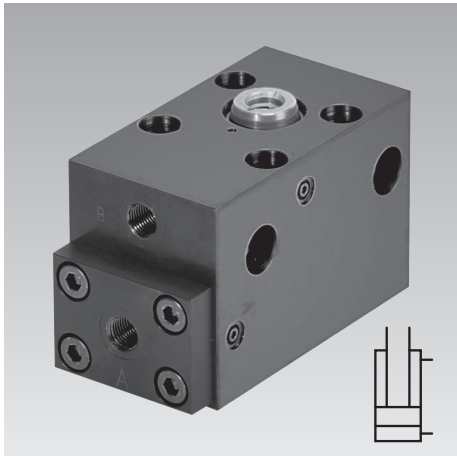




## Clamping and Supporting Element with Fail-Safe Function

double acting, max. operating pressure 300 bar



### Advantages

- Fail-safe with fail-safe function
- Clamping and supporting function in one element
- Re-clamping with hydraulic pressure
- High clamping safety also in case of sudden pressure drop
- Cushioning of vibration
- Interchangeable contact bolts
- Multiple fixing possibilities
- Oil supply optionally by fittings or through drilled channels
- FKM seals as standard
- Maintenance free

### Fail-safe function

The full clamping force is maintained both in the event of pressure drop and a complete pressure loss. This is achieved by a fail-safe, patented clamping of the clamping bolt.

### Application

The piston of traditional clamping cylinders is pushed back, if the counter force is greater than the hydraulic clamping force. This is due to the compressibility of the hydraulic oil and the expansion of hydraulic hoses.

In the case of the clamping and supporting element, this elasticity is avoided by the wedge-shaped cross piston with its fail-safe geometry – fail-safe function. Due to this, the following application possibilities exist:

- Workpieces must be firmly clamped even in case of a pressure drop in the hydraulic system
- Ribbings or webs of workpieces must be clamped by opposite clamping elements in a neutral position and then immovably locked.
- The machining forces are relatively high and directed against the clamping force
- Vibrations in the workpiece have to be cushioned

For all applications:

If the workpiece yields or the contact bolt digs deeper into the material due to machining forces or vibrations, the clamping and supporting element re-clamps provided that full clamping pressure is available.

### Important notes

- The clamping bolt is secured against torsion, but cannot absorb continuous torque during operation.
- The clamping and supporting element is not suitable for use as a pull-type cylinder.
- If the clamping and supporting element is uncoupled from the oil supply after clamping, e.g. on pallets, we recommend to install an accumulator in order to guarantee a re-clamping effect.

### Description

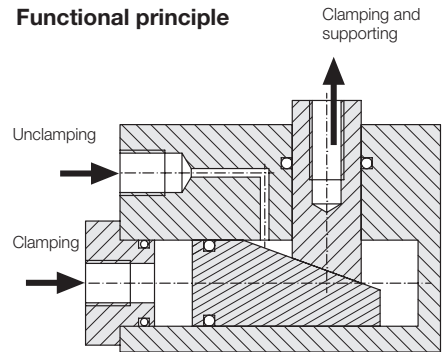
Forces that are directed against the clamping force, e.g. machining forces will be supported with negligible elasticity of the wedge-shaped piston. The counter force must not exceed the max. clamping force (see chart).

The clamping bolt is equipped with an internal thread to screw in contact bolts for height adjustment or adapted contact bolts for shape adjustment.

