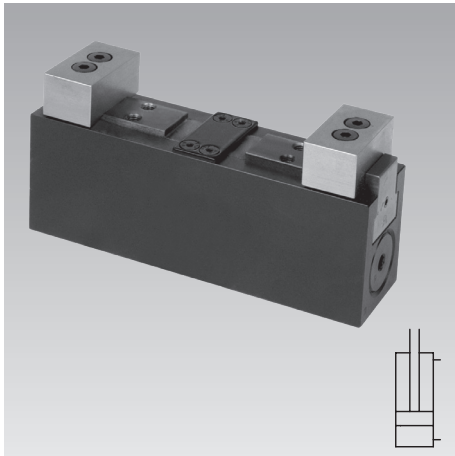




## Hydraulic Vises, Position Flexible Clamping

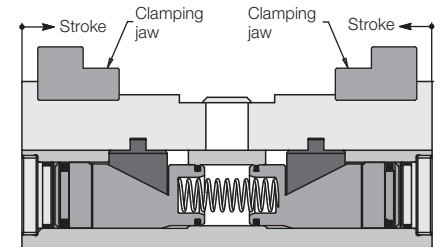
max. clamping force 8 kN, jaw width 40 mm,  
 double acting, max. operating pressure 250 bar



### Advantages

- Very compact design
- High rigidity
- High clamping force with low contact forces
- Position flexible within the clamping range
- Double-acting function
- Fixtures without pipes possible
- Exchangeable jaws
- Good swarf protection
- Port for central lubrication
- Mounting position: any

### Functional principle



### Application

Position-flexible, hydraulic vises can additionally clamp and support a workpiece, which is already positioned and clamped in fixed stops, at unstable workpiece sections.

Due to their compact design they can be arranged in an extremely space-saving manner. Hydraulic vises are especially suitable for series manufacturing in automated mode.

The double-acting cylinder function combined with central lubrication and good swarf protection guarantees high process safety.

### Description

The hydraulic vise with position-flexible clamping function consists of a very slim basic body with 2 integrated hydraulic cylinders.

The piston forces are transmitted by two channels to the two clamping slides that can be moved independently of each other. During clamping, both clamping slides contact the workpiece with almost no force (see page 3).

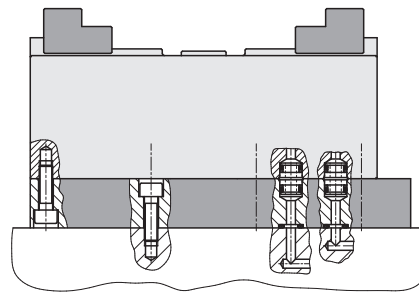
Only then the clamping pressure and thereby the clamping force increases. The wedging of the clamping slides protects them against displacement. Thus, the workpiece is held floating without deformation.

All threads and ports are at the bottom to enable a space-saving arrangement of several clamping points in a very limited space. If fixing from below is not possible, an adaptor plate for manifold mounting or tube connection is available. Blanks of clamping jaws that can be adapted to the workpiece contour are also available as an accessory.

