



News 2018 Hydraulic Clamping Systems

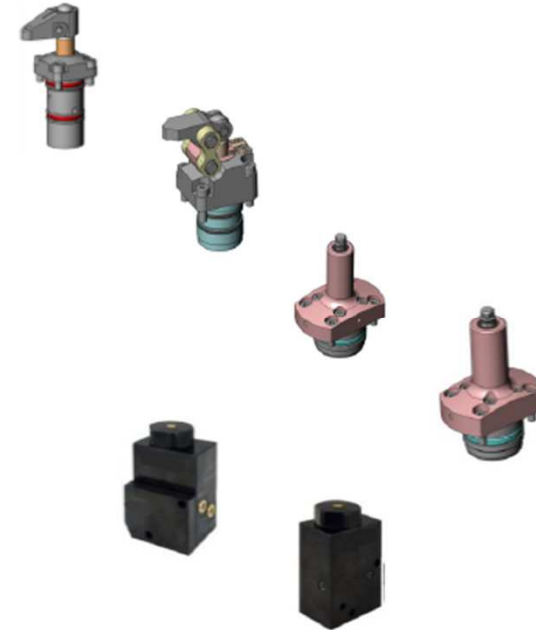
Marco Lechnitz



> Agenda

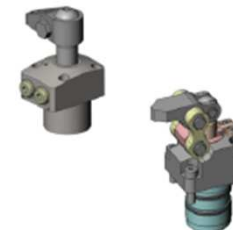
➤ NEWS High-Pressure Clamping Technology

- > Swing Clamp 6952CP
- > Vertical Clamp with linear stroke 6958C
- > Bore Clamp 6970CD for hole Ø
- > Bore Clamp 6970CD for hole Ø
- > Delay Valve



➤ NEWS Low Pressure Clamping Technology

- > Swing Clamp 6941KP
- > Vertical Clamp with linear stroke 6943C



➤ Catalogue Product-modifications

> Swing clamp 6952CP

6952CP Swing clamp, plug-in design

double acting

Operating pressure: min . 30 bar
 max. 350 bar

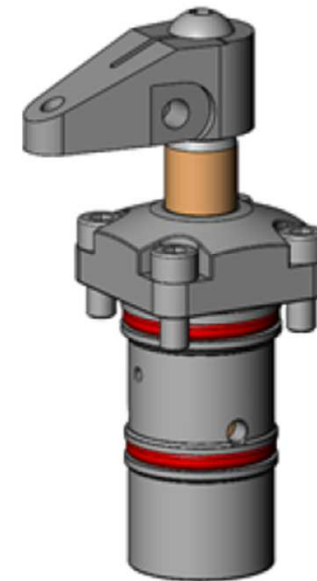
Sizes: 3

max. clamping force: 6952CD-06-21+22 6,0 kN
 6952CD-08-21+22 8,5 kN
 6952CD-15-21+22 15.0 kN

Clamping forces with
 clamping arm, standard

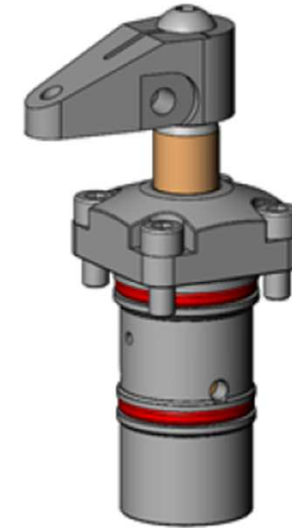
3 steel balls assures the **swing action**

Oil supply: via oil channels in device body



> Swing clamp 6952CP

6951 Clamping arm for 6952CP



Clamping arms for swing clamp 6952CP

The clamping arms are the same as for swing clamp 6951

For size 08 and 15 are a new version design



> Vertical clamp with linear stroke 6958C

6958C-XX Vertikal clamp, with linear stroke

High pressure, double acting,

Operating pressure: min. 40 bar
max. 250 bar

Sizes: 2 planned 4 sizes

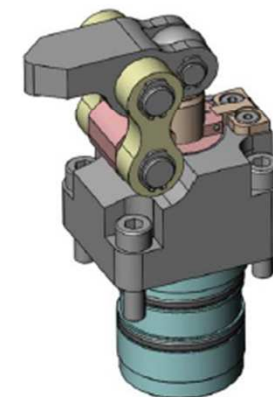
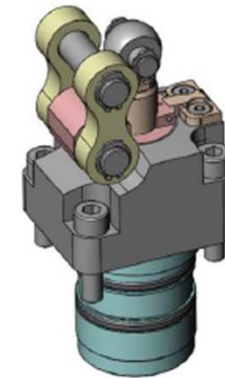
Clamping force:	6958C-03	2,7 kN
	6958C-04	4,5 kN

