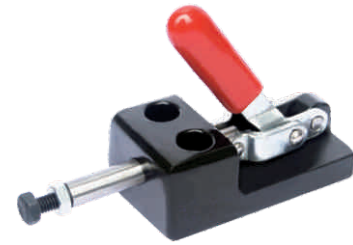
| MODEL | PLUNGER DIA dØ | TØ | A | PLUNGER TRAVEL B | MOUNTING BASE | | | | | | | | I | J MAX. | HOLDING CAPACITY | BODY | N. W. Kgs. |
|------------|----------------|------|----|------------------|---------------|-----|----|------|-----|----|------|----|----|--------|------------------|-------|------------|
| | | | | | C | D | E | F | M | N | ØG | | | | | | |
| PATC-12-LT | 12Ø | M-8 | 20 | 40 | 60 | 110 | 45 | 47 | 7.5 | 8 | 6.5Ø | 6 | 41 | | 600 Kgs. | STEEL | 0.74 |
| PATC-16-LT | 16Ø | M-10 | 25 | 50 | 65 | 130 | 48 | 52 | 8.5 | 13 | 8.5Ø | 8 | 58 | | 800 Kgs. | STEEL | 1.23 |
| PATC-20-LT | 20Ø | M-12 | 30 | 75 | 75 | 185 | 55 | 82.5 | 10 | 10 | 8.5Ø | 10 | 92 | | 1200 Kgs. | C.I. | 2.81 |

Toggle Clamps

PUSH / PULL ACTION TOGGLE CLAMP - MINIATURE MODEL - PATC - 6



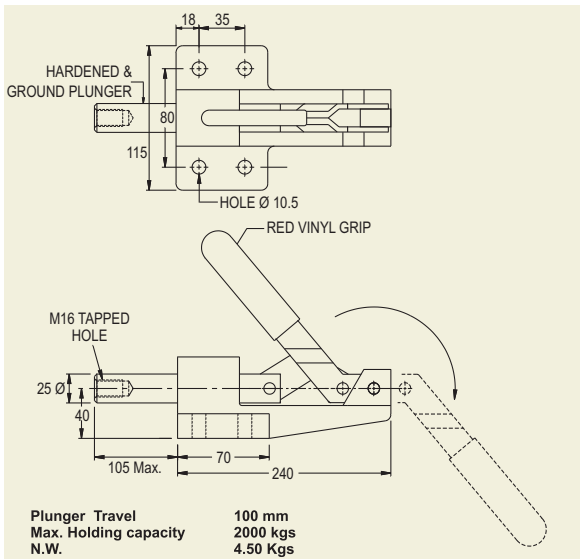
This is a Miniature Model of Push/Pull Action Toggle Clamp useful for light clamping where less space is available.



Standard Accessories provided with Clamp: Standard Hex. Head Clamping Spindle assembly is provided as standard accessory.

PUSH / PULL ACTION TOGGLE CLAMP - HEAVY DUTY - Model PATC-25

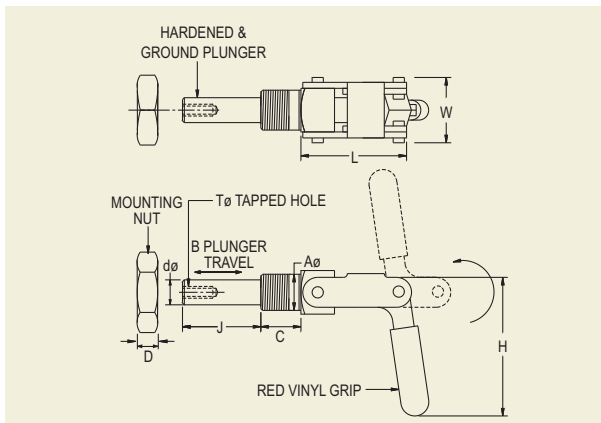
This is a Heavy Duty version of Push/Pull Action Toggle Clamp useful where high clamping force or long plunger travel is required.



Standard Accessories provided with Clamp: Standard Hex. Head Clamping Spindle assembly is provided as standard accessory.

PUSH / PULL ACTION TOGGLE CLAMP - FRONT MOUNTING TYPE

Push/Pull Action Toggle Clamps - Front Mounting Type are simply flush mounted through a panel or plate by a hexagonal lock nut on the work piece side. Can also be mounted directly into a tapped hole without using the nut. Plunger is hardened & ground. These clamps can also be used as push as well as pull action clamps.



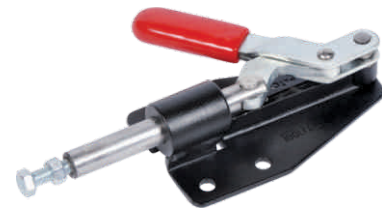
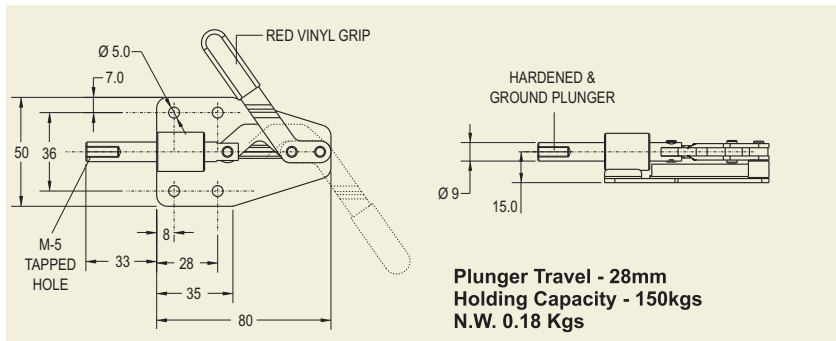
| MODEL | PLUNGER DIA dØ | TØ TAPPED HOLE | MOUNTING THREAD SIZE AØ | PLUNGER TRAVEL B | C | D | J | L | W | H | HOLDING CAPACITY | N. W. Kgs. |
|---------|----------------|----------------|-------------------------|------------------|----|----|----|----|----|-----|------------------|------------|
| PAFM-9 | 9 | M-5 x 0.8 P | M-16 x 1.5 P | 25 | 11 | 6 | 36 | 35 | 26 | 75 | 50 Kgs. | 0.13 |
| PAFM-12 | 12 | M-8 x 1.25 P | M-20 x 1.5 P | 36 | 16 | 8 | 41 | 50 | 31 | 103 | 100 Kgs. | 0.32 |
| PAFM-16 | 16 | M-10 x 1.5 P | M-24 x 2.0 P | 65 | 25 | 10 | 65 | 84 | 43 | 143 | 350 kgs. | 0.86 |

Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly is provided as standard accessory.

Optional Accessories : User can select an optional clamping spindle assembly as per the application from the different types of clamping spindle assemblies shown on one of the following pages and order these separately.

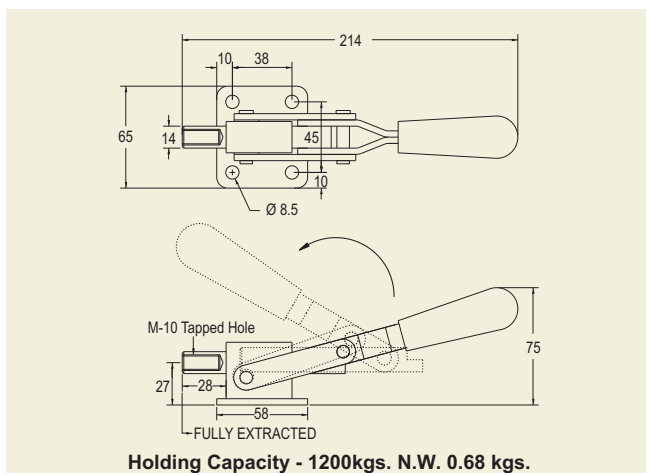
Toggle Clamps

PUSH / PULL ACTION TOGGLE CLAMP - SIDE HANDLE-PATC-9-FB-SH



PUSH / PULL ACTION TOGGLE CLAMP - REVERSE HANDLE - MODEL PAR-14

These Push / Pull Action Toggle clamps have reverse handle action as the plunger moves in pushing position when the handle is moved back towards the operator. Hence, these clamps are most suitable for operations where the operator has to keep hand away from the workpiece while locking the clamp.

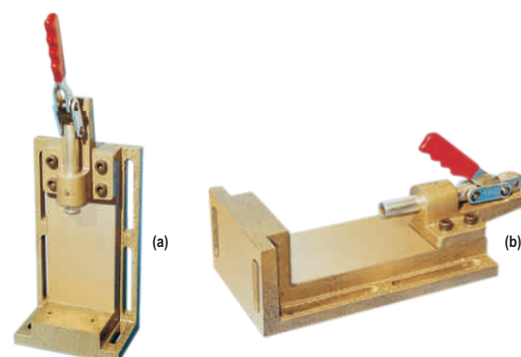
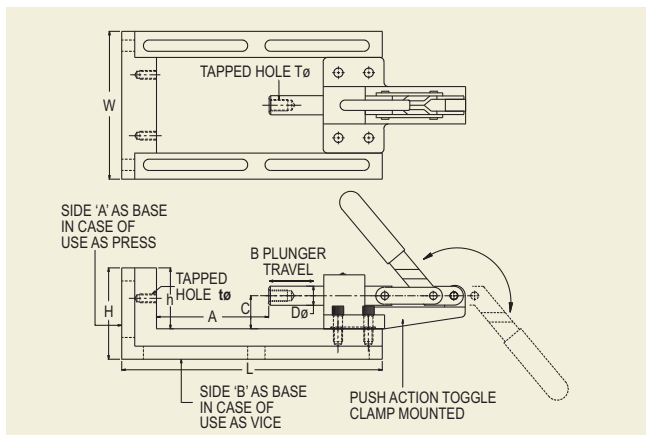


TOGGLE VICE CUM PRESS

Toggle vice cum press is a multifunction quick action vice cum press having a unique design with precision machined body on which Push Action Toggle Clamp of suitable model is mounted to make it a very versatile tool.

Toggle Vice: When side 'B' is used as base, it can be used as a quick action vice as shown in picture (b) or you can make your own drill Jig on it

Toggle Press : When side 'A' is used as base, it can be used as a toggle press for light press operations as shown in picture (a)

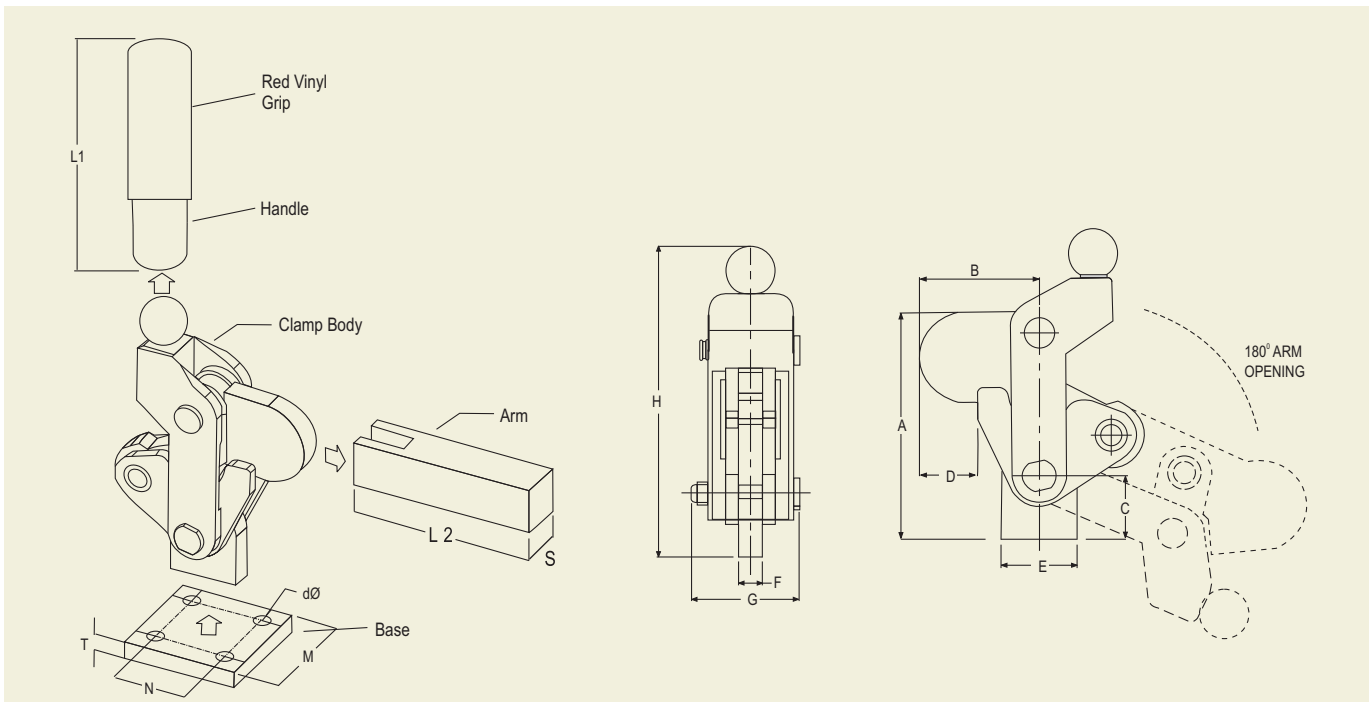
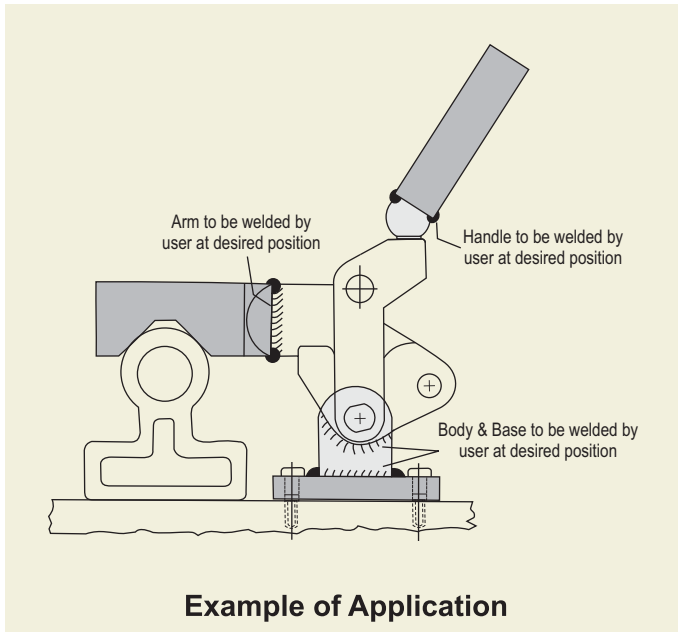


| MODEL | A | PLUNGER TRAVEL B | C | DØ | TØ | tø | h | L | W | H | PUSH ACTION TOGGLE CLAMP MOUNTED | CAPACITY | N. W. Kgs. |
|--------|-----|------------------|----|-----|------|------|----|-----|-----|-----|----------------------------------|-----------|------------|
| TVP-12 | 100 | 30 | 26 | 12Ø | M-8 | M-6 | 50 | 205 | 110 | 70 | MODEL PATC-12-FB | 600 Kgs. | 3.7 |
| TVP-16 | 120 | 36 | 30 | 16Ø | M-10 | M-8 | 60 | 250 | 138 | 90 | MODEL PATC-16-FB | 1000 Kgs. | 7.6 |
| TVP-22 | 140 | 44 | 38 | 22Ø | M-12 | M-10 | 70 | 300 | 170 | 105 | MODEL PATC-22-FB | 1500 Kgs. | 15.0 |

Toggle Clamps

HEAVY DUTY WELDABLE TOGGLE CLAMP - MODULAR DESIGN

These are modular weldable clamps which allow the designer complete flexibility to position the base, clamp arm and handle and weld them in any desired position to suit the application. The base, arm and the pipe handle are supplied alongwith the clamp separately, to be welded by the user before use. The main body is made of accurately machined components having hardened and ground pivot pins and bushes.



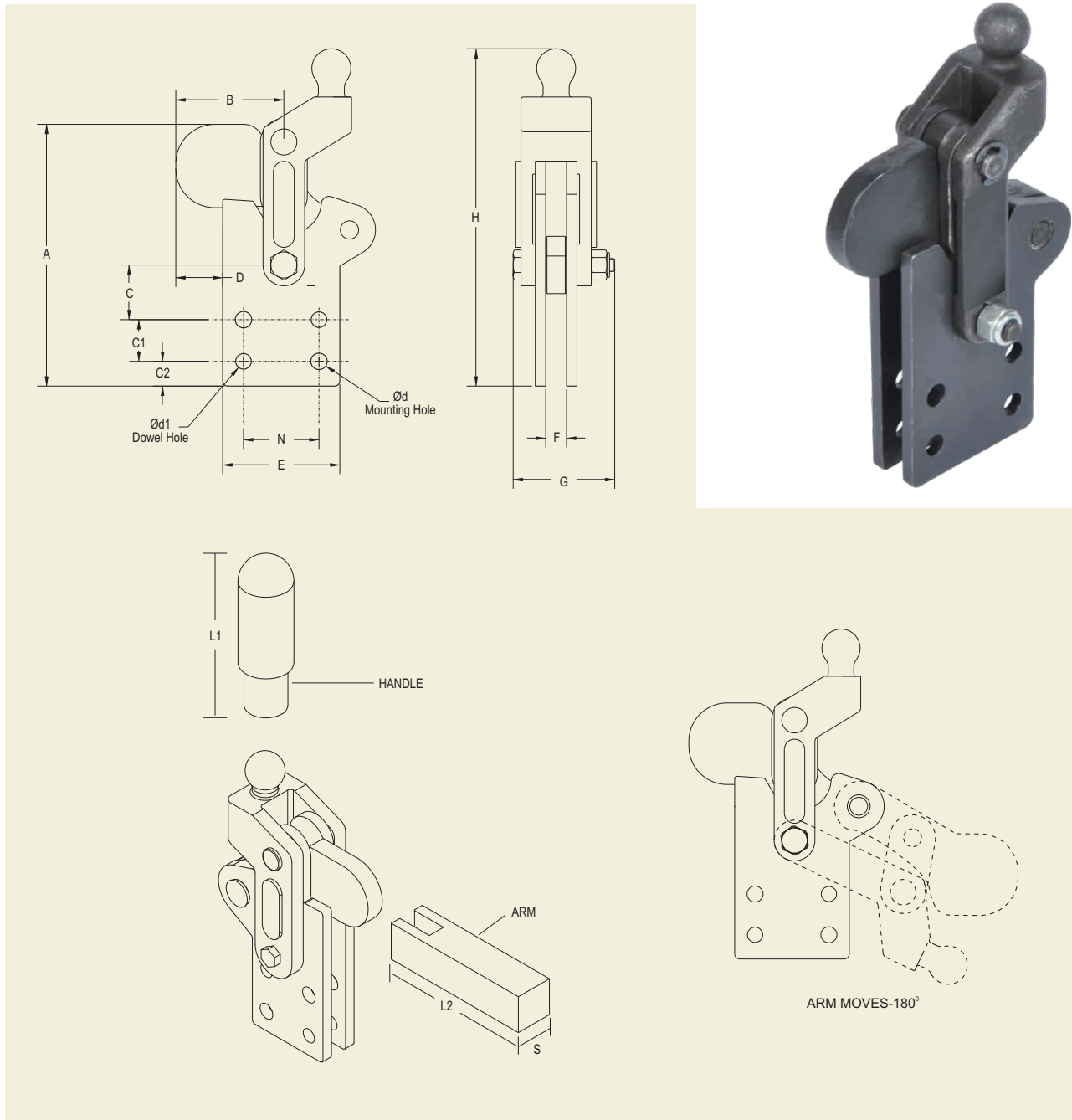
Base, Arm and Handle shown above are standard parts included in supply (loose) along with clamp body

| MODEL | A | B | C | D | E | F | G | H | L1 | M Sq. | N Sq. | T | dØ | L2 | S Sq. | HOLDING CAPACITY | N. W. Kgs. |
|---------|-----|----|----|----|----|----|----|-----|-----|-------|-------|---|----|-----|-------|------------------|------------|
| WTC-200 | 75 | 42 | 21 | 18 | 24 | 8 | 39 | 104 | 82 | 45 | 29 | 6 | 7 | 75 | 20 | 500 Kgs. | 0.81 |
| WTC-300 | 91 | 53 | 26 | 26 | 30 | 10 | 47 | 127 | 90 | 50 | 30 | 8 | 7 | 90 | 22 | 700 Kgs. | 1.38 |
| WTC-500 | 106 | 59 | 32 | 30 | 36 | 12 | 55 | 152 | 114 | 63 | 40 | 9 | 9 | 100 | 25 | 1100 Kgs. | 2.23 |

Toggle Clamps

HEAVY DUTY WELDABLE TOGGLE CLAMP - MODULAR DESIGN - BASE STRAIGHT

These are straight base version of WTC series. All other features are same. Arm and handle are supplied loose alongwith the clamp which will be welded at desired position before use.



Arm and Handle shown above are standard parts included in supply (loose) along with clamp body.

| MODEL | A | B | C | D | E | F | G | H | dØ | d1Ø | C1 | C2 | N | L1 | L2 | S Sq. | HOLDING CAPACITY | N. W. Kgs. |
|------------|-----|----|----|----|----|----|----|-----|-----|-----|----|-----|----|-----|-----|-------|------------------|------------|
| WTC-200 BS | 101 | 42 | 21 | 18 | 45 | 8 | 39 | 130 | 6.3 | 6 | 16 | 9.5 | 26 | 82 | 75 | 20 | 500 Kgs. | 0.82 |
| WTC-300 BS | 122 | 53 | 20 | 26 | 50 | 10 | 47 | 158 | 9 | 8 | 25 | 12 | 30 | 90 | 90 | 22 | 700 Kgs. | 1.40 |
| WTC-500 BS | 132 | 59 | 23 | 30 | 53 | 12 | 55 | 178 | 9 | 8 | 25 | 10 | 35 | 114 | 100 | 25 | 1100 Kgs. | 2.24 |

Toggle Latch Clamps

PULL ACTION CLAMP- LATCH TYPE - HORIZONTAL CUM VERTICAL

Pull Action Clamps are Latch type clamps used for sealing chambers, lids, doors of moulds, drums, containers or other vessels etc. Also suitable for clamping moulds in industries such as resin, fibre glass, chemical & food.

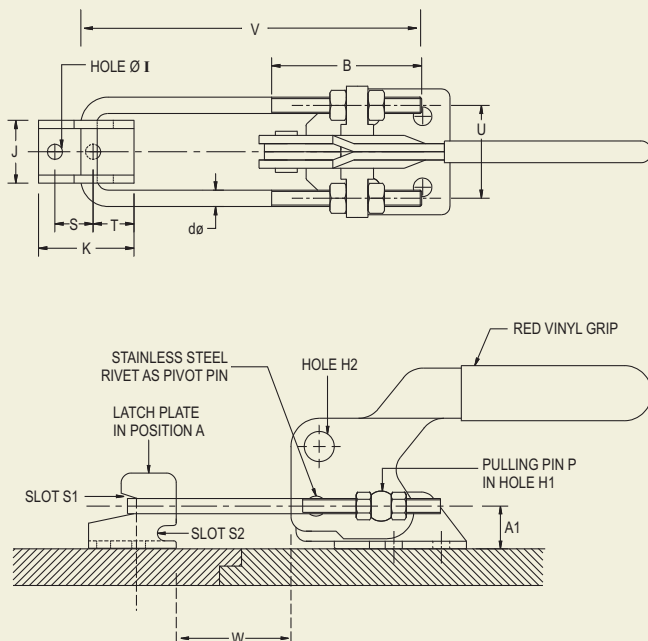
Pull Action Clamp has a unique design which enables use of the same clamp as a horizontal pull action clamp as shown in figure (A) as well as a vertical pull action clamp as shown in figure (B) below by using two different holes H1 and H2 for pulling pin P to be located in. Clamp is supplied complete with U-bolt & Latch Plate.

Same Clamp Can Be Used For Horizontal As well As Vertical Locking



Figure (A): PAC being used as Horizontal Pull Action Clamp

The pulling PIN P alongwith the U-Bolt is assembled using Hole H1 so that the Clamp is used for Horizontal Locking as shown below

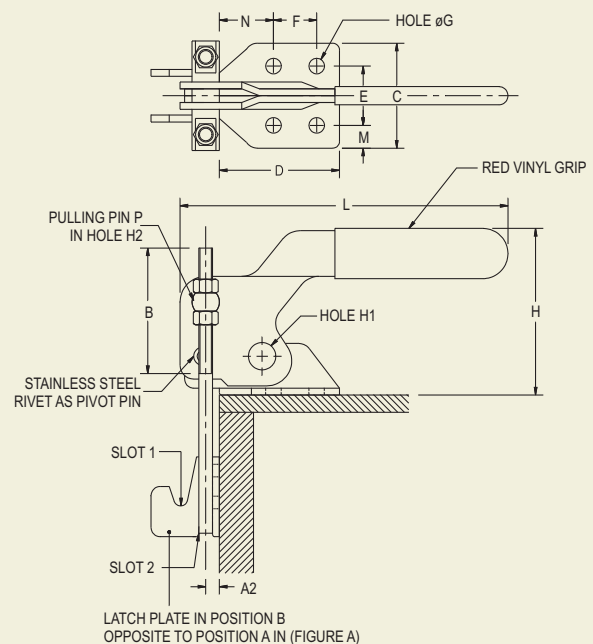


Locking is done when Adjustable U-Bolt is placed around the Slot S1 of Latch Plate in position A and the Handle is pulled down to reach the Lock Position

To ensure that the Clamp Locks positively, it is important that the Base of clamp and the Base of Latch Plate are properly aligned as shown above.

Figure (B): PAC being used as Vertical Pull Action Clamp

The pulling PIN P alongwith the U-Bolt is assembled using Hole H2 so that the Clamp is used for Vertical Locking as shown below.



Locking is done when Adjustable U-Bolt is placed around the Slot S2 of Latch Plate in position B and the Handle is pulled down to reach the Lock Position.

To ensure that the Clamp Locks positively, it is important that the Base of the Latch Plate is aligned with the Front Edge of the Clamp Base in perpendicular position as shown above.

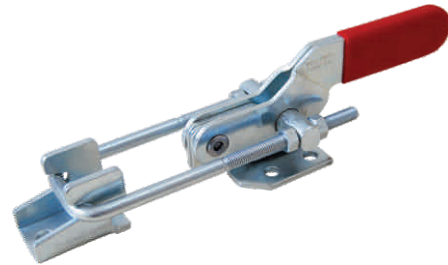
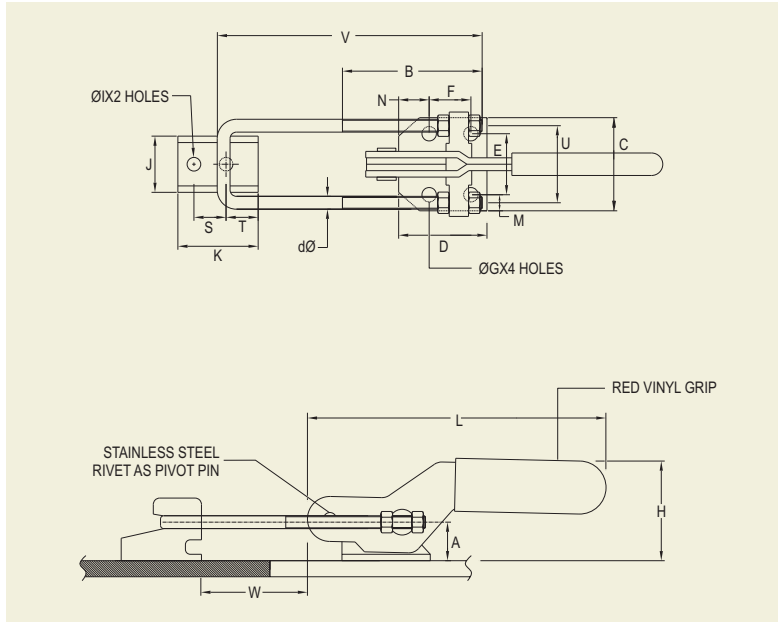
| MODEL | A1 | A2 | dø | U | V | B THREAD LENGTH | W | | MOUNTING BASE OF CLAMP | | | | | | | MOUNTING BASE OF LATCH PLATE | | | | | H | L | HOLDING CAPACITY | N. W. Kgs. |
|----------|----|----|----|----|-----|-----------------------|------|------|---------------------------|----|----|----|----|----|------|---------------------------------|----|----|----|------|----|-----|---------------------|---------------|
| | | | | | | | Min. | Max. | C | D | E | F | M | N | GØ | J | K | S | T | IØ | | | | |
| PAC-4-HV | 13 | 4 | 4Ø | 22 | 90 | 52 | 5 | 42 | 32 | 35 | 20 | 15 | 6 | 14 | 5Ø | 15 | 30 | 12 | 12 | 5Ø | 53 | 100 | 150 Kgs. | 0.16 |
| PAC-6-HV | 17 | 6 | 6Ø | 34 | 128 | 68 | 5 | 55 | 46 | 54 | 26 | 19 | 10 | 19 | 6.8Ø | 23 | 36 | 15 | 15 | 5.5Ø | 75 | 152 | 400 Kgs. | 0.49 |
| PAC-8-HV | 24 | 8 | 8Ø | 48 | 165 | 87 | 5 | 67 | 58 | 55 | 38 | 26 | 10 | 20 | 8.5Ø | 35 | 50 | 20 | 20 | 8.5Ø | 96 | 185 | 900 Kgs. | 1.06 |

PAC-4-HV and PAC-6-HV are also available in stainless steel as model PAC-4-HV-S.S. and PAC-6-HV-S.S. respectively.

Toggle Latch Clamps

PULL ACTION CLAMP - LATCH TYPE - HORIZONTAL

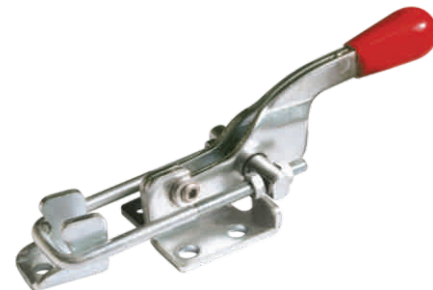
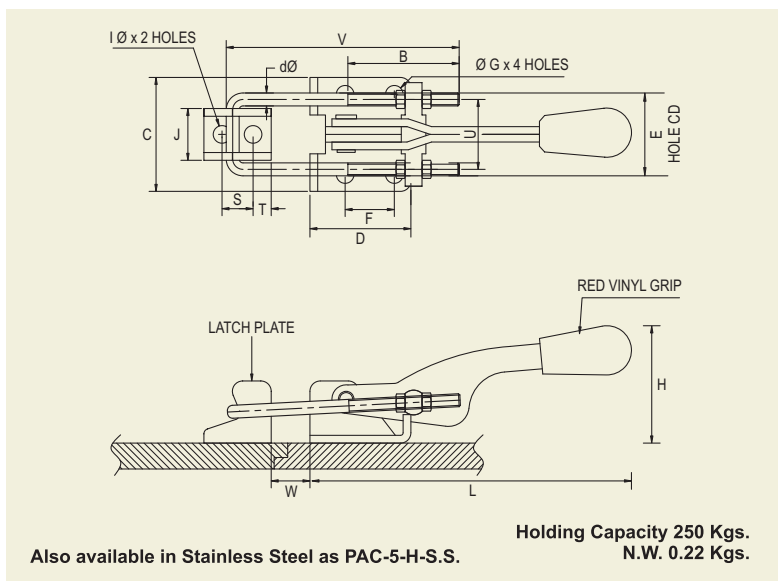
These are newly introduced models having same dimensions of mounting etc. as PAC-HV series given on previous page but with a modified low height handle suitable for only horizontal locking.



| MODEL | A | dØ | U | V | B THREAD LENGTH | W | | MOUNTING BASE OF CLAMP | | | | | | | MOUNTING BASE OF LATCH PLATE | | | | | H | L | HOLDING CAPACITY | N. W. Kgs. |
|---------|----|----|----|-----|-----------------------|------|------|---------------------------|----|----|----|----|----|------|---------------------------------|----|----|----|------|----|-----|---------------------|---------------|
| | | | | | | Min. | Max. | C | D | E | F | M | N | GØ | J | K | S | T | Ø | | | | |
| PAC-4-H | 13 | 4Ø | 22 | 90 | 52 | 5 | 42 | 32 | 35 | 20 | 15 | 6 | 14 | 5Ø | 15 | 30 | 12 | 12 | 5Ø | 29 | 100 | 150 Kgs. | 0.14 |
| PAC-6-H | 17 | 6Ø | 34 | 128 | 68 | 5 | 55 | 46 | 54 | 26 | 19 | 10 | 19 | 6.8Ø | 23 | 36 | 15 | 15 | 5.5Ø | 50 | 152 | 400 Kgs. | 0.44 |
| PAC-8-H | 24 | 8Ø | 48 | 165 | 87 | 5 | 66 | 58 | 55 | 38 | 26 | 10 | 20 | 8.5Ø | 35 | 50 | 20 | 20 | 8.5Ø | 61 | 185 | 900 Kgs. | 0.88 |

PAC-4-H and PAC-6-H are also available in stainless steel as model PAC-4-H-S.S. and PAC-6-H-S.S. respectively.

HORIZONTAL LATCH CLAMP - MEDIUM DUTY



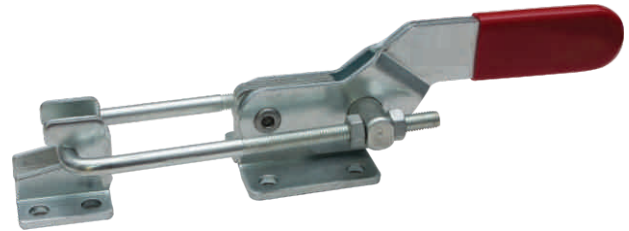
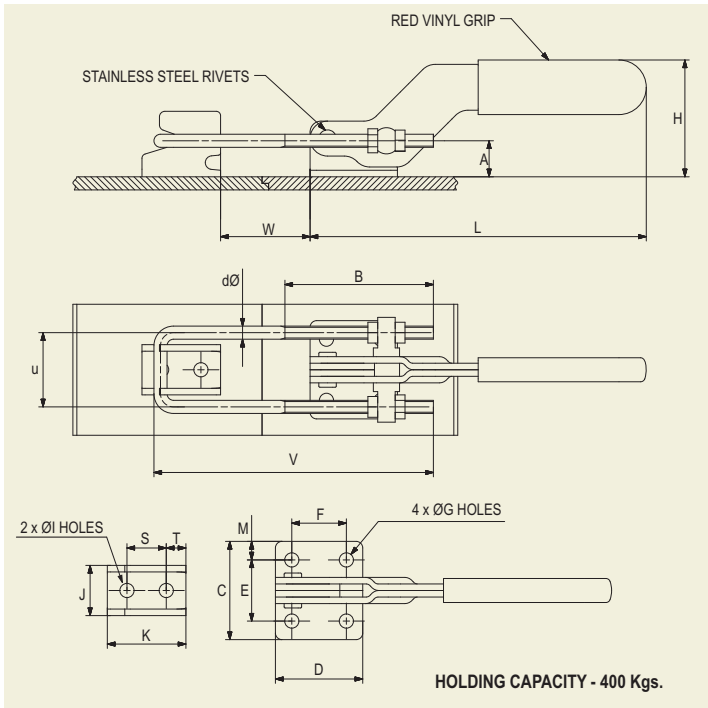
Holding Capacity 250 Kgs.
N.W. 0.22 Kgs.

