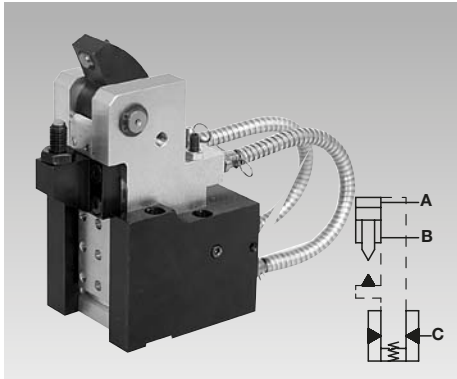




Position Flexible Clamping Claw

double acting, separate locking port,
with optional position monitoring, max. operating pressure 250 bar



Application

Position flexible clamping elements can be used for supporting and clamping of unstable workpiece sections. They adapt themselves to the position of the clamping point without deforming them. They cushion vibrations and compensate machining forces from all directions.

Description

The position flexible clamping claw consists of an U-shaped mounting body and the displaceably embedded clamping unit with oil supply by two short high-pressure hoses with swarf protection.

In the movable clamping unit a double-acting hydraulic cylinder is integrated, whose clamping force is introduced through the clamping lever by 180° into the workpiece support.

This support is height-adjustable to clamp workpieces of different thickness.

After the clamping process the still displaceable clamping unit will be locked by a single-acting cylinder in the mounting body.

In unclamped mode the clamping lever swivels back so far that unimpeded loading and unloading of the clamping fixture can be effected. To control the clamping lever an inductive or pneumatic position monitoring can be delivered.

Positionsflexibles Spannen

Ein Werkstück wird für die Bearbeitung in einer Spannvorrichtung in 3 Ebenen gegen maximal 5 Auf- und Anlagepunkte positioniert und gespannt. Müssen weitere Partien des Werkstücks abgestützt und gespannt werden, kommen meistens zusätzliche Abstützelemente zum Einsatz, auf die wiederum gespannt werden kann.

Problem: If the sections to be clamped are very unstable, the contact of the support plunger may cause deformation.

If the following clamping will be effected the caused deformation will not be calculable. Variations at the finish-machined workpiece are not acceptable.

Solution: The use of position flexible clamping elements at such critical points can improve considerably the result.

Advantages

- Clamps position flexible within the pendulum range
- Workpiece support points adjustable and mountable in 4 positions
- Unimpeded loading and unloading of the fixture
- Very low displacing forces act on the workpiece
- Adjustable zero position
- Compensation of machining forces from all directions
- Monitoring of the unclamping position and the end of the clamping stroke can be effected pneumatically or inductively
- Clamping lever can be swivelled into small recesses
- Double-acting clamping function
- Locking port can be controlled separately
- Oil supply optionally by connecting threads or drilled channels
- Connecting hoses with swarf protection
- Air sealing connection to avoid entry of swarf and coolants

Example:

 (see figure at the top right)

A workpiece is clamped in a fixture. For machining of a relatively unstable web machining clamping with minimum of deformation is required. A position flexible clamping claw is so arranged that the web is within the clamping range. First the clamping cylinder is controlled. By nipper-like floating clamping the web will be clamped between support and clamping lever, i.e. the clamping unit adapts itself position flexible to the height. The occurring displacing force in the mounting body will be minimised by the installed weight compensation.

Then the clamping unit is locked by a second clamping circuit or a sequence valve and can now compensate machining forces from all directions.

Important notes

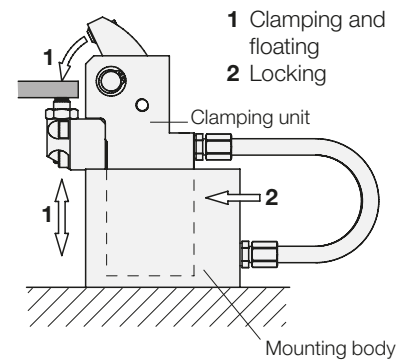
The position flexible clamping claw has to be checked regularly with regard to contamination by swarf and cleaned, if required.

Regular lubricating reduces the displacing forces on the workpiece during clamping.

The smaller the distance between workpiece and workpiece support point, the smaller the displacing force onto the workpiece during clamping (see contact force).

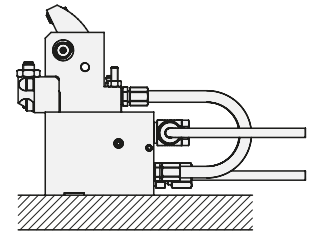
Air sealing increases life and sensitivity of the clamping element.

The clamping unit made of aluminium has to be highly protected against abrasive swarf.

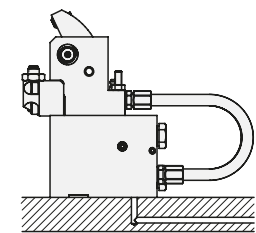


Connecting possibilities

Fitting connection

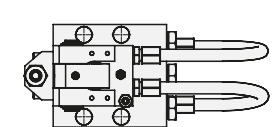


Drilled channels



Design possibilities

Hose at the back



Hose at the side