Clamping forces with standard clamping arm

Linear stroke:	6958C-03	6,0 mm
	6958C-04	6,0 mm

Q max.	6958C-03	0,5 l/min
Volumenstrom:	6958C-04	0,9 l/min

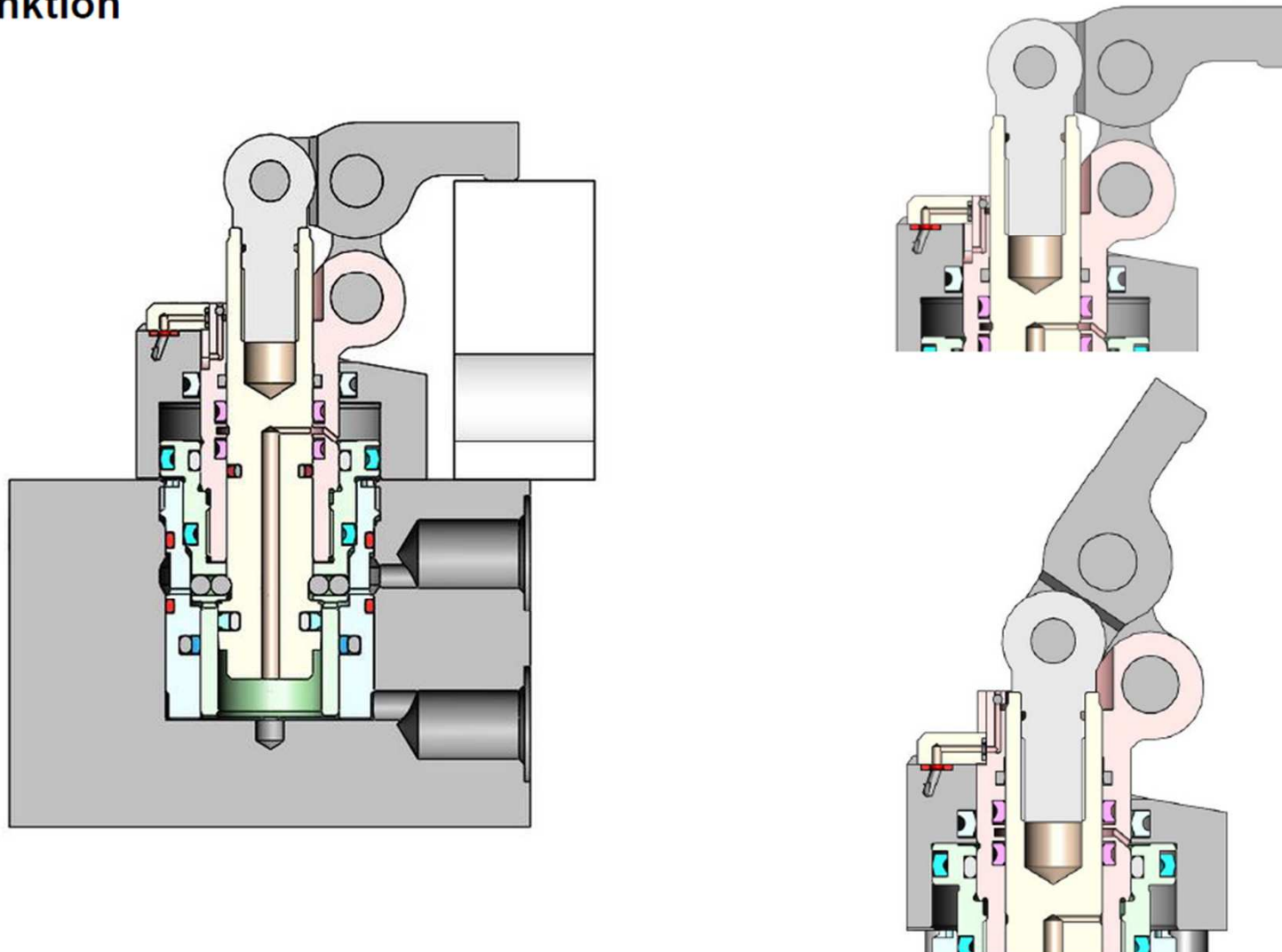
Oil supply: via oil channels in device body