Also available in Stainless Steel as PAC-5-H-S.S.

| MODEL | dØ | U | V | B THREAD LENGTH | W | | MOUNTING BASE OF CLAMP | | | | | MOUNTING BASE OF LATCH PLATE | | | | H | L | HOLDING CAPACITY | N. W. Kgs. |
|-----------|----|----|-----|-----------------------|------|------|---------------------------|----|----|----|------|---------------------------------|----|-----|------|----|-----|---------------------|---------------|
| | | | | | Min. | Max. | C | D | E | F | GØ | J | S | T | Ø | | | | |
| PAC-5-H | 5Ø | 27 | 115 | 68 | 5 | 50 | 44 | 39 | 31 | 19 | 6.8Ø | 20 | 12 | 7 | 6.8Ø | 35 | 100 | 250 Kgs. | 0.22 |
| PAC-520-H | 5Ø | 27 | 115 | 68 | 5 | 50 | 44 | 39 | 32 | 20 | 6.5Ø | 20 | 11 | 7.5 | 6.5Ø | 35 | 100 | 250 Kgs. | 0.22 |

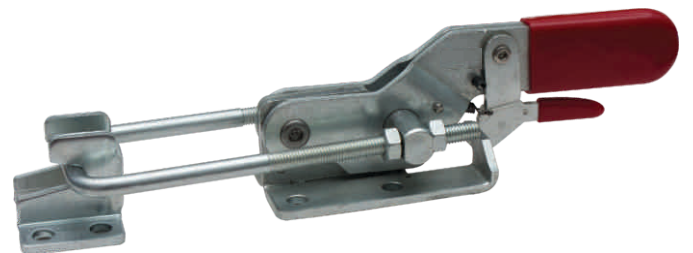
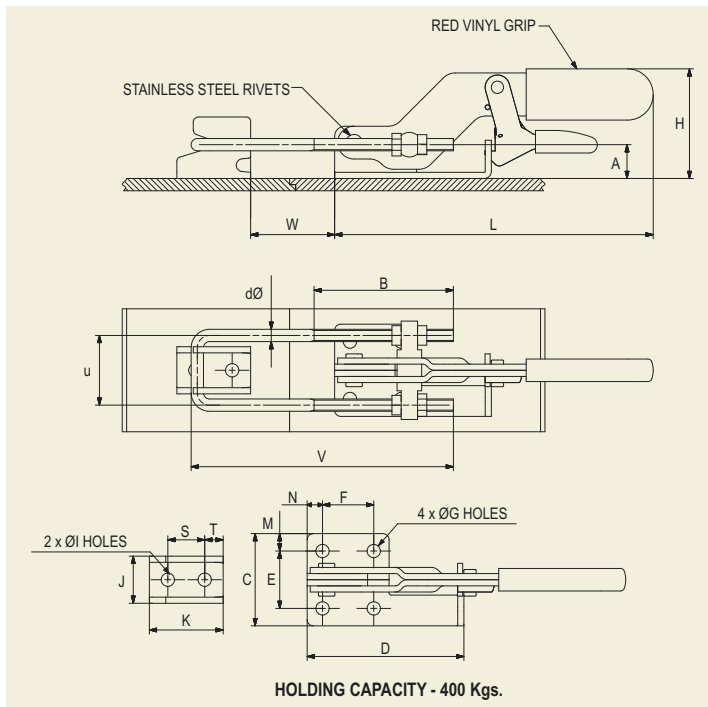
Toggle Latch Clamps

PULL ACTION CLAMP LATCH TYPE - HORIZONTAL - NEW SERIES



| MODEL | A | dØ | U | V | B THREAD LENGTH | W | | MOUNTING BASE OF CLAMP | | | | | | | MOUNTING BASE OF LATCH PLATE | | | | | H | L | HOLDING CAPACITY | N. W. Kgs. |
|-----------|----|----|----|-----|-----------------------|------|------|---------------------------|----|----|----|-----|-----|------|---------------------------------|----|----|-----|------|----|-----|---------------------|---------------|
| | | | | | | Min. | Max. | C | D | E | F | M | N | GØ | J | K | S | T | Ø | | | | |
| PAC-416-H | 15 | 4Ø | 22 | 88 | 52 | 5 | 42 | 30 | 26 | 20 | 16 | 5 | 5 | 4.5Ø | 15 | 30 | 11 | 9.5 | 4.5Ø | 35 | 100 | 100 Kgs. | 0.13 |
| PAC-625-H | 17 | 6Ø | 34 | 128 | 68 | 5 | 55 | 45 | 40 | 28 | 25 | 8.5 | 7.5 | 6.5Ø | 23 | 36 | 18 | 9 | 6.5Ø | 54 | 156 | 400 Kgs. | 0.42 |
| PAC-840-H | 26 | 8Ø | 48 | 165 | 87 | 5 | 66 | 60 | 60 | 40 | 40 | 10 | 10 | 8.5Ø | 60 | 46 | 22 | 8.5 | 8.5Ø | 66 | 185 | 900 Kgs. | 0.90 |

PULL ACTION CLAMP LATCH TYPE - HORIZONTAL WITH TRIGGER LOCK

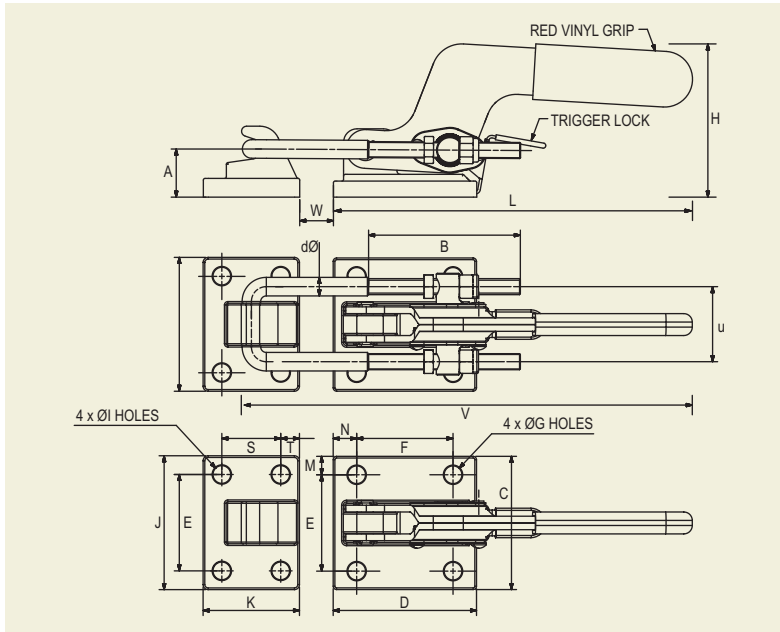


| MODEL | A | dØ | U | V | B THREAD LENGTH | W | | MOUNTING BASE OF CLAMP | | | | | | | MOUNTING BASE OF LATCH PLATE | | | | | H | L | HOLDING CAPACITY | N. W. Kgs. |
|--------------|----|----|----|-----|-----------------------|------|------|---------------------------|----|----|----|-----|-----|------|---------------------------------|----|----|-----|------|----|-----|---------------------|---------------|
| | | | | | | Min. | Max. | C | D | E | F | M | N | GØ | J | K | S | T | Ø | | | | |
| PAC-625-H-TR | 17 | 6Ø | 34 | 128 | 68 | 5 | 55 | 45 | 76 | 28 | 25 | 8.5 | 7.5 | 6.5Ø | 23 | 36 | 18 | 9 | 6.5Ø | 54 | 156 | 400 Kgs. | 0.43 |
| PAC-840-H-TR | 26 | 8Ø | 48 | 165 | 87 | 5 | 66 | 60 | 94 | 40 | 40 | 10 | 10 | 8.5Ø | 60 | 46 | 22 | 8.5 | 8.5Ø | 66 | 185 | 900 Kgs. | 0.92 |

Toggle Latch Clamps

HORIZONTAL LATCH CLAMP - HEAVY DUTY MODEL PAC-10-H & PAC-10-H-TR with TRIGGER LOCK

This model is for applications where heavy duty Latch type clamping is required. Clamp base and Latch plate are made of solid steel. Pulling pin is housed in carbon steel bush for extra rigidity. Also available TR model with an added advantage of trigger lock which enables the clamp to remain locked even in conditions of high vibration unless the trigger is pulled.



WITHOUT TRIGGER LOCK

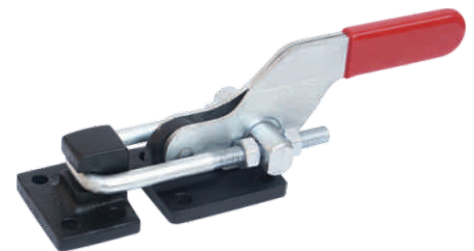
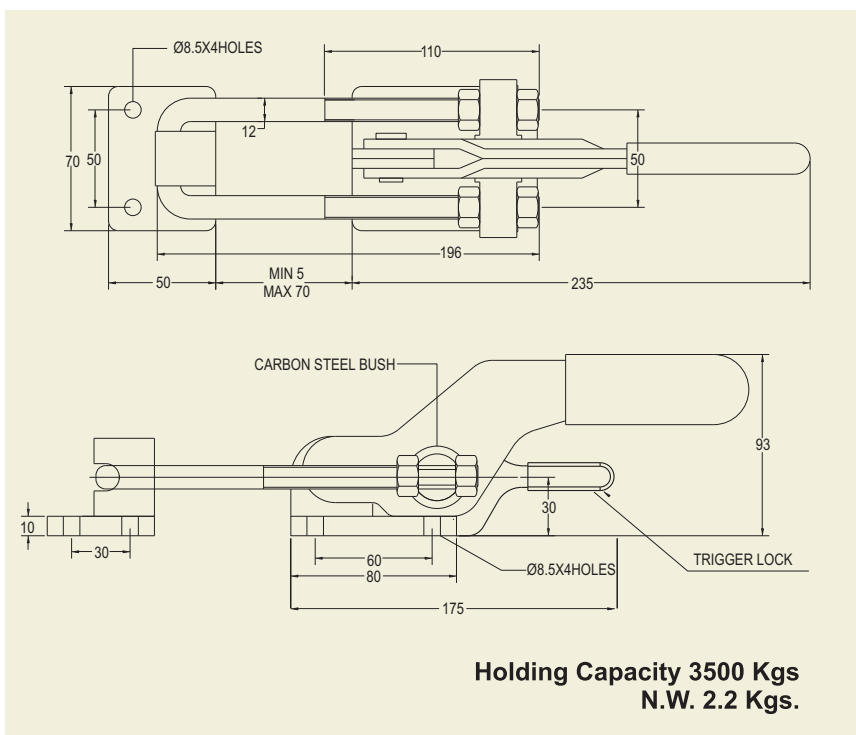


WITH TRIGGER LOCK

| MODEL | A | dØ | U | V | B THREAD LENGTH | W | | MOUNTING BASE OF CLAMP | | | | | | | MOUNTING BASE OF LATCH PLATE | | | | | H | L | HOLDING CAPACITY | N. W. Kgs. |
|---|------|------|------|-----|-----------------------|------|------|---------------------------|----|------|------|------|------|-------|---------------------------------|----|----|----|-------|----|-----|---------------------|---------------|
| | | | | | | Min. | Max. | C | D | E | F | M | N | GØ | J | K | S | T | IØ | | | | |
| PAC-10-H Without Trigger Lock | 28.5 | 9.5Ø | 44.5 | 144 | 90 | 5 | 25 | 79 | 85 | 57.2 | 57.2 | 10.9 | 13.9 | 10.5Ø | 79 | 57 | 35 | 11 | 10.5Ø | 91 | 213 | 2000 Kgs. | 1.80 |
| PAC-10-H-TR With Trigger Lock | 28.5 | 9.5Ø | 44.5 | 144 | 90 | 5 | 25 | 79 | 85 | 57.2 | 57.2 | 10.9 | 13.9 | 10.5Ø | 79 | 57 | 35 | 11 | 10.5Ø | 91 | 213 | 2000 Kgs. | 1.80 |
| PAC-11-H Without Trigger Lock | 28.5 | 11Ø | 44.5 | 144 | 90 | 5 | 45 | 79 | 85 | 57.2 | 57.2 | 10.9 | 13.9 | 10.5Ø | 79 | 57 | 35 | 11 | 10.5Ø | 91 | 213 | 3000 Kgs. | 2.10 |
| PAC-11-H-TR With Trigger Lock | 28.5 | 11Ø | 44.5 | 144 | 90 | 5 | 45 | 79 | 85 | 57.2 | 57.2 | 10.9 | 13.9 | 10.5Ø | 79 | 57 | 35 | 11 | 10.5Ø | 91 | 213 | 3000 Kgs. | 2.10 |

HORIZONTAL LATCH CLAMP - HEAVY DUTY MODEL PAC-12-H & PAC-12-H-TR with TRIGGER LOCK

This model is for applications where heavy duty Latch type clamping is required. Clamp base and Latch plate are made of solid steel. Pulling pin is housed in carbon steel bush for extra rigidity. Also available TR model with an added advantage of trigger lock which enables the clamp to remain locked even in conditions of high vibration unless the trigger is pulled.



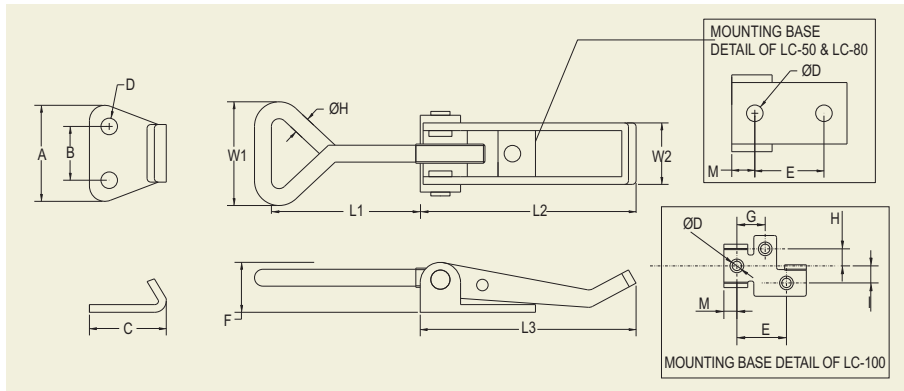
PAC-12-H
WITHOUT TRIGGER LOCK



PAC-12-H-TR
WITH TRIGGER LOCK

Toggle Latch Clamps

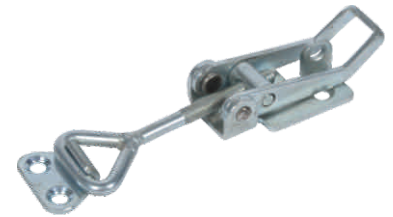
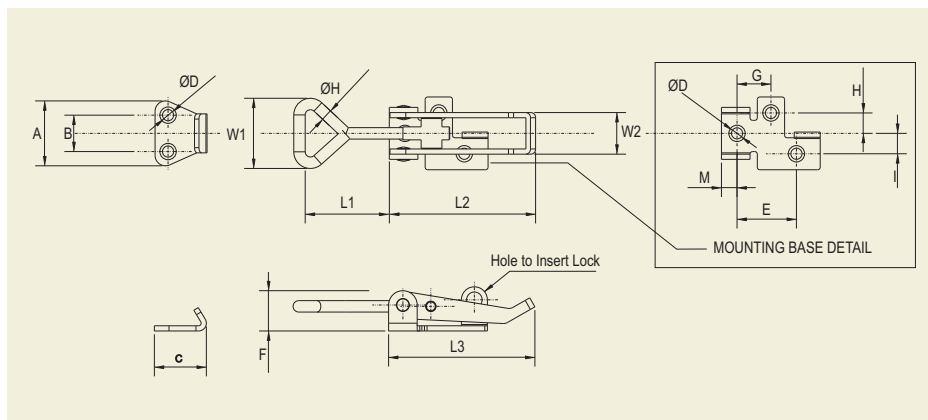
HORIZONTAL LATCH CLAMP - LIGHT DUTY



| MODEL | L1 | L2 | F | W1 | W2 | A | B | C | ØD | ØH | E | M | G | H | I | HOLDING CAPACITY | N. W. Kgs. |
|--------|-------|----|----|----|----|----|----|----|-----|-----|----|----|----|----|----|------------------|------------|
| LC-50 | 18~38 | 55 | 14 | 27 | 16 | 25 | 14 | 20 | 4.3 | 4.4 | 18 | 6 | - | - | - | 70 Kgs. | 0.045 |
| LC-80 | 20~54 | 67 | 18 | 32 | 20 | 30 | 17 | 22 | 5.3 | 5.3 | 17 | 14 | - | - | - | 80 Kgs. | 0.09 |
| LC-100 | 30~60 | 98 | 23 | 48 | 30 | 45 | 22 | 29 | 5.3 | 7.0 | 36 | 12 | 19 | 11 | 11 | 100 Kgs. | 0.21 |

Above models are also available in Stainless Steel as model LC-50-S.S., LC-80-S.S and LC-100-S.S.

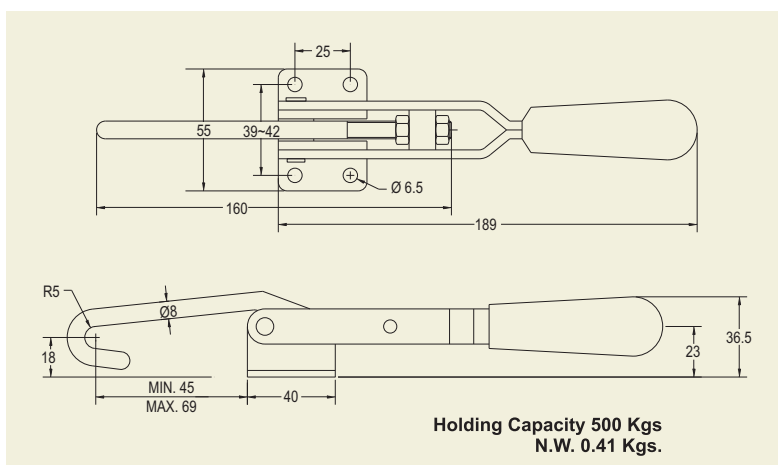
HORIZONTAL LATCH CLAMP - LIGHT DUTY - LOCKABLE TYPE



| MODEL | L1 | L2 | F | W1 | W2 | A | B | C | ØD | ØH | E | M | G | H | I | HOLDING CAPACITY | N. W. Kgs. |
|---------|-------|----|----|----|----|----|----|----|-----|-----|----|----|----|---|---|------------------|------------|
| LC-50-L | 18~38 | 55 | 14 | 27 | 16 | 25 | 14 | 20 | 4.3 | 4.4 | 23 | 6 | 13 | 8 | 8 | 70 Kgs. | 0.05 |
| LC-80-L | 20~54 | 67 | 18 | 32 | 20 | 30 | 17 | 22 | 5.3 | 5.3 | 27 | 14 | 10 | 8 | 9 | 80 Kgs. | 0.095 |

Above models are also available in Stainless Steel as model LC-50-L-S.S. and LC-80-L-S.S.

PULL ACTION CLAMP - HOOK TYPE MODEL HPA-8



Toggle Clamps- Pneumatic Operation

INTRODUCTION

Toggle Clamps with Pneumatic Operation have a Pneumatic cylinder mounted for operation only, the clamping force exerted comes from the toggle mechanism. Pneumatic operation has following advantages :

- ❑ High speed operation
- ❑ Any number of clamps can be operated simultaneously with the help of a switch.
- ❑ Clamps can be operated in any desired sequence automatically by controlling the cycle electrically.
- ❑ Clamps can be mounted at normally inaccessible position which are not in operator's reach for manual operation.
- ❑ Reed switch mounted pneumatic cylinders can be used if position sensing is required.

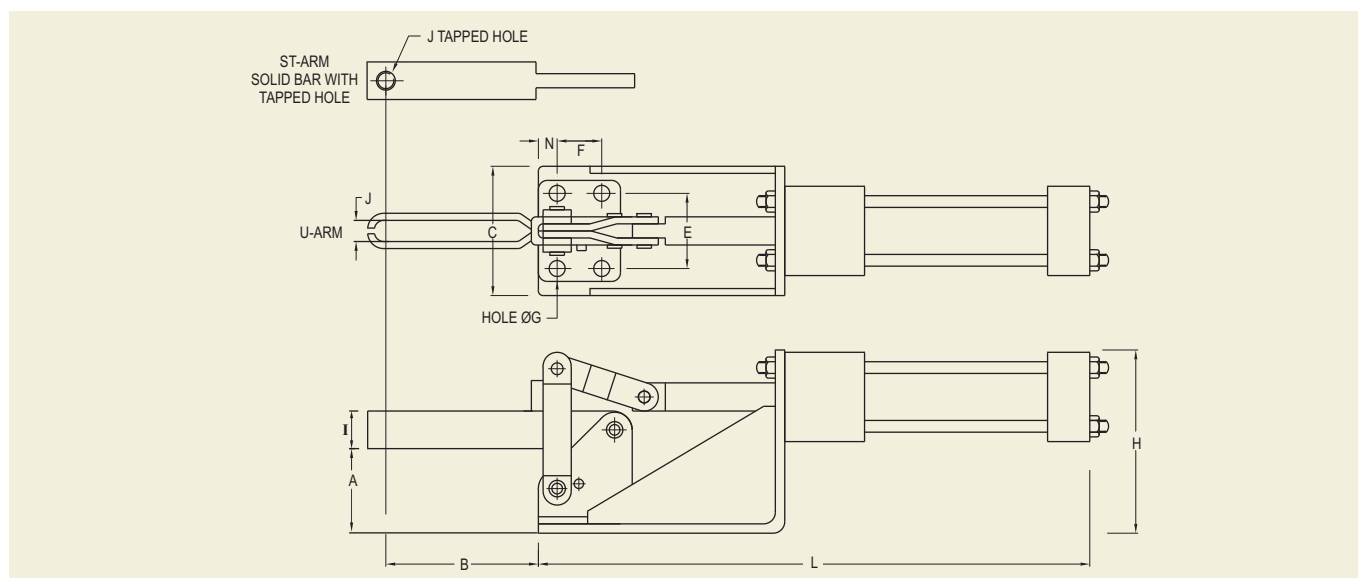
Toggle Clamps with Pneumatic Operation are available in different sizes in both Hold Down Action and Push Action as given below.

HOLD DOWN TOGGLE CLAMP - PNEUMATIC OPERATION

Hold Down Toggle Clamps with Pneumatic Operation are available in following sizes and following two types of arms :

U- Arm :- This is the most widely used type which permits to locate the clamping spindle anywhere along the length of the arm.

ST- Arm :- This is a solid bar with a tapped hole at the end. This arm can also be cut to any required length and hole can be made at any desired position or a separate clamping assembly can be welded at any desired point as per the application.



| MODEL | ARM TYPE* | A | B MAX. | MOUNTING BASE | | | | | I | J SUITABLE FOR SPINDLE DIA | L | H | HOLDING CAPACITY | N. W. Kgs. |
|------------|-----------|----|-----------|---------------|----|----|------|-------|----|-------------------------------|-----|-----|---------------------|---------------|
| | | | | C | E | F | N | ØG | | | | | | |
| POHD-35-U | U-ARM | 36 | 65 | 60 | 32 | 19 | 8 | 6.8Ø | 16 | M-8 | 276 | 81 | 200 Kgs. | 1.52 |
| POHD-35-ST | ST-ARM | | | | | | | | | | | | | 1.60 |
| POHD-50-U | U-ARM | 49 | 95 | 75 | 44 | 28 | 8.5 | 8.5Ø | 18 | M-10 | 345 | 104 | 400 Kgs. | 2.57 |
| POHD-50-ST | ST-ARM | | | | | | | | | | | | | 2.67 |
| POHD-85-U | U-ARM | 85 | 135 | 110 | 70 | 50 | 12.5 | 10.5Ø | 32 | M-16 | 499 | 167 | 700 Kgs. | 7.40 |
| POHD-85-ST | ST-ARM | | | | | | | | | | | | | 7.83 |

*Above models are also available in BR ARM.

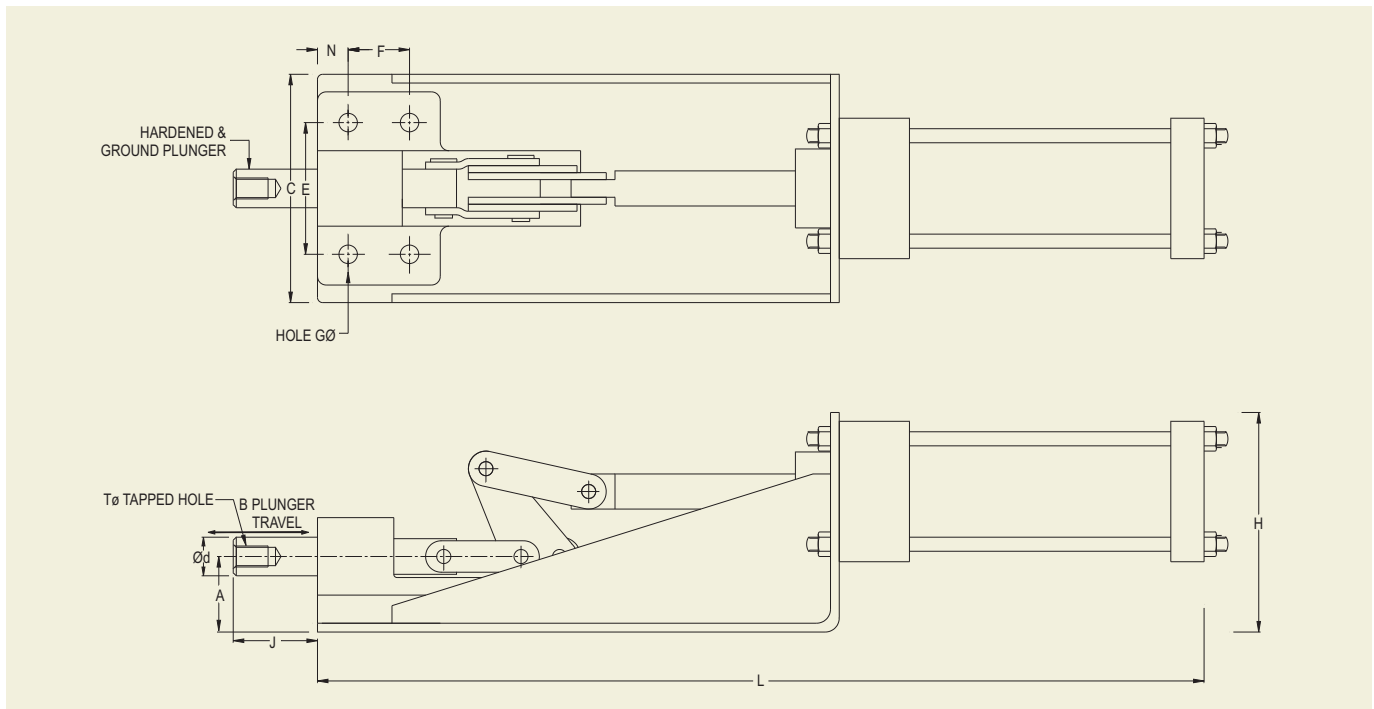
Standard Accessories provided with Clamp : Standard Hex. Head Clamping Spindle assembly is provided as standard accessory with all above clamps. U-Arm models are provided with 2 nos. U-Flanged Washers also along with clamping spindle assembly.

Optional Accessories : User can select an optional clamping spindle assembly as per the application from the different types of clamping spindle assemblies shown on one of the following pages and order these separately.

Toggle Clamps- Pneumatic Operation

PUSH ACTION TOGGLE CLAMP - PNEUMATIC OPERATION

Push Action Toggle Clamps with Pneumatic Operation are available in following sizes.



| MODEL | PLUNGER Ø dØ | TØ | A | PLUNGER TRAVEL B | MOUNTING BASE | | | | | J MAX. | L | H | HOLDING CAPACITY | N. W. Kgs. |
|---------|-----------------|-----------|----|---------------------|---------------|----|----|------|-------|--------|-----|-----|---------------------|---------------|
| | | | | | C | E | F | N | ØG | | | | | |
| POPA-12 | 12Ø | M-8x1.25 | 30 | 20 | 80 | 45 | 23 | 11 | 6.8Ø | 34 | 400 | 72 | 600 Kgs. | 2.41 |
| POPA-16 | 16Ø | M-10x1.5 | 34 | 25 | 95 | 60 | 28 | 14 | 8.5Ø | 40 | 427 | 82 | 1000 Kgs. | 3.15 |
| POPA-22 | 22Ø | M-12x1.75 | 43 | 30 | 130 | 75 | 35 | 17.5 | 10.5Ø | 48 | 549 | 121 | 1500 Kgs. | 8.30 |

Standard Accessories provided with Clamp: Standard Hex. Head Clamping Spindle assembly is provided as standard accessory.

Optional Accessories: User can select an optional clamping spindle assembly as per the application from the different types of clamping spindle assemblies shown on one of the following pages and order these separately.

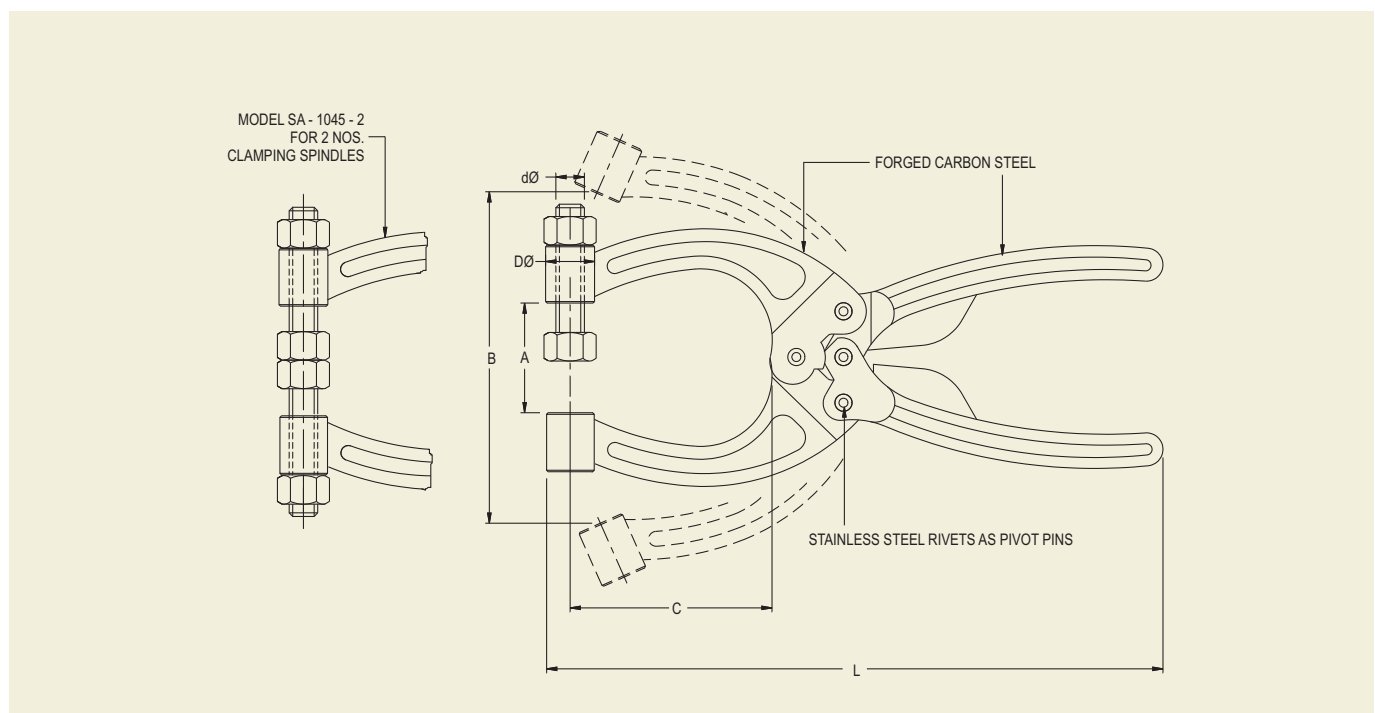
2D / 3D CAD FILES AVAILABLE FOR ALL TOGGLE CLAMP MODELS ON REQUEST

Toggle Clamps

SQUEEZE ACTION TOGGLE CLAMP

Squeeze Action Toggle Clamps hold the work piece between two clamping jaws like a plier and lock in that position like a toggle clamp and stay locked until the handles are pulled apart. These clamps are precision machined carbon steel forgings which withstand the heat of welding temperature without distortion.

These are available in two different types, one allowing use of single clamping spindle and other allowing use of two clamping spindles.



| MODEL | dØ CLAMPING SPINDLE | A | MAX. JAW OPENING B | C | DØ | L | HOLDING CAPACITY | N. W. Kgs. |
|-----------|---------------------|----|--------------------|----|----|-----|------------------|------------|
| SA-1045 | M10 (1 No.) | 45 | 85 | 70 | 19 | 220 | 400 Kgs. | 0.70 |
| SA-1045-2 | M10 (2 Nos) | 45 | 85 | 70 | 19 | 220 | 400 Kgs. | 0.71 |

Standard Accessories provided with Clamp: Standard Hex. Head Clamping Spindle assembly is provided as standard accessory. 2nos. Spindle assemblies are provided with 2 spindle model.

Optional Accessories: User can select an optional clamping spindle assembly as per the application from the different types of clamping spindle assemblies shown on one of the following pages and order these separately.

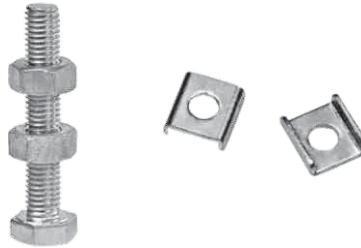
Toggle Clamp Accessories

CLAMPING SPINDLE ASSEMBLIES FOR TOGGLE CLAMPS

STANDARD ACCESSORIES

STANDARD HEX. HEAD SPINDLE ASSEMBLY : Suitable sizes of these spindle assemblies are provided as standard accessory with all toggle clamps.

U-FLANGED WASHERS : Set of U-Flanged Washers is provided as standard accessory with all U models of toggle clamps.



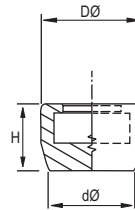
OPTIONAL ACCESSORIES

User can select an optional spindle accessories from following types and if required can order these separately.

RUBBER CAPS FOR STANDARD HEX. HEAD SPINDLE

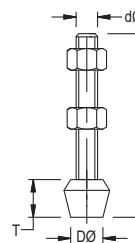
| MODEL | DØ | dØ | H |
|-------|----|------|------|
| RC-5 | 12 | 9 | 10 |
| RC-6 | 15 | 12 | 10 |
| RC-8 | 18 | 15 | 12 |
| RC-10 | 23 | 19 | 15 |
| RC-12 | 25 | 21 | 17 |
| RC-16 | 32 | 27.5 | 21.5 |

Most convenient to convert the standard hex head spindle into rubber tip spindle by simply manually inserting the rubber cap onto the spindle hex.



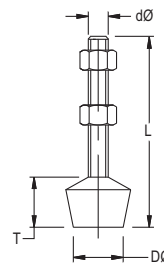
NYLON TIPPED SPINDLE ASSEMBLY

| MODEL | THREAD SIZE dØ | L | T | DØ | N. W. Kgs. |
|-----------|----------------|-----|----|-----|------------|
| NT-5-25 | M-5 | 25 | 7 | 7Ø | 0.01 |
| NT-6-25 | M-6 | 25 | 7 | 7Ø | 0.01 |
| NT-6-40 | M-6 | 40 | 7 | 7Ø | 0.01 |
| NT-8-50 | M-8 | 50 | 14 | 11Ø | 0.03 |
| NT-8-100 | M-8 | 100 | 14 | 11Ø | 0.04 |
| NT-10-75 | M-10 | 75 | 14 | 11Ø | 0.06 |
| NT-12-50 | M-12 | 50 | 22 | 19Ø | 0.07 |
| NT-16-60 | M-16 | 60 | 22 | 19Ø | 0.17 |
| NT-16-125 | M-16 | 125 | 22 | 19Ø | 0.23 |



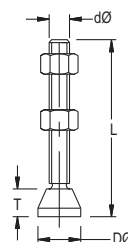
NEOPRENE TIPPED SPINDLE ASSEMBLY

| MODEL | THREAD SIZE dØ | L | T | DØ | N. W. Kgs. |
|-----------|----------------|----|----|----|------------|
| NRT-5-45 | M-5 | 45 | 12 | 12 | 0.02 |
| NRT-6-50 | M-6 | 50 | 15 | 15 | 0.02 |
| NRT-8-60 | M-8 | 60 | 20 | 20 | 0.04 |
| NRT-10-90 | M-10 | 90 | 22 | 22 | 0.08 |



SWIVAL FOOT SPINDLE ASSEMBLY

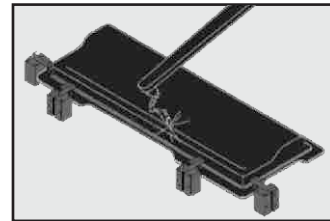
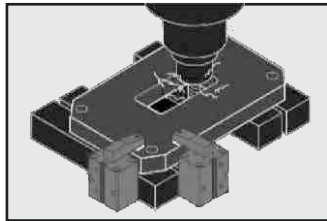
| MODEL | THREAD SIZE dØ | L | T | DØ | N. W. Kgs. |
|----------|----------------|----|----|----|------------|
| SF-8-60 | M-8 | 60 | 10 | 16 | 0.04 |
| SF-10-80 | M-10 | 80 | 13 | 20 | 0.08 |



PNEUMATIC AND HYDRAULIC WORKHOLDERS

INTRODUCTION

Power clamping whether Pneumatic or Hydraulic is most widely used in the form of **swing clamps**, which allow unobstructed part fixturing and placement. The plunger rod and the attached clamping arm swings in either a clockwise or counter clockwise direction, then travels down an additional distance to clamp down the fixtured part. Upon release of clamping pressure, the clamping arm travels up to unclamp and swings back in the opposite direction to allow for part removal and new part placement.

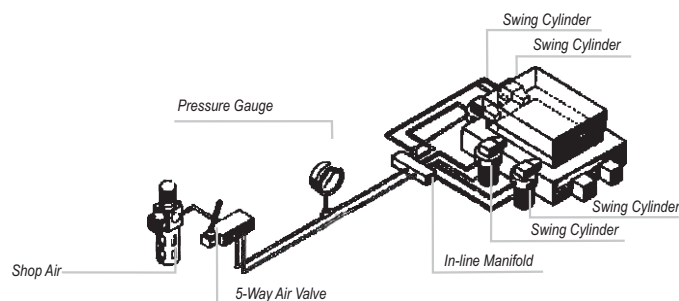


Different types of Pneumatic and Hydraulic Swing Clamps offered by us are illustrated in the following pages of this catalogue.

1. PNEUMATIC SWING CLAMPS are used where low clamping forces are needed such as in drilling, tapping or light machining operations of aluminum components. Also widely used in welding fixtures. These clamps are most economical to use as can be operated on in-house air line.

Pneumatic swing clamps are double acting swing cylinders available in different models, shapes and mountings as illustrated in following pages.

Schematic Diagram of Air Line



2. HYDRAULIC SWING CLAMPS are used where medium to high clamping force is required such as in machining of components on conventional or CNC Machines.

Selection of type of Hydraulic Cylinder

Single Acting spring return Cylinders are chosen when there are few system restrictions and there are not many cylinders (less than 5 cylinders) retracting simultaneously. These are widely used on conventional machines where a hydraulic power unit is not available on the machine. Single Acting, Spring return cylinders can also be used with hydropneumatic Intensifier.

Double Acting Cylinders are normally used with Hydraulic power units or with Air drive hydraulic pump which gives required hydraulic pressure at its outlet by using in-house air at its input. Double acting Cylinders are used when timing sequences are critical. They are advantageous, as they are less sensitive to system back pressures resulting from long tube lengths or numerous cylinders being retracted at the same time. Unclamp cycle can also be controlled in double acting cylinders.

Selection of Cylinder in terms of Clamping force : Suitable size of Cylinder should be selected depending upon the clamping force required to clamp the work piece. For determination of clamping force required, apart from clamping force calculation, the best clue can be had from the bolt size being used in the mechanical clamp of the existing fixture.

Hydraulic Clamps are available in single as well as double acting cylinders in different models, shapes and mountings as illustrated in following pages.

2D / 3D CAD FILES AVAILABLE ON REQUEST

Pneumatic Swing Clamps

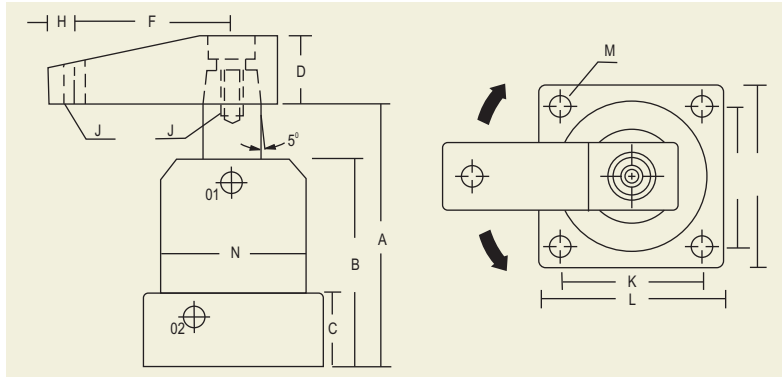
PSF SERIES : PNEUMATIC LOWER FLANGE VERSION SWING CLAMP - DOUBLE ACTING, 4-7 KG/CM² INLET AIR PRESSURE

Widely used for low clamping forces such as in light machining of aluminium parts or in welding fixtures.