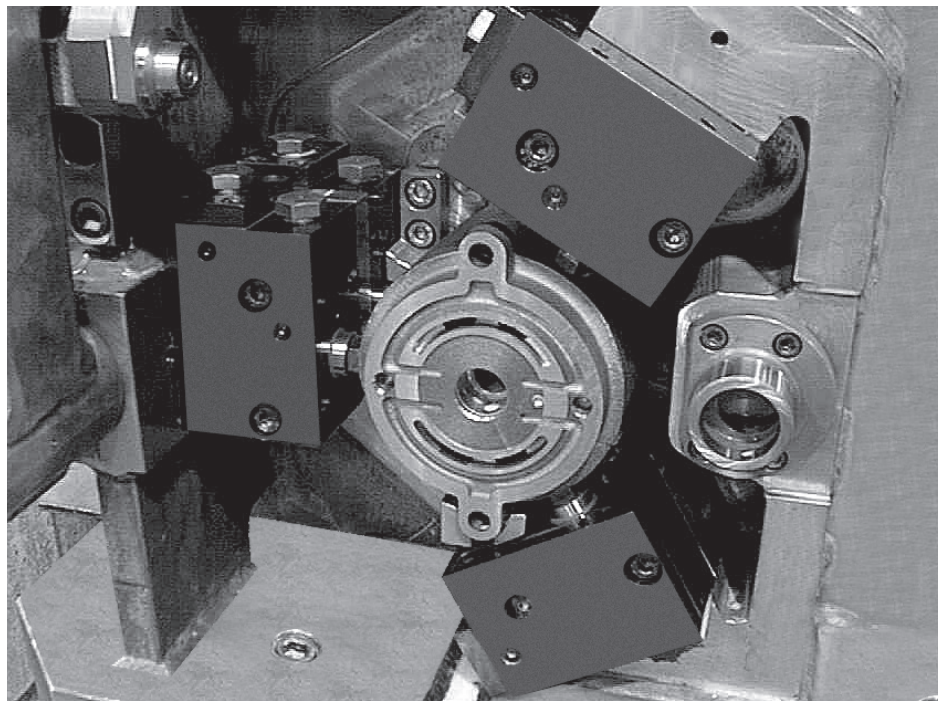
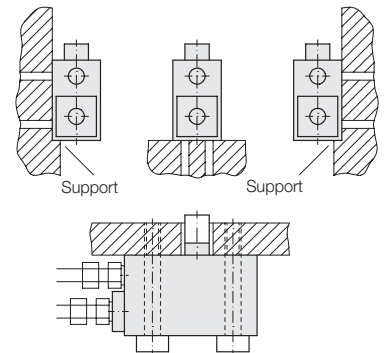
The housing allows for different fixing and connecting possibilities.

Oil supply is made at the front face with fittings or optionally through drilled channels with O-ring sealing at both sides or at the bottom.

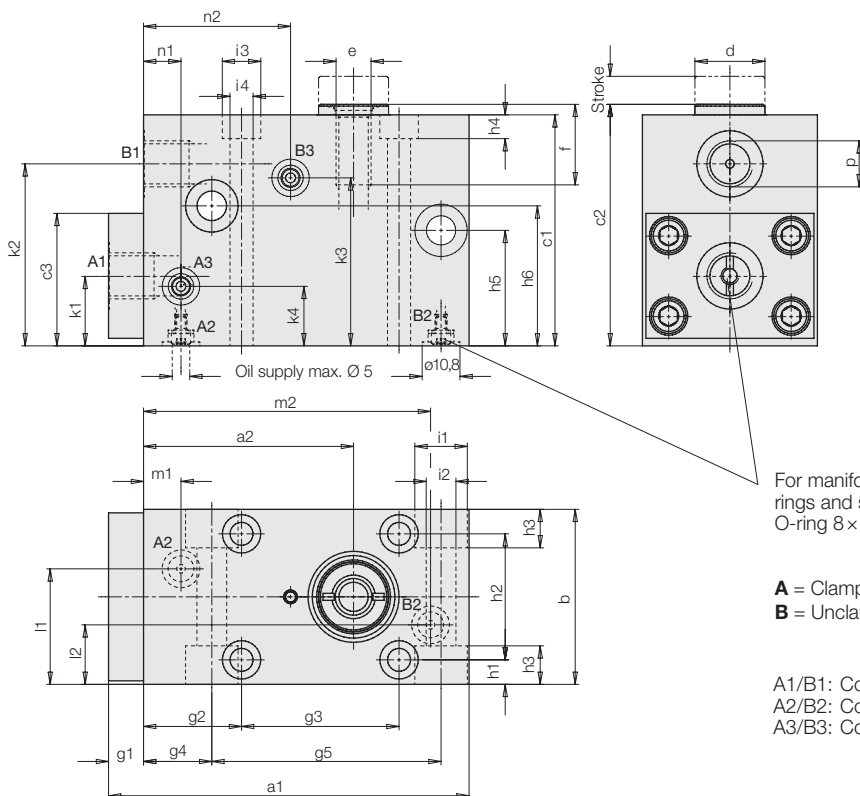
### Functional principle



### Fixing options



Operating conditions, tolerances and other data, see data sheet A 0.100.