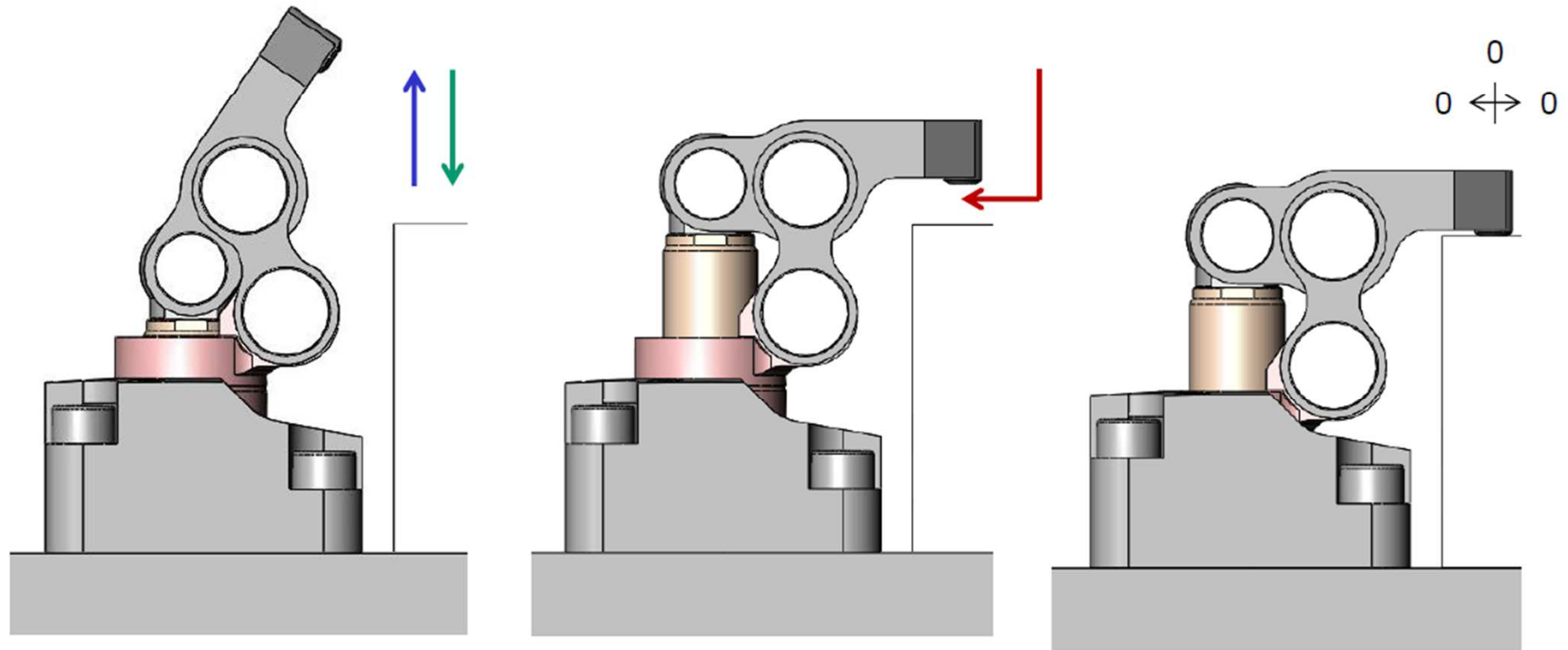
> Vertical clamp with linear stroke 6958C