Stainless steel piston rod, black aluminium body with wear resistant anodised finish. Flange version has flanged lower face for easy mounting

Features

- Ideal for use on fixtures for mass production on all types of conventional or CNC Machine tools.
- Operates on in-house air line.
- Arm travels vertically straight up and then swings 90 degree for easy job loading / unloading from above.



| MODEL | Unclamp Position A | B | C | D | F | H | O1,O2 INLETS | J | K | L | M Ø | N Ø | Piston Rod Ø | Piston Ø | Stroke During Swing | Straight Clamping Stroke | Total Stroke | Clamping Force at 5kg/cm ² | Air Consumption (cc.) | | N. W. Kgs. |
|------------|--------------------|------|----|----|----|----|--------------|---------|----|----|-----|-----|--------------|----------|---------------------|--------------------------|--------------|---------------------------------------|-----------------------|---------|------------|
| | | | | | | | | | | | | | | | | | | | Extend | Retract | |
| PSF 25 R/L | 95.5 | 66.5 | 23 | 16 | 30 | 8 | M 5 | M6x1 | 30 | 40 | 4.5 | 35 | 14 | 25 | 12 | 14 | 26 | 16kg | 12.75 | 8.76 | 0.40 |
| PSF 32 R/L | 102.5 | 71 | 23 | 19 | 50 | 9 | 1/8 BSP | M8x1.25 | 44 | 54 | 6.5 | 50 | 16 | 32 | 12 | 14 | 26 | 30kg | 20.90 | 15.67 | 0.70 |
| PSF 40 R/L | 106 | 75 | 26 | 19 | 50 | 9 | 1/8 BSP | M8x1.25 | 48 | 58 | 6.5 | 55 | 16 | 40 | 12 | 15 | 27 | 50kg | 33.91 | 28.49 | 0.85 |
| PSF 50 R/L | 113 | 80 | 26 | 25 | 70 | 10 | 1/8 BSP | M10x1.5 | 55 | 68 | 8.5 | 60 | 20 | 50 | 14 | 15 | 29 | 85kg | 56.91 | 47.80 | 1.30 |
| PSF 63 R/L | 119 | 86 | 30 | 25 | 70 | 10 | 1/8 BSP | M10x1.5 | 64 | 80 | 8.5 | 75 | 20 | 63 | 14 | 15 | 29 | 140kg | 90.35 | 81.25 | 1.80 |

R/L Signifies right hand swing / Left hand swing. Please indicate while ordering. Standard swing angle is 90°. Other Swing angles are also available on request.

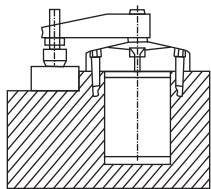
In right hand swing, when seen from above while clamping down, the arm first swings 90 degrees clockwise and then clamps down whereas in left hand swing it rotates 90 degrees counterclockwise and then clamps down.

NPSU SERIES : PNEUMATIC UPPER FLANGE VERSION THREADED BODY SWING CLAMP - DOUBLE ACTING, 4-7KG/CM² INLET AIR PRESSURE

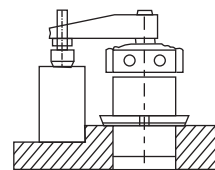
Features

- Easiest mounting preparation in the swing clamp line.
- Material Aluminum Alloy Body
- Swivel Angle 90° ± 2°

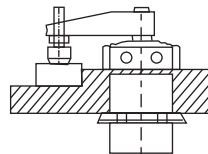
MOUNTING EXAMPLES



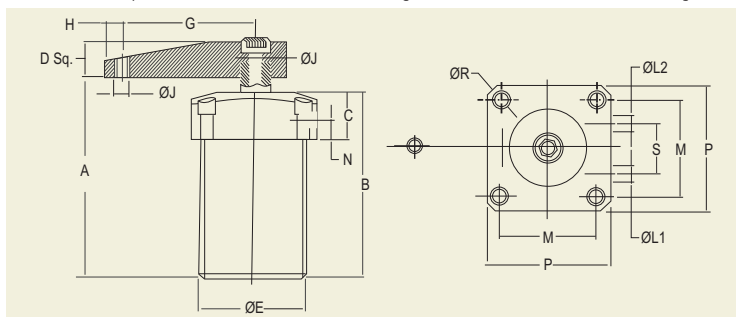
with 4 cap screws from above



with grooved nut from above



with grooved nut from below



| MODEL | A Unclamp Position | B | C | D | E* | G | H | J | Inlets L1 & L2 | M | N | P | R | S | Bore Dia. | Swing Stroke | Clamping Stroke | Force in Kgs at (5 kg/cm ²) | N. W. Kgs. |
|-------------|--------------------|-----|----|----|-----------|----|----|-----|----------------|----|------|----|-----|----|-----------|--------------|-----------------|---|------------|
| NPSU-25-R/L | 119 | 87 | 25 | 16 | M40 x 1.5 | 50 | 6 | M6 | M5 | 37 | 11.5 | 50 | 5.5 | 23 | 25 | 13 | 14 | 16 | 0.70 |
| NPSU-32-R/L | 135 | 98 | 25 | 19 | M50 x 1.5 | 60 | 9 | M8 | G1/8 | 45 | 10.5 | 60 | 6.5 | 23 | 32 | 16 | 14 | 30 | 0.80 |
| NPSU-40-R/L | 135 | 98 | 25 | 19 | M55 x 1.5 | 70 | 9 | M8 | G1/8 | 50 | 10.5 | 65 | 6.5 | 26 | 40 | 15 | 15 | 50 | 0.85 |
| NPSU-50-R/L | 143 | 105 | 25 | 25 | M65 x 1.5 | 80 | 10 | M12 | G1/8 | 58 | 10.5 | 75 | 8.5 | 32 | 50 | 17 | 15 | 85 | 1.00 |
| NPSU-63-R/L | 144 | 106 | 25 | 25 | M80 x 1.5 | 90 | 10 | M12 | G1/8 | 70 | 10.5 | 90 | 8.5 | 35 | 63 | 15 | 15 | 140 | 1.20 |

* GROOVED NUT SUPPLIED AS STANDARD.

Pneumatic Swing Clamps

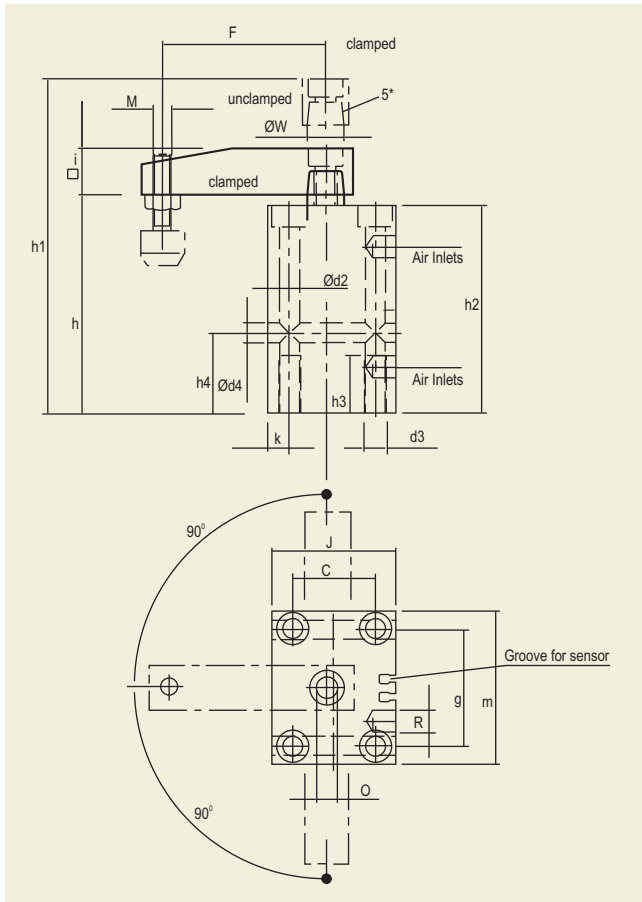
PSB SERIES : PNEUMATIC, SWING CLAMP, BLOCK VERSION - DOUBLE ACTING, 4-7 KG/CM² INLET AIR PRESSURE

Widely used for low clamping forces such as in light machining of aluminium parts or in welding fixtures. Cylinder body is made of light weight aluminium alloy having stainless steel piston rod.

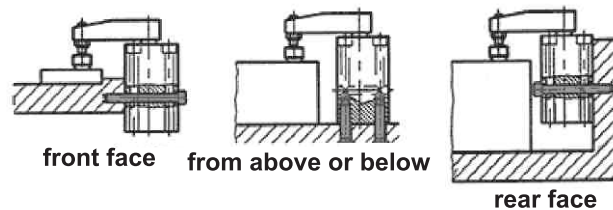
Block version can be mounted directly to side of fixture plate on front or rear faces using through holes or from above with long socket screws or from below using tapped holes in base as shown below. It has magnetic piston to signal end positions. End-position sensors are also available. Details can be given on request.

Features

- ❑ Ideal for use on fixtures for mass production on all types of conventional or CNC Machine tools.
- ❑ Operates on in-house air line.
- ❑ Arm travels vertically straight up and then swings 90 degree for easy job loading / unloading from above.



Examples of Mountings



| Model | C | dia. d4 | dia. d2 | d3 | F | g | Clamp Position h | h1 | h2 | h3 | h4 | i □ |
|------------|----|---------|---------|------|----|----|------------------|-----|-----|----|----|-----|
| PSB 25 R/L | 20 | 8.5 | 6.5 | M 8 | 50 | 40 | 82 | 125 | 78 | 20 | 32 | 16 |
| PSB 32 R/L | 30 | 8.5 | 6.5 | M 8 | 60 | 45 | 95 | 145 | 90 | 20 | 43 | 19 |
| PSB 40 R/L | 37 | 8.5 | 8.5 | M 10 | 70 | 52 | 95 | 145 | 90 | 25 | 40 | 19 |
| PSB 50 R/L | 46 | 10.5 | 8.5 | M 10 | 80 | 66 | 105 | 162 | 100 | 30 | 45 | 25 |
| PSB 63 R/L | 60 | 10.5 | 10.5 | M 12 | 90 | 80 | 105 | 162 | 100 | 30 | 36 | 25 |

| Model | k | J | M | m | o | Air Inlets R 2 Nos. | w dia | Piston dia | Stroke During Swing | Straight Clamping Stroke | Total Stroke | Clamping Force at 5kg/cm ² | N. W. Kgs |
|------------|-----|----|------|-----|------|---------------------|-------|------------|---------------------|--------------------------|--------------|---------------------------------------|-----------|
| PSB 25 R/L | 7.5 | 35 | M 6 | 55 | M 8 | M 5 | 14 | 25 | 13 | 14 | 27 | 16 kg | 0.70 |
| PSB 32 R/L | 7.5 | 45 | M 8 | 60 | M 8 | 1/8 BSP | 16 | 32 | 16 | 14 | 30 | 30 kg | 0.90 |
| PSB 40 R/L | 9 | 55 | M 8 | 70 | M 8 | 1/8 BSP | 16 | 40 | 15 | 15 | 30 | 50 kg | 1.10 |
| PSB 50 R/L | 9.5 | 65 | M12 | 85 | M 10 | 1/8 BSP | 20 | 50 | 17 | 15 | 32 | 85 kg | 1.20 |
| PSB 63 R/L | 10 | 80 | M 12 | 100 | M 10 | 1/8 BSP | 20 | 63 | 15 | 15 | 30 | 140 kg | 1.40 |

R/L signifies right hand swing / Left hand swing. Please indicate while ordering. Standard Swing angle is 90°. Other Swing angles are also available on request.

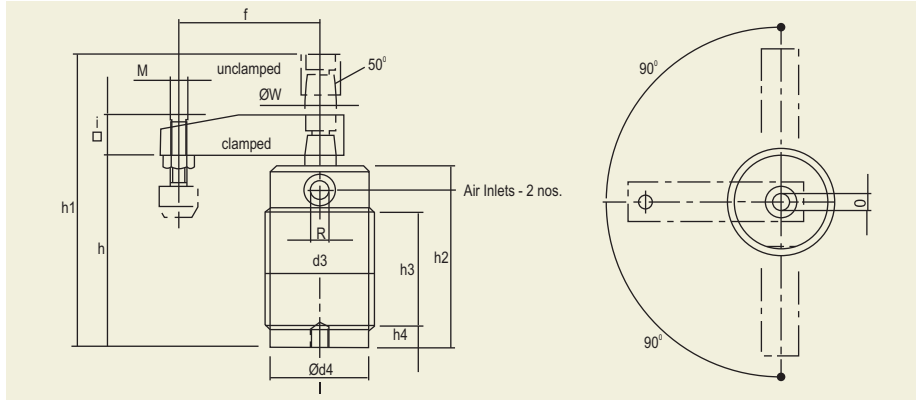
In right hand swing, when seen from above while clamping down, the arm first swings 90 degrees clockwise and then clamps down whereas in left hand swing it rotates 90 degrees counterclockwise and then clamps down.

Pneumatic Clamps

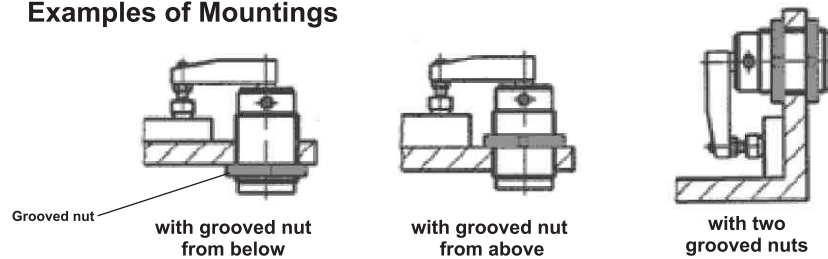
PST SERIES : PNEUMATIC, THREADED VERSION, SWING CLAMP, DOUBLE ACTING, 4-7 KG/CM² INLET AIR PRESSURE

Widely used for low clamping forces such as in light machining of aluminum parts or in welding fixtures.

Screw-in version can be mounted inside a hole provided in the fixture plate by locking the cylinder at desired height with the help of grooved nuts supplied as standard accessory, as shown below. These cylinders are also light weight aluminium cylinders having stainless steel piston rod.



Examples of Mountings



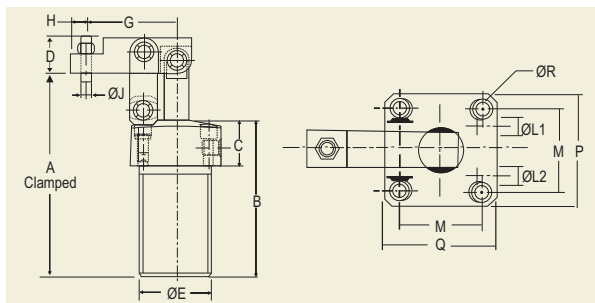
| MODEL | d3 | dia. d4 | f | Clamp Position h | h1 | h2 | h3 | h4 | i | M | O | Air Inlets R 2 nos. | dia. w | Piston dia | Stroke During Swing | Straight Clamping Stroke | Total Stroke | Clamping Force at 5kg/cm ² | N. W. Kgs |
|------------|---------|---------|----|------------------|-----|----|----|----|----|-----|-----|---------------------|--------|------------|---------------------|--------------------------|--------------|---------------------------------------|-----------|
| PST 25 R/L | M40x1.5 | 38 | 30 | 74 | 118 | 70 | 35 | 10 | 16 | M6 | M8 | M5 | 14 | 25 | 14 | 14 | 28 | 16 kg | 0.80 |
| PST 32 R/L | M50x1.5 | 48 | 50 | 83 | 132 | 79 | 40 | 15 | 19 | M8 | M8 | 1/8 BSP | 16 | 32 | 16 | 14 | 30 | 30 kg | 1.10 |
| PST 40 R/L | M55x1.5 | 53 | 50 | 87 | 135 | 83 | 45 | 15 | 19 | M8 | M8 | 1/8 BSP | 16 | 40 | 15 | 14 | 29 | 50 kg | 1.25 |
| PST 50 R/L | M65x1.5 | 62 | 70 | 92 | 145 | 87 | 50 | 15 | 25 | M12 | M10 | 1/8 BSP | 20 | 50 | 14 | 14 | 28 | 85 kg | 1.70 |
| PST 63 R/L | M80x1.5 | 77 | 70 | 97 | 152 | 92 | 56 | 15 | 25 | M12 | M10 | 1/8 BSP | 20 | 63 | 15 | 15 | 30 | 140 kg | 2.20 |

R/L signifies right hand swing / Left hand swing. Please indicate while ordering. Standard Swing angle is 90°. Other Swing angles are also available on request. 2 nos. Grooved nuts are supplied as standard accessory with above clamps

In right hand swing, when seen from above while clamping down, the arm first swings 90 degrees clockwise and then clamps down whereas in left hand swing it rotates 90 degrees counterclockwise and then clamps down.

PLCU SERIES: PNEUMATIC, UPPER FLANGED VERSION, THREADED BODY LEVER CLAMPS, DOUBLE ACTING, 4-7KG/CM² INLET AIR PRESSURE

Unlike swing clamps, in link clamps Arm swings straight up to declamp and down to clamp.



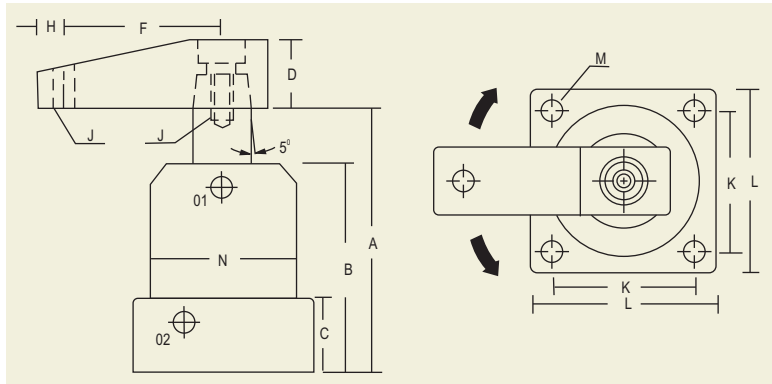
| MODEL | A clamped Position | B | C | D | E* | G | H | J | INLETS L1 & L2 | M | P | Q | R | Bore Dia. | Stroke | Force in Kgs. at (7 kg/cm ²) | N. W. Kgs. |
|---------|--------------------|------|----|----|-----------|------|----|----------|----------------|----|----|-----|-----|-----------|--------|--|------------|
| PLCU-25 | 111.5 | 86.5 | 25 | 17 | M40 x 1.5 | 41 | 7 | M6x1.0 | M5 | 37 | 50 | 60 | 5.5 | 25 | 22 | 34 | 0.60 |
| PLCU-32 | 129.5 | 97.5 | 25 | 20 | M50 x 1.5 | 52 | 8 | M8x1.25 | G1/8 | 45 | 60 | 70 | 6.5 | 32 | 28 | 56 | 1.00 |
| PLCU-40 | 132.5 | 97.5 | 25 | 25 | M55 x 1.5 | 56 | 10 | M8x1.25 | G1/8 | 50 | 65 | 75 | 6.5 | 40 | 30 | 88 | 1.20 |
| PLCU-50 | 144 | 104 | 25 | 30 | M65 x 1.5 | 63.5 | 14 | M12x1.75 | G1/8 | 58 | 75 | 88 | 8.5 | 50 | 30 | 137 | 2.00 |
| PLCU-63 | 149 | 105 | 25 | 30 | M80 x 1.5 | 74 | 14 | M12x1.75 | G1/8 | 70 | 90 | 108 | 8.5 | 63 | 30 | 218 | 2.70 |

* GROOVED NUT SUPPLIED AS STANDARD.

Hydraulic Swing Clamps

HSF SERIES : LOW OIL PRESSURE, HYDRAULIC, FLANGE VERSION SWING CLAMP - DOUBLE ACTING, 20-70 kg/cm² INLET OIL PRESSURE.

These are light duty hydraulic swing clamps for medium clamping force having flanged lower face for easy mounting.



| Model | Unclamp Position A | B | C | D | F | H | O1, O2 | J | K | L | MØ | NØ | Piston Rod Ø | Piston Ø | Stroke During Swing | Straight Clamping Stroke | Total Stroke | Clamping Force at 25kg/cm ² | Max. Oil Flow Rate (cm ² /s) | N. W. Kgs. |
|------------|--------------------|----|----|----|----|----|---------|------------|----|----|------|----|--------------|----------|---------------------|--------------------------|--------------|--|---|------------|
| HSF 25 R/L | 100.5 | 70 | 23 | 25 | 50 | 10 | M5 | M10 x 1.5 | 40 | 50 | 6.5 | 45 | 18 | 25 | 12 | 14 | 26 | 59 kg | 4.7 | 0.80 |
| HSF 32 R/L | 111.0 | 76 | 25 | 25 | 55 | 10 | 1/8 BSP | M10 x 1.5 | 44 | 55 | 6.5 | 50 | 20 | 32 | 14 | 15 | 29 | 125 kg | 11.8 | 1.00 |
| HSF 40 R/L | 113.6 | 80 | 27 | 25 | 55 | 10 | 1/8 BSP | M10 x 1.5 | 48 | 62 | 8.5 | 54 | 20 | 40 | 14 | 15 | 29 | 200 kg | 22.6 | 1.10 |
| HSF 50 R/L | 114.5 | 80 | 27 | 25 | 55 | 10 | 1/8 BSP | M10 x 1.5 | 57 | 74 | 8.5 | 65 | 20 | 50 | 14 | 15 | 29 | 400 kg | 39.6 | 1.40 |
| HSF 63 R/L | 118.0 | 85 | 32 | 32 | 75 | 12 | 1/8 BSP | M12 x 1.75 | 70 | 88 | 10.5 | 80 | 25 | 63 | 14 | 15 | 29 | 600 kg | 63.0 | 2.30 |

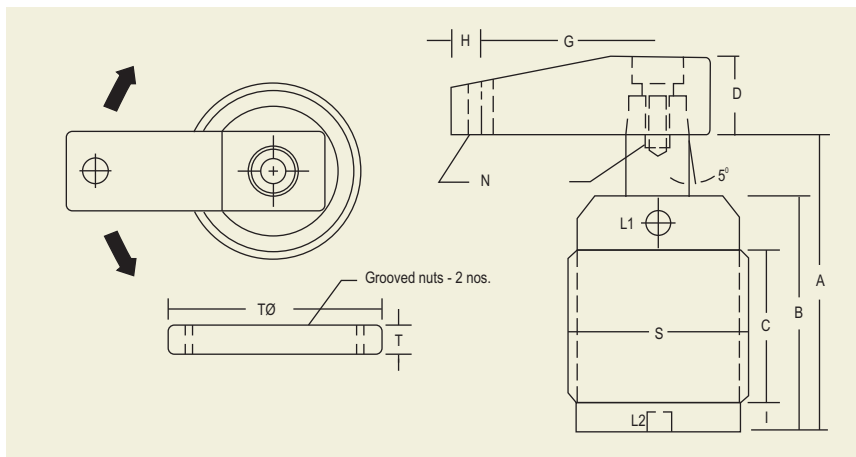
R/L Signifies right hand swing / Left hand swing. Please indicate while ordering. Standard swing angle is 90°. Other Swing angles are also available on request.

In right hand swing, when seen from above while clamping down, the arm first swings 90 degrees clockwise and then clamps down whereas in left hand swing it rotates 90 degrees counterclockwise and then clamps down.

Also available in manifold type mounting.

HST SERIES : LOW OIL PRESSURE, HYDRAULIC, THREADED VERSION SWING CLAMP - DOUBLE ACTING, 20-70 kg/cm² INLET OIL PRESSURE.

These are light duty Hydraulic Swing Clamps for medium clamping force having threading on outside of cylinder as in PST Series.



| Model | Unclamp Position A | B | C | D | G | H | L1, L2 | N | S | T (x 2 pieces) | TØ | Piston Rod Ø | Piston Ø | Stroke During Swing | Straight Clamping Stroke | Total Stroke | Clamping Force at 25kg/cm ² | Max. Oil Flow Rate (cm ² /s) | N. W. Kgs. |
|------------|--------------------|----|----|----|----|----|---------|-----------|-----------|----------------|----|--------------|----------|---------------------|--------------------------|--------------|--|---|------------|
| HST 25 R/L | 100.5 | 70 | 35 | 25 | 50 | 10 | M5 | M10 x 1.5 | M45 x 1.5 | 10 | 65 | 18 | 25 | 12 | 14 | 26 | 59 kg | 4.7 | 0.80 |
| HST 32 R/L | 111.0 | 76 | 45 | 25 | 55 | 10 | 1/8 BSP | M10 x 1.5 | M50 x 1.5 | 11 | 70 | 20 | 32 | 14 | 15 | 29 | 125 kg | 11.8 | 1.00 |
| HST 40 R/L | 113.6 | 80 | 45 | 25 | 55 | 10 | 1/8 BSP | M10 x 1.5 | M55 x 1.5 | 11 | 75 | 20 | 40 | 14 | 15 | 29 | 200 kg | 22.6 | 1.25 |
| HST 50 R/L | 114.5 | 80 | 45 | 25 | 55 | 10 | 1/8 BSP | M10 x 1.5 | M65 x 1.5 | 12 | 85 | 20 | 50 | 14 | 15 | 29 | 400 kg | 39.6 | 1.70 |

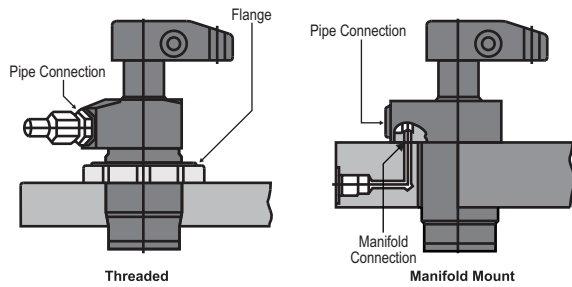
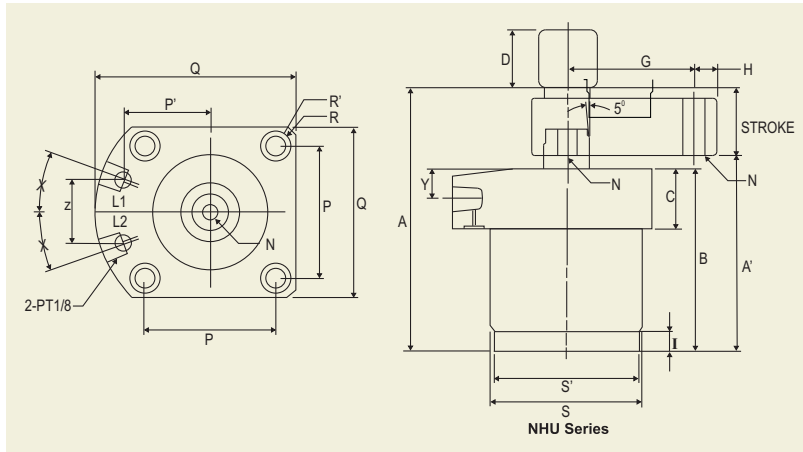
R/L Signifies right hand swing / Left hand swing. Please indicate while ordering. Standard swing angle is 90°. Other Swing angles are also available on request.

2 nos. grooved nuts supplied as standard accessory.

In right hand swing, when seen from above while clamping down, the arm first swings 90 degrees clockwise and then clamps down whereas in left hand swing it rotates 90 degrees counterclockwise and then clamps down.

Hydraulic Swing Clamps

NHU SERIES : LOW OIL PRESSURE, HYDRAULIC, UPPER FLANGE PIPE MOUNTING / MANIFOLD MOUNTING SWING CLAMP - DOUBLE ACTING, 20-70 Kg/cm² INLET OIL PRESSURE



| | NHU-32 R/L | NHU-40 R/L | NHU-50 R/L | NHU-63 R/L |
|--------------------------------------|--------------------------|------------|------------|------------|
| Normal Pressure | 20-45 kg/cm ² | | | |
| Swivel Stroke | 14 | 14 | 14 | 14 |
| Clamping Stroke (mm) | 15 | 15 | 15 | 15 |
| Bore Diameter Ø (mm) | 32 | 40 | 50 | 63 |
| Piston Rod Ø (mm) | 20 | 20 | 20 | 25 |
| Clamp Force (25 kg/cm ²) | 125kg | 200kg | 400kg | 600kg |
| A (mm) *unclamp | 111 | 114 | 114.5 | 118 |
| A' (mm) *clamp | 82 | 85 | 85.5 | 89 |
| B (mm) | 76 | 80 | 80 | 85 |
| C (mm) | 25 | 27 | 27 | 32 |
| D (mm) | □ 25.4 | □ 25.4 | □ 25.4 | □ 32 |
| G (mm) | 55 | 55 | 55 | 75 |
| H (mm) | 10 | 10 | 10 | 11 |
| I (mm) | 9 | 9 | 9 | 9 |
| L1 (clamp)/ L2 (unclamp) | 1/8 PT | 1/8 PT | 1/8 PT | 1/8 PT |
| Manifold Mounting O-ring | P7 | P7 | P7 | P7 |
| N (mm) | M10 x 1.5 | M10 x 1.5 | M10 x 1.5 | M12 x 1.75 |
| P/P' (mm) | 44 / 30 | 48 / 31.4 | 57 / 37.6 | 70 / 46 |
| Q/Q' (mm) | 55 / 68.5 | 62 / 71.5 | 74 / 87 | 88 / 105.5 |
| R/R' (mm) | Ø6.5 / Ø11 | Ø6.5 / Ø11 | Ø8.5 / Ø14 | Ø8.5 / Ø14 |
| S (mm) | M50 x 1.5 | M55 x 1.5 | M65 x 1.5 | M80 x 1.5 |
| S' (mm) | 49 | 53 | 63 | 77 |
| X | 22.5° | 22.5° | 20° | 22.5° |
| Y (mm) | 12.5 | 14 | 14 | 19 |
| Z (mm) | 24.9 | 26 | 27.4 | 38 |
| Net Weight Kgs | 1.00 | 1.10 | 1.30 | 2.30 |

R/L Signifies right hand swing / Left hand swing. Please indicate while ordering. Standard swing angle is 90°. Other Swing angles are also available on request.

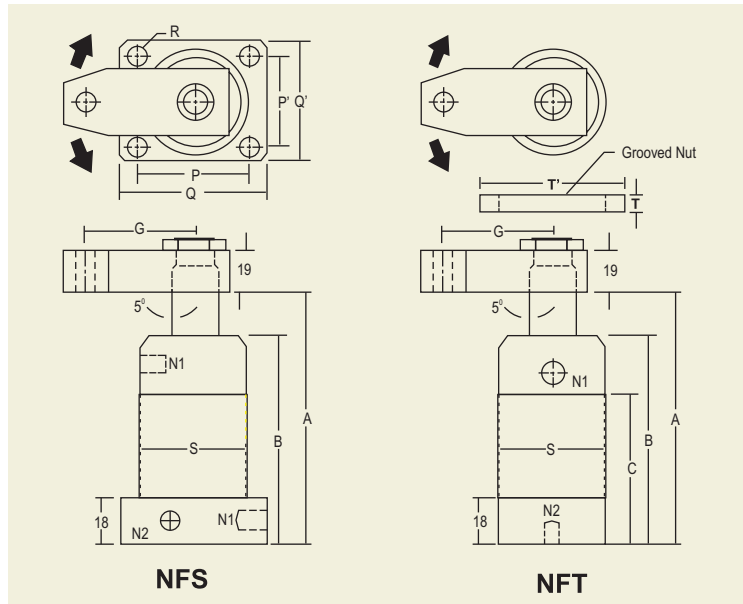
Hydraulic Swing Clamps

NFS, NFT SERIES : HIGH OIL PRESSURE, HYDRAULIC SWING CLAMPS, INLET OIL PRESSURE 50-350kg/cm²

These are heavy duty Hydraulic Swing Clamps having cylinder made of medium Carbon steel and are used where high clamping force is required.

Available in different types as given below:

NFS Series : Flange Type
NFT Series : Threaded Version



| FLANGE TYPE | NFS-25A | NFS-32A | NFS-40A | NFS-25B | NFS-32B | NFS-40B |
|---|--------------------------|---------|---------|---------------|---------|---------|
| THREADED TYPE | NFT-25A | NFT-32A | NFT-40A | NFT-25B | NFT-32B | NFT-40B |
| MAX. OPERATING RESSURE | 350kg/cm ² | | | | | |
| NORMAL OPERATING PRESSURE | 50-210kg/cm ² | | | | | |
| CYLINDER OPERATION | SINGLE - ACTING | | | DOUBLE-ACTING | | |
| STROKE DURING SWING (mm) | 12 | | | 15 | | |
| STRAIGHT CLAMPING STROKE (mm) | 11 | | | 18 | | |
| SWIVEL ANGLE | 90°(60°45°0°)±2° | | | | | |
| PISTON-Ø (mm) | 25 | 32 | 40 | 25 | 32 | 40 |
| PISTON ROD-Ø (mm) | 18 | 22 | 25 | 18 | 22 | 25 |
| THEORETICAL CLAMPING FORCE at 210kg/cm ² | 495kg | 890kg | 1600kg | 495kg | 890kg | 1600kg |
| A (UNCLAMP POSITION) (mm) | 127 | 127 | 127 | 134 | 134 | 134 |
| B (mm) | 98 | 97 | 98 | 98 | 97 | 98 |
| C (mm) | 66 | 70 | 72 | 66 | 70 | 72 |
| G (mm) | 45 | 50 | 50 | 45 | 50 | 50 |
| K (mm) | 9 | 10 | 12 | 9 | 10 | 12 |
| N1 (clamp) (mm) | 1/8 BSP | 1/8 BSP | 1/8 BSP | 1/8 BSP | 1/8 BSP | 1/8 BSP |
| N2 (unclamp) (mm) | | | | 1/8 BSP | 1/8 BSP | 1/8 BSP |
| P (mm) | 50 | 54 | 66 | 50 | 54 | 66 |
| P' (mm) | 30 | 34 | 40 | 30 | 34 | 40 |
| Q (mm) | 64 | 68 | 84 | 64 | 68 | 84 |
| Q' (mm) | 46 | 54 | 64 | 46 | 54 | 64 |
| R (mm) | 6.5Ø | 8.5Ø | 8.5Ø | 6.5Ø | 8.5Ø | 8.5Ø |
| S (mm) | 45x1.5 | 50x1.5 | 60x1.5 | 45x1.5 | 50x1.5 | 60x1.5 |
| T (x2 pcs) (mm) | 10 | 11 | 11 | 10 | 11 | 11 |
| T' (mm) | 65Ø | 70Ø | 80Ø | 65Ø | 70Ø | 80Ø |
| N.W. Kgs NFS | 1.60 | 1.80 | 2.80. | 1.40 | 1.70 | 2.70 |
| NFT | 1.80 | 2.10 | 3.20 | 1.80 | 2.10 | 3.20 |

Please indicate while ordering whether required Right Hand Swing or Left Hand Swing (R/L). Standard swing angle is 90°. Other swing angles (60°, 45°, 0°) are also available on request. 2 nos. grooved nuts are supplied as standard accessory with NFT series.

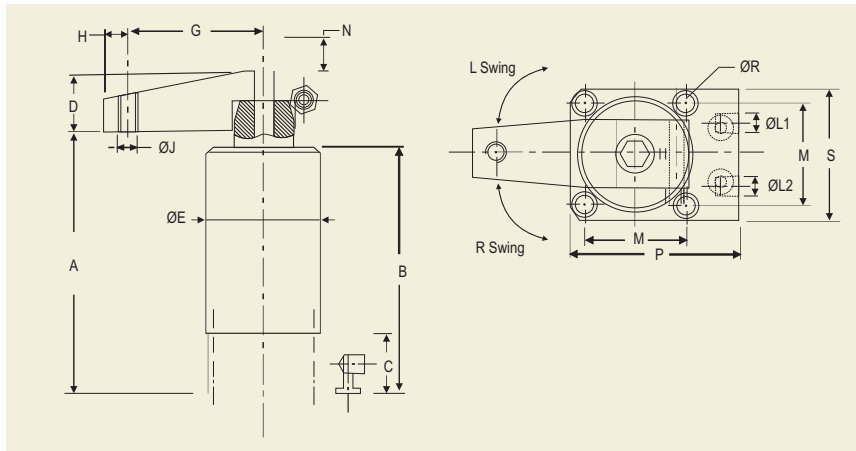
In right hand swing, when seen from above while clamping down, the arm first swings 90 degrees clockwise and then clamps down whereas in left hand swing it rotates 90 degrees counterclockwise and then clamps down.