For manifold mounting remove socket head cap screws with USIT rings and screw in 2 plugs G 1/4.  
O-ring 8 x 1.5, see accessories

**A** = Clamping  
**B** = Unclamping

A1/B1: Connection for fittings  
A2/B2: Connection with O-rings at the bottom  
A3/B3: Connection with O-rings at both sides

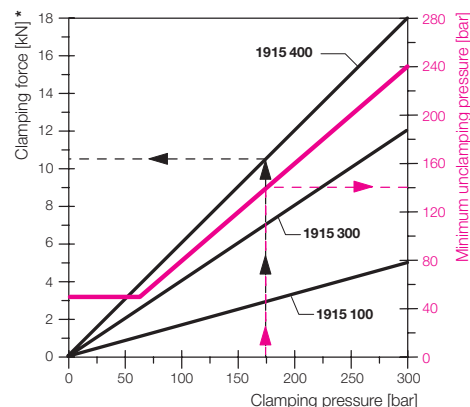
Clamping force *	[kN]	5	12	18
Max. operating pressure	[bar]	300	300	300
Oil volume, clamping	[cm <sup>3</sup> ]	2.8	10.8	26.5
Oil volume, unclamping	[cm <sup>3</sup> ]	2.2	8.3	22
Stroke	[mm]	5	8	12
a1	[mm]	85	103	127
a2	[mm]	47.2	60	71
b	[mm]	40	50	64
c1	[mm]	45	66	78
c2	[mm]	48	69	81
c3	[mm]	45	37.9	47.5
Ø d	[mm]	12	20	22
e	[mm]	M5	M10	M12
f	[mm]	10	23	24
g1	[mm]	15	10	12
g2	[mm]	24.5	28	41
g3	[mm]	39	45	44
g4	[mm]	24.5	28	26
g5	[mm]	39	57	75
h1	[mm]	6.5	7	9
h2	[mm]	27	36	46
h3	[mm]	11.5	11	11
h4	[mm]	12	6.8	9
h5	[mm]	38.5	40	52
h6	[mm]	8	40	52
Ø i1	[mm]	10.5	15	18
Ø i2	[mm]	6.5	8.5	10.5
Ø i3	[mm]	9.5	11	15
Ø i4	[mm]	5.5	6.6	8.5
k1	[mm]	18	20	25
k2	[mm]	36.5	52	64
k3	[mm]	10	52	64
k4	[mm]	22	20	25
l1	[mm]	25	33	40
l2	[mm]	16	17	24
m1	[mm]	9.7	10.7	10.7
m2	[mm]	60.5	85	105.5
n1	[mm]	9.7	10.7	10.7
n2	[mm]	44.2	42	52
P		G1/8*	G1/4	G1/4

\* Use fitting DL6 DIN 2353

Part no.	1915 100	1915 300	1915 400
<b>Accessories</b> (not included in the delivery)			
O-ring (FKM) 8 x 1.5	3000275	3000275	3000275
Screw plug	3610047	3300821	3300821
Alternative			
Plug (flush screwable)	0361986	0361987	0361987
Contact bolt	3614027	3614002	3614028

Operating conditions, tolerances and other data, see data sheet A 0.100.

### Clamping force and unclamping pressure



#### Example:

Clamping and supporting element 1915 400  
Clamping pressure 175 bar  
Clamping force 10.5 kN  
Min. unclamping pressure 140 bar

#### \* Important note

With the wedge principle, the effective clamping force depends on the friction of the sliding surfaces. After several thousand operations with load, a smoothing of these sliding surfaces can be noticed. This considerably reduces the friction coefficient and can increase the clamping force up to 75 %. Therefore the indicated clamping forces are minimum values. For unclamping the fail-safe function of the wedge clamping must be overcome. That is the reason the minimum unclamping pressure must be at least 80 % of the applied clamping pressure.

Product available on request