Funktion



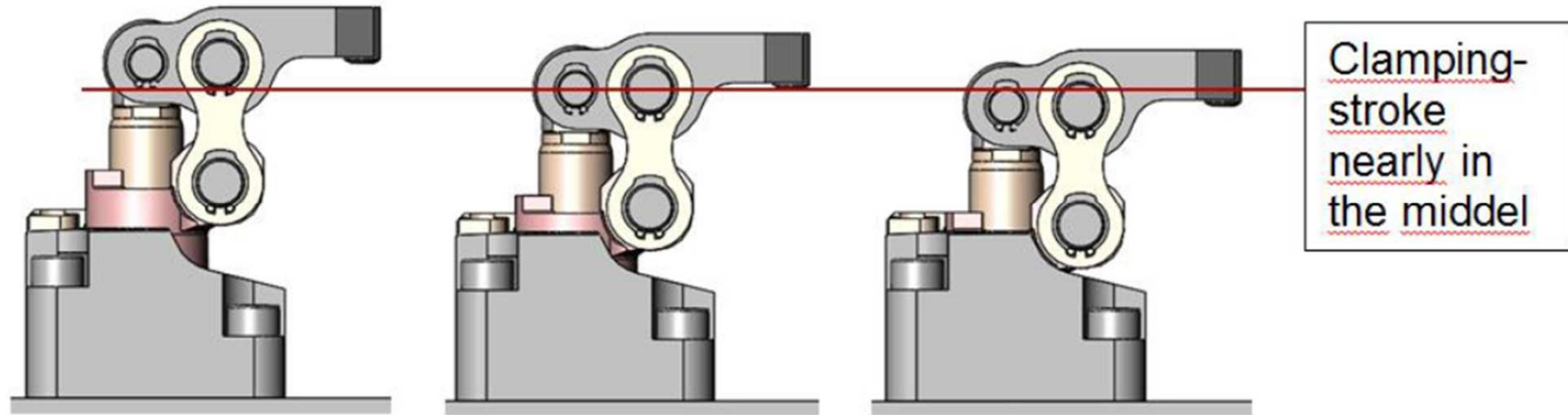


> Vertical clamp with linear stroke 6958C





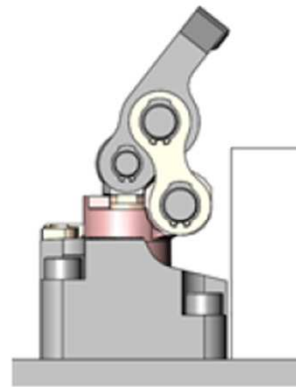
> Vertical clamp with linear stroke 6958C