Hydraulic Swing Clamps

030 SERIES: HIGH OIL PRESSURE HYDRAULIC, BOTTOM FLANGE VERSION SWING CLAMP, DOUBLE ACTING, INLET OIL PRESSURE 35-350 kg/cm²

Features

- Flexible design allows for manifold or threaded port connection in one cylinder body.
- Material Medium Carbon steel Body
- Swivel Angle 90° ± 2°



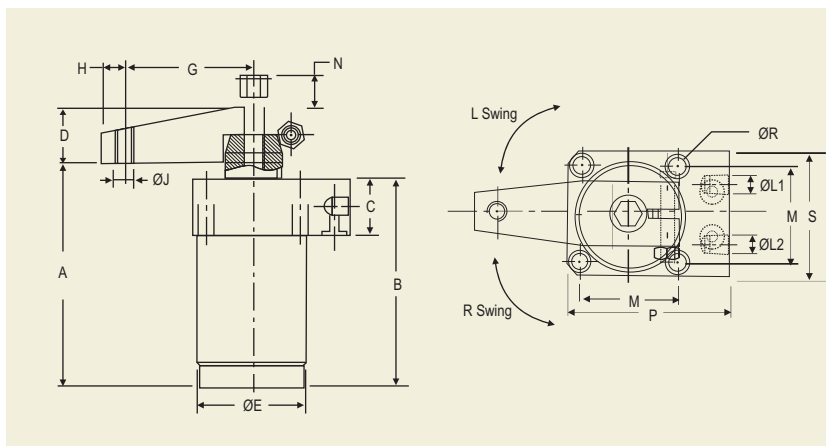
| MODEL | A Unclamp Position | B | C | D □ | E | G | H | J | INLETS L1 & L2 | M | N | P | R | S | Bore Dia. | Swing Stroke | Clamping Stroke | Clamping Force in Kgs (210 kg/cm ²) | N. W. Kgs. |
|-----------------|--------------------------|-----|----|--------|------|----|----|-----|----------------------|----|------|-------|------|----|--------------|-----------------|--------------------|---|---------------|
| 030 - 92 - R/L | 126 | 102 | 25 | 25 | 47.8 | 45 | 11 | M10 | G1/4 | 42 | 14.5 | 70.1 | 6.9 | 54 | 32 | 10 | 12 | 550 | 2.2 |
| 030 - 202 - R/L | 143 | 110 | 25 | 30 | 63.8 | 55 | 15 | M12 | G1/4 | 55 | 16 | 85.1 | 8.5 | 70 | 44 | 14 | 14 | 1100 | 4.0 |
| 030 - 352 - R/L | 155 | 115 | 25 | 40 | 80 | 68 | 15 | M16 | G1/4 | 70 | 24 | 100.1 | 10.8 | 89 | 55 | 14 | 16 | 2100 | 5.95 |

ABOVE CLAMPS ALSO AVAILABLE IN SINGLE ACTING CYLINDERS

050 SERIES: HYDRAULIC HIGH OIL PRESSURE, UPPER FLANGE VERSION SWING CLAMP, DOUBLE ACTING, INLET OIL PRESSURE 35-350 kg/cm²

Features

- Flexible design allows for manifold or threaded port connection in one cylinder body.
- Material : Medium Carbon steel Body
- Swivel Angle : 90° ± 2°

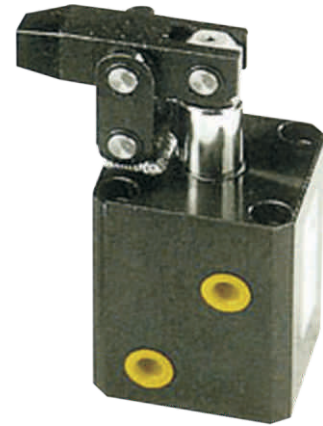
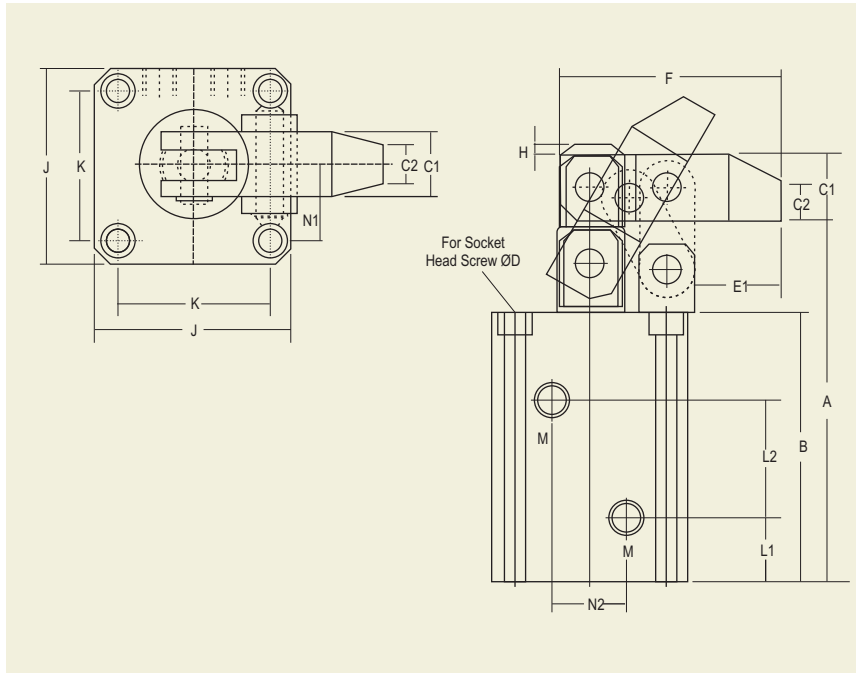


| MODEL | A Unclamp Position | B | C | D | E | G | H | J | INLETS L1 & L2 | M | N | P | R | S | Bore Dia. | Swing Stroke | Clamping Stroke | Clamping Force in Kgs at(210 kg/cm ²) | N. W. Kgs. |
|----------------|--------------------------|-------|------|----|------|----|----|-----|----------------------|----|------|-------|------|----|--------------|-----------------|--------------------|---|---------------|
| 050 - 92 - R/L | 118 | 93.5 | 25.4 | 25 | 47.8 | 45 | 11 | M10 | G1/4 | 42 | 14.5 | 70.1 | 6.9 | 54 | 32 | 10 | 12 | 550 | 2.2 |
| 050 - 202-R/L | 135 | 104.4 | 25.4 | 30 | 63.0 | 55 | 15 | M12 | G1/4 | 55 | 16 | 85.1 | 8.5 | 70 | 44 | 14 | 14 | 1100 | 4.0 |
| 050 - 352-R/L | 147 | 113.8 | 25.4 | 40 | 77.0 | 68 | 15 | M16 | G1/4 | 70 | 24 | 100.1 | 10.8 | 89 | 55 | 14 | 16 | 2100 | 5.95 |

ABOVE CLAMPS ALSO AVAILABLE IN SINGLE ACTING CYLINDERS

Hydraulic Lever Clamps

HLC SERIES : DOUBLE ACTING, 5 - 50 kg/cm² INLET OIL PRESSURE HYDRAULIC LEVER CLAMP



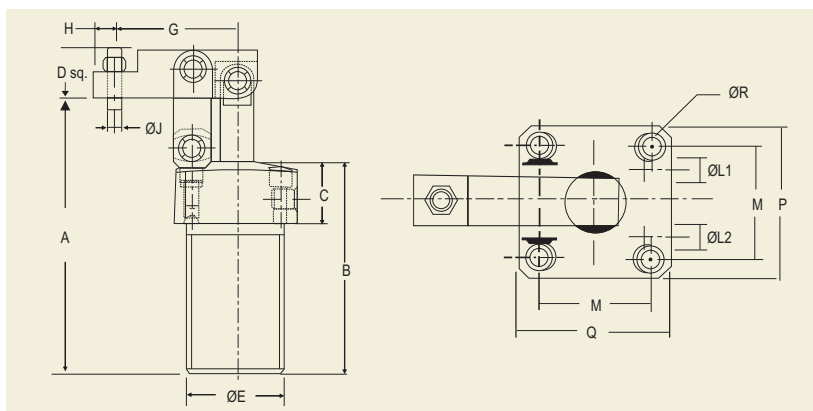
| Model | Bore mm | Total Stroke mm | Max. Pressure | Operating Range of Pressure | Clamping Force at 25kg./cm ² | A | B | C1 | C2 | E1 | F | H | J | K | L1 | L2 | M | N1 | N2 | ØD | N. W. Kgs. |
|--------|---------|-----------------|-----------------------|-----------------------------|---|-----|-----|------|----|------|----|---|----|----|------|----|-------|----|----|-----|------------|
| HLC-25 | 25 | 25 | 70kg./cm ² | 5-50kg./cm ² | 123Kg. | 103 | 76 | 19 | 11 | 25 | 64 | 3 | 55 | 42 | 17 | 33 | 1/8PT | 20 | 18 | M-6 | 1.84 |
| HLC-32 | 32 | 25 | | | 200Kg. | 112 | 85 | 19 | 11 | 25 | 64 | 3 | 57 | 44 | 19 | 38 | 1/8PT | 22 | 22 | M-6 | 2.11 |
| HLC-40 | 40 | 30 | | | 315Kg. | 122 | 90 | 22.2 | 13 | 30 | 77 | 4 | 69 | 52 | 19 | 40 | 1/4PT | 26 | 26 | M-8 | 3.30 |
| HLC-50 | 50 | 35 | | | 490Kg. | 137 | 100 | 25.4 | 15 | 35.5 | 90 | 5 | 75 | 58 | 21.5 | 45 | 1/4PT | 30 | 32 | M-8 | 4.33 |

HLC SERIES ALSO AVAILABLE IN MANIFOLD TYPE MOUNTING

LHC01D SERIES: HYDRAULIC - UPPER FLANGE VERSION, THREADED BODY, DOUBLE ACTING LEVER CLAMP, 20-70 kg/cm² INLET OIL PRESSURE

Features

- Arm swings straight up to declamp and down to clamp.
- Material : S45C Body



| MODEL | A clamp Position | B | C | D | E* | G | H | J | Inlets L1 & L2 | M | P | Q | R | Bore Dia. | Stroke | Force in Kgs at (25 kg/cm ²) | N. W. Kgs. |
|-----------|------------------|------|----|----|-----------|------|----|----------|----------------|----|----|-----|-----|-----------|--------|--|------------|
| LHC01D-25 | 111.5 | 86.5 | 25 | 17 | M40 x 1.5 | 41 | 7 | M6x1.0 | 1/8 PT | 37 | 50 | 60 | 5.5 | 25 | 22 | 123 | 1.20 |
| LHC01D-32 | 129 | 97 | 25 | 20 | M50 x 1.5 | 52 | 8 | M8x1.25 | 1/8 PT | 45 | 60 | 70 | 6.5 | 32 | 28 | 200 | 1.80 |
| LHC01D-40 | 132 | 97 | 25 | 25 | M55 x 1.5 | 56 | 10 | M8x1.25 | 1/8 PT | 50 | 65 | 75 | 6.5 | 40 | 30 | 315 | 2.50 |
| LHC01D-50 | 144 | 104 | 25 | 30 | M65 x 1.5 | 63.5 | 14 | M12x1.75 | 1/8 PT | 58 | 75 | 88 | 8.5 | 50 | 30 | 490 | 4.00 |
| LHC01D-63 | 149 | 105 | 25 | 30 | M80 x 1.5 | 74 | 14 | M12x1.75 | 1/8 PT | 70 | 90 | 108 | 8.5 | 63 | 30 | 780 | 6.50 |

* GROOVED NUT SUPPLIED AS STANDARD.
ALSO AVAILABLE IN SINGLE ACTING CYLINDERS

Hydraulic Cylinders

TC SERIES : THREADED BODY CYLINDER, HYDRAULIC, SINGLE ACTING, SPRING RETURN 20 - 350 kg/cm² INLET OIL PRESSURE

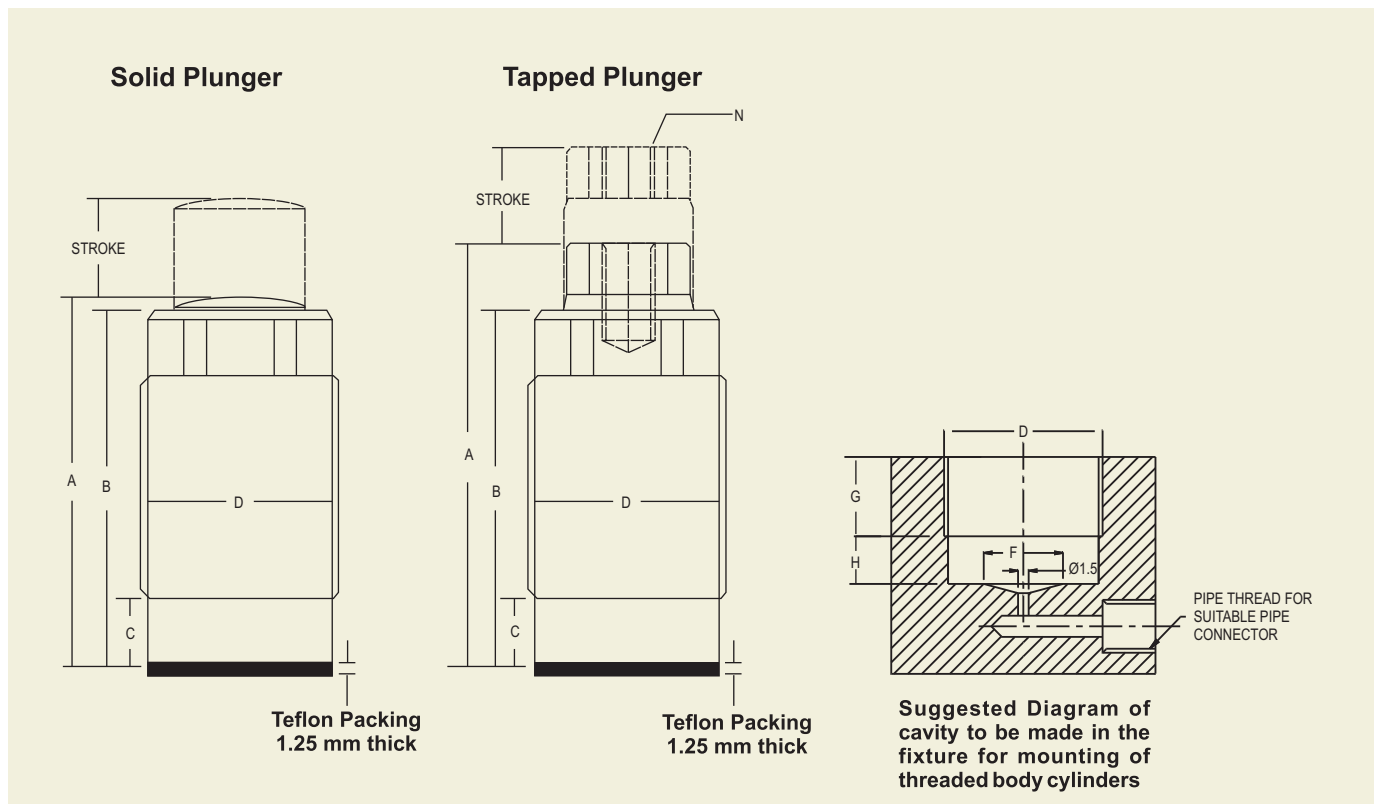
This is a most simple hydraulic cylinder whose force can be directly used within its stroke for clamping as a push clamp or as a hydraulic support at the rear of a strap clamp. The mounting method of this cylinder is shown in the mounting diagram below illustrating suggested dimensions of the cavity to be made in the fixture. Teflon packing is provided for mounting to avoid oil leakage.



**Solid Plunger
A Series**



**Tapped Plunger
B Series**



| MODEL | A | B | C | D | F | G (min) | H (max) | N | Piston dia | Stroke | Force at 200 kg/cm ² | N. W. Kgs |
|--------|------|------|----|---------|----|---------|---------|---------|------------|--------|---------------------------------|-----------|
| TC 12A | 38 | 36 | 7 | M22x1.5 | 12 | 12 | 6 | - | 12 | 10 | 200kg | 0.07 |
| TC 16A | 46.5 | 44.5 | 8 | M26x1.5 | 16 | 16 | 7 | - | 16 | 12 | 400kg | 0.14 |
| TC 20A | 56 | 54 | 8 | M30x1.5 | 20 | 20 | 7 | - | 20 | 15 | 620kg | 0.22 |
| TC 25A | 58 | 55 | 11 | M38x1.5 | 25 | 20 | 10 | - | 25 | 16 | 980kg | 0.37 |
| TC 12B | 45 | 36 | 7 | M22x1.5 | 12 | 12 | 6 | M6x1.0 | 12 | 10 | 200kg | 0.08 |
| TC 16B | 52 | 44.5 | 8 | M26x1.5 | 16 | 16 | 7 | M6x1.0 | 16 | 12 | 400kg | 0.15 |
| TC 20B | 64.5 | 54 | 8 | M30x1.5 | 20 | 20 | 7 | M8x1.25 | 20 | 15 | 620kg | 0.24 |
| TC 25B | 67 | 55 | 11 | M38x1.5 | 25 | 20 | 10 | M8x1.25 | 25 | 16 | 980kg | 0.40 |

Hydraulic Work Support

HYDRAULIC WORK SUPPORT

Hydraulic work support is a hydraulic version of a mechanical screw Jack used as a work support element for positively supporting the workpiece to avoid deformation and minimize distortion and vibration of work piece due to cutting and clamping forces.

The Hydraulic work support automatically adjusts to the contour of the workpiece, and then locks in position. This support then adds rigidity to the fixtured component to avoid machining vibrations. They provide either unrested location points to the clamps or support to larger or thin section area of workpiece.

A Type : Spring advance : The spring is used to control a contact force when the knocking out rod (piston rod) extends to a highest knocking-out position and contacts the workpiece.

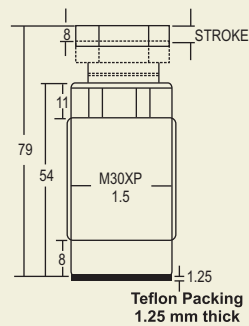
B Type : Hydraulic advance : When the knocking out rod is at a lowest position, it is operated by means of oil pressure and is knocked out when being filled with oil and uses a spring to control the contact force with the workpiece.

Mounting method of the threaded type Hydraulic Work supports is shown in the mounting diagram below illustrating suggested dimensions of the cavity to be made in the fixture. Teflon packing is provided for mounting to avoid oil leakage.

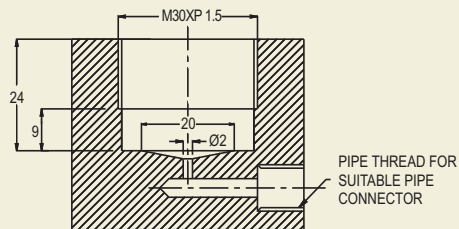
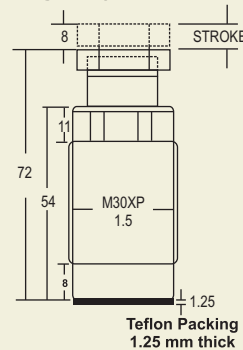
SP SERIES : Hydraulic Work Support - high inlet oil pressure 100- 350 Kg/cm²



**Spring Advance
Threaded Body Type
SP-16A**



**Hydraulic Advance
Threaded Body Type
SP-16B**



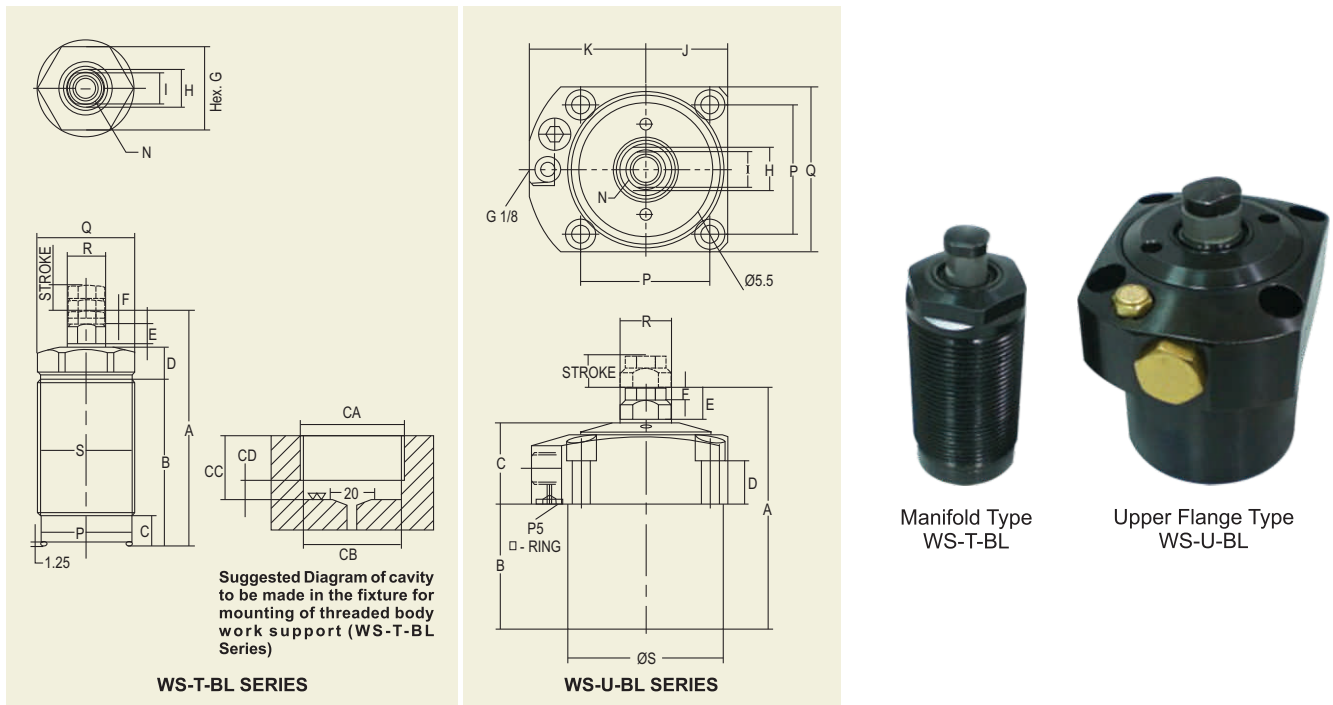
Suggested Diagram of cavity to be made in the fixture for mounting of threaded body work support

| MODEL | SP-16A / SP-16B |
|--|---------------------------|
| Normal Operating Pressure | 100-350kg/cm ² |
| Cylinder Operation | Single Acting |
| Piston Diameter (mm) | 16 |
| Stroke (mm) | 8 |
| Supporting Force at 200 kg/cm ² | 210kg |
| Net Weight Kgs | 0.30 |

Hydraulic Work Support

WS-BL SERIES : HYDRAULIC WORK SUPPORT - LOW OIL WORKING PRESSURE - 25-70 Kg/cm²

Smaller three sizes are manifold mounting type threaded body and larger sizes are piping type upper flange mounting. All below models are hydraulic advance.

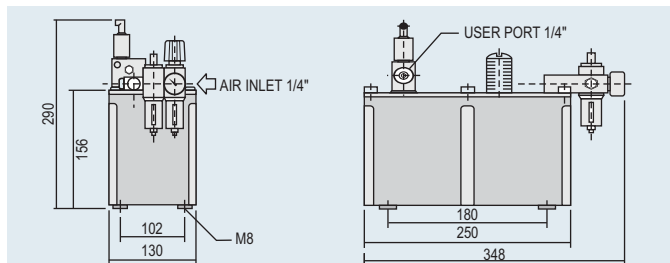


| Model | WS-T30BL | WS-T36BL | WS-U40BL | WS-U48BL | WS-U55BL |
|---|-------------|----------|----------|----------|----------|
| Supporting Force (70kg/cm ²) kg | 300 | 400 | 550 | 720 | 1100 |
| Stroke | 8 | 8 | 8 | 10 | 12 |
| Max Pressure | 105 kg/cm | | | | |
| Normal Pressure | 25-70 kg/cm | | | | |
| A | 73 | 69 | 67 | 75 | 85 |
| B | 51.8 | 50 | 31 | 39 | 45 |
| C | 9.5 | 8.4 | 25 | 25 | 25 |
| D | 10.2 | 8 | 14.5 | 13.5 | 11.5 |
| E | 7 | 7 | 10 | 10 | 14 |
| F | 4 | 4 | 4 | 4 | 6 |
| G | 27 | 32 | - | - | - |
| H | 8 | 11 | 11 | 12 | 15 |
| I | 10.5 | 10.5 | 11 | 11 | 14 |
| J | - | - | 22.5 | 25.5 | 30 |
| K | - | - | 31.5 | 31.5 | 39 |
| N | M6X12D | M8X11D | M10X11D | M10X11D | M12X13D |
| P | Ø 28.2 | Ø 34.2 | 34 | 40 | 47 |
| Q | Ø 30 | Ø 36 | 45 | 51 | 60 |
| Ø R | 10 | 13 | 13 | 14 | 18 |
| S | M30X1.5 | M36X1.5 | Ø 40 | Ø 48 | Ø 55 |
| CA | M30X1.5 | M36X1.5 | - | - | - |
| CB | 28.5 | 34.5 | - | - | - |
| CC | 20-50 | 20-48 | - | - | - |
| CD | 9 | 8 | - | - | - |
| N. W. Kgs. | 0.25 | 0.35 | 0.6 | 0.8 | 1.4 |

2D / 3D CAD FILES AVAILABLE ON REQUEST FOR ALL MODELS

HYDROPNEUMATIC POWER UNIT

Hydropneumatic Power Unit for hydraulic clamping devices and its bi-products is designed to meet all needs regarding the powering of hydraulic cylinders where low flow rates and high pressures are required. It is driven by air at its inlet to produce hydraulic pressure at its outlet. The special design shape of the power unit is such that a high performance system can be implemented taking up very little space. Thanks to the special design principles, the pump section adopted allows the hydropneumatic power unit to be installed in very hostile environments, such as the work area of machine tools, etc. The unique modular hydraulic flow control system allows controlling up to 6 separate users from just one power unit.



| SPECIFICATION | |
|---|------------|
| MAX. PERMISSIBLE INLET AIR PRESSURE: | 7 bar |
| RECOMMENDED INLET AIR PRESSURE: | 5,5 bar |
| OIL DELIVERIES: 1.2-1.4-2.2-2.7-4.3 | Liters/min |
| MAX. OIL OUTLET PRESSURE AT 5 BAR AIR INLET PRESSURE: | 400 bar |
| MAX. NO. OF USERS RECOMMENDED: | 6 |

Outlet pressure can be regulated and set to desired pressure.

Art. 393 - Power unit with Manual control, Art. 394 - Power unit with Pneumatic control, Art. 395 - Power unit with Electrical control

The pump in its basic version is supplied complete with teflon tank, fill plug, silencer, quick acting air connector fitting and hydraulic control box.

Very suitable for operating Single Acting Swing Clamps.

POINTS TO REMEMBER

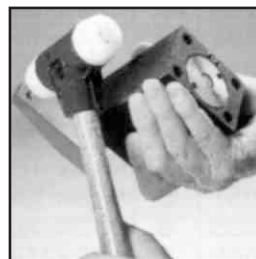
- If user wants to change the length of the single arm of a clamping cylinder, it should be noted that the length must be less than 1.2 times the standard length in order to avoid serious slanting of the piston rod. If the length in design needs to be larger than the aforesaid limit value, it is better to use double arms in order to extend the life of the cylinder. Double arms are arms extended equally on the other side of piston rod with a support of same height as the workpiece.
- Workpiece should not be clamped within the swing stroke during the downward movement of the clamping arm, and should be clamped within the vertical stroke only.
- During the loading and unloading of a workpiece, it is necessary to use an air gun to clean the cylinder for removing the iron slag or foreign objects attached thereon in order to prevent the foreign objects from entering the seal to cause oil / air leakage.
- It is necessary to use device having F.R.L. (Filters / Regulators / Lubricators) function in the pneumatic line in order to effectively remove the moisture, lubricate the cylinder and avoid the damage of the swing mechanism due to inertia impact of the clamping arm.
- If the direction of the single arm needs to be changed due to the problem of piping, it should be done with a wrench by holding the clamping arm first, and then unscrewing the screw and knocking the clamping arm upward to change its direction as shown in figure below. One should not apply lateral force to the clamping arm or laterally impact the clamping arm to change its direction in assembled position. This can cause damage of the swing mechanism due to improper force applied on it.

Fitting and removing clamping arm:

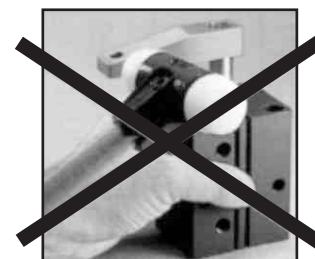
Hold clamping arm with spanner. Tighten/loosen screw.



Knock out clamping arm from piston rod.



Caution! Do not strike sides of clamping arm.



- R/L signifies right hand swing / Left hand swing. Please indicate while ordering. **In right hand swing, when seen from above while clamping down, the arm first swings 90 degrees* clockwise and then clamps down whereas in left hand swing it rotates 90 degrees counterclockwise and then clamps down.**
- *Clamps with swing angle other than 90 degrees are also available. Other swing angles available are 60° and 45°.
- The power source should not exceed the rated maximum pressure and the highest flow value.

FIXTURE CLAMPS

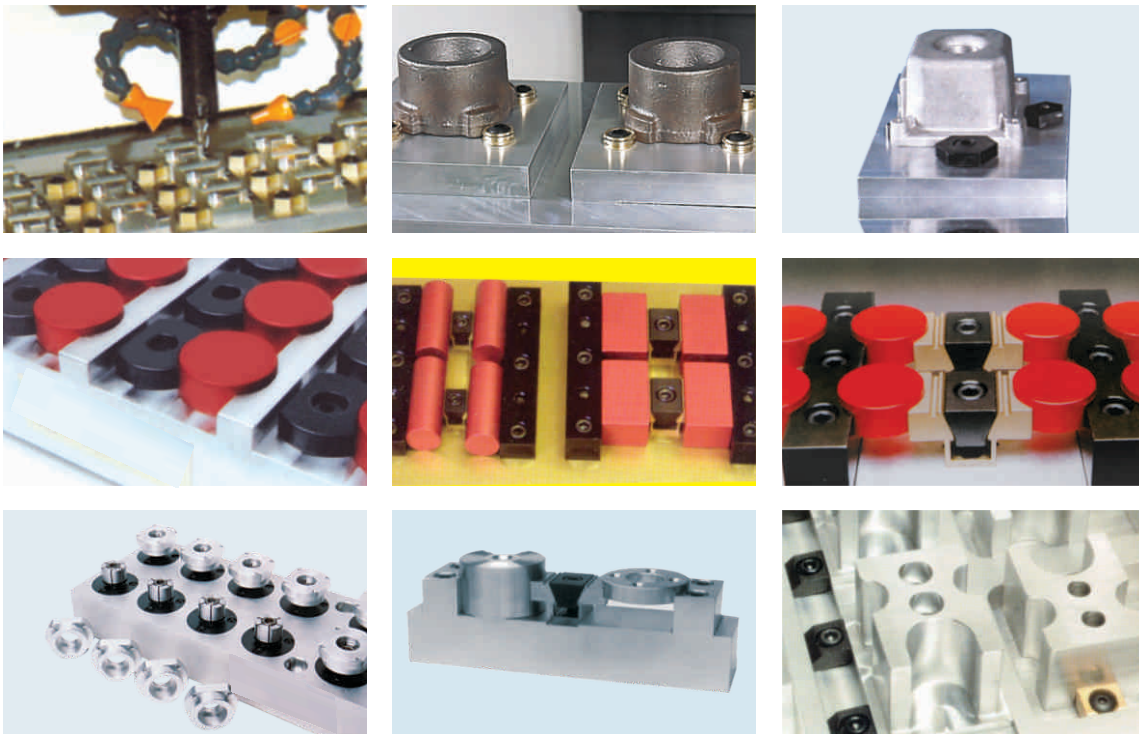
INTRODUCTION TO WORKHOLDERS

A machining centre makes tool changes in fractions of a second and cuts at unbelievable high speeds but the question is that whether the high efficiency of this machine is being optimally utilized or not. Number of pallets on a machine are important but more important is the extent to which the capacity of each pallet can be utilized, in other words - how many pieces can be clamped and machined at the same time on a pallet.

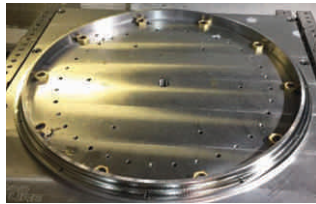
Realizing the need of multiple clamping on fixtures for CNC machining centre the factory joined hands to bring complete range of fixture clamps to India. By using fixture clamps of different types for different types of workpieces, one can succeed in clamping more number of workpieces in one setup and gaining clear benefits such as decreased downtime resulting in shorter machine stop times and longer actual machine cycles.

In the following pages, clamps are illustrated which are now available in India from all the factory outlets.

EXAMPLES OF MULTIPLE JOB CLAMPING

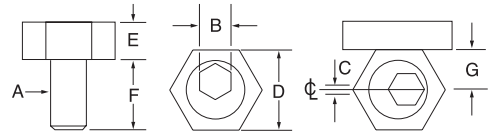


ORIGINAL FIXTURE CLAMPS



The cam action Fixture Clamp is made up of two simple components: a hardened steel socket cap screw with an offset head and a brass hexagonal washer.

- Low-profile for quick and easy installation of linear motion guide rails
- Cam action provides fast, strong clamping
- Small size allows more parts per load
- Simple design keeps cost low
- 50218 our most popular LMGR size available in bulk



G* - Location to drill and tap from edge of workpiece.

NOTE: Clockwise rotation is recommended. Locating pin should be on the right of workpiece.

| Part Number | A | B | C | D | E | F | G* | Torque | Holding Force | Clamps Per Pack* | —Replacement— | |
|-------------|-----|----|------|-------|-------|------|-------|---------------|---------------|------------------|---------------|------------|
| | | | | | | | | (Ft/Lbs) | | | Cam Screw | Hex Washer |
| | | | | | | | | Torque (N.m.) | | | | |
| 50204 | M4 | 3 | .76 | 7.93 | 2.80 | 9.6 | 3.80 | 2.0 | 910 N | 10 | 50363 | 10580 |
| 50206 | M6 | 4 | 1.01 | 15.86 | 4.75 | 11.2 | 7.80 | 8.5 | 3,558 N | 10 | 50365 | 10582 |
| 50208 | M8 | 5 | 1.01 | 20.61 | 4.55 | 15.0 | 10.15 | 11.3 | 3,558 N | 12 | 50367 | 10584 |
| 50210 | M10 | 7 | 1.27 | 20.61 | 6.35 | 19.0 | 10.15 | 28.0 | 8,895 N | 10 | 50369 | 10586 |
| 50212 | M12 | 8 | 2.03 | 25.38 | 9.52 | 22.8 | 12.70 | 88.0 | 17,790 N | 8 | 50371 | 10590 |
| 50216 | M16 | 12 | 2.54 | 30.13 | 12.70 | 28.5 | 15.00 | 125.0 | 26,680 N | 4 | 50373 | 10592 |
| 50218 | M8 | 5 | 1.01 | 20.61 | 4.55 | 15.0 | 10.15 | 11.3 | 3,558 N | bulk | 502181 | 10584 |

STAINLESS STEEL (300 Series)

| | | | | | | | | | | | | |
|-------|-----------|------|--------|---------|--------|--------|---------|-------------|---------|---|-------|-------|
| 10214 | 8 - 32 | 5/64 | .030 | .312 | .110 | .350 | .150 | 1.5 Ft. Lbs | 205 lbs | 4 | 10362 | 10581 |
| 10203 | 1/4 - 20 | 1/8 | .040 | .625 | .190 | .470 | .308 | 6.2 Ft. Lbs | 800 lbs | 4 | 10364 | 10583 |
| 10213 | 5/16 - 18 | 3/16 | .040 | .812 | .250 | .460 | .400 | 8.3 Ft. Lbs | 800 lbs | 4 | 10368 | 10585 |
| 50214 | M4 | 3mm | .76mm | 7.93mm | 2.80mm | 9.6mm | 3.80mm | 2.0(N.m.) | 910 N | 4 | 50361 | 10581 |
| 50205 | M6 | 4mm | 1.01mm | 15.86mm | 4.75mm | 11.2mm | 7.80mm | 8.50(N.m.) | 3,558 N | 4 | 50364 | 10583 |
| 50207 | M8 | 5mm | 1.01mm | 20.60mm | 6.35mm | 15.0mm | 10.15mm | 11.30(N.m.) | 3,558 N | 4 | 50366 | 10585 |

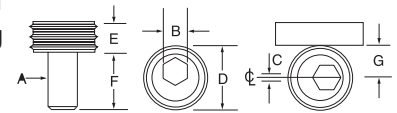
* - All clamps may be purchased in bulk packages of 50 pcs. or more.

KNIFE EDGE CLAMPS



Our Knife Edge Clamps can be used instead of the original brass hex clamps for clamping rough cut stock, castings and any material that requires a hardened clamping element.

Same "G" dimension as Original Fixture Clamps above. Clamps produced in 12L14 steel with a nickel coating.



| Part Number | A | B | C | D | E | F | G | Max. Torque | Holding Force | Number of Clamps Per Pack | - Replacement - | |
|-------------|-----|-----|------|-------|-------|------|-------|-------------|---------------|---------------------------|-----------------|--------|
| | | | | | | | | (Ft/Lbs) | | | Cam Screw | Washer |
| 82584 | M10 | 7M | 1.27 | 20.60 | 6.35 | 19.0 | 10.15 | 28.00 | 8900 | 8 | 50369 | 12584 |
| 82588 | M12 | 8M | 2.03 | 25.40 | 9.52 | 22.8 | 12.70 | 88.00 | 17800 | 8 | 50371 | 12588B |
| 82592 | M16 | 12M | 2.54 | 30.15 | 12.70 | 28.5 | 15.00 | 135.00 | 26700 | 4 | 50373 | 12592 |

Not designed for clamping hardened material at maximum torque.

SERIES-9 CLAMPS



This adjustable low profile, cam action clamp provides clamping of different size workpieces merely by rotating the clamp to one of its other edges. The clamps are .394 (10mm) high and use a 1/2-13 (M12) cam screw. Each of the six clamping surfaces is a different distance from the centerline by .0394 (1mm) as shown in the chart. Therefore, one Series-9 Clamp can hold parts that vary up to .240 (9.4mm) simply by rotating the clamp to a different clamping surface.

- Serrated or smooth edges
- Heat treated and plated
- 4,000 lbs. (17800 N.m.) holding force

TORQUE VALUES AND HOLDING FORCE

| Part Numbers | use Screw Size | Max. Torque/ Holding Force | Replacement Cam Screw |
|---------------|----------------|-------------------------------|--------------------------|
| 95110 - 95145 | M12 | 88 N.m. / 17,800 N. | 50371 |

| Part Number | Description | Face Number | Distance from ϕ (metric) |
|-------------|---------------|-------------|-------------------------------|
| 95110 | 1-6 Smooth | 1 | 12mm |
| 95115 | 1-6 Serrated | 2 | 13mm |
| | | 3 | 14mm |
| | | 4 | 15mm |
| | | 5 | 16mm |
| | | 6 | 17mm |
| 95120 | 7-12 Smooth | 7 | 18mm |
| 95125 | 7-12 Serrated | 8 | 19mm |
| | | 9 | 20mm |
| | | 10 | 21mm |
| | | 11 | 22mm |
| | | 12 | 23mm |

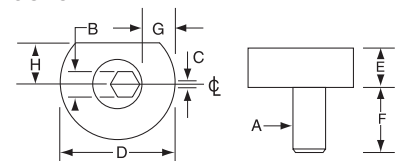
| Part Number | Description | Face Number | Distance from ϕ (metric) |
|-------------|----------------|-------------|-------------------------------|
| 90130 | 13-18 Smooth | 13 | 24mm |
| 90135 | 13-18 Serrated | 14 | 25mm |
| | | 15 | 26mm |
| | | 16 | 27mm |
| | | 17 | 28mm |
| | | 18 | 29mm |
| 90140 | 19-24 Smooth | 19 | 30mm |
| 90145 | 19-24 Serrated | 20 | 31mm |
| | | 21 | 32mm |
| | | 22 | 33mm |
| | | 23 | 34mm |
| | | 24 | 35mm |

MACHINABLE FIXTURE CLAMPS



These clamps, with the machinable steel washers, provide more flexibility for holding round or unusual shaped parts. Parts can be held directly to the fixture plate surface or elevated for through drilling. A special screw is provided with each package to hold the washer in the proper place during machining.

The flat edge is the same location as our original fixture clamps. It can be used where a stronger clamping surface is required.