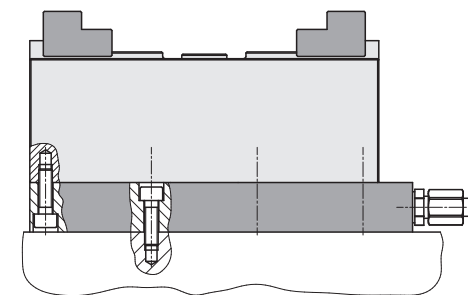
### Fixing from above

with accessory adaptor plate

#### Drilled channels

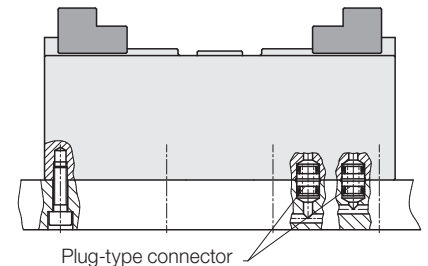


#### Pipe thread



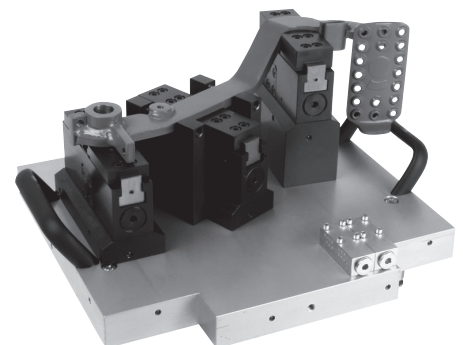
### Fixing from below

#### Drilled channels



### Application example

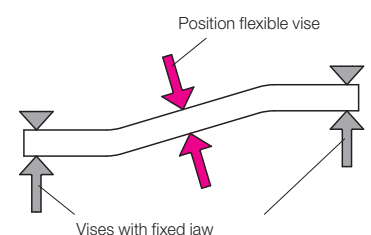
Clamping fixture for a pedal of a commercial vehicle



### Accessories

Clamping jaws and adaptor plate are not included in the delivery of the clamping vise and have to be ordered separately as accessory.

### Clamping principle



Part no. 4413080

Technical data

Clamping force at 250 bar	[kN]	8
Retention force at 250 bar	[kN]	10
Min. pressure	[bar]	25
Min. unclamping pressure	0.5 × clamping pressure	
Clamping stroke	[mm]	2 × 8
Jaw width	[mm]	40
Max. flow rate*	[cm <sup>3</sup> /s]	17
Stroke volume Clamping	[cm <sup>3</sup> ]	8.4
Unclamping	[cm <sup>3</sup> ]	7
Weight	[kg]	approx. 2.5

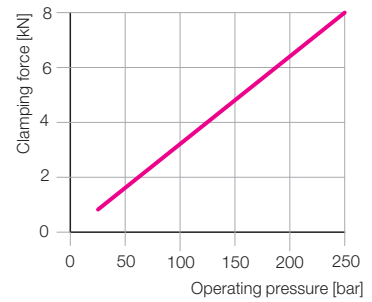
\*See page 3 "Position flexible clamping"

Adaptor plate (Accessory)

Weight	[kg]	approx. 1.9
Part no.		0441 305

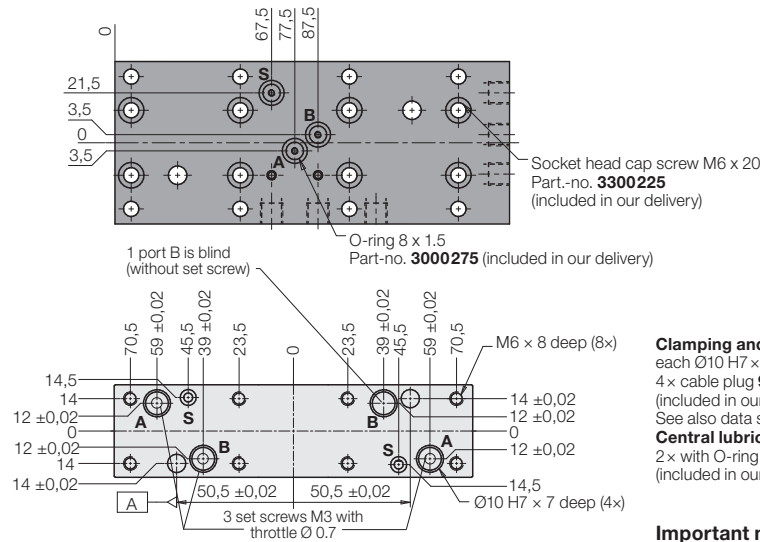
Clamping force diagram

(Height of the clamping jaw 15 mm)



