ID Xpansion Clamps - Machinable
for clamping internal bores

Material
Mild steel body, with heat-treated tapered screw (coated to prevent seizing).
The largest size 12051.W0250 is made from 7075-T6 aluminium.

Technical Notes
For holding parts on an inside diameter, for high density machining on vertical or horizontal mills.
Diameter can be from 4.1 mm to a maximum of 250 mm!
It can also be used as an expanding mandrel on a lathe.
The flange diameter of the base is held to a close tolerance for precision location in a machined pocket.

Tips
"g" is the minimum diameter the "f" dimension can be machined or turned down to.
Mounting screws included.

Important Notes
Installation for clamps 12051.W0010 to .W0051.
1. Expand clamp 0.1 mm over the relaxed diameter and machine to fit workpiece bore (on lathe or mill).
If using the clamp on a lathe then use the nut provided to tighten the taper screw. This nut is only used to machine the clamp.
2. Machine a pocket in the fixture for the close tolerance "e" dimension, and drill and tap mounting holes "h".
3. Drill and tap a hole "i" in the centre of the pocket for the tapered screw.
4. A recessed dowel pin can be installed into the flange for extra rigidity if required.
5. Range of expansion 0.13 to 0.64 mm depending on clamp size.
Installation for clamps 12051.W0277 to .W0250.
1. Insert machining locking ring (provided), tighten taper screw and machine clamp to required bore size.
2. Release taper screw and remove locking ring prior to any machining of work pieces.
Note: 12051.W0175 and W0250 have four mounting holes on PCD as dimension "h".

Order No. | a | b | c | d | e | f Stock | g
---|---|---|---|---|---|---|---
12051.W0010 | 10.7 | 7.6 | 6.1 | 3.0 | 20.0 | 7.4 | 22.7
12051.W0012 | 21.8 | 16.0 | 15.0 | 5.9 | 29.7 | 12.4 | 59.0
12051.W0014 | 24.9 | 19.0 | 15.0 | 5.9 | 31.5 | 14.2 | 108.9
12051.W0020 | 24.9 | 19.0 | 15.0 | 5.9 | 37.5 | 20.0 | 204.1
12051.W0027 | 28.6 | 22.2 | 17.5 | 6.4 | 50.0 | 27.0 | 213.2
12051.W0035 | 31.8 | 25.4 | 20.6 | 6.4 | 56.0 | 35.3 | 317.5
12051.W0042 | 39.6 | 31.8 | 27.0 | 7.9 | 69.5 | 42.0 | 594.2
12051.W0051 | 39.6 | 31.8 | 27.0 | 7.9 | 75.5 | 51.5 | 775.0
12051.W0077 | 45.5 | 37.6 | 32.3 | 7.9 | 107.5 | 77.7 | 1828.0
12051.W0103 | 45.5 | 37.6 | 32.3 | 7.9 | 132.9 | 103.0 | 2957.4
12051.W0175 | 45.5 | 37.6 | 32.3 | 7.9 | 132.9 | 175.0 | 6803.9
12051.W0250 | 45.5 | 37.6 | 32.3 | 7.9 | 152.4 | 250.2 | 5443.1

Order No. | g min. | h on PCD | i | j | Torque Nm. | Holding force kN. | Max expansion from relaxed dia.
---|---|---|---|---|---|---|---
12051.W0010 | 4.1 | M 2 at 13.70 | M 2 | 4.1 | 0.7 | 1.1 | 0.13
12051.W0012 | 7.1 | M 3 at 20.95 | M 4 | 7.2 | 5.0 | 4.2 | 0.25
12051.W0014 | 12.2 | M 3 at 23.10 | M 6 | 11.2 | 17.0 | 8.4 | 0.33
12051.W0020 | 13.5 | M 3 at 29.00 | M 8 | 13.2 | 34.0 | 11.1 | 0.38
12051.W0027 | 18.0 | M 4 at 39.40 | M 10 | 16.3 | 60.0 | 20.0 | 0.38
12051.W0035 | 23.0 | M 4 at 45.50 | M 12 | 20.3 | 150.0 | 26.2 | 0.38
12051.W0042 | 29.3 | M 5 at 55.90 | M 16 | 21.4 | 280.0 | 44.5 | 0.38
12051.W0051 | 29.3 | M 5 at 63.90 | M 16 | 21.4 | 280.0 | 44.5 | 0.38
12051.W0077 | 29.3 | M 6 at 92.60 | M 16 | 19.3 | 280.0 | 44.5 | 0.38
12051.W0103 | 29.3 | M 6 at 118.06 | M 16 | 19.3 | 280.0 | 44.5 | 0.5
12051.W0175 | 29.3 | M 6 at 118.06 | M 16 | 19.3 | 280.0 | 44.5 | 0.5
12051.W0250 | 29.3 | M 6 at 133.35 | M 16 | 19.3 | 170.0 | 26.0 | 1.0

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Technical Notes
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Diameter can be from 4.1mm to a maximum of 250mm!
It can also be used as an expanding mandrel on a lathe.
Tighten with hex key or hydraulic pull cylinders.
The flange diameter of the base is held to a close tolerance for precision location in a machined pocket.

Tips
“g” is the minimum diameter the “f” dimension can be machined or turned down to.
Mounting screws included.

Important Notes
Installation for clamps 12051.W0010 to .W0051.
1. Expand clamp 0.1mm over the relaxed diameter and machine to fit workpiece bore (on lathe or mill).
   If using the clamp on a lathe then use the nut provided to tighten the taper screw. This nut is only used to machine the clamp.
2. Machine a pocket in the fixture for the close tolerance “e” dimension, and drill and tap mounting holes “h”.
3. Drill and tap a hole “i” in the centre of the pocket for the tapered screw.
4. A recessed dowel pin can be installed into the flange for extra rigidity if required.
5. Range of expansion 0.13 to 0.64mm depending on clamp size.
Installation for clamps 12051.W0077 to .W0250.
1. Insert machining locking ring (provided), tighten taper screw and machine clamp to required bore size.
2. Release taper screw and remove locking ring prior to any machining of work pieces.
Note: 12051.W0175 and W0250 have four mounting holes on PCD as dimension “h”.

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The ID Xpansion Clamp is the ideal way to hold multiple parts on an inside diameter for machining on your VMC or HMC.

ID Xpansion Clamps can be used to hold components with complex internal shapes, not just plain bores. These machinable clamps are produced in 10 sizes and can hold internal diameters from 21.8 to 45.5mm.

- Low profile and ideal for secondary operations on lathe parts.
- Easily machined to size on lathe or mill.
- Excellent for palletised setups.
- Allow more parts per workcube or fixture plates.
- Body made of mild steel for machinability.
- Tighten with hex key, hydraulic pull cylinders or speed block.

Wixroyd introduces a new style clamp to its range of ID-Xpansion clamps, the Side-Loc Xpansion Clamp. Actuated by turning a socket head cam shaft on the side, it is ideal for clamping on blind internal diameters. The locking ring provides an accurate preset diameter and rigidity for machining. Like our original ID Xpansion clamps, the Side-Loc Xpansion Clamp has the dead length feature which is critical for close tolerance dimensions.

Designed in two styles, one for milling operations and one for lathe applications; the mill Side-Loc Xpansion Clamp can be machined from 28.4 to 18mm and the lathe version from 53 to 18mm.