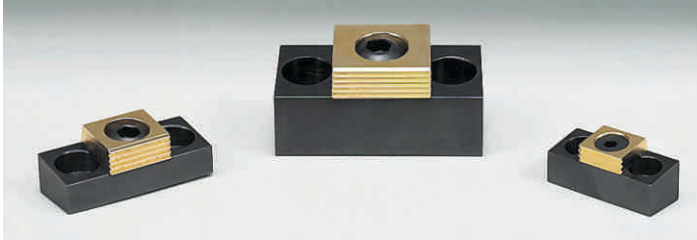
- Low profile
- Made of mild steel for machinability

| Part Number | A | B | C | D | E | F | G* | H† | Max. Torque | Holding Force | Number of Clamps Per Pack | Replacement | |
|-------------|-----|-----|------|------|------|------|-----|------|-------------|---------------|---------------------------|-------------|--------|
| | | | | | | | | | (Ft/Lbs) | (Lbs) | | Cam Screw | Washer |
| | | | | | | | | | (N.m.) | (N.) | | | |
| 50506 | M6 | 4M | 1.01 | 24.9 | 6.4 | 11.9 | 6.4 | 7.8 | 8.5 | 3358 | 4 | 50365 | 10604 |
| 50510 | M10 | 7M | 1.52 | 31.2 | 8.9 | 18.0 | 7.0 | 10.2 | 28.0 | 8900 | 4 | 50369 | 10606 |
| 50512 | M12 | 8M | 2.03 | 37.6 | 11.4 | 22.9 | 7.6 | 12.7 | 88.0 | 17800 | 4 | 50371 | 10612 |
| 50516 | M16 | 12M | 2.54 | 43.9 | 14.0 | 28.6 | 8.9 | 15.0 | 135.0 | 26700 | 4 | 50373 | 10610 |

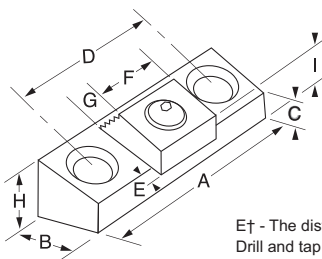
G* - Amount of machinable stock H† - The distance to drill & tap hole from edge of workpiece to use flat face. Every package includes one machining screw



COMPACT TOE CLAMPS



This cam action fixture clamp provides positive down force while using very little space on a 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 | H | I* | Total Distance of Movement | Mounting Screws (Included) | Max. Torque (Ft/Lbs) | Holding Force (Lbs) | Replacement Cam Square |
|-------------|------|------|------|------|-----|------|------|-------|------|----------------------------|----------------------------|----------------------|---------------------|------------------------|
| 54110 | 43.2 | 19.0 | 12.7 | 25.4 | 2.3 | 19.0 | 6.4 | 15.75 | 21.5 | 1.6 | M8x16 LHCS | 28.20 | 8900 | 50368 21006 |
| 54112 | 54.0 | 25.4 | 11.4 | 33.5 | 2.8 | 25.4 | 9.7 | 15.75 | 24.4 | 2.0 | M10x20 LHCS | 88.13 | 17800 | 50372 51016 |
| 54116 | 75.0 | 38.1 | 25.2 | 50.8 | 3.3 | 38.1 | 12.7 | 31.75 | 43.2 | 2.5 | M12x30 SHCS | 135.58 | 26700 | 50374 21026 |

E† - The distance needed between the front of the clamp base and the workpiece. I* - The distance from the top of the washer to the bottom of the clamp body. Drill and tap the centerline of "B" for mounting holes.

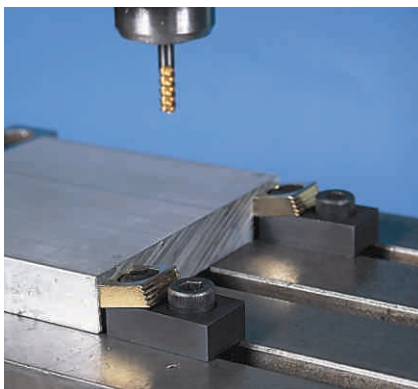
T-SLOT TOE CLAMPS



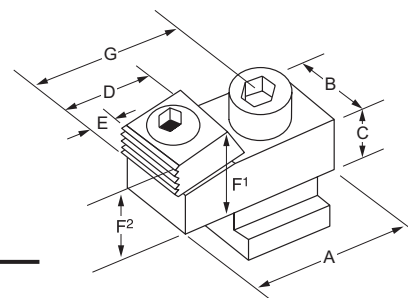
This clamp is like the Compact Toe Clamp, only it is designed to be used in the T-slots of machine tables. It provides 4,000 lbs. (17800 N) positive down force while maintaining a low profile. The hardened steel clamping element has both a smooth surface for machined workpieces and a serrated clamping surface for rougher work.

| A | B | C | D | E | F1 | F2 | G (Neutral Position) | Max. Torque/ Holding Force |
|----|------|------|------|-----|------|------|----------------------|----------------------------|
| 50 | 28.5 | 15.7 | 25.4 | 9.6 | 25.4 | 22.2 | 37.59 | 88.00/17800 (N.m./N.) |

F1 - The distance from the top of the back of the washer to the bottom of the clamp body. F2 - The distance from the top of the front of the washer to the bottom of the clamp body. Torque mounting bolt to 110 Ft/Lbs (150N.m.).



| Part Number | T-slot Size |
|-------------|------------------------|
| 54000 | No T-nut or Mtg. Screw |
| 54014 | 14 |
| 54016 | 16 |
| 54018 | 18 |



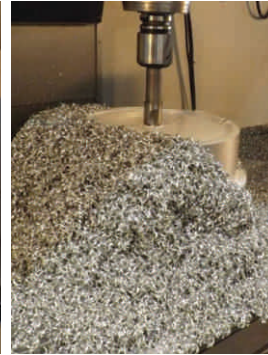
| Replacement | |
|-------------|---------------|
| Cam Screw | Square Washer |
| 50372 | 51016 |

T-SLOT AND ADVANT - EDGE CLAMPS

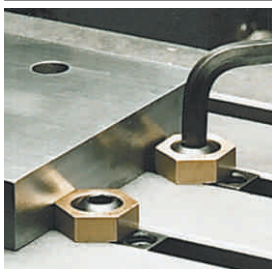
T-Slot Kits (Contents: 4 T-Nuts, 6 Fixture Clamps, 2 Hex Keys)



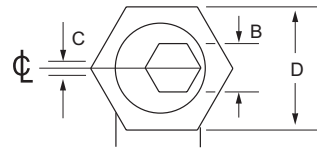
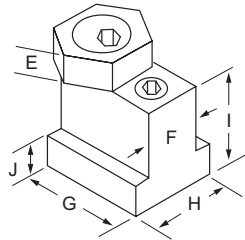
The original T-Slot Clamp combines our unique cam action clamping element with a T-nut.



- Locks in machine T-slot for low profile clamping
- Makes fast set-ups possible right on the machine table
- Brass hex follows contour of unusual shaped parts
- Packaged in pairs or complete kits



| Part Number | Cam Screw | T-Slot Size | B | C | D | E | F | G | H | I | J | Max. Torque (Ft/Lbs) | Holding Force (Lbs) | Replacement | | |
|-------------|------------|-------------|------|------|-------|-------|----|------|------|------|------|----------------------|---------------------|-------------|------------|-------|
| | | | | | | | | | | | | | | Cam Screw | Hex Washer | T-Nut |
| 50642 | M6 x 1.00 | 8mm | 5mm | 1.01 | 15.86 | 4.75 | 8 | 23.2 | 12.7 | 9.5 | 4.6 | 8.55 | 3,558 | 50365 | 10582 | 50708 |
| 50644 | M6 x 1.00 | 10mm | 5mm | 1.01 | 15.86 | 4.75 | 10 | 23.2 | 14.2 | 14.2 | 4.3 | 8.55 | 3,558 | 50365 | 10582 | 50710 |
| 50646 | M8 x 1.25 | 12mm | 5mm | 1.01 | 20.62 | 4.75 | 12 | 27.9 | 15.9 | 15.9 | 6.4 | 11.30 | 3,355 | 50367 | 10584 | 50712 |
| 50648 | M10 x 1.50 | 14mm | 7mm | 1.52 | 20.62 | 6.35 | 14 | 30.5 | 22.4 | 22.2 | 8.5 | 28.00 | 8,895 | 50369 | 10586 | 50714 |
| 50650 | M12 x 1.75 | 16mm | 8mm | 2.03 | 25.40 | 9.53 | 16 | 30.9 | 25.4 | 22.2 | 9.2 | 61.00 | 13,340 | 50371 | 10590 | 50716 |
| 50652 | M12 x 1.75 | 18mm | 8mm | 2.03 | 25.40 | 9.53 | 18 | 34.7 | 28.6 | 28.6 | 10.5 | 61.00 | 13,340 | 50371 | 10590 | 50718 |
| 50654 | M16 x 2.00 | 20mm | 12mm | 2.54 | 30.15 | 12.70 | 20 | 39.2 | 31.8 | 31.8 | 12.6 | 135.00 | 26,680 | 50373 | 10592 | 50720 |
| 50656 | M16 x 2.00 | 22mm | 12mm | 2.54 | 30.15 | 12.70 | 22 | 44.3 | 34.9 | 41.3 | 12.5 | 135.00 | 26,680 | 50373 | 10592 | 50722 |

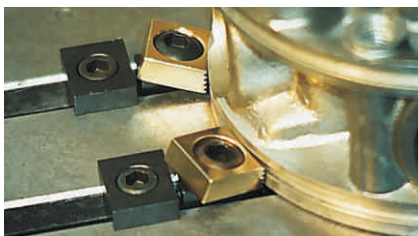


T-Slot Toe Clamps



| Part Number | T-Slot Size | Number of Clamps Per Pack | Holding Force (N) |
|-------------|-------------|---------------------------|-------------------|
| 50422 | 8mm | 2 | 3,558 |
| 50424 | 10mm | 2 | 3,558 |
| 50426 | 12mm | 2 | 3,355 |
| 50428 | 14mm | 2 | 8,895 |
| 50430 | 16mm | 2 | 13,340 |
| 50432 | 18mm | 2 | 13,340 |
| 50434 | 20mm | 2 | 26,680 |
| 50436 | 22mm | 2 | 26,680 |

Advant - Edge Clamps

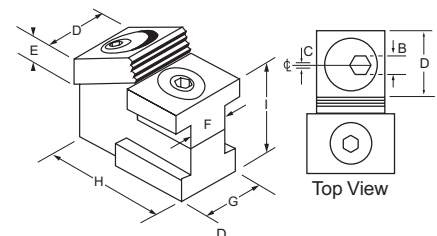


The Advant- Edge Clamp provides additional clamping force and improved table grip.

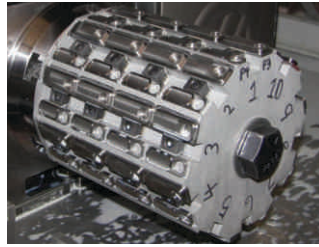
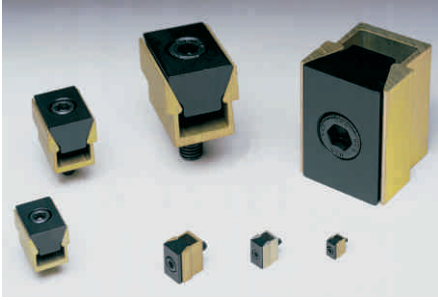
- Tilted clamping element creates a positive downward force and 4,000 lbs. holding force
- Hardened clamping element has both a smooth surface for machined workpieces and a serrated clamping surface for rougher work
- Improved locking mechanism secures clamp to machine table
- Packaged individually (52224) or as kit of two (52424)

| Part Number | Cam Screw | T-Slot Size | B | C | D | E | F | G | H | I | Max. Torque/ Holding Force (Ft Lb/Lbs) | Replacement Square Washer |
|----------------------|-----------|-------------|---|---|------|-----|----|------|----|----|--|---------------------------|
| | | | | | | | | | | | | |
| 52224 52424 (kit) | 50372 | 16 | 8 | 2 | 25.4 | 9.5 | 16 | 28.5 | 48 | 28 | 88.00/17800 | 51016 |

Torque mounting bolt to 70 Ft/Lbs (150N.m.).

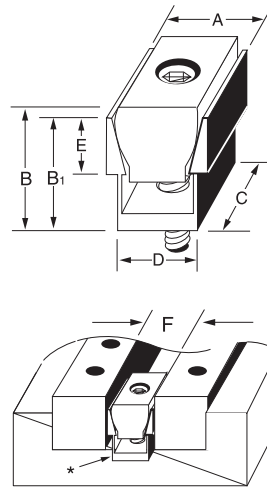
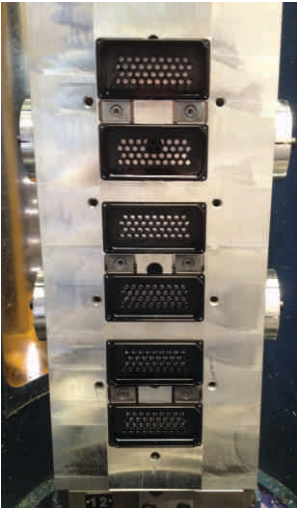


UNIFORCE® CLAMPS



The compact, economical Uniforce® Clamp enables you to fixture more parts on the machine table. The specially designed steel wedge spreads the clamping force uniformly on both sides of the 7075-T6 aluminum channel and is one of the best solutions for high density applications.

- Increases production
- Minimizes tool changes
- Holds two parts with equilateral clamping action
- Ideal for clamping flat or round workpieces
- Reduces wasted space
- See Locating Rails on
- Easily mated to hydraulic pull cylinders
- Ideal for pallet changers



| Part Number | Model | A | B | B1 | C | D* | E | F† | Thread Size | Maximum Spread | Max. Torque | Holding Force | Number of Clamps Per Pack | Key Size | -Replacement- Steel Wedge | |
|-------------|-------|------|------|-------|------|------|------|------|-------------|----------------|-------------|---------------|---------------------------|----------|---------------------------|-------|
| | | | | | | | | | | | (Ft/Lbs) | (Lbs) | | | Channel | Wedge |
| 80250 | 250 | 6.1 | 6.9 | 6.40 | 8.1 | 5.3 | 3.6 | 6.4 | M2 | 6.7 | 0.70 | 880 | 6 | 1.5 | 60205 | 60305 |
| 80375 | 375 | 9.1 | 9.7 | 9.50 | 11.9 | 7.9 | 4.7 | 9.5 | M2.5 | 10.0 | 1.50 | 1,350 | 6 | 2 | 60207 | 60307 |
| 80500 | 500 | 12.3 | 14.5 | 12.70 | 15.9 | 10.4 | 5.6 | 12.7 | M4 | 13.2 | 3.40 | 2,225 | 8 | 3 | 60210 | 60310 |
| 80750 | 750 | 18.6 | 19.0 | 19.05 | 23.8 | 16.1 | 9.5 | 19.0 | M6 | 20.3 | 13.50 | 6,675 | 6 | 5 | 60220 | 60320 |
| 81000 | 1000 | 24.8 | 25.9 | 25.40 | 31.7 | 20.8 | 12.7 | 25.4 | M8 | 26.9 | 25.00 | 11,125 | 4 | 6 | 60230 | 60330 |
| 81500 | 1500 | 37.3 | 38.6 | 38.10 | 47.6 | 30.8 | 19.0 | 38.1 | M12 | 39.9 | 38.40 | 15,575 | 2 | 10 | 60240 | 60340 |
| 82000 | 2000 | 49.7 | 51.5 | 50.80 | 63.5 | 41.2 | 25.4 | 50.8 | M16 | 53.0 | 74.60 | 26,700 | 2 | 14 | 60245 | 60350 |

D* - A milled slot wider than D dimension will insure clamp remains in line with workpiece. Clamp sides should not come in contact with slot walls during expansion.
F† - The distance needed between workpieces for clamp clearance. Drill and tap mounting hole on the center of F dimension.

LONG LENGTH UNIFORCE® CHANNEL & STEEL WEDGE

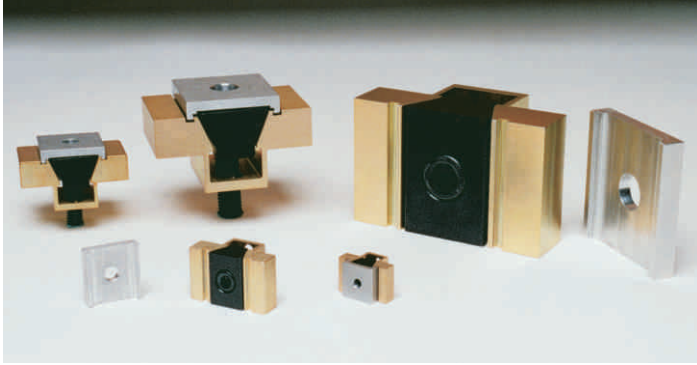


This material is available in 20" (508mm) lengths so clamps can be fabricated in different lengths to suit any requirement. Channel and steel wedge are not drilled or plated.

| Part Number | Model |
|-------------|-----------------|
| 62010 | 250 Channel |
| 63010 | 250 Steel Wedge |
| 62020 | 375 Channel |
| 63020 | 375 Steel Wedge |
| 62120 | 500 Channel |
| 63120 | 500 Steel Wedge |
| 62220 | 750 Channel |
| 63220 | 750 Steel Wedge |

| Part Number | Model |
|-------------|------------------|
| 62320 | 1000 Channel |
| 63320 | 1000 Steel Wedge |
| 62420 | 1500 Channel |
| 63420 | 1500 Steel Wedge |
| 62520 | 2000 Channel |
| 63520 | 2000 Steel Wedge |

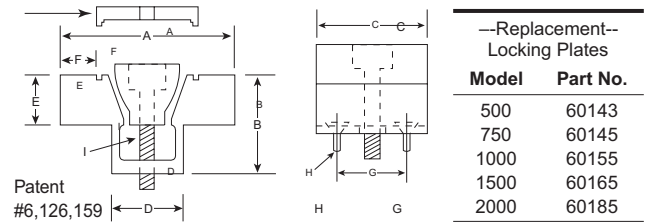
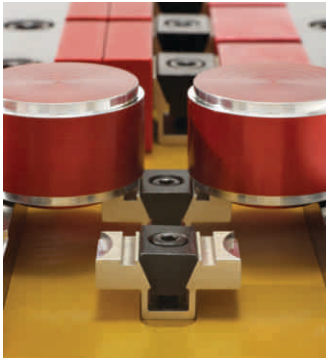
MACHINABLE UNIFORCE® CLAMPS



The compact Uniforce® clamp is available with extra material on the clamping jaws 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 7075-T6 aluminum channel.

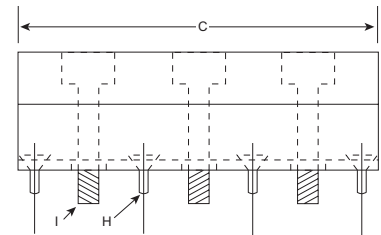
The locking plate properly expands the clamp, while making it rigid for machining. Machine to a slip fit of workpiece. Remove locking plate before clamping workpiece.

Note: When clamp is used to hold flat stock, use locking plate to machine faces parallel.



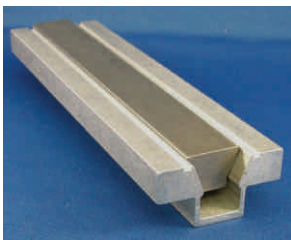
| Model | Part No. with Locking Plate | Part No. Without Locking Plate | A* | B | C | D | E | F† | G | H** | I | Max. Torque (Ft/Lbs) | Holding Force (Lbs) | -Replacement- Channel | Steel Wedge |
|-------|-----------------------------|--------------------------------|-------|------|------|-------|------|------|-------|-----|-----|----------------------|---------------------|--------------------------|-------------|
| | | | | | | | | | | | | (N.m.) | (N.) | | |
| 500 | 80050 | 80055 | 28.6 | 12.7 | 15.7 | 10.67 | 6.3 | 4.6 | 10.16 | M2 | M4 | 3.40 | 2,225 | 60140 | 60310 |
| 750 | 80075 | 80080 | 38.1 | 19.1 | 23.9 | 16.05 | 9.4 | 6.6 | 15.87 | M4 | M6 | 13.50 | 6,675 | 60125 | 60320 |
| 1000 | 80100 | 80105 | 50.8 | 25.4 | 31.8 | 20.83 | 12.7 | 9.9 | 20.62 | M4 | M8 | 25.00 | 11,125 | 60135 | 60330 |
| 1500 | 80150 | 80155 | 76.2 | 38.1 | 47.5 | 30.86 | 19.1 | 15.7 | 30.48 | M5 | M12 | 38.40 | 15,575 | 60160 | 60340 |
| 2000 | 80200 | 80205 | 101.6 | 50.8 | 63.5 | 41.28 | 25.4 | 20.3 | 41.28 | M6 | M16 | 74.60 | 26,700 | 60180 | 60350 |

A* - The distance needed between workpieces for clamp clearance, drill and tap mounting holes on the center of "A" dimension.
F† - The amount of machinable stock on jaws. H** - Mounting screws included.



LONG LENGTH MACHINABLE UNIFORCE® CLAMPS

Locking plate is required to machine channel without vibration. (See chart above)

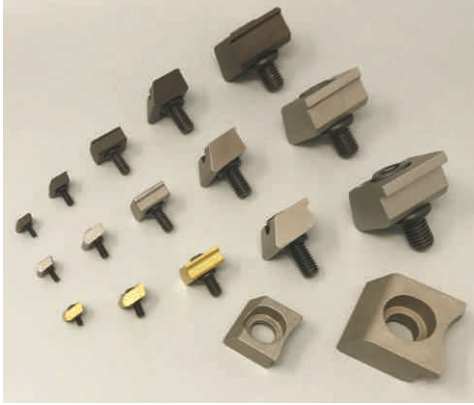


This material is available in 7 1/2" (190mm) lengths. Custom clamps can be fabricated in different lengths to fit specific requirements. Channel and steel wedge are not drilled or plated.

| Part Number | Model | A* | B | C | D | E | F† | H | I | Max. Torque (Ft/Lbs) | Holding Force (Lbs) |
|-------------|--------------|------|------|-------|-------|------|------|----|-----|----------------------|---------------------|
| 80051 | 500 Channel | 28.6 | 12.7 | 190mm | 10.67 | 6.3 | 4.6 | M2 | M4 | 3.40 | 2225 |
| 80071 | 750 Channel | 38.1 | 19.1 | 190mm | 16.05 | 9.4 | 6.6 | M4 | M6 | 14.30 | 6675 |
| 80101 | 1000 Channel | 50.8 | 25.4 | 190mm | 20.83 | 12.7 | 9.9 | M4 | M8 | 14.50 | 8900 |
| 80151 | 1500 Channel | 76.2 | 38.1 | 190mm | 30.86 | 19.1 | 15.7 | M5 | M12 | 38.40 | 15575 |

A - The distance needed between workpieces for clamp clearance, drill and tap mounting holes on the center of "A" dimension.
F† - The amount of machinable stock on jaws. (3) Drive Screws and (4) Mounting Screws included.

PITBULL® CLAMPS



The revolutionary Pitbull® Clamp remains the lowest profile, highest holding force clamp in the industry today. High vertical and horizontal clamping forces are generated, considering the size of the Pitbull® Clamps. It uses a standard cap screw and an oil resistant O-ring. The Pitbull® Clamp is available in 5 sizes and several styles, a tool steel knife edge for aggressive stock removal, a tool steel blunt edge for general purpose, a brass version to help prevent marring the workpiece and a machinable version

See Locating Rails, Page 40 and TalonGrip™

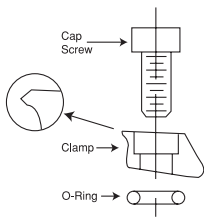
UNIQUE FEATURES:

- Extremely low bite
- Positive down force
- High strength A2 Tool Steel virtually eliminates rip-out
- Simple, sturdy, high quality design and components
- Gain maximum tool access to your work
- Virtually eliminate lost work
- Great option with hydraulic cylinders

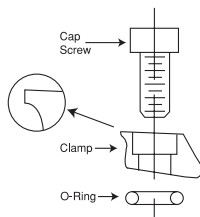


PITBULL® INSTALLATION

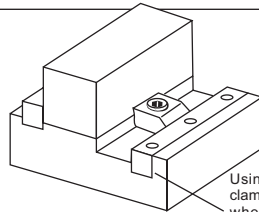
KNIFE EDGE



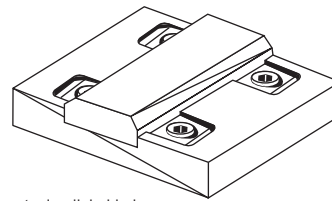
BLUNT EDGE



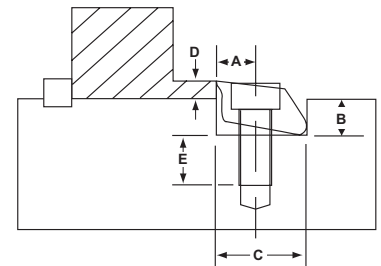
FIXTURE EXAMPLES



Using a steel rail behind clamp in aluminum fixtures when applying maximum torque prevents displacing metal at pivot point.



| | Replacement O-ring | Screw Size |
|-----------|--------------------|---------------|
| Pkg of 20 | 26008 | 4-40 or M2.5 |
| | 26028 | 8-32 or M4 |
| | 26058 | 1/4-20 or M6 |
| Pkg of 10 | 26078 | 3/8-16 or M10 |
| | 26083 | 1/2-13 or M12 |



Both versions of the tool steel clamps generate the same clamping pressure. However, the Knife Edge clamps bite into the material for more aggressive machining, while the Blunt Edge is less likely to mark the workpiece.

The Knife Edge clamp has a black oxide finish. Both the Knife Edge and Blunt Edge clamps are heat treated 43-45Rc.

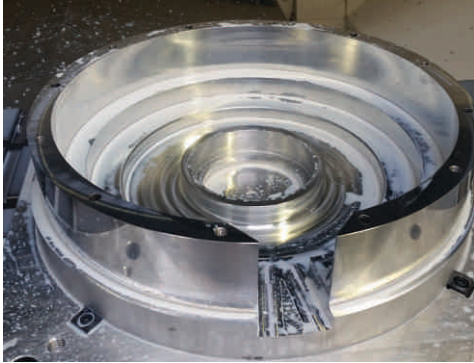
Creating Fixtures is Easy... Simply:

1. Machine a slot for the Pitbull® Clamp
2. Drill and tap a hole for the cap screw
3. Assemble the clamp as shown in diagram below
4. Position clamp as shown in diagram and loosely screw to fixture
5. Insert workpiece and tighten cap screw

| Part Number | Description | A | B | C | Clamp Width D* | E | SHCS Screw Size | Max. Torque | Holding Force | Total Throw | No. Clamps Per Package |
|-------------|------------------------|-------|-------|-------|----------------|-------|-----------------|-------------|---------------|-------------|------------------------|
| | | | | | | | | (Ft/Lbs) | (Lbs) | | |
| 56000 | Tool Steel, Knife Edge | 3.81 | 3.55 | 9.52 | 1.90 | 6.60 | M2.5 | 1.8 | 2800 | .190 | 8 |
| 56010 | Tool Steel, Blunt Edge | 3.81 | 3.55 | 9.52 | 1.90 | 6.60 | M2.5 | 1.8 | 2800 | .190 | 8 |
| 56015 | Brass, Blunt Edge | 3.81 | 3.55 | 9.52 | 1.90 | 5.59 | M2.5 | .56 | 875 | .190 | 8 |
| 56020 | Tool Steel, Knife Edge | 5.08 | 4.75 | 12.70 | 2.54 | 9.90 | M4 | 5.6 | 6600 | .406 | 8 |
| 56030 | Tool Steel, Blunt Edge | 5.08 | 4.75 | 12.70 | 2.54 | 9.90 | M4 | 5.6 | 6600 | .406 | 8 |
| 56040 | Brass, Blunt Edge | 5.08 | 4.75 | 12.70 | 2.54 | 8.64 | M4 | 2.8 | 1750 | .406 | 8 |
| 56050 | Tool Steel, Knife Edge | 7.62 | 7.11 | 19.05 | 3.81 | 14.48 | M6 | 22.5 | 16000 | .610 | 6 |
| 56060 | Tool Steel, Blunt Edge | 7.62 | 7.11 | 19.05 | 3.81 | 14.48 | M6 | 22.5 | 16000 | .610 | 6 |
| 56065 | Brass, Blunt Edge | 7.62 | 7.11 | 19.05 | 3.81 | 11.18 | M6 | 5.6 | 4200 | .610 | 6 |
| 56070 | Tool Steel, Knife Edge | 10.16 | 11.43 | 25.40 | 6.35 | 18.03 | M10 | 40.6 | 26000 | 1.270 | 4 |
| 56075 | Tool Steel, Blunt Edge | 10.16 | 11.43 | 25.40 | 6.35 | 18.03 | M10 | 40.6 | 26000 | 1.270 | 4 |
| 56080 | Tool Steel, Knife Edge | 15.24 | 16.26 | 38.10 | 9.52 | 19.56 | M12 | 145.0 | 50000 | 1.900 | 2 |
| 56085 | Tool Steel, Blunt Edge | 15.24 | 16.26 | 38.10 | 9.52 | 19.56 | M12 | 145.0 | 50000 | 1.900 | 2 |

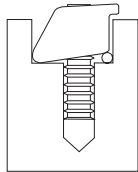
D* - Minimum clamp height *If gripping below recommended height, ensure clamp does not contact slot wall under load.

MACHINABLE PITBULL® CLAMPS



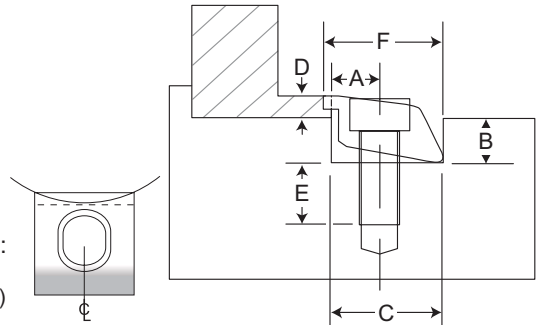
The popular Pitbull® Fixture Clamp is now available in a machinable version. The clamp has positive down force and a very low gripping profile, reducing material cost and number of operations.

The Machinable Pitbull® Clamp is made of A2 tool steel and heat treated to about 43RC for long life, yet still machinable. There is additional material on the clamping face to allow for machining a radius. It is available in two sizes with 6,000 and 12,000 lbs. (26000 and 50000 N) of holding force. A dowel pin is included in each package to locate clamp while machining radius.



Tighten clamp on dowel pin for proper location for machining clamp. Remove pin and install o-ring to clamp workpiece.

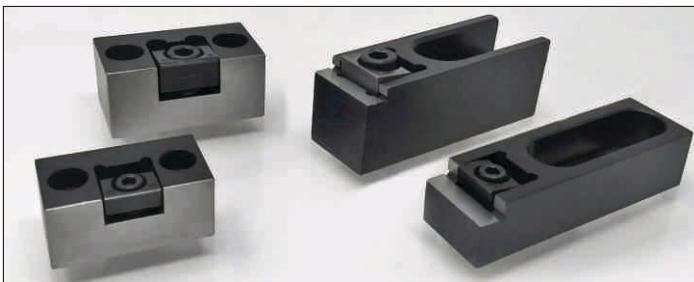
Maximum recommended stock removal from centerline of clamp:
 26077 = .060 26088 = .180
 (56077 = 1.5mm) (56088 = 4.5mm)



| Part Number | Description | A | B | C | D* | E | F | Slot Width | Screw Size | Max. Torque | Total Holding Force | Total Throw | Dowel Pin | Clamps Per Package |
|-------------|------------------------|-------|-------|------|------|------|------|------------|------------|--------------|---------------------|-------------|-----------|--------------------|
| 56077 | Tool Steel, Machinable | 10.16 | 11.43 | 25.4 | 6.35 | 18.0 | 26.9 | 25.4 | M10 | 40.6 (N.m.) | 26,000 (N.) | 1.27 | 3.18 | 4 |
| 56088 | Tool Steel, Machinable | 15.24 | 16.26 | 38.1 | 9.52 | 19.6 | 42.6 | 38.1 | M12 | 145.0 (N.m.) | 50,000 (N.) | 1.90 | 6.35 | 2 |

D* - Minimum clamping height

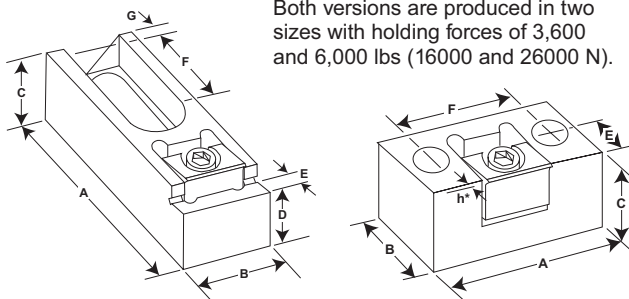
MODULAR PITBULL® CLAMPS



The Pitbull® Fixture Clamp is very well known for its low profile and positive down force. It is now available as a modular clamp in two styles.

The slotted Modular Pitbull® Clamp with a step offers increased versatility through its unique riser design. This clamp supports the workpiece off the machine table for through milling and drilling. The hardened and ground clamps are designed for use on work cubes, as well as machined tables with tapped holes or T-slot configurations.

The compact Modular Pitbull® Clamp is ideal for clamping workpieces in series by using the back surface of a clamp to locate the next workpiece. The back of the clamp is ground square to the bottom for precise location of parts. The height of the clamp can be adjusted by the depth of the milled slot used to locate the clamp.

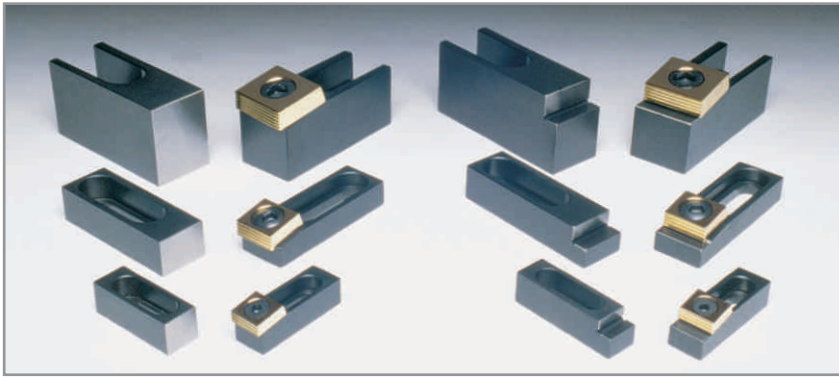


Both versions are produced in two sizes with holding forces of 3,600 and 6,000 lbs (16000 and 26000 N).

| - Part Number - | | Description | A | B | C | D +.0000 -.0005 | E | F | G | H* | Max. Torque | Holding Force | Mounting Screw | Slot |
|-----------------|------------|----------------|-------|--------|------|--------------------|------|------|------|------|-------------|---------------|----------------|--------|
| Knife Edge | Blunt Edge | | | | | | | | | | (Ft/Lbs) | (Lbs) | | |
| 56220 | 56225 | Medium/Compact | 57.1 | 31.242 | 25.1 | NA | 15.7 | 38.1 | - | .61 | 22.5 | 16000 | M8 | - |
| 56230 | 56235 | Large/Compact | 68.6 | 37.592 | 31.5 | NA | 18.8 | 47.0 | - | 1.27 | 40.6 | 26000 | M10 | - |
| 56240 | 56245 | Medium/Slotted | 103.6 | 31.700 | 25.1 | 18.542 | 9.1 | 43.2 | 12.7 | .61 | 22.5 | 16000 | M12 | Closed |
| 56250 | 56255 | Large/Slotted | 107.0 | 38.100 | 40.9 | 35.000 | 9.1 | 38.6 | 10.9 | 1.27 | 40.6 | 26000 | M16 | Closed |

H* - Clamp travel

MULTI-FIXTURE CLAMPS AND STOPS

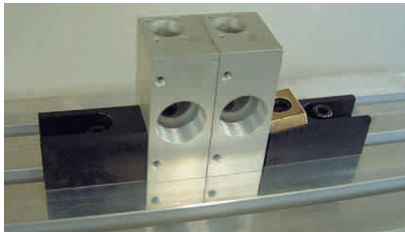


The Multi-Fixture Clamps, with a step, offer increased versatility through their unique riser clamp design. These clamps support the workpiece off the machine table for through milling and drilling.

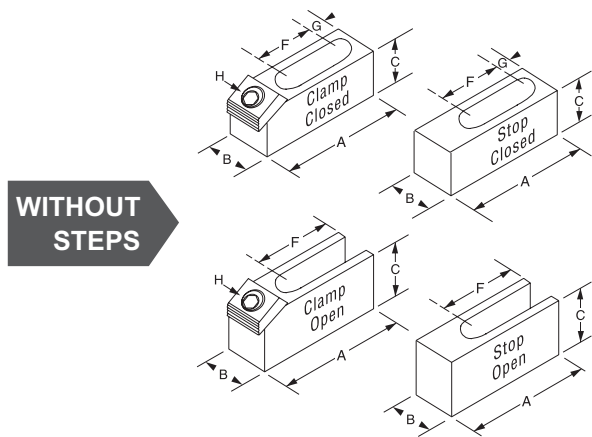
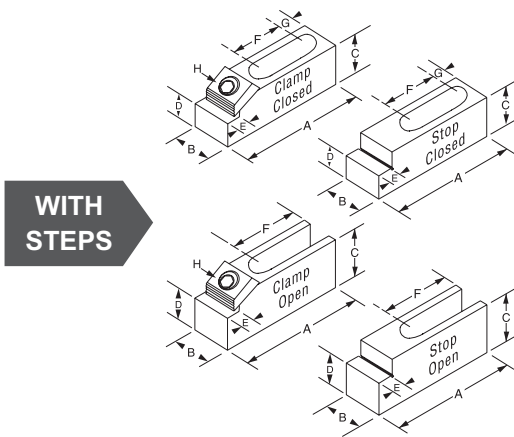
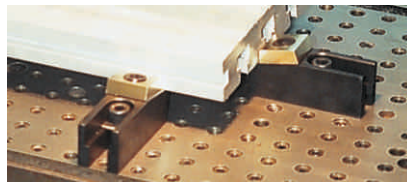
The Multi-Fixture Clamps, without a step, grip the workpiece at a higher point for more clamping strength and better stability. The hardened and ground clamps offer quick cam action clamping and are designed for use on work cubes and machine tables with tapped holes or T-slot configurations.

They adjust to unusually shaped parts because the cam action allows the clamping element to always make maximum contact with the workpiece for greater holding force. The tilted clamping element provides positive down force for more accurate machining.