Accessories: Adaptor plate

View from below



- A = Clamping
- B = Unclamping
- S = Central lubrication

Clamping and unclamping

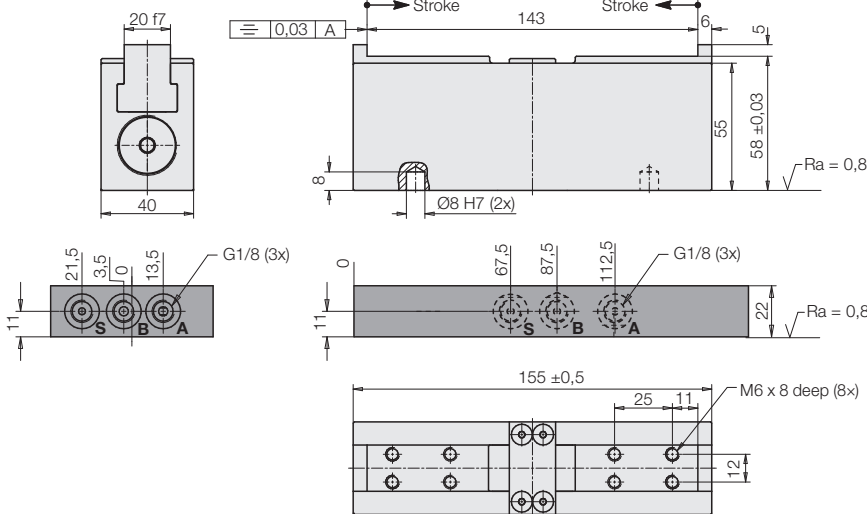
each Ø10 H7 × 7 deep for 4 × cable plug 9210132 (included in our delivery). See also data sheet F 9.300

Central lubrication

2 × with O-ring 3000876 (3.68 × 1.78 mm) (included in our delivery)

Important note

If the vise is manifold-mounted without adaptor plate, all 5 ports (2×A, 1×B, 2×S) have to be individually connected.



Accessories: Adaptor plate

Side views

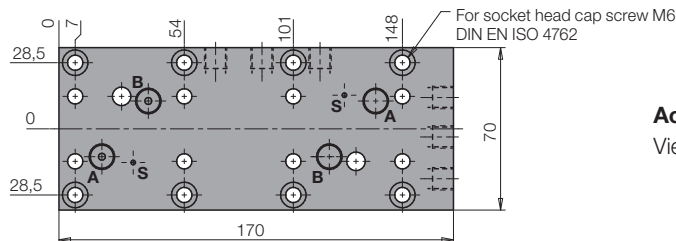
Important notes

The position flexible vise is only suitable for exterior clamping.

Lubricate at the latest after 500 clamping cycles the clamping slide via the central lubrication. (Recommended: slide way oil ISO 68)

Never use the complete clamping stroke to guarantee safe clamping of the workpiece.

Max. operating temperature 80 °C.



Accessories: Adaptor plate

View from above

# Accessories

## Position Flexible Clamping

### Self-made clamping jaws

Clamping jaws are manufactured according to the contour of the workpiece to be clamped.

The max. height of the clamping jaw X at 250 bar operating pressure is indicated in the opposite chart.

If the operating pressure is lower, the clamping jaws can be designed higher as per the opposite diagram.

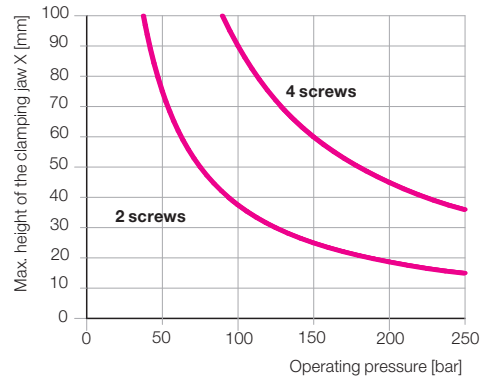
### Max. height of the clamping jaws X at max. operating pressure of 250 bar

Fixing screws for clamping jaws	M 6 x 16 – 12.9
X [mm] with 2 screws	15
X [mm] with 4 screws	36