APPLICATIONS WITHOUT STEPS



APPLICATIONS WITH STEPS



| Part Number | Item | A | B | C | D ^{+0.0000} D _{-0.013mm} | E | F | G | Cam Screw H | Max. Torque (Ft/Lbs) (N.m.) | Holding Force (Lbs) (N.) | Mtg. Screw (not incl) Slot | Replacement Square Washer | |
|----------------------|-------|-------|------|------|---|-----|------|------|-------------|--------------------------------|-----------------------------|----------------------------|---------------------------|-------|
| WITH STEPS | | | | | | | | | | | | | | |
| 53140 | Clamp | 63.5 | 19.1 | 15.8 | 11.68 | 8.0 | 21.1 | 13.5 | 50368 | 28.00 | 8900 | M8 | Closed | 21006 |
| 23180 | Stop | 63.5 | 19.1 | 19.1 | 11.68 | 8.0 | 28.2 | 13.5 | NA | 28.00 | 8900 | M8 | Closed | |
| 53150 | Clamp | 95.3 | 28.5 | 15.8 | 12.19 | 9.4 | 42.7 | 12.7 | 50372 | 88.00 | 17800 | M12 | Closed | 51016 |
| 23200 | Stop | 95.3 | 28.5 | 22.1 | 12.19 | 9.4 | 42.7 | 12.7 | NA | 88.00 | 17800 | M12 | Closed | |
| 53170 | Clamp | 107.0 | 38.1 | 41.2 | 35.00 | 9.4 | 46.2 | NA | 50373 | 135.00 | 26700 | M16 | Open | 21026 |
| 23240 | Stop | 107.0 | 38.1 | 50.8 | 35.00 | 9.4 | 46.2 | NA | NA | 135.00 | 26700 | M16 | Open | |
| WITHOUT STEPS | | | | | | | | | | | | | | |
| 53145 | Clamp | 54.9 | 19.1 | 15.8 | NA | NA | 21.1 | 13.5 | 50368 | 28.00 | 8900 | M8 | Closed | 21006 |
| 23148 | Stop | 55.9 | 19.1 | 19.1 | NA | NA | 28.2 | 13.5 | NA | 28.00 | 8900 | M8 | Closed | |
| 53155 | Clamp | 85.6 | 28.5 | 15.8 | NA | NA | 42.7 | 12.7 | 50372 | 88.00 | 17800 | M12 | Closed | 51016 |
| 23158 | Stop | 83.5 | 28.5 | 22.1 | NA | NA | 42.7 | 12.7 | NA | 88.00 | 17800 | M12 | Closed | |
| 53172 | Clamp | 96.5 | 38.1 | 41.2 | NA | NA | 46.2 | NA | 50373 | 135.00 | 26700 | M16 | Open | 21026 |
| 23178 | Stop | 83.8 | 38.1 | 50.8 | NA | NA | 46.2 | NA | NA | 135.00 | 26700 | M16 | Open | |

MITT-GRIP

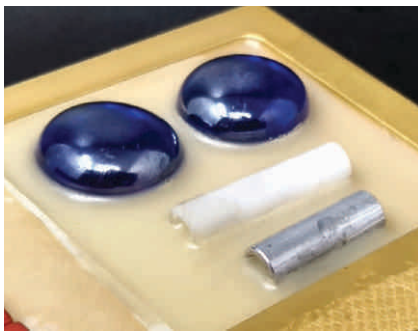


How to hold a Workpiece when you can't use a Clamp

Mitee-Grip is a heat activated wax based compound embedded in precision paper, coated on nylon



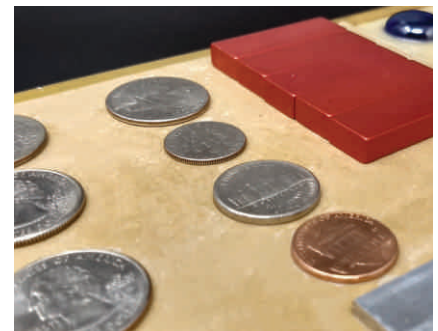
mesh or in a stick form. This holding media maintains parallelism on precision parts. It is very useful for thin parts, micro machining, optical and quartz components, and jewelry related items. Approximate holding force 40 PSI.



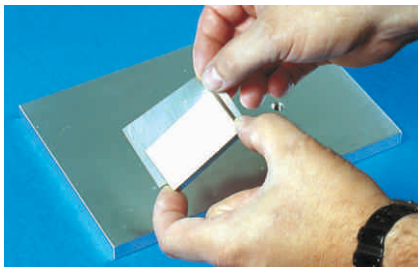
The stick form material can be used in shallow cavities for holding concave and convex pieces. It will also stabilize delicate parts during machining.



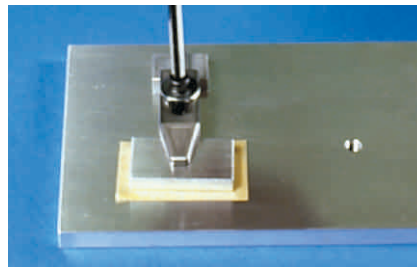
The mesh product captures additional wax material in the web and aides in holding irregular shape parts. Typically additional holding force can be attained with this material.



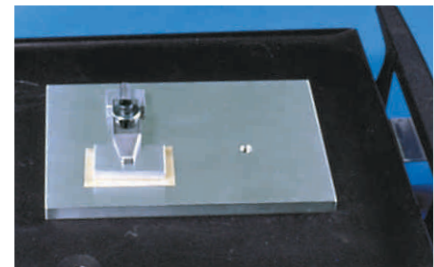
The original paper product is excellent for holding smooth flat parts and maintaining parallelism.



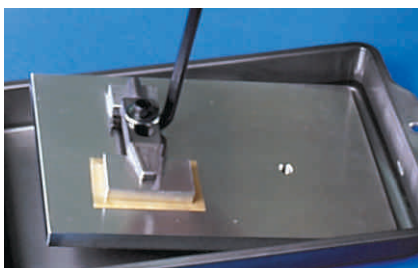
1. Place the Mitee-Grip sheet on the subplate leaving a 1/4" (6mm) border on all sides, or melt stick on warm subplate



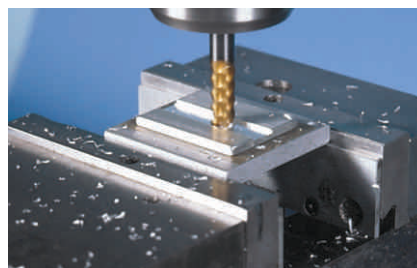
2. In some cases the part should be lightly clamped to prevent movement. NOTE: Over thin workpieces use a top plate for even pressure.



3. 3225°F (107°C) is application temperature and fully liquid, 186°F (85°C) is solid and becoming liquid. Some customers use an oven and record time and temp once determined by experimentation. A hot plate may also be used at higher temps if monitored. Most parts will "float" when the Mitee-Grip has liquefied.



4. Use air or water to cool, being careful to prevent water from going between subplate and workpiece while hot.

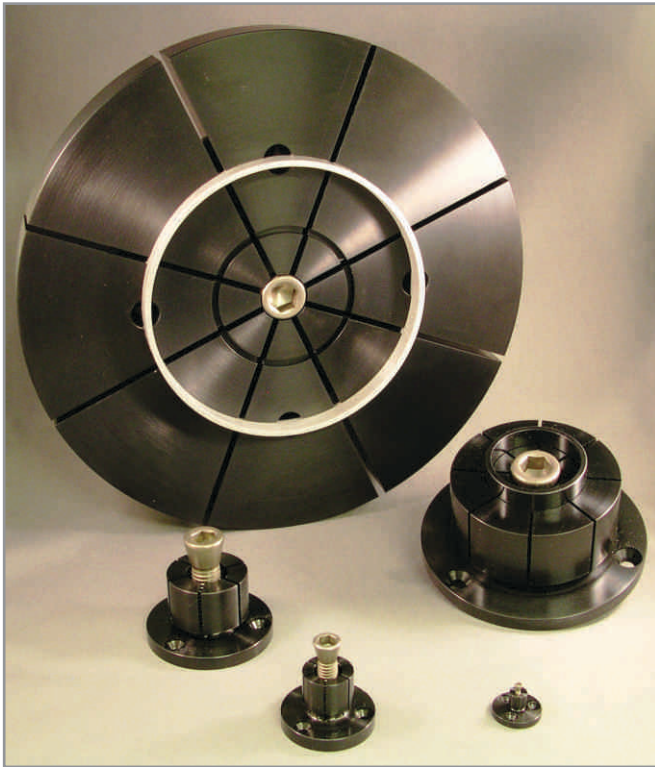


5. Part is ready, use coolant while machining. Reheat to remove. We have found an ultrasonic cleaner is best to remove wax residue or simply wipe part while warm using alcohol based cleaner.



| Part No. | Desc. | Size (Metric) |
|----------|------------|--------------------|
| 10240 | Paper Roll | 12"x5' (305x1524) |
| 10245 | Paper Roll | 12"x25' (305x7620) |
| 10250 | Mesh Roll | 10"x5' (254x1524) |
| 10252 | Mesh Roll | 10"x25' (254x7620) |
| 10230 | Compound | 1 Stick |
| 10235 | Compound | 3 Sticks |

ID XPANSION™ CLAMP



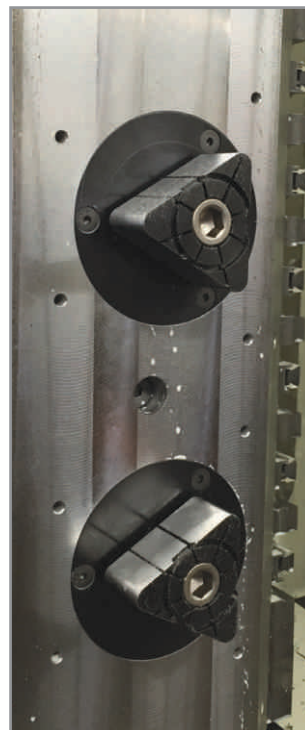
The ID Xpansion clamp is the ideal solution to hold parts on an inside diameter for high density machining on vertical or horizontal machining centers. It can also be used as an expanding mandrel on a lathe.

These machinable clamps are produced in 12L14 steel with black oxide coating in 12 sizes and can hold internal diameters from under 3/16 to almost 10 inches (4.1 to 254mm). #10 manufactured using 7075-T6 aluminum.

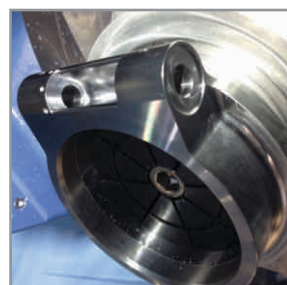
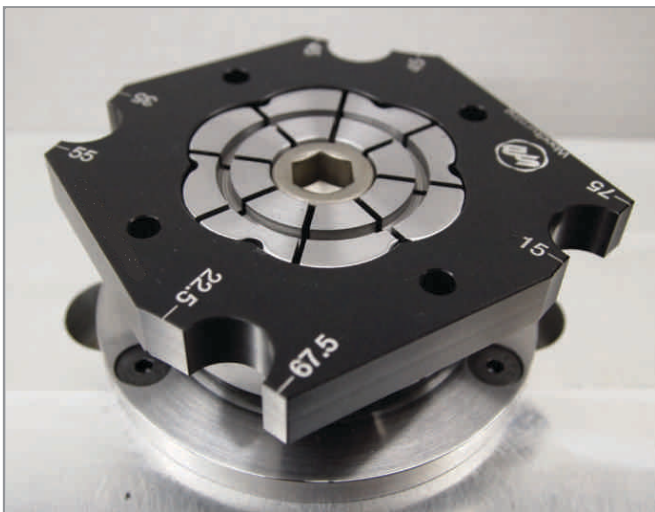
The flange diameter of the clamp is held to a close tolerance for precision locating in a machined pocket on work cubes and fixture plates.

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

The low profile ID Xpansion Clamp can hold several parts in one compact area for secondary operations without any clamping interference. They are quickly tightened with a hex key, torque driver or can be mated to hydraulic pull cylinders for automation.



- 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 plates
- Heat-treated and coated screw for long life
- Clamp body made of mild steel for machinability
- Tighten with hex key or hydraulic pull cylinders
- Longer screws available for hydraulic applications



Hard Milling

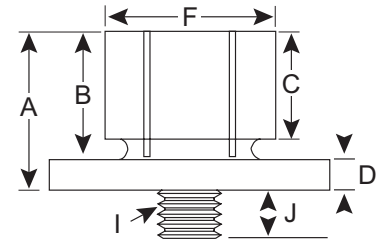
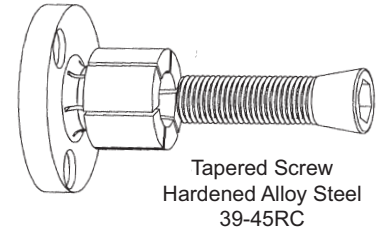


Innovative 4th axis solution

ID XPANSION CLAMP MACHINING AND INSTALLATION

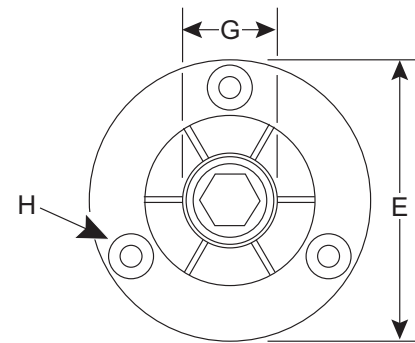
Model #00 - #6 ID Xpansion™ Clamps

- Expand clamp approximately .002 to .003 (.1mm) over relaxed diameter and machine to fit workpiece bore, either on lathe or mill.
- If machining the clamp on a lathe use the nut provided, on the back of the clamp, to tighten the tapered screw. This nut is used only while machining the clamp.
- Machine a pocket in the fixture, for the close tolerance “E” dimension and drill and tap mounting holes per “H” column. Drill and tap a hole from the “I” column in the center of the pocket for the tapered screw.
- A recessed dowel pin may be installed into the flange for additional rigidity if required.
- Custom screws available for blind hole applications.
- Range of expansion .005 to .025 (.13 to .64mm) depending upon size.



Model #7 - #10 ID Xpansion Clamps

- Locking ring provided to ensure segments remain rigid while machining clamps to size. #10 ID ships with 2 rings.
- Insert ring(s) and tighten drive screw, machine clamp to bore size. Remove ring(s) to clamp workpiece.
- Expand mandrel then machine to size.
- Aggressive material removal is not recommended when machining clamps to size.



Longer tapered screws are available for each ID size.

| Part No. | Model No. | A | B | C | D | $E_{.050}^{+.000}$ | F | G† | H* | I | J | Max. Torque (N.m.) | Holding Force (N) | Replacement Tapered Screw |
|----------|-----------|------|------|------|-----|--------------------|-------|------|------------------|--------|------|--------------------|-------------------|---------------------------|
| 38000 | #00 | 10.7 | 7.6 | 6.1 | 3.0 | 20.00 | 7.4 | 4.1 | M2 on 13.7 BHC | M2x12 | 4.1 | .70 | 1113 | 38001 |
| 38050 | #0 | 21.8 | 16.0 | 15.0 | 5.9 | 29.72 | 12.4 | 7.1 | M3 on 20.95 BHC | M4x25 | 7.2 | 5.00 | 4228 | 38002 |
| 38100 | #1 | 24.9 | 19.0 | 15.0 | 5.9 | 31.50 | 14.2 | 12.2 | M3 on 23.1 BHC | M6x30 | 11.2 | 17.00 | 8455 | 38010 |
| 38150 | #2 | 24.9 | 19.0 | 15.0 | 5.9 | 37.50 | 20.0 | 13.5 | M3 on 29.0 BHC | M8x30 | 13.2 | 34.00 | 11125 | 38020 |
| 38200 | #3 | 28.6 | 22.2 | 17.5 | 6.4 | 50.00 | 27.0 | 18.0 | M4 on 39.4 BHC | M10x35 | 16.3 | 60.00 | 20025 | 38032 |
| 38250 | #4 | 31.8 | 25.4 | 20.6 | 6.4 | 56.00 | 35.3 | 23.0 | M4 on 45.5 BHC | M12x40 | 20.3 | 150.00 | 26255 | 38042 |
| 38300 | #5 | 39.6 | 31.8 | 27.0 | 7.9 | 69.50 | 42.0 | 29.3 | M5 on 55.9 BHC | M16x45 | 21.4 | 280.00 | 44500 | 38052 |
| 38350 | #6 | 39.6 | 31.8 | 27.0 | 7.9 | 75.50 | 51.5 | 29.3 | M5 on 63.9 BHC | M16x45 | 21.4 | 280.00 | 44500 | 38052 |
| 38400 | #7 | 45.5 | 37.6 | 32.3 | 7.9 | 107.50 | 77.7 | 29.3 | M6 on 92.6 BHC | M16x50 | 19.3 | 280.00 | 44500 | 38072 |
| 38450 | #8 | 45.5 | 37.6 | 32.3 | 7.9 | 132.90 | 103.0 | 29.3 | M6 on 118.06 BHC | M16x50 | 19.3 | 280.00 | 44500 | 38072 |
| 38500 | #9 | 45.5 | 37.6 | 32.3 | 7.9 | 132.90 | 175.0 | 29.3 | M6 on 118.06 BHC | M16x50 | 19.3 | 280.00 | 44500 | 38072 |
| 38550 | #10** | 45.5 | 37.6 | 32.3 | 7.9 | 152.40 | 250.2 | 29.3 | M6 on 133.35 BHC | M16x50 | 19.3 | 170.00 | 26000 | 38072 |

G† - Minimum diameter the "F" dimension can be machined or turned down to.

H* - (3) Mounting Screws included - (4) for model numbers #9 and #10.

**Model #10 Made from 7075-T6 aluminum.

SIDE-LOC XPANSION CLAMP

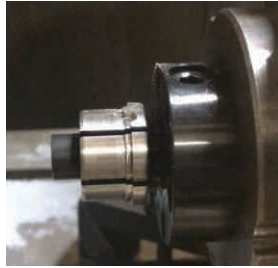
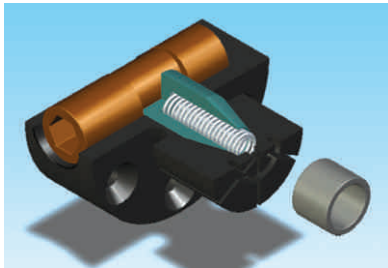


The Side-Loc Xpansion Clamp is actuated from the side, making it perfect for blind hole applications.

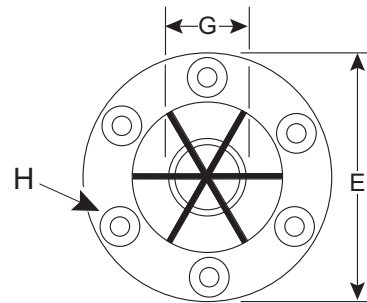
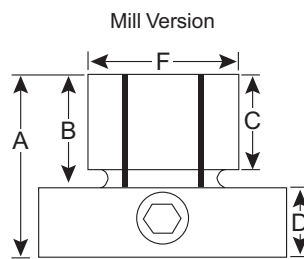
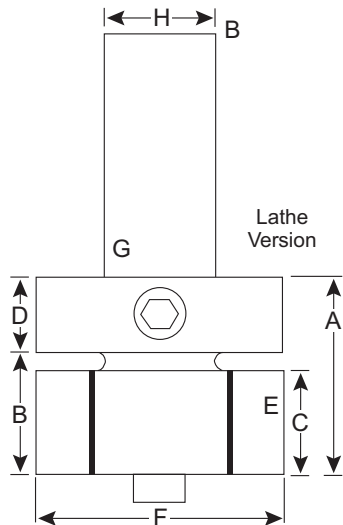
It's produced for both mill and lathe applications. The cam shaft and plunger expands the clamp from the side. Same mounting dimensions as our original ID clamp.



The Side-Loc Xpansion Clamp is actuated by turning a socket head cam shaft on the side, which moves a tapered plunger to expand the clamp. The locking ring provides an accurate preset diameter and rigidity for machining. Maximum torque on locking ring 10 ft. lbs. (13 N.m.). Like our original ID Xpansion clamps, the Side-Loc Xpansion Clamp has the dead length feature which is critical for close tolerance dimensions.



The Side-Loc Xpansion Clamp is designed in two styles: one for milling operations and one for lathe applications. One size is available for each model. The mill Side-Loc Xpansion Clamp can be machined from 1.120 to .710 (28.4 to 18mm) and the lathe version from 2.09 to .710 (53 to 18mm). The lathe version has a 1" (25mm) straight shank.



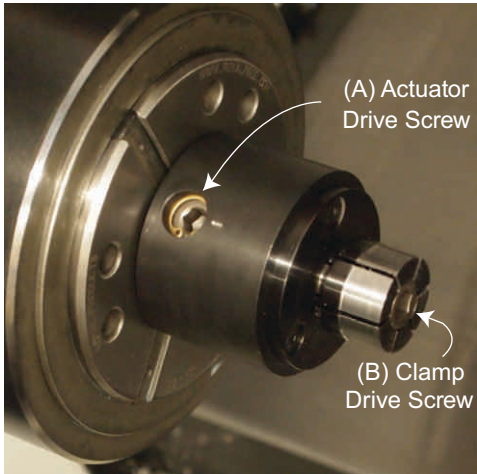
| Part Number No. | Model | A | B | C | D | E ^{+0.000} _{-0.050} | F | G† | H* | Hex Key | Max, Torque (Ft/Lbs) (N.m.) | Holding Force (Lbs) (N.) | —Replacement— | | |
|-----------------|----------|------|------|------|------|---------------------------------------|------|------|----------------|---------|-----------------------------|--------------------------|----------------------|--------|-------|
| | | | | | | | | | | | | | Cam Shaft (M12x30MM) | Spring | Ring |
| 38210 | Mill #3 | 41.3 | 22.2 | 17.5 | 19.0 | 50.0 | 28.7 | 17.8 | M4 on 39.4 BHC | M6 | 66** | 20000 | 389001 | 31207 | 31202 |
| 38370 | Lathe #6 | 44.4 | 25.4 | 21.3 | 19.0 | N/A | 53.3 | 17.8 | 25 | M6 | 66** | 20000 | 389001 | 31207 | 31202 |

G† - Minimum diameter the "F" dimension can be machined down to.

H* - (6) mounting screws included.

** - If high cycles, run max. torque 40 Ft/Lbs or 62 N.m.

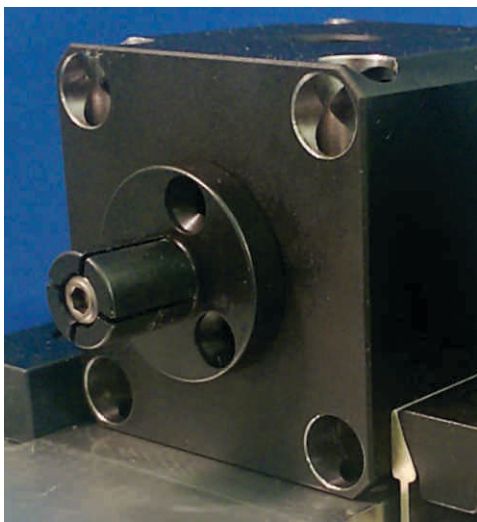
MANUAL ACTUATORS FOR MILLS AND LATHES



The Actuators are specifically designed for gripping the ID of blind holes but may also be incorporated in many applications that require a straight draw actuated 90 degrees from the drive screw. The Actuators are capable of gripping on bores ranging from .16" (4.1mm) to 1.39" (35.3mm) using our standard ID clamps, Models #00 through #4 (flange on #4 may require modification when mounting to Mill Actuator).

The Mill block can be mounted in several ways including on a fixture plate, for high density workholding applications, or gripped in a vise. The same bolt hole configuration can be used for both the vertical and horizontal planes.

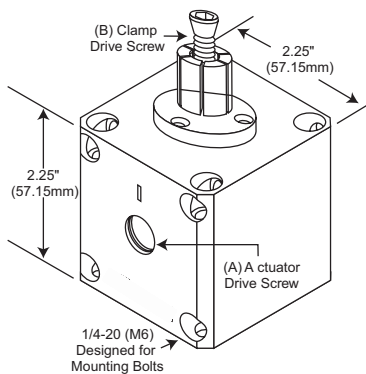
Both styles of Actuators come completely assembled with the heat-treated cylinders tapped for the following clamp drive screws: M2, M4, M6, M8, M10 and M12.



SPECIFICATIONS:

- Manual Actuators will produce over 4,000 lbs. of pull-force with 45 ft. lbs. of torque. Do not exceed 5 ft/lbs with the M2 or 20 ft/lbs with the M4.
- Customer will mount clamps onto the Actuator according to clamp instructions. Actuators may be used with clamps other than ID Xpansion™ Clamps.
- The Mill version has 8 mounting holes with 1.75" (44.45mm) spacing for 1/4-20 (or M6) mounting bolts.
- The "top" access hole for the clamp drive screw is approximately .315" (8mm) for the M2 through M8 and .484" (12.3mm) for the M10 and M12.
- Cylinder travel is .040" (1.016mm)
- Threaded cylinders may be interchanged with our other cylinder sizes by first removing the retaining ring and the actuator drive screw and then tapping out the cylinder. This may require the use of a rubber mallet and punch.
- Threaded cylinders are heat treated to 54 RC, and have a diameter of 5/8" (15.875mm).
- Both the Mill and Lathe versions are made of 12L14 with a black oxide finish.

MILL VERSION

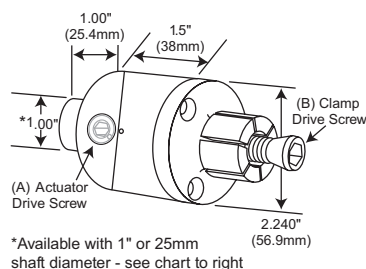


OPERATION AND USE:

- Align Indicator mark on actuating screw (A) (apex of cam) with the alignment mark on actuator housing.
- Lightly tighten clamp drive screw (B).
- Tighten actuator drive screw (A) expanding ID clamp .002 - .005" (.050 - .13mm).
- Machine clamp to size of your bore.
- Loosen actuator drive screw (A) aligning marks once again.
- Loosen clamp drive screw (B) approximately 1/8 turn.

Ready for use, load parts and tighten actuator screw. Do not exceed 45 ft/lbs of torque. Care should be taken not to over-tighten with the smaller diameter screws (M2, M4).

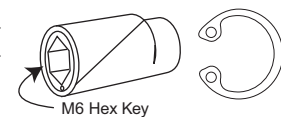
LATHE VERSION



ACTUATOR DRIVE SCREW WITH RETAINING SNAP RING

Part No.

34550



REPLACEMENT THREADED CYLINDER

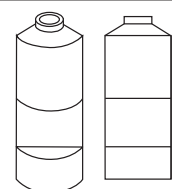
Part Number

Thread Size

| | Part Number | | Cylinder Thread |
|-------|----------------|--------------------|-----------------|
| | Lathe 1" Shaft | Lathe w/25mm Shaft | |
| 34502 | 34602 | 38602 | M2 |
| 34504 | 34604 | 38604 | M4 |
| 34506 | 34606 | 38606 | M6 |
| 34508 | 34608 | 38608 | M8 |
| 34510 | 34610 | 38610 | M10 |
| 34512 | 34612 | 38612 | M12 |

34002
34004
34006
34008
34010
34012

M2
M4
M6
M8
M10
M12



Mounting Screws not included.

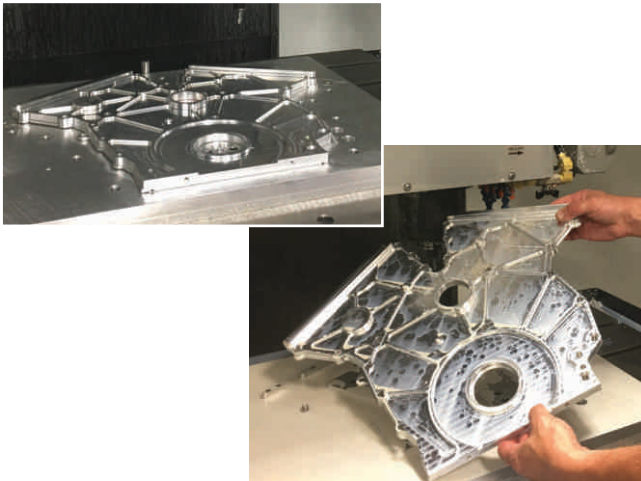
MODULAR XYZ XPANSION PINS



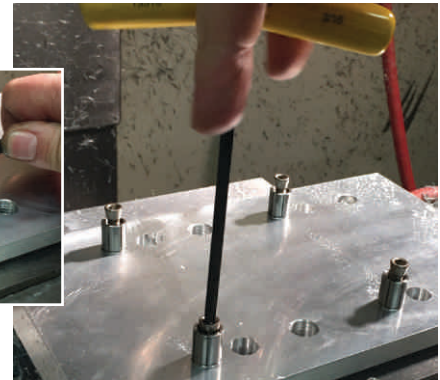
**PRESS FIT
NOW AVAILABLE
IN 12L14**



We release the new Modular XYZ Xpansion Pins for Tombstone, Grid Plate and Fixture Plate applications. The unique, patent pending design provides accurate location, repeatability and high holding forces for securing parts on the inside diameter. The XYZ Pin provides “out of the way workholding” and accessibility to all work surfaces with absolutely no external clamping interference. The Threaded Pin is available in standard sizes of 1/2, 5/8, M12 and M16 for tombstones and grid plates. The Press Fit Pins are available in 1/4, 3/8, 1/2, 5/8, M6, M10, M12 and M16 diameters for custom applications. Both styles of the pins are manufactured from “heat treatable” 17-4PH stainless steel. The Press Fit Pins are now also available in 12L14 mild steel. The Pins expand up to 0.030" (0.7mm) and the diameter can be machined for specific applications. The top of the Pins have a slight taper creating maximum line contact in bore and provides clearance during load/unload. Designed for quick set-ups on secondary operations, material coming off prep stations, water-jets or even applications outside of your machining centers



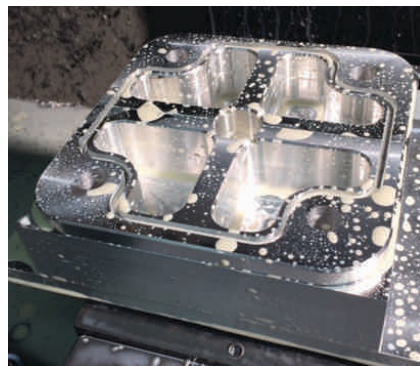
Install pin body



Install tapered drive screw



Raw stock on pins



Op 1



Op 2 including c'bore on same fixture

Continuous Improvement Programs = Innovation!

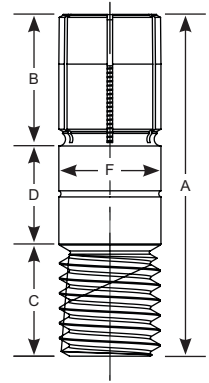
MODULAR XYZ XPANSION PINS

THREADED PINS in 17 - 4PH



Threaded XYZ Pins incorporate an internal rotary broached hex for simple installation and removal from a tombstone, grid plate or fixture plate. Threaded Pins may be installed in a drilled and reamed hole for precise location or set in a hardened drill bushing for additional strength and wear resistance

To install a Threaded XYZ Pin in a precision bore, drill/tap accordingly and ream the hole over the nominal diameter minimum of +0.0001 to +0.0005". (+.003 to +0.013mm)



| Part Number | External Thread | A | B | C | D | F (+/-) .000/.001 (.000/.025mm) | G* | Replacement Tapered Screw | Tapered Screw Thread x Length |
|-------------|-----------------|------|------|------|---------|---------------------------------------|--------|---------------------------|-------------------------------|
| 38850 | M12-1.75 | 40mm | 15mm | 13mm | 12.00mm | 12.00mm | 10.5mm | 38010 | M6-1 x 30mm |
| 38860 | M16 -2 | 45mm | 16mm | 13mm | 16.00mm | 16.00mm | 12mm | 38020 | M8-1.25 x 30mm |

*G minimum diameter pin can be machined or turned down to Tapered screw included with pin.

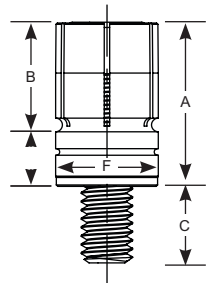
**Torque of Pin body needs to exceed torque of Tapered screw

PRESS FIT PINS All sizes available in both 17-4PH and 12L14



Pins are intended for press fit or close tolerance removable slide fit applications. Install in a precision bore or a bushing with the center threaded for the Tapered screw. If precise location is not necessary, pin can be used on top of fixture plate. An accessory kit is available to make Installation and Removal (I/R) of the XYZ Pins quick and easy.

Note: If recessing pin into fixture beyond slits be sure to provide clearance for expanding segments.



| 17-4PH Part Number | 12L14 Part Number | Description | A | B | C | D | F (+/-) .000/.001" (.000/.025mm) | G* | Replacement Tapered Screw | Tapered Screw Thread x Length | Installation/ Removal (I/R) Kit** |
|--------------------|-------------------|-----------------|------|--------|--------|--------|--|--------|---------------------------|-------------------------------|-----------------------------------|
| 38730 | 38630 | Press Fit 6 mm | 13mm | 7mm | 7.3mm | 5.8mm | 6.00mm | 5.5mm | 38731S | M3-0.5 x 16mm | 38720 |
| 38740 | 38640 | Press Fit 10 mm | 19mm | 12.7mm | 8.4mm | 6.35mm | 10.00mm | 7.5mm | 38002S | M4-0.7 x 22mm | 38721 |
| 38750 | 38650 | Press Fit 12 mm | 19mm | 12.7mm | 11.1mm | 6.35mm | 12.00mm | 10.5mm | 38010S | M6-1 x 22mm | 38722 |
| 38760 | 38660 | Press Fit 16 mm | 19mm | 12.7mm | 13mm | 6.35mm | 16.00mm | 12mm | 38020S | M8-1.25 x 22mm | 38723 |

*G minimum diameter pin can be machined or turned down to Tapered screw included with pin.

**Kit includes screws (2) SHCS

SPECIFIC FEATURES / INSTALLATION

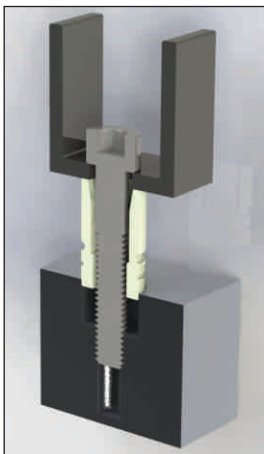


FIGURE 1

PRESS FIT INSTALLATION:

Place Pin in prepared bore, place I/R Tool over pin as shown in figure 1. Using the smaller socket head cap screw (SHCS) provided, thread into fixture to evenly draw down pin. Remove SHCS and replace with Tapered screw when ready to use.

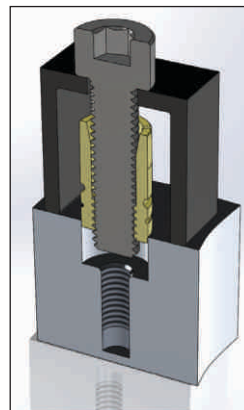


FIGURE 2

PRESS FIT REMOVAL:

Place the I/R Tool over the clamp as shown in figure 2, thread the larger SHCS into the "internal threads" of the Pin and tighten the screw to extract the Pin.

Note: It is recommended to fit Pin with a drill bushing when the Pin must be frequently removed. Or drill and ream the bore hole over the nominal diameter minimum of +0.0001 to +0.0005" (+0.003 to +0.013mm)

LOC-DOWN SYSTEM

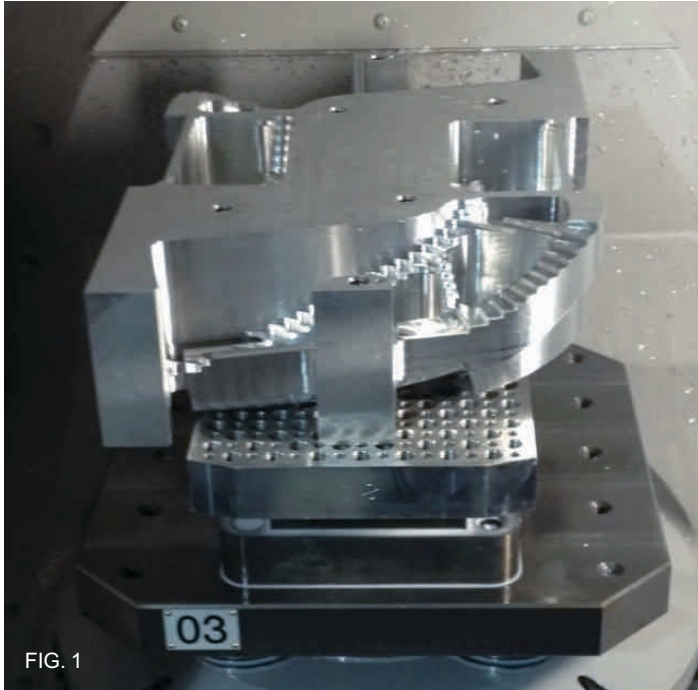


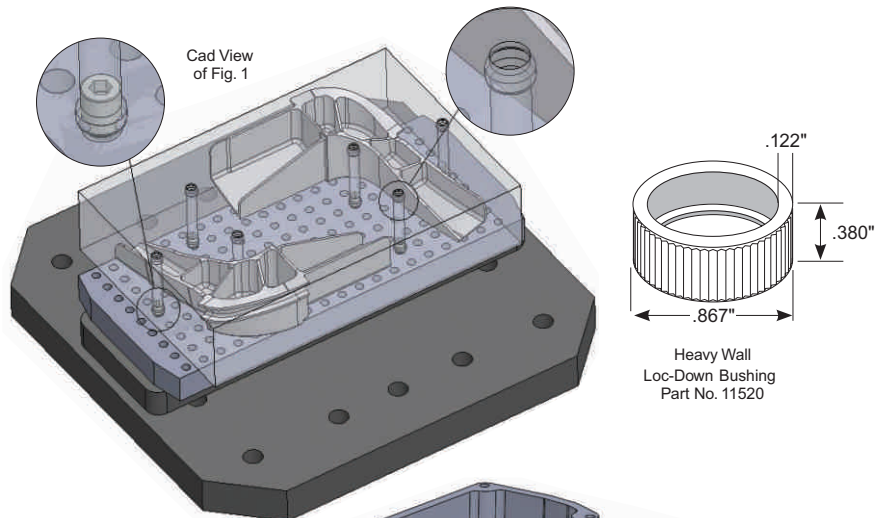
FIG. 1

The Loc-Down System was designed to be a programmer's and operator's dream for quickly and easily securing small to large aerospace parts. Its compact design allows for tighter pattern on grid plates compared to other options in the marketplace saving material cost on expensive aerospace alloys.

The Loc-Down generates high holding force and provides low profile "out of the way" clamping allowing programmers to be very creative. Permits aggressive machining without tooling interference or applying forces that would influence part, intended to streamline production for the Aerospace Industry.

"We would have had to repair Brand-X 3 times in the past year and a half...and to date never had a problem with our Loc-Downs, we use these on 70% of our application." **BUFFCO ENGINEERING**

- Ideal for grid plates, tombstones and custom applications
- 100% Heat Treated Stainless Steel



Loc-Down Custom Carbide Cutter Part No. 11530

Loc-Down 1/2-13 - Part No. 11500
M12-1.75 - Part No. 11612

| Part Number | Description | Size † |
|-------------|----------------------------|--------|
| 11500 | Loc-Down | 1/2-13 |
| 11550 | Loc-Down Quick Change Kit* | 1/2-13 |
| 11612 | Loc-Down | M12 |
| 11650 | Loc-Down Quick Change Kit* | M12 |
| 11530 | Carbide Cutter | |
| 11535 | Loc-Down Insertion Tool | |
| 11520 | Loc-Down Bushing | |

Maximum Torque 15 Ft/Lbs (20 N.m.)

† - NEW Loc-Down sizes available soon!



We have combined our Loc-Down, custom Bushings and Locating Pins and Liners in a convenient kit (Part No.'s 11550 and 11650) that delivers a low-cost high precision quick change pallet system with a repeatability of .0004"/0.01mm or better

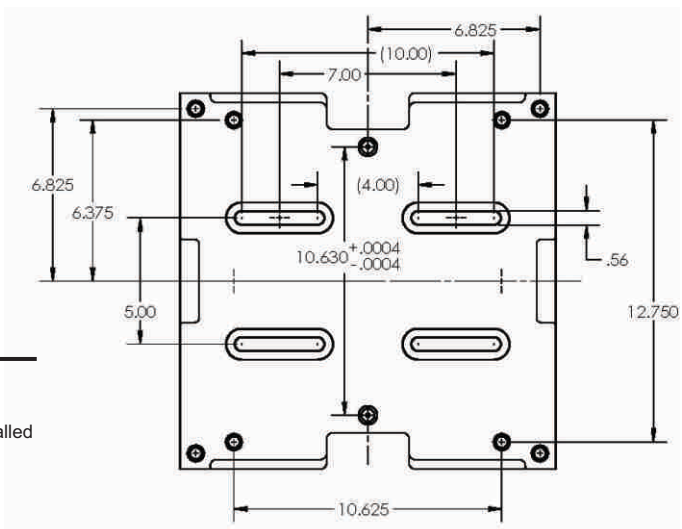
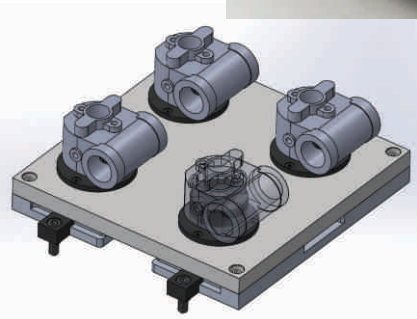
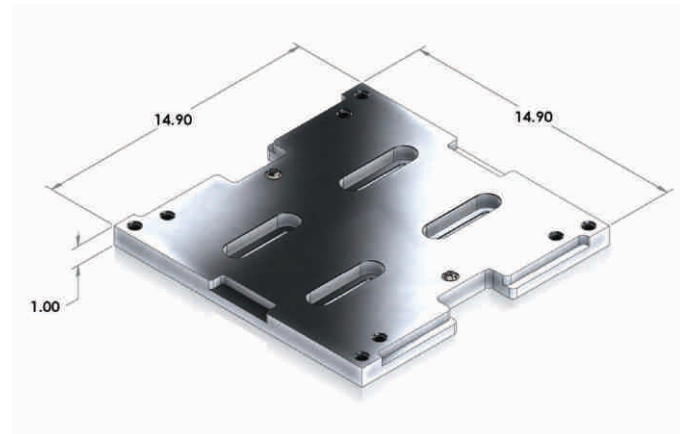
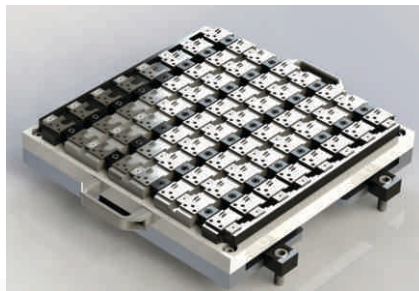
QUICK CHANGE RECEIVER AND BLANK PALLET



Blank Pallet sold separately

We announce the addition of a cost effective simple Quick Change Receiver System allowing for the rapid change out and precise location of small fixture pallets. The Quick Change Receiver is designed to accept any of our current pallets as well as the blank pallet shown. The receiver mounts on t-slot tables, tombstones, sub-plates and our Aluminum T-Slot Grid Plates. Special washers and mounting clamps are provided with the system.

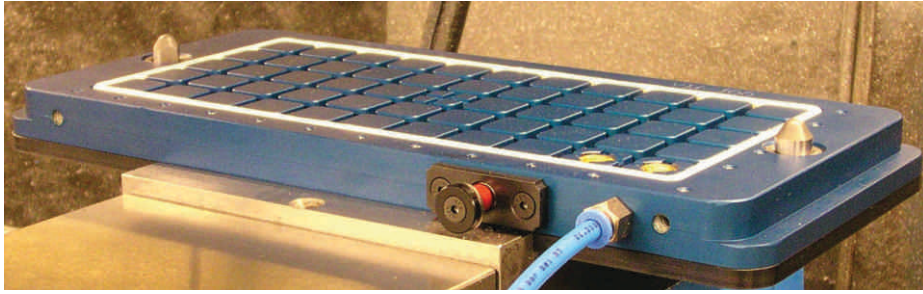
- All hardware recessed allowing the receiver to be skim cut to perfectly match the table.
- Receiver furnished with diamond and taper pins and hardened liner bushings, threaded steel inserts, special washers and mounting clamps.
- Blank pallet is fastened to the receiver with our Loc-Down System, two turns of the Loc-Down releases the pallet. 100 lbs. of force for every foot pound of torque.
- The Loc-Down is not removed from the receiver – lost cumbersome fasteners are a thing of the past.
- No protruding fastener above the surface of the pallet to interfere with tooling.
- High precision for a LOW COST solution!



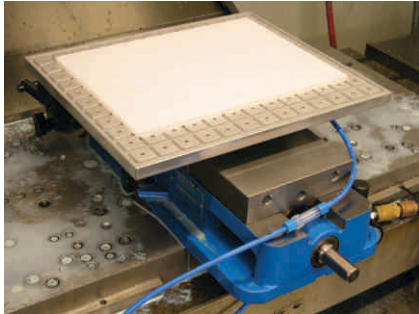
Part No. Description

| | |
|-------|--|
| 46500 | Quick Change Receiver with (4) 1/2-13 Loc-Downs and Hardware |
| 46600 | Quick Change Receiver with (4) M12x1.75 Loc-Downs and Hardware |
| 46525 | Quick Change 1" Blank Pallet with Liner and Loc-Downs Bushings Installed |
| 11500 | Loc-Downs (1/2-13) |
| 11612 | Loc-Downs (M12x1.75) |
| 11520 | Heavy Wall Loc-Downs Bushing |
| 45070 | Liner Bushings (2/pk) |

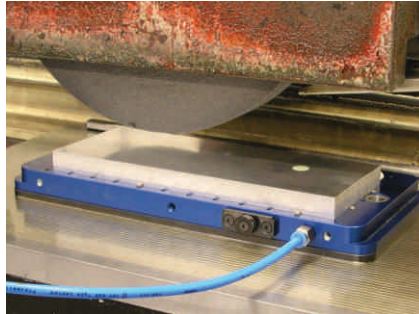
VACMAGIC VM100



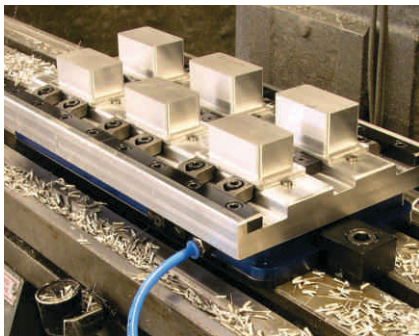
VM100 Base Unit (45375) in Vise



VM100 Base Unit (45375) with VM300 Vacuum Pallet (45150)



VM100 Base Unit (45375) on a Magnetic Chuck

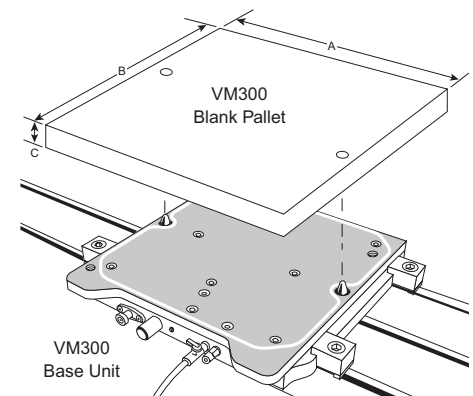
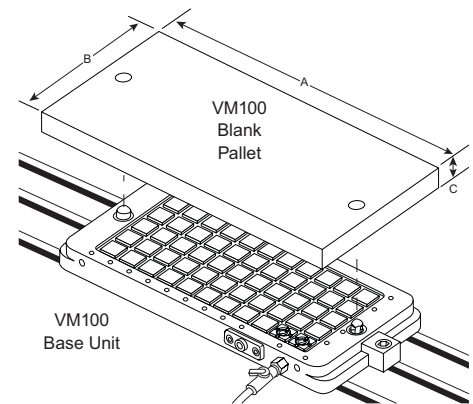


VM100 Base Unit (45375) with a Production Pallet (VM100 Blank Pallet - 45325)

The Simplest and Most Versatile Vacuum System on the Market

The VM100 was primarily designed for grinding non-ferrous material on a magnetic chuck. During the early stages of R & D it was discovered the VM100 could be much more. Clamp the VM100 in vise to reduce set-up time, use as a pallet changer or mount to a grid plate or T-slot table. The VM100 uses the same patented method as the VM300 to produce a vacuum strong enough for industrial applications but still operates on 70-100 PSI shop air! No need for vacuum pumps and coolant traps. We include everything necessary to get your VM100 running within minutes of opening the box.

- Make your own vacuum fixtures - we can help with the design and produce the fixture for your custom application
- Will accept both blank pallets, the standard 45130 and the larger 45135, as well as the standard vacuum pallet, increasing your vacuum platform to over 14"x12" (360mmx315mm).
- Remove 12mm pins when grinding/machining thin material, use set screws to locate and aid in holding force



| Part Number | Description | A - Length Inch (Metric) | B - Width Inch (Metric) | C - Height Inch (Metric) |
|--------------|---|-----------------------------|----------------------------|-----------------------------|
| VM100 | | | | |
| 45325 | Blank Pallet | 12.5 (318mm) | 5.875 (150mm) | 1.0 (25mm) |
| 45375 | Base Unit with all hardware | 12.375 (315mm) | 5.5 (140mm) | 1.0 (25mm) |
| 45300 | VM100 Kit <i>Includes: base unit, 2 blank pallets</i> | | | |
| VM300 | | | | |
| 45130 | Blank Pallet | 14.3 (360mm) | 12.4 (315mm) | .75 (19mm) |
| 45135 | 1 thick Blank Pallet | 14.93 (379mm) | 14.93 (379mm) | 1.0 (25mm) |
| 45150 | VM300 Vacuum Pallet | 14.3 (360mm) | 12.4 (315mm) | .625 (16mm) |
| 45160 | VM300 Large Vacuum Pallet | 33.625 (859mm) | 14.5 (368mm) | .625 (16mm) |
| 45175 | Base Unit (Receiver) <i>Includes: all hardware</i> | 12.75 (323mm) | 13.0 (330mm) | 1.375 (35mm) |
| 45101 | VM300 Kit <i>Includes: base unit, 2 blank pallets, 1 vacuum pallet</i> | | | |

GASKET MATERIAL (for VM300 & VM100)

| | Part No. | Description | (Inch) Diameter† |
|---|-------------|-------------|------------------|
| Black - Excellent for long cycles and aggressive coolants. | BLACK 45111 | by the foot | .170" |
| | 45115 | by the foot | .070 |
| | 451181 | by the foot | .125 |
| | 45119 | by the foot | .188 |
| White - Excellent for small parts, water based coolants or running dry. | WHITE 45114 | by the foot | .170" |
| | 45116 | by the foot | .070 |
| | 45117 | by the foot | .125 |
| | | | |

*Replacement size for base units and vacuum pallets. Other sizes listed for custom made pallets.

†Tolerance on all gasket diameter is +/- 10%.

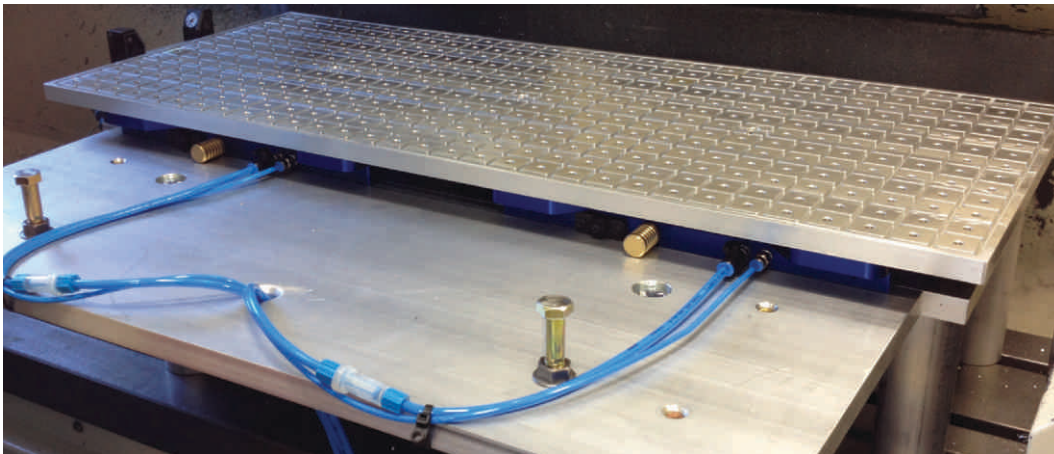
VACMAGIC VM300



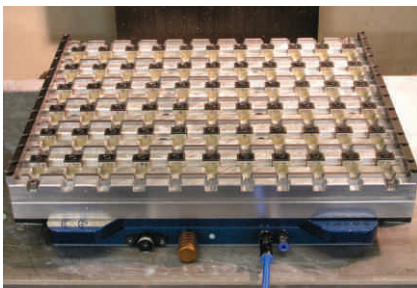
The All-in-One Pallet Changer and Vacuum Chuck System

In a relatively short amount of time the VM300 has established itself as the vacuum system to which all others are measured. Capabilities include traditional vacuum applications using our standard grid plate and custom vacuum applications (ie: machining blank pallet to suit specific part geometry) and the ability to perform as a rock solid pallet changer. Contact us to schedule an in-house demonstration with one of our highly qualified Manufacturing Representatives.

Our Small Investment = Huge Profits!

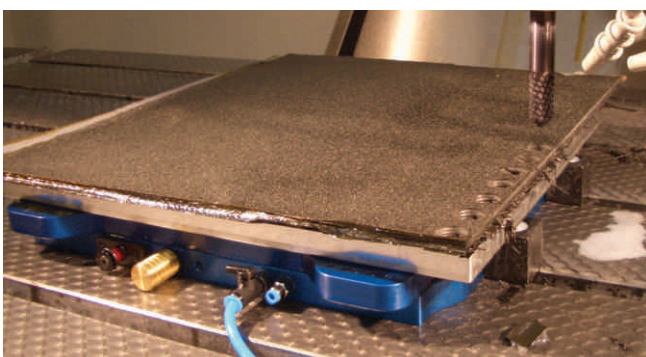


Two VM300 Base Units (45175) and large Vacuum Pallet (45160), bolts supporting oversize workpiece.

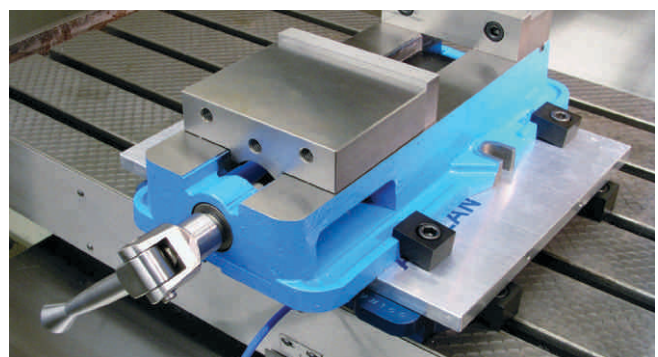


VM300 Base Unit (45175) with a Production Pallet (VM300 Blank Pallet - 45130)

- Simple design keeps cost low
- Productivity maximized - load pallets while machining
- Quick-change - swap pallets in 30 seconds or less with precise repeatability
- Easy to install and set-up
- Vacuum pallets with M6 threaded holes and textured finish to increase friction
- Reliable and easy to use - virtually maintenance free
- Flexible pallet design - limited only by your imagination!
- No pumps - uses standard shop air
- Purchase includes a pack of our original Fixture Clamps and Sliding Stops
- If additional vacuum chambers are needed, drill tap through with M8 thread and plug when not required.

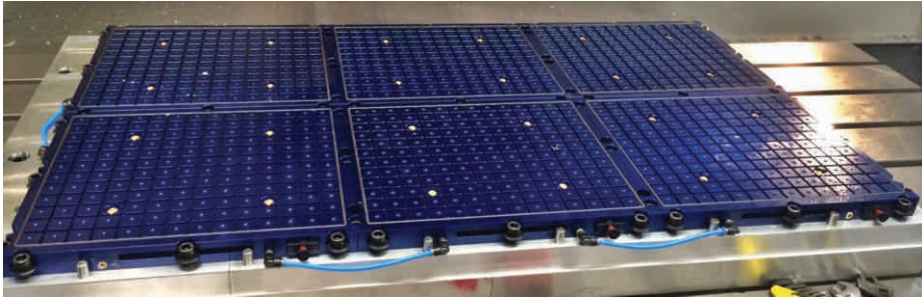


Custom application with graphite.



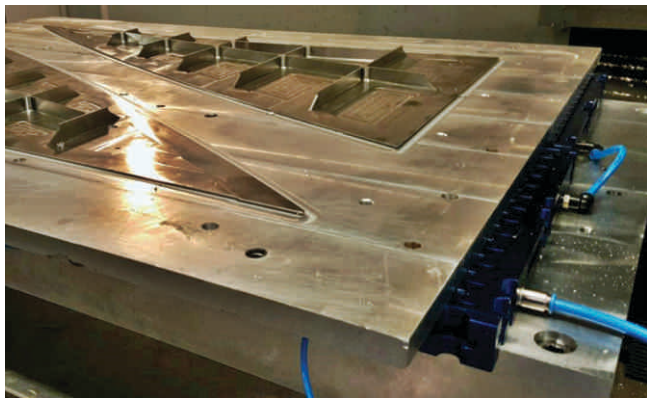
Never indicate your vise again!

MULTI-POWER VAC



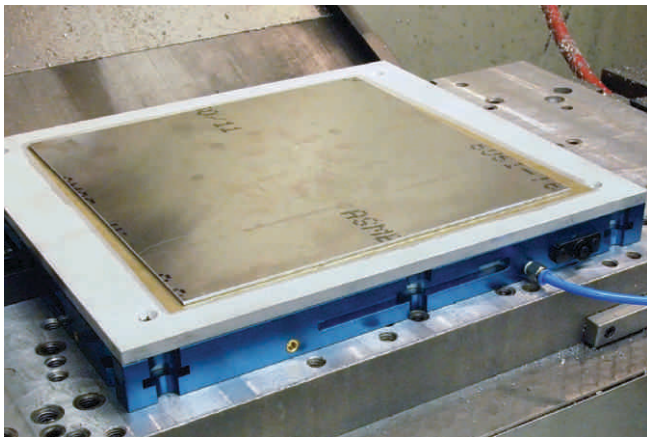
Designed to be easily linked together creating larger platforms

We are proud to introduce possibly the most universal multifunctional vacuum system in today's market. This system has several unique features to meet your vacuum workholding needs.

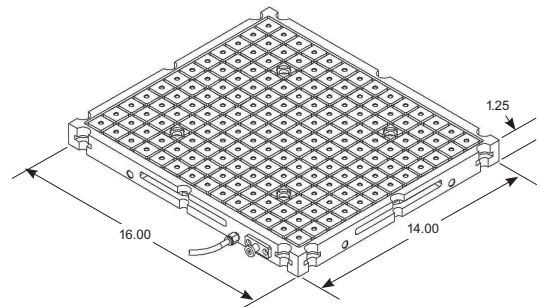
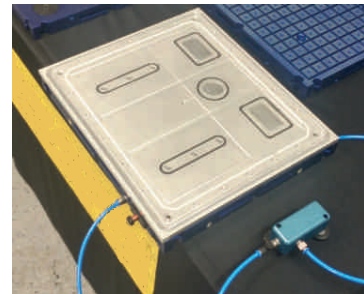


Multiple MPV's shown with large vacuum pallet.

- Can be powered with our Vacuum Generator (Shop Air) or Vacuum Pumps
- 14"x 16" with textured surface creating additional holding force through friction
- 4 Vacuum ports allowing user to hold 1-4 small parts or 1 large part (ports can be plugged)
- Grid plate tapped with M6 threads allowing multiple workholding solutions
- 6 oversized steel washers machined below the bottom surface allows unit to be used for grinding operations on a magnetic chuck
- Multiple Vacuum Generators can be used on each pallet if additional CFM is desired
- Multiple pallets can operate from (1) vacuum generator
- Coolant Trap may be necessary when using external vacuum source (Trap sold separately)



Application using Grip with sacrificial top plate

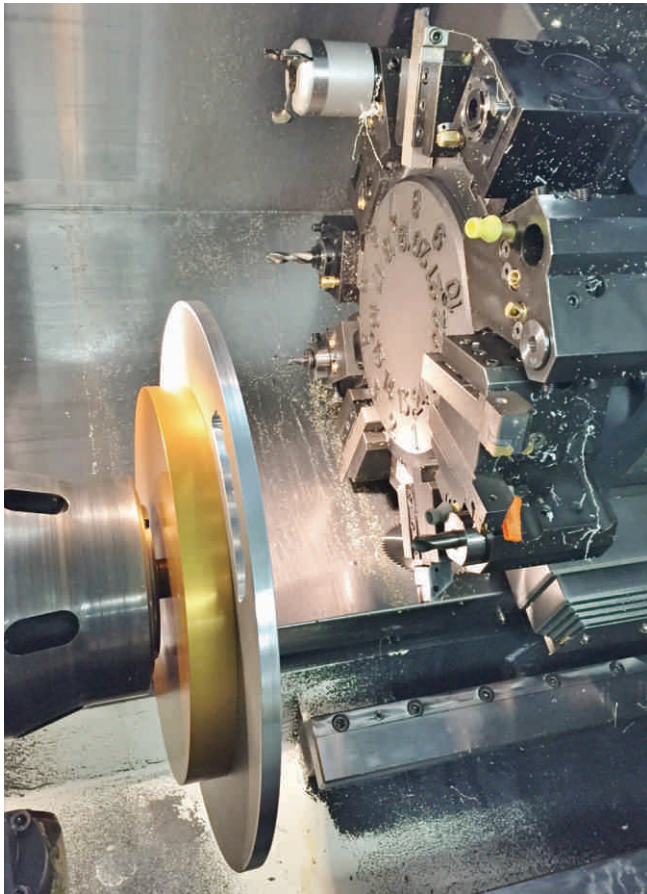


| Part No. | Description |
|----------|---|
| 46000 | 1 Multi-Power Vac pallet with Vac Generator including all accessories |
| 46100 | Vac Generator with regulator/tubing/brass filter and push to connect fitting |
| 46200 | 1 Multi-Power Vac pallet without Vac Generator including mounting hardware and tubing |
| 46250 | Sacrificial Top Plate with mounting screws |
| 46050 | Coolant Trap with hose and fittings |

ROTARY VACUUM CHUCK

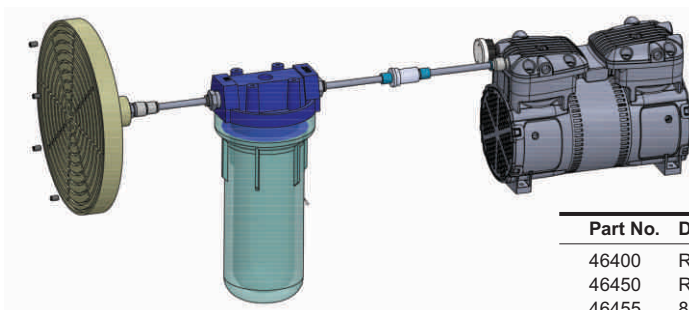
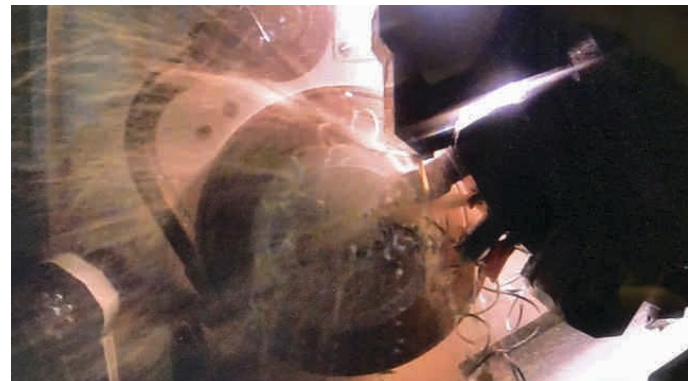


Yes, *it's true!* A vacuum system for your lathe or rotary table which provides an option for those applications that cannot be held by traditional methods. Although initially designed for thin materials and composites, we discovered we could machine more aggressively than anticipated with use of our newly designed vacuum grippers. These grippers will leave indentation on backside of workpiece, however increase the lateral load in some cases by more than 400%! Grippers can be raised/lowered/relocated as needed in the 32 M6 threaded holes on the face to include the ability to easily change the size of vacuum chamber by removing/reinstalling the gasket material from one of the 9 grooves. Always selecting the largest diameter possible for your application.



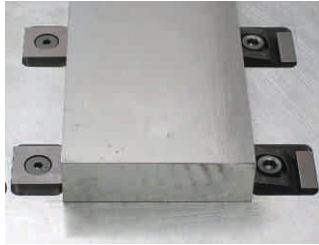
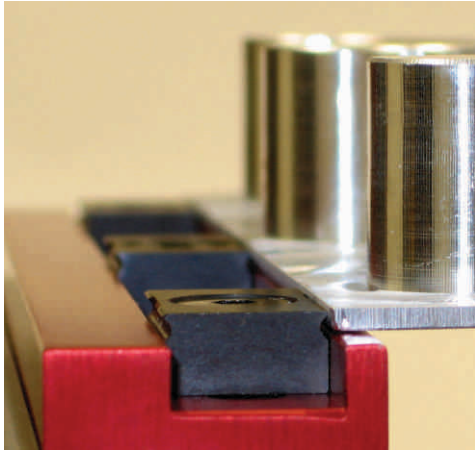
Manufactured from a solid billet ensures concentricity between the shaft and vacuum chambers, increased rigidity and the extra material needed if custom modification is required. For example: reducing the size of face plate or shaft diameter as well as machining mirror image of workpiece into faceplate for custom applications.

Rotary push to connect fitting designed for 1,100 RPM, however general machining practices and common sense must be considered when using this product. Recommended for light duty machining application - please contact us with any questions. Fittings are for 5/16 or 8mm tubing. If using on lathe, steel tubing is necessary with a coolant trap placed between vacuum pump and vacuum chuck. Flex tubing may be used on rotary table although steel tubing is always the preferred method.

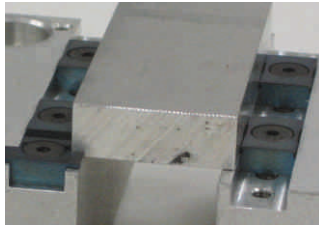


| Part No. | Description | Diameter | Thickness |
|----------|---|----------|-----------|
| 46400 | Rotary Vacuum Plate with M6 tapped holes | 9.85" | 1.0" |
| 46450 | Rotary Sacrificial Plate | 9.85" | 0.375" |
| 46455 | 8mm Rotary fitting | | |
| 45155 | M6 Vacuum Grippers (2/pk) | | |
| 45111 | Vacuum Gasket (black) sold by foot | .170" | |
| 46401 | Rotary Vacuum Kit (includes Vacuum Plate, Rotary Fitting, 4 Vacuum Grippers, Tubing and Gasket) | | |

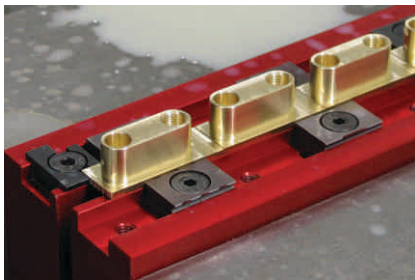
TALONGRIP VISE JAWS



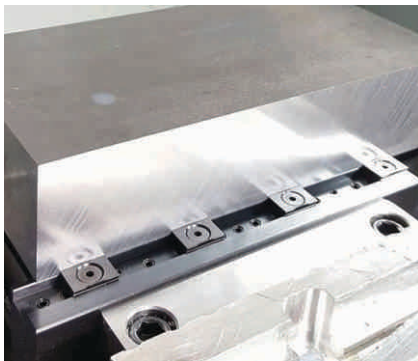
Fixture application with Pitbull Clamps



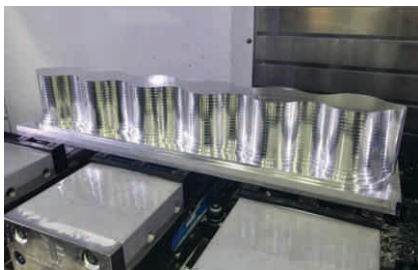
Soft jaws



Multiple parts



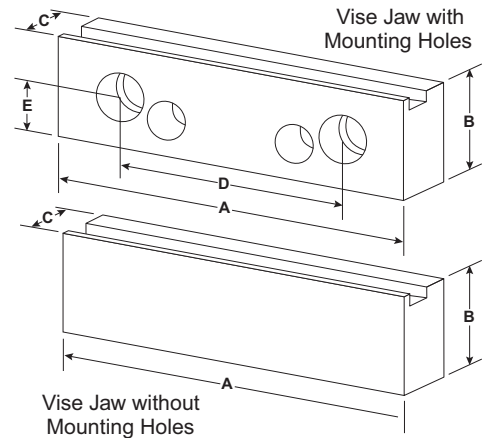
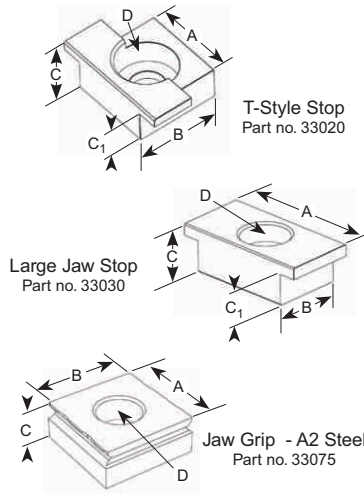
Large Part



We introduce a new and innovative product that will increase the functionality of your standard 4, 6, and 8 inch (100mm, 150mm and 200mm) vises. TalonGrip is a simple bolt on system that will allow you to perform aggressive machining operations while clamping on as little as .060 (1.5mm) of an inch. Ideal for small lot sizes, difficult applications or proto-type work when building a fixture would not be beneficial. TalonGrips are also available individually for fixturing with Pitbull and Dyna-Force Clamps or for soft jaw applications.

For more versatility, all Jaw Sets are tapped with 2 additional holes to accept our M4 Pitbull Clamps (M6 for 32088). This is an effective solution when downforce or additional holding force is necessary.

Jaws are not heat-treated to allow for custom modifications. All grips and stops are heat-treated A2 steel.



GRIPS & STOPS

| Part No. | Description | A | B | C | C ₁ | D | Recommended Gripping Height | No. Per Pack |
|----------|---------------|-------|-------|------|----------------|----|-----------------------------|--------------|
| 33050 | Extra Grips | 19.05 | 12.7 | 6.35 | - | M5 | 1.5mm-1.9mm | 2 |
| 33020 | Extra Stop | 19.05 | 12.7 | 6.35 | 4.95 | M5 | - | 1 |
| 33030 | Extra Stop | 19.05 | 12.7 | 7.92 | 5.72 | M5 | - | 1 |
| 33075 | Fixture Grips | 19.05 | 19.05 | 7.92 | - | M5 | 1.5mm-3.0mm | 2 |
| 33100 | Fixture Grips | 19.05 | 25.4 | 7.92 | - | M5 | 1.5mm-3.0mm | 2 |
| 33150 | Fixture Grip | 25.4 | 25.4 | 12.7 | - | M8 | 1.5mm-5.6mm | 1 |

STEEL VISE SET (Set includes 4 TalonGrips, 1 stop with M5 screws)

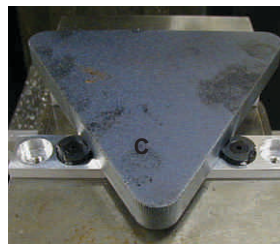
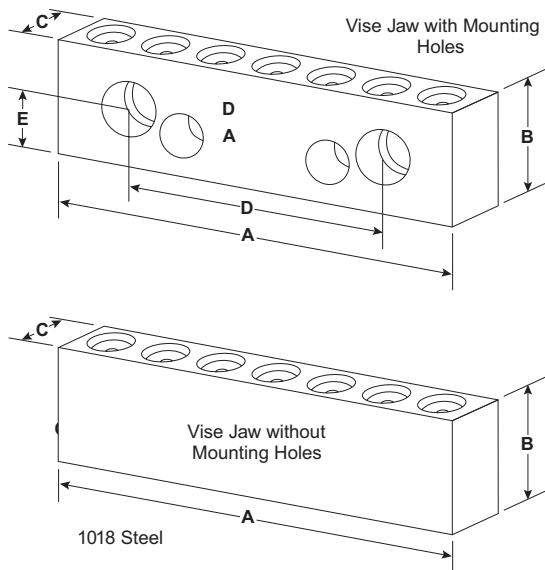
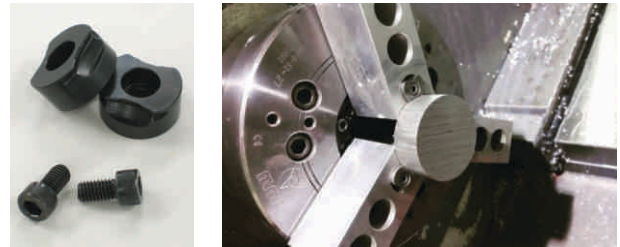
| Part Number | Vise (metric) | A (metric) | B (metric) | C (metric) | D (metric) | E (metric) | Replacement Grips | Replacement Stops |
|-------------------------------|----------------------|------------|--------------|--------------|-------------------------|-------------------------|-------------------|-------------------|
| WITH MOUNTING HOLES | | | | | | | | |
| 32044 | 4" (100mm) | 4.0 (100) | 1.48 (37.59) | 1.0 (25.4) | 2.5 (63.5) | .688 (17.47) | 33050 (2/pk) | 33020 (1 ea.) |
| 32066 | 4 1/8" (100mm/150mm) | 6.0 (150) | 1.73 (43.94) | 1.0 (25.4) | 2.5/3.88 (63.5/98.55) | .688/.94 (17.47/23.87) | 33050 (2/pk) | 33020 (1 ea.) |
| 32068 | 6" (150mm) | 8.0 (200) | 1.73 (43.94) | 1.0 (25.4) | 3.88 (98.55) | .94 (23.87) | 33050 (2/pk) | 33020 (1 ea.) |
| 32088 | 6 1/8" (150mm/200mm) | 8.0 (200) | 2.45 (62.23) | 1.25 (31.75) | 3.87/4.75 (98.3/120.65) | .94/1.218 (23.88/30.94) | 33075 (2/pk) | 33030 (1 ea.) |
| WITHOUT MOUNTING HOLES | | | | | | | | |
| 33044 | - | 4.0 (100) | 1.48 (37.59) | 1.0 (25.4) | - | - | 33050 (2/pk) | 33020 (1 ea.) |
| 33066 | - | 6.0 (150) | 1.73 (43.94) | 1.0 (25.4) | - | - | 33050 (2/pk) | 33020 (1 ea.) |
| 33068 | - | 8.0 (200) | 1.73 (43.94) | 1.0 (25.4) | - | - | 33050 (2/pk) | 33020 (1 ea.) |

VERSAGRIP VISE JAWS



VersaGrip, as the name implies, offers the versatility of clamping standard vise work as well as providing a solution for difficult applications that would normally require fixturing or machining softjaws. By simply replacing your current jaws with the VersaGrip system you can securely hold odd shaped parts while machining at speeds and feeds you never thought possible.

This system can accommodate a wide range of part sizes as well as holding multiple parts in a single cycle. The hardened (51-53 RC) VersaGrip has penetrating teeth designed to bite into your workpiece preventing lateral and horizontal movement. These grips will hold flame cut parts, castings, even parts with a negative draft!



Odd shaped parts



Tombstone application



TALONGRIP & VERSAGRIP 6" COMBO KIT

33006 6" Combo Kit

Contents of Kit

32066 Talongrip Vise Jaw Set
32166 Versagrip Vise Jaw Set

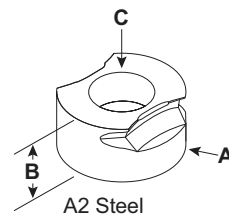
NOTE: All jaws designed to fit on a 4" or 6" vise.