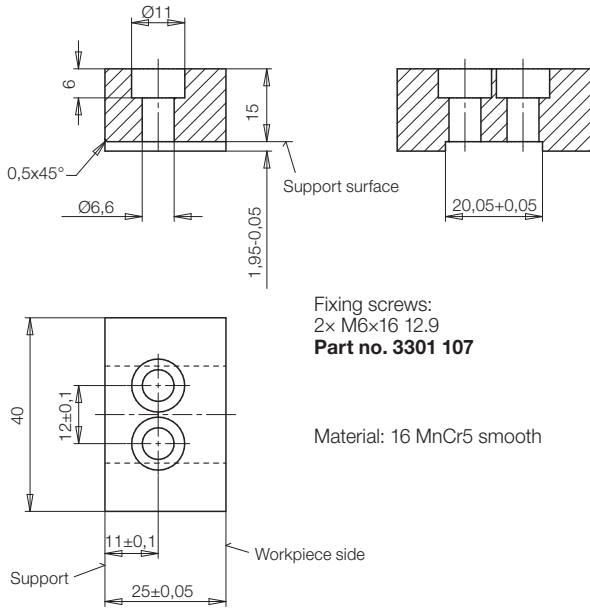
### Important note

The clamping jaws must always be supported by the provided support, since the fixing screws are not in the position to compensate for the generated clamping forces.

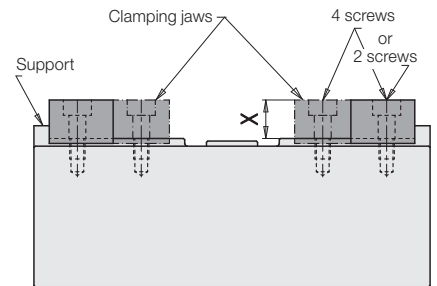
### Max. height of the clamping jaw X as a function of the operating pressure



### Clamping jaw blank 40 mm Part-no. 3548 070

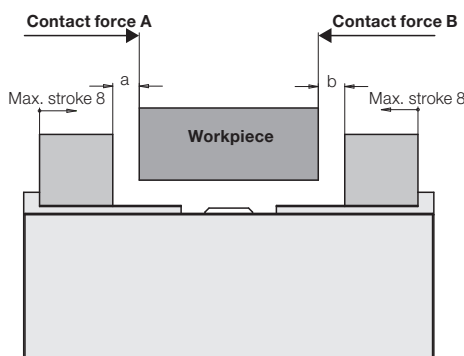


### Fixing of the clamping jaws



### Position flexible clamping

#### 1. Position of the workpiece within the clamping range



**Limit dimensions:** a max. = 7 mm  
b max. = 7 mm

#### Recommendation

Place the position flexible vise as symmetrically as possible to the workpiece, so that the clamping jaws realise approximately the same stroke and also the smallest possible stroke.

#### 2. Possible contact forces during clamping

Due to the slightly different factors of friction and an internal bracing spring the two clamping jaws do not uniformly make contact with the workpiece. One clamping jaw is always ahead. With very unstable workpieces, this can already lead to deformation. The possible contact force can be seen in the chart.

#### 3. Max. flow rate

With a max. flow rate of 17 cm<sup>3</sup>/s the clamping time is approx. 0.5 seconds.

For unstable workpieces and/or heavy clamping jaws the flow rate in the supply line should be throttled so that the clamping jaws make contact with the workpiece as "smoothly" as possible. If required, the two set screws M3 (Ø 0.7) in the ports A can be replaced.

### Contact force as a function of the stroke difference (a - b) or (b - a)

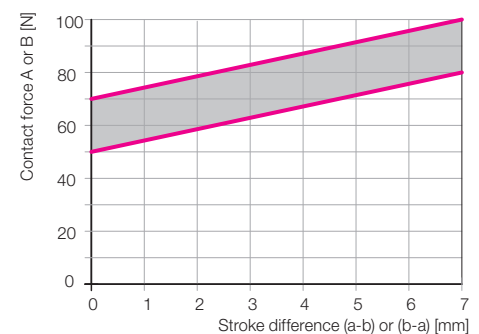


Chart valid for horizontal mounting position; for vertical arrangement, the weight of the clamping jaws must be taken into account.