STEEL VISE JAW SET (Set includes 4 VersaGrip with M5 Screws)

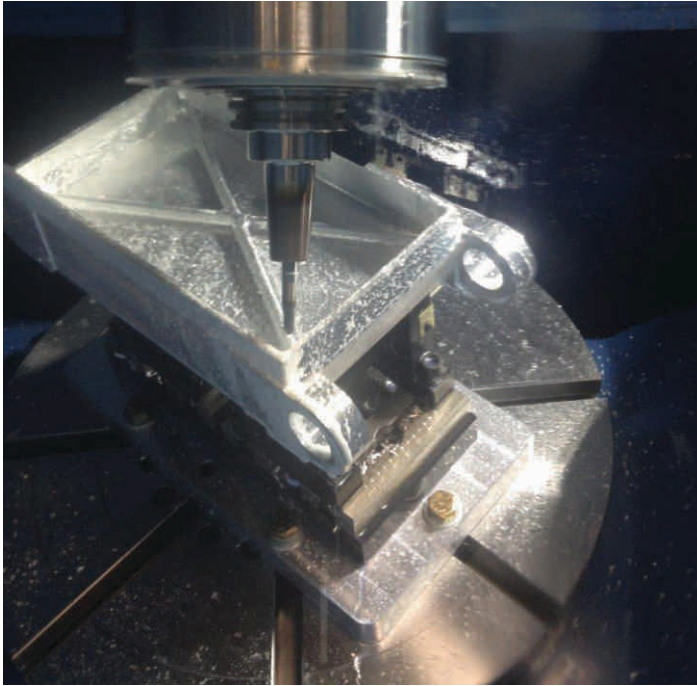
| Part Number | Vise (metric) | A (metric) | B (metric) | C (metric) | D (metric) | E (metric) | Holes |
|-------------------------------|---------------------|------------|--------------|------------|-----------------------|------------------------|-------|
| WITH MOUNTING HOLES | | | | | | | |
| 32166 | 4"/6" (100mm/150mm) | 6.00 (150) | 1.88 (47.75) | 1.0 (25.4) | 2.5/3.88 (63.5/98.55) | .688/.94 (17.47/23.87) | 7 |
| 32168 | 6" (150mm) | 8.00 (200) | 1.88 (47.75) | 1.0 (25.4) | 3.88 (98.55) | .94 (23.87) | 9 |
| WITHOUT MOUNTING HOLES | | | | | | | |
| 33166 | - | 6.00 (150) | 1.88 (47.75) | 1.0 (25.4) | | | |
| 33168 | - | 8.00 (200) | 1.88 (47.75) | 1.0 (25.4) | | | |

VERSAGRIP

| Part No. | A | B | C | Recommended Gripping Height | No. of Grips Per Pack |
|----------|-------|------|----|-----------------------------|-----------------------|
| 32175 | 19.05 | 9.52 | M5 | 1.55mm-3.5mm | 2 |

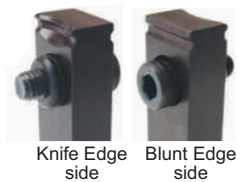
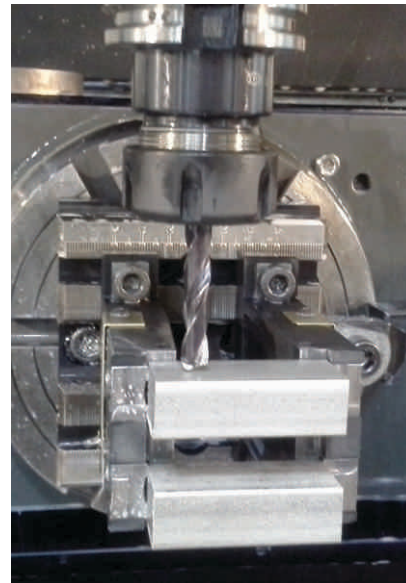
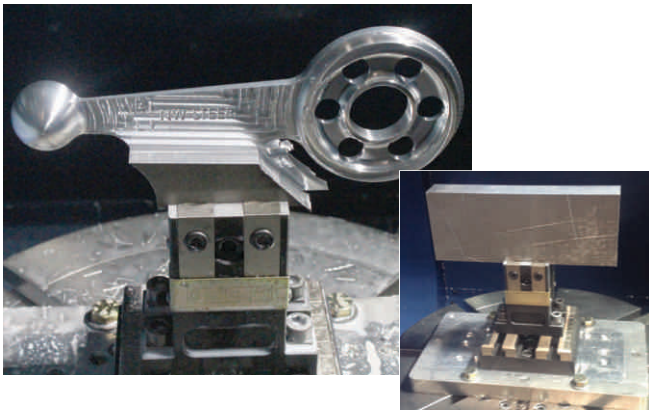


LOC-JAW SYSTEM



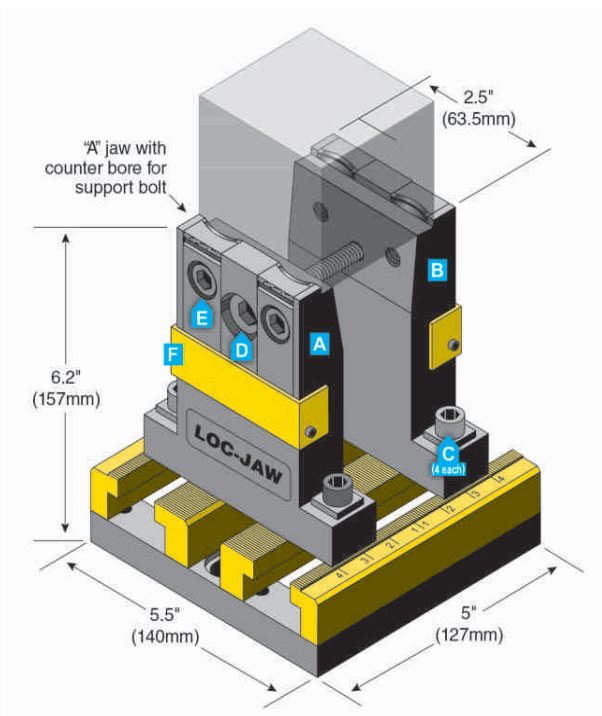
The Loc-Jaw system was conceived to simplify, and allow greater tooling access and more versatility securing your parts when 4th and 5th axis machining. Designed to hold raw stock without a pre-op using the carrier method. New Combo Edge Grippers incorporate both Knife and Blunt-Edges in one grip.

- Unique design allows access to bottom of workpiece
- Ability to hold parts from .500" to 4.00" or up to 1 Meter with optional extension kit
- 6,000+ lbs of holding force gripping on only .125" of material
- Knife Edge side of grippers designed to penetrate into material up to .060" deep. Blunt-edge side of grippers with our Tungsten Carbide coating are recommended for high speed machining on hard alloys. All grippers heat treated A2.
- Centering Disk included for Loc-Jaw base
- Set of locating pins included.



| Torque (Ft/lbs) | Holding Force (lbs) |
|-----------------|---------------------|
| 10 | 2,000 |
| 15 | 3,000 |
| 20 | 4,000 |
| 25 | 5,000 |
| 30 | 6,000 |

*Max torque of 25 ft. lbs. using Knife Edge grippers on material > 40Rc due to point contact.

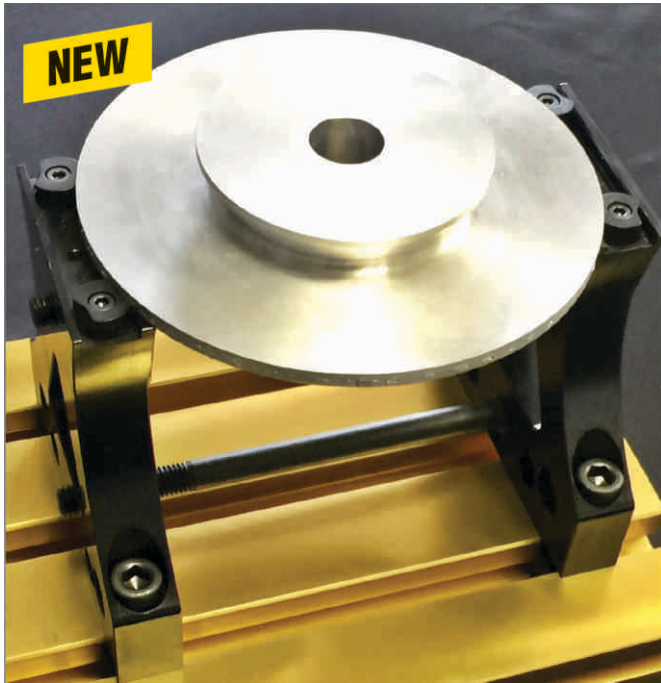


| Part Number | Description |
|-------------|--|
| 14500 | Loc-Jaw System Ships fully assembled with all tools required |
| 14525 | Loc-Jaw Extension Kit Includes base plate with rails, threaded rod 1 meter long and locking nut with spacer |

REPLACEMENT PARTS

| Part Number | Description |
|-------------|---|
| 14501 | Loc-Jaw Support Bolt #1 (M10 x 45mm) |
| 14502 | Loc-Jaw Support Bolt #2 (M10 x 65mm) |
| 14503 | Loc-Jaw Support Bolt #3 (M10 x 90mm) |
| 14504 | Loc-Jaw Support Bolt #4 (M10 x 110mm) |
| 14508 | Loc-Jaw Combo-Edge Grippers - 1 side knife edge, 1 side blunt edge with Tungsten Carbide coating (2 per pack) |
| 14518 | Loc-Jaw Jaw Set - includes 2 Jaws, 4 Combo-Edge Grippers & Screws |
| 14520 | Loc-Jaw Rail Set - includes 4 Rails, Screws, Dowel Pin |

TALL VISE JAWS/TOWERS



These Vise Jaws/ Towers are designed to mount directly to your 4 or 6 inch vise elevating your workpiece into the 5 axis envelope. You already have the platform therefore this becomes a very simple and low cost solution. This is the only system on the market where you can loosen the vise and double the holding force!



The Towers are exceptionally versatile due to the incorporation of our TalonGrip and VersaGrip Grippers and Pitbull clamps. Secure round or square stock easily by using a vise or by mounting towers directly to your t-slot or grid table. Low profile gripping saves material cost and no workpiece preparation saves machine and labor cost.

WISE APPLICATION

- Mount jaws to either 4 or 6 inch vise facing outboard keeping mounting bolts loose.
- Determine which grippers will be used, install and tighten grippers hand tight. If VersaGrips are being used to grip round stock, place in outboard bores. Do not tighten screws at this point. Tighten vise lightly onto workpiece allowing jaws to center themselves, adjust VersaGrips and tighten gripper screws and mounting bolts for both jaws.
- Loosen vise jaw for load/unload clearance of workpiece. Install support/pivot bolt.
- Setup is complete. Tighten support bolt allowing grippers to penetrate .010-.060" on material < 40Rc.
- For additional holding force, loosen vise handle which will eliminate any jaw lift that may have occurred and depending on amount of torque can increase pressure to over 9,000 lbs.

T-SLOT & GRID TABLE APPLICATION

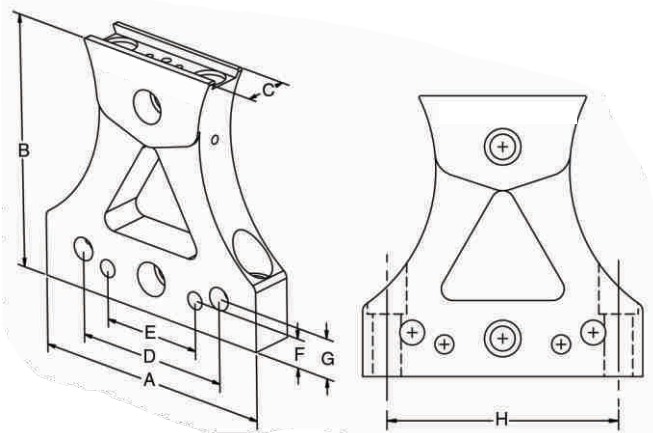
- Using vertical counter bores on outboard edges of jaws, install mounting bolts into t-nuts or grid plate and adjust accordingly. Do not tighten at this time.
- Select appropriate support bolts and install in upper horizontal counter bore and thread into opposite tower.
- Select grippers based on configuration suggestions below.
- Place workpiece between jaws and lightly tighten upper support bolt until all grippers contact workpiece. Tighten vertical mounting bolts.
- Loosen upper support bolt 1 full turn or until adequate workpiece clearance is obtained.
- Upper support bolt is now the "drive bolt" for securing and releasing workpiece.
- Any size t-nuts can be utilized. We provide 16mm t-nuts (most popular size) which also fits 5/8 t-slots.

T-SLOT & GRID TABLE APPLICATION

- Adjust so all "points" make contact simultaneously. If small diameter workpiece, two parts may be held at one time.
- Maximum of 8 TalonGrips™ can be used, 4 in each jaw for maximum line contact.
- If down force is necessary or additional holding force use 2 Pitbull clamps. One in the center of each jaw and one TalonGrip on each side of Pitbull clamps. Tighten jaws into grippers then tighten each Pitbull clamp.

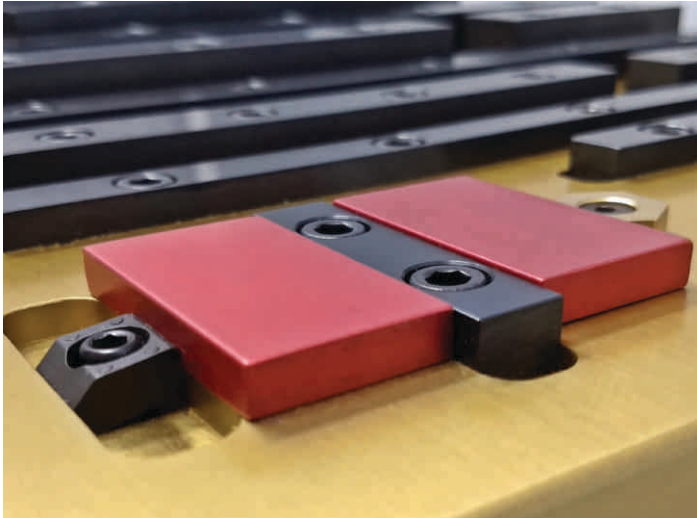
COMBO KIT CONTENTS:

| | |
|--|-----------------------------|
| 2 Jaws | 2 M12 x 200mm support bolts |
| 4 Talongrip 3/4" grippers with M5 screws | 2 M12 x 100mm support bolts |
| 4 Versagrip grippers with M5 screws | 2 M12 x 65mm support bolts |
| 1 Talongrip 3/4" stop with M5 screw | 4 M12 x 55mm mounting bolts |
| 2 Pitbull blunt edge clamps with M6 screws | 4 M12 x 16mm T-nuts |



| Part No. | Description | Vise size | Mtg. Bolts | A | B | C | D | E | F | G | H |
|----------|---------------|-------------|---------------|----------|----------|---------|---------|---------|---------|---------|----------|
| 32266 | 150mm Jaw Set | 100mm/150mm | M12X55mm SHCS | 150.00mm | 150.00mm | 26.92mm | 98.55mm | 63.50mm | 17.53mm | 23.88mm | 125.98mm |

LOCATING RAILS FOR JIGS AND FIXTURES

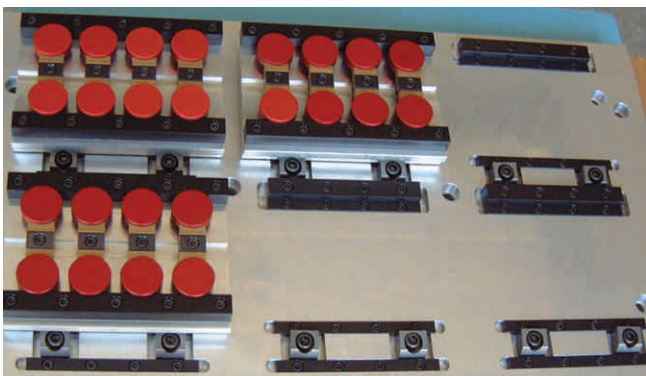


Locating rails are made of low carbon steel and are precision ground square. They are available in a number of sizes and lengths to suit most applications.

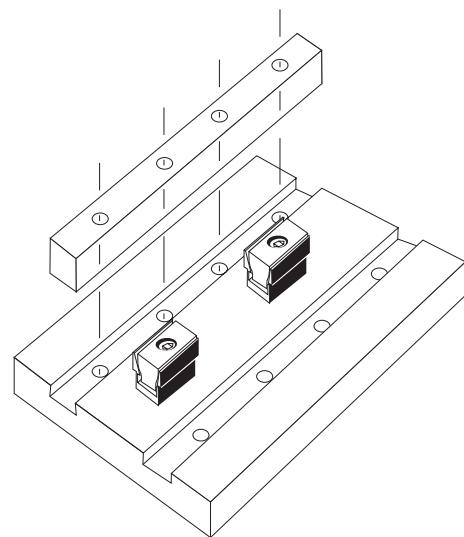
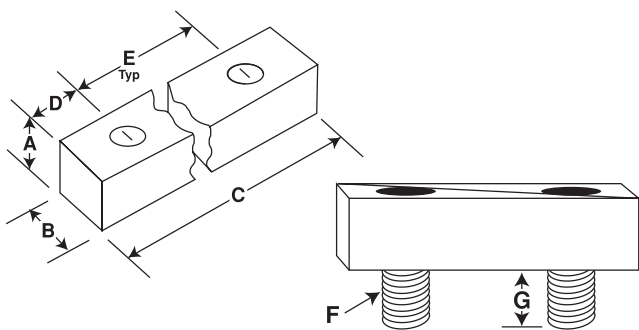
Is it taking too long to make a fixture to increase production?

Our products make fixture building easier and quicker with the addition of ready made locating rails.

Rails are made of low carbon steel, then ground square. They are easily machined when used with our machinable clamps. Tungsten Carbide coating can be added to increase holding force.



Locating rails used with Machinable Uniforce® and Pitbull® Clamps



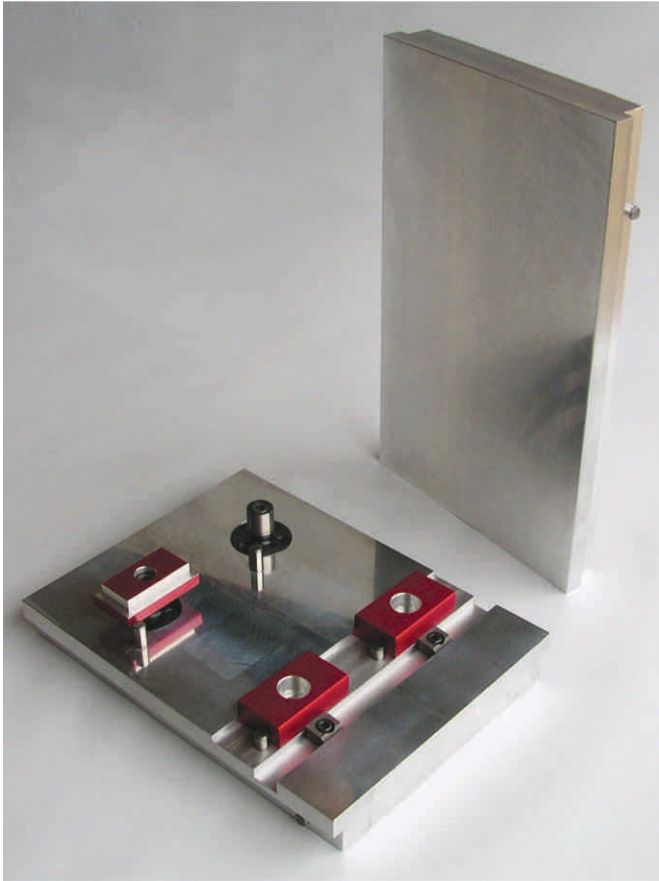
| Part Number | A | +0.000 B-.013 | C | D | E | F | G | No. Holes |
|-------------|----|------------------|-----|----|----|-----|------|-----------|
| 83200 | 12 | 15 | 50 | 15 | 20 | M6 | 11mm | 2 |
| 83210 | 12 | 15 | 100 | 20 | 30 | M6 | 11mm | 3 |
| 83220 | 12 | 15 | 150 | 30 | 30 | M6 | 11mm | 4 |
| 83240 | 12 | 15 | 250 | 25 | 50 | M6 | 11mm | 5 |
| 83260 | 18 | 24 | 75 | 20 | 35 | M10 | 18mm | 2 |
| 83280 | 18 | 24 | 150 | 30 | 30 | M10 | 18mm | 4 |
| 83300 | 18 | 24 | 250 | 25 | 50 | M10 | 18mm | 5 |

Mounting Screws included.

LOCATING RAIL INSTALLATION:

1. Mill a slot to locate the rail.
Depth of the slot will determine rail height.
2. Drill and tap the required holes to mount the rail.
3. For better rigidity, the rail should be pinned to the fixture plate with dowel pins.
4. If rails are to be machined to hold round pieces, the clamps should be mounted and both rail and clamp machined at the same time

WISE PALLET



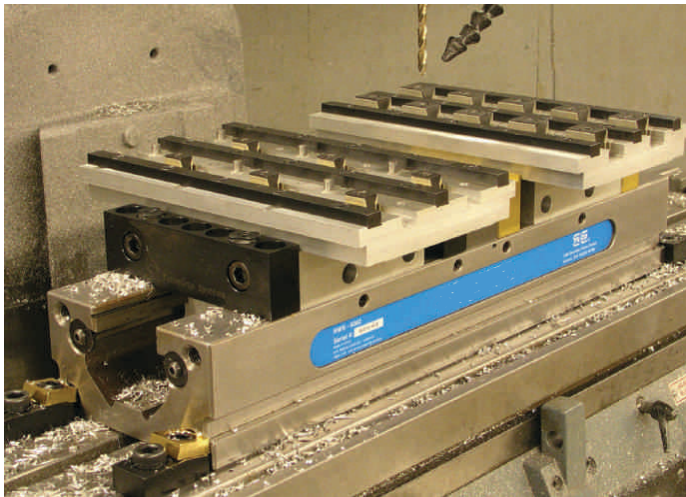
- Now you can run fixture jobs without removing your vises.
- Vise Pallets are designed to fit in all 6 inch (150mm) vises and measure approximately 6x8 and 6x10 inches (150x203mm and 150x254mm).
- Ideal for multiple small parts using one of several low profile edge clamps.
- The Vise Pallets are qualified in 2 places so they can rest on parallels or on the top of the jaws.

HOW TO USE

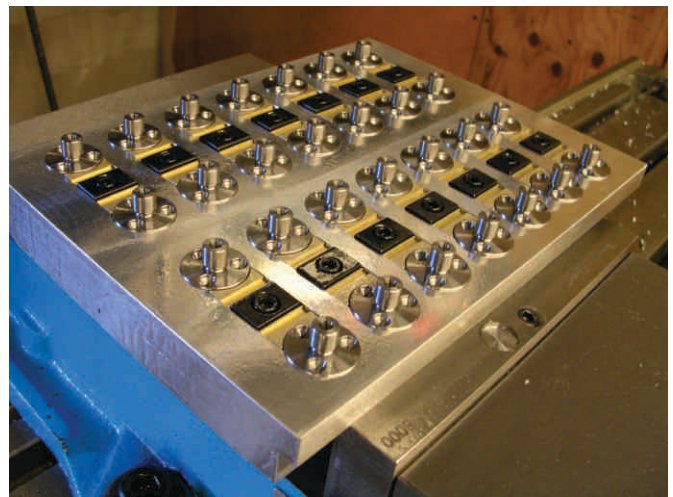
The Vise Pallet has a locating pin that makes contact with the left side of the solid jaw for repeat location of pallet. Simply slide pallet to the right of the vise and clamp in place. Pallets can be machined and tapped as required.



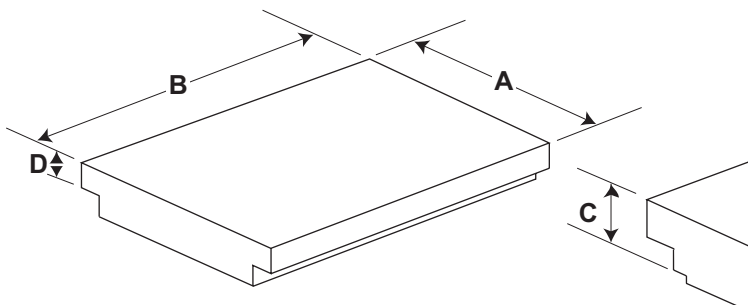
Vise Pallet with ID Xpansion Clamps



Fixtured with Uniforce Clamps and locating rails

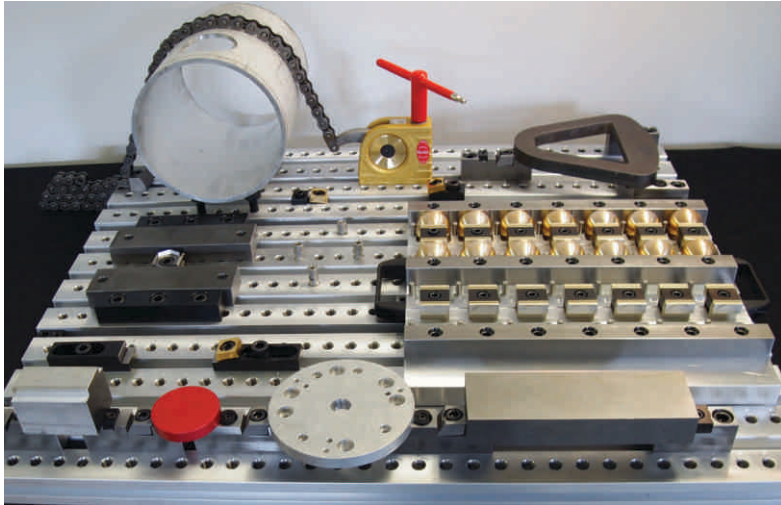


Fixtured with Machinable Uniforce Clamps



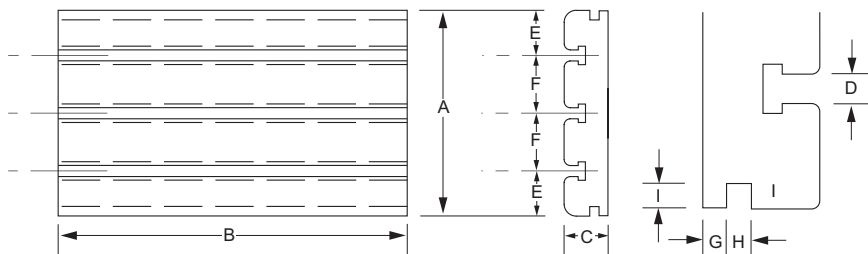
| Part Number | A (metric) | B (metric) | C (metric) | D (metric) |
|-------------|------------|-------------|------------|------------|
| 24100 | 6.00 (150) | 8.00 (203) | .95 (24.4) | .44 (11.2) |
| 24120 | 6.00 (150) | 10.00 (254) | .95 (24.4) | .44 (11.2) |

ALUMINUM T-SLOT PLATES



- Standard T-slot plates can be ordered in custom lengths up to 66" (1676mm), not machined
- Standard sizes are premachined to .005 (.13mm) flatness and parallelism per foot (300mm)

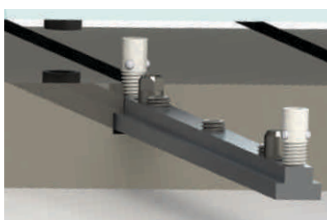
Our standard T-Slot Plates provide a low cost solution to transform your grid plates, cmm's and even drill presses into a more universal platform. All of our modular clamping systems that use 5/8 and 16mm t-nuts can be easily used on this platform, from the basic and still popular clamps that started 30 years ago to some of the strongest clamps in the industry including unique solutions using chain clamps and vacuum workholding. Our T-Nut Rail below is drilled and tapped for some of our quick change systems and also has precision 12mm bores for our diamond and taper pins, so now you have the possibilities of using this as a quick change platform. Take a look at our social media network when considering new methods, these guys and gals showcase true talent and creativity.



STANDARD T-SLOT PLATE without Mounting Holes

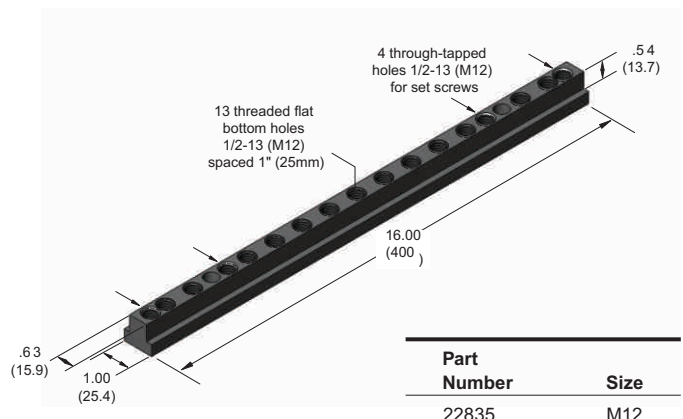
| Part Number | A x B x C (metric) | T-slots | D (metric) | E (metric) | F (metric) | G (metric) | H (metric) | I (metric) | Lbs. (KG) |
|-------------|------------------------------------|---------|------------|-------------|-------------|------------|------------|------------|-------------|
| 22913 | 9.0 x 13.0 x 1.48 (228 x 330 x 38) | 3 | 5/8 (16) | 2.00 (50.8) | 2.50 (63.5) | .49 (12.7) | .50 (12.7) | .50 (12.7) | 13.3 (6.1) |
| 22918 | 9.0 x 18.0 x 1.48 (228 x 457 x 38) | 3 | 5/8 (16) | 2.00 (50.8) | 2.50 (63.5) | .49 (12.7) | .50 (12.7) | .50 (12.7) | 18.5 (8.5) |
| 22924 | 9.0 x 24.0 x 1.48 (228 x 610 x 38) | 3 | 5/8 (16) | 2.00 (50.8) | 2.50 (63.5) | .49 (12.7) | .50 (12.7) | .50 (12.7) | 24.8 (11.3) |

T-NUT RAIL

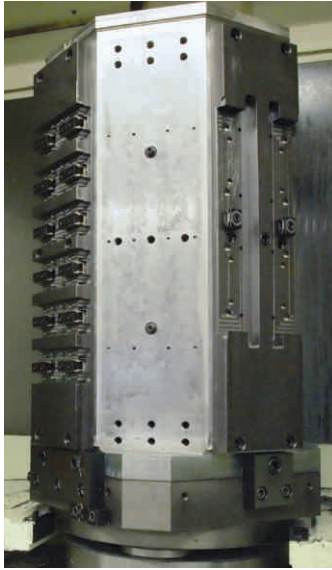


Using this T-Nut Rail with our Aluminum T-Slot Plates provides more mounting configurations with our standard clamps as well as serving as a simple pallet changer when the

Locating Pins are installed. Center-line dimensions for pins are the same as all our blank pallets used with our Vacmagic product line, will also locate our VM300 and Multi-Power Vac which have liners installed in the bottom of units again with same center-line dimensions. 4 set-screws lock rail and place, depth of threaded holes set for Loc-Downs .



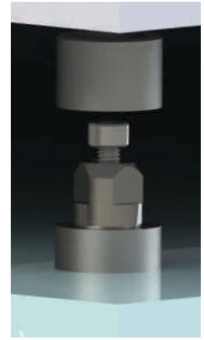
LOCATING PINS AND LINERS



Use our Diamond and Tapered pins to standardize your shop with a universal pattern, allowing fixtures to be quickly mounted to any machining center.

| Part Number | Description |
|-------------|------------------------------|
| 51000 | Set of pins with M4 screws |
| 52000 | Set of pins with 8-32 screws |
| 45070 | Liners (2/pk) |

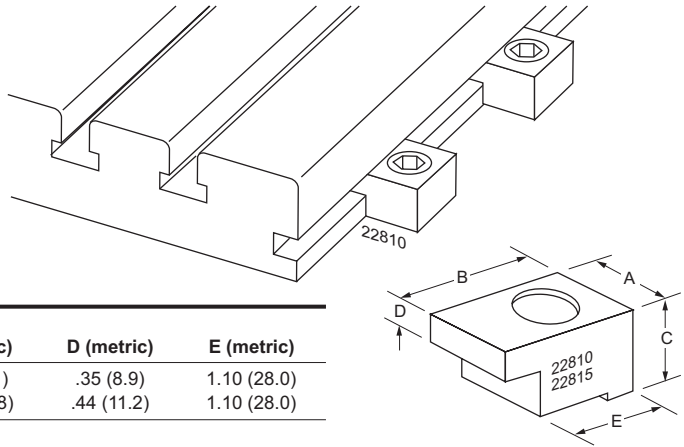
- Designed with simplicity in mind - easy to install and remove
- Available with Inch or Metric hardware
- Use with Loc-Downs for low cost quick change system
- Cylindrically ground
- Heat treated 8620



MOUNTING CLAMPS



Mounting clamps are designed for securing Aluminum Sub Plates, Vacmagic and many types of machine vises.



| Part Number | Screw Size (metric) | A (metric) | B (metric) | C (metric) | D (metric) | E (metric) |
|---------------------|---------------------|-------------|-------------|-------------|------------|-------------|
| 22810 [*] | 1/2 (M12) | 1.25 (31.8) | 1.50 (38.1) | .87 (22.1) | .35 (8.9) | 1.10 (28.0) |
| 22815 ^{**} | 1/2 (M12) | 1.25 (31.8) | 1.50 (38.1) | 1.25 (31.8) | .44 (11.2) | 1.10 (28.0) |

^{*}For Vacmagic[®] VM100

^{**}For Vacmagic[®] VM300

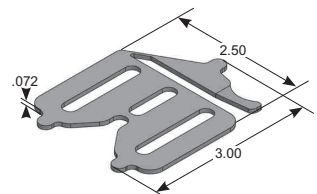
SPRING LOC AND SLIDING STOP



The Spring-Loc is an extremely low profile (.072") adjustable clamp capable of producing approximately 10 lbs. of clamping pressure depending on how much the flex arm is compressed in the locked position. The center slot allows 360° positioning. The back end of the Spring-Loc is "V" shaped allowing customers to run parts in series for engraving, laser etching and provides a simple and quick method for locating and holding parts for CMM and Vision Systems.

The Sliding Stop™ was primarily designed to assist in vacuum workholding applications allowing customers to run at higher feeds and speeds. We incorporated a scallop on the edge of the Stop which aids in better viewing with CMM and Vision Systems.

| Part No. | Description | Screw | Sold |
|----------|--|--------|------|
| 42000 | Spring-Loc Kit (Includes 4 Clamps & Stops) | 1/4-20 | Kit |
| 42100 | Spring-Loc Clamp | 1/4-20 | 2/pk |
| 42200 | Sliding-Stop (1"x3", .0734) | 1/4-20 | 4/pk |
| 44000 | Spring-Loc Kit (Includes 4 Clamps & Stops) | M6 | Kit |
| 44100 | Spring-Loc Clamp | M6 | 2/pk |
| 44200 | Sliding-Stop (1"x3", .0734) | M6 | 4/pk |



VACUUM PUMP

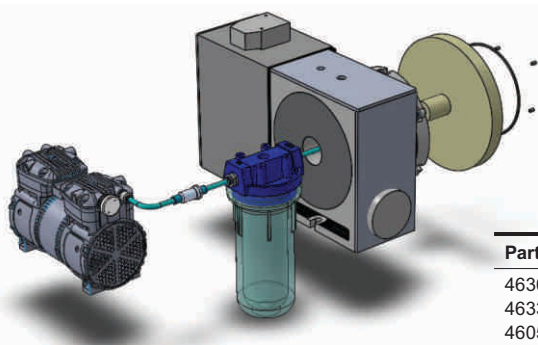


We now offer an Electric Vacuum Pump/Air Compressor option for use with all of our vacuum systems or your current system. This unit is compact, quiet and guaranteed to run continuously for 1 year!

The Pump produces a high evacuation rate of 5 cfm which is recommended for larger parts or difficult gasket sealing situations as the pump can compensate for gasket leakage much better. At dead head the vacuum pump develops approximately 12-13 psi of vacuum holding force. We recommend using our Coolant Trap between fixture and pumps, so that any liquid that bypasses the gasket can be captured so not to affect vacuum performance.

The Pump is available operating on 115 volt or 230 volt and includes our coolant trap, air filter, non-skid feet & 10' power cord with on/off switch. The 230 volt cord will have flying leads* due to the wide variety of plugs.

*No plug on end of cord.



Part No. Description

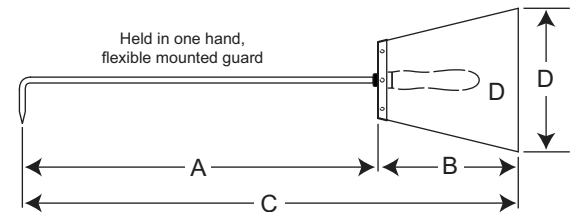
| | |
|-------|---|
| 46300 | Vacuum Pump/Air compressor wired 115 volt Coolant Trap, fittings, hoses & hardware included |
| 46330 | Vacuum Pump/Air compressor wired 230 volt Coolant Trap, fittings, hoses & hardware included |
| 46050 | Coolant Trap with hose and fittings |

CHIP HOOKS

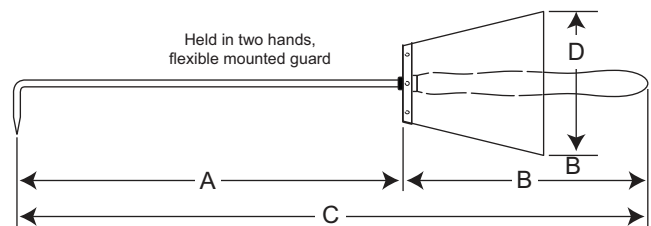


The chip hook is an essential safety tool for all shops. These galvanized steel hooks are fitted with a protective polyethylene hilt and wooden handles to ensure a firm grip. Available in several lengths and single or double handles.

SINGLE HANDLE HOOK WITH PROTECTING HILT



DOUBLE HANDLE HOOK WITH PROTECTING HILT

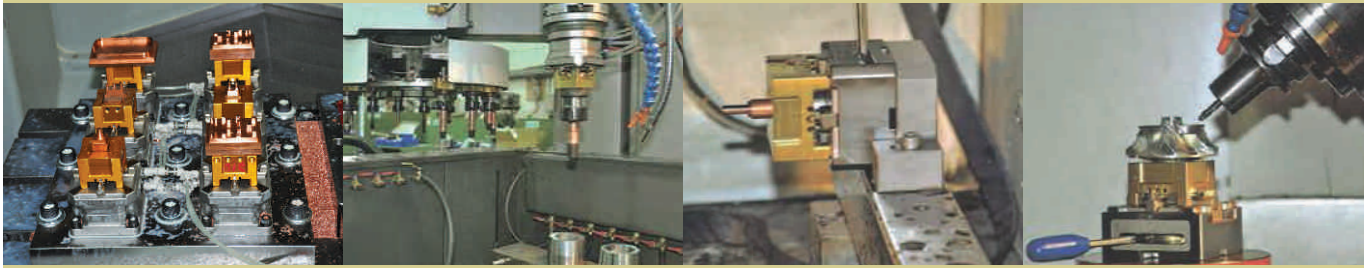


SAFETY! A work related accident can happen very easily. Always use a chip hook to clear away annoying chips and empty the chip trays on your machines.

| Part Number | Description | A (metric) | B (metric) | C (metric) | D (metric) |
|----------------------|--------------------------|-------------|------------|-------------|------------|
| SINGLE HANDLE | | | | | |
| 12060 | Chip hook, single handle | 15.75 (400) | 7.0 (180) | 22.5 (570) | 7.0 (180) |
| 12070 | Chip hook, single handle | 20.0 (500) | 7.0 (180) | 26.0 (670) | 7.0 (180) |
| DOUBLE HANDLE | | | | | |
| 12080 | Chip hook, double handle | 20.0 (500) | 13.0 (320) | 32.0 (820) | 7.0 (180) |
| 12090 | Chip hook, double handle | 31.5 (800) | 13.0 (320) | 44.0 (1120) | 7.0 (180) |
| 12100 | Chip hook, double handle | 39.0 (1000) | 13.0 (320) | 52.0 (1320) | 7.0 (180) |

CHUCKS FOR PRODUCTION MACHINING, EDM AND WIRECUT EDM

FOR TOOL / DIE MAKING AND PRODUCTION



2µm REPEAT POSITIONING ACCURACY

- WORKPIECE • FIXTURING • MAKING ELECTRODES • EDM SINKING • WIRECUT EDMING • MEASURING

MANUAL CHUCKS



HM 80E
CHUCK FOR MILLING



HL-110E
CHUCK FOR LATHE & MILLING



HW-128E
CHUCK FOR WIRECUT EDM & MILLING



HE-65E
CHUCK FOR EDM

QUICK MANUAL CHUCKS



QL-110E
CHUCK FOR LATHE & MILLING



QW-128E
CHUCK FOR WIRECUT & MILLING



QE-84E
CHUCK FOR EDM & MILLING

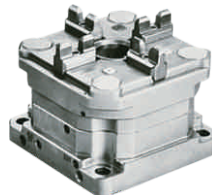


QE-88E
CHUCK FOR EDM & MILLING

PNEUMATIC CHUCKS



AE-88E
CHUCK FOR EDM & MILLING



AE-88EW
CHUCK FOR EDM & MILLING



AM-138EPC
CHUCK FOR MILLING

ELECTRODE / WORKPIECE HOLDERS AND WIRECUT EDM ACCESSORIES

**ELECTRODE /
WORKPIECE
HOLDERS**



STAINLESS
STEEL

ELECTRODE
ADJUSTING
HEAD

DRAWBARS



**WIRECUT EDM
WORKHOLDERS**





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Web: <http://www.agstech.net>