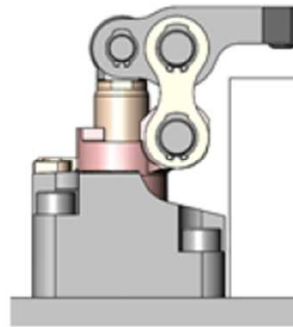


> Vertical clamp with linear stroke 6958C

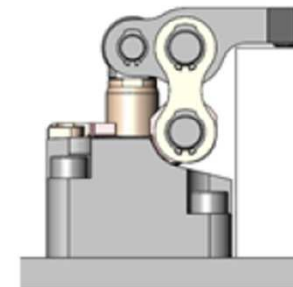
Hydraulic and Air Connections



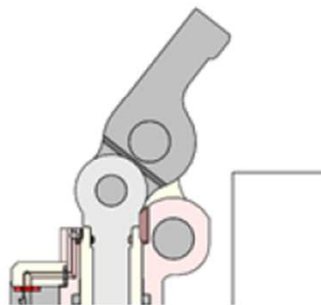
unclamp



closed

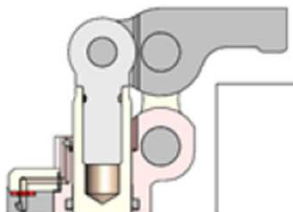


clamped

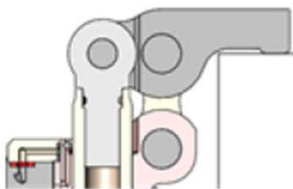


Dynamic pressure monitoring

Air nozzle is open
unclamped



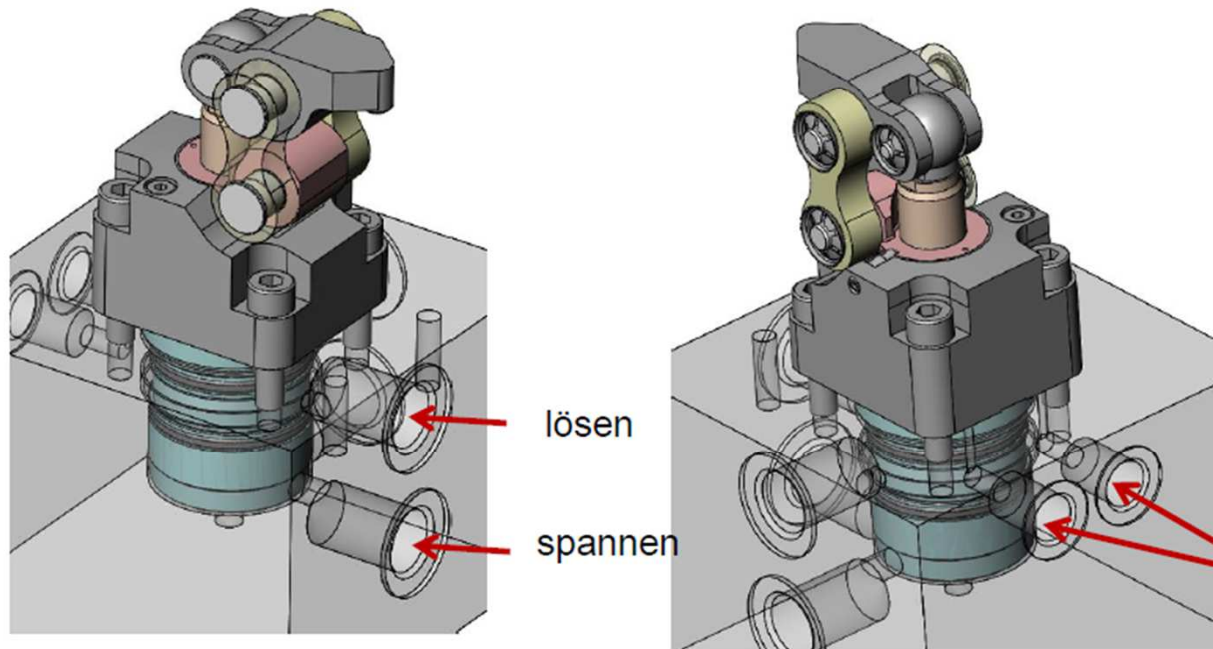
Air nozzle is blocked
clamped



Air nozzle is blocked
clamped

> Vertical clamp with linear stroke 6958C

Hydraulic and Air Connections



Hydraulic-connections

Air-connections

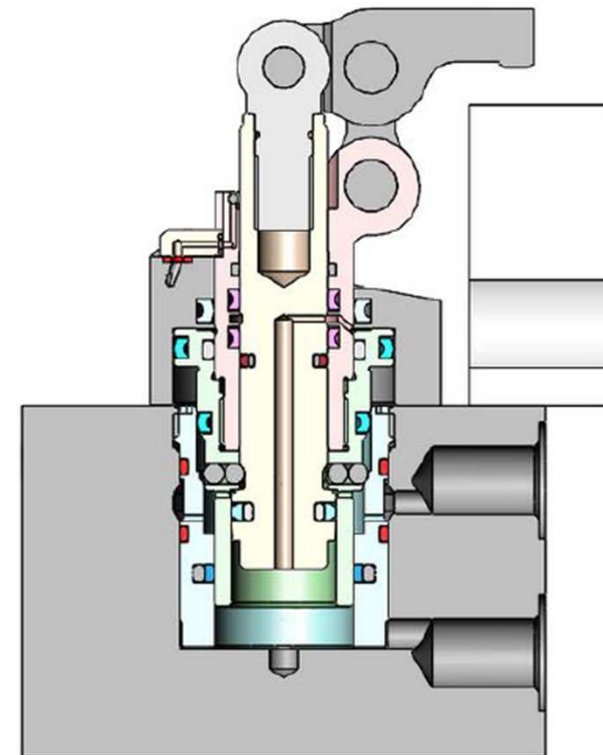
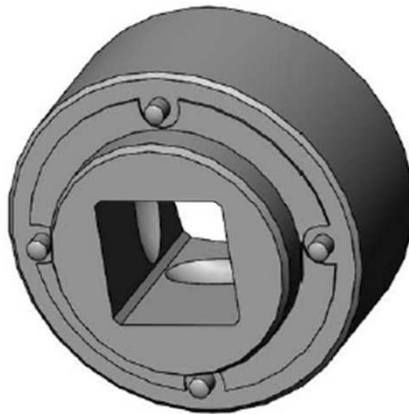


> Vertical clamp with linear stroke 6958C

Montage:

First you must turn into the fixture body a hardend sleeve.
You need therefore a special tool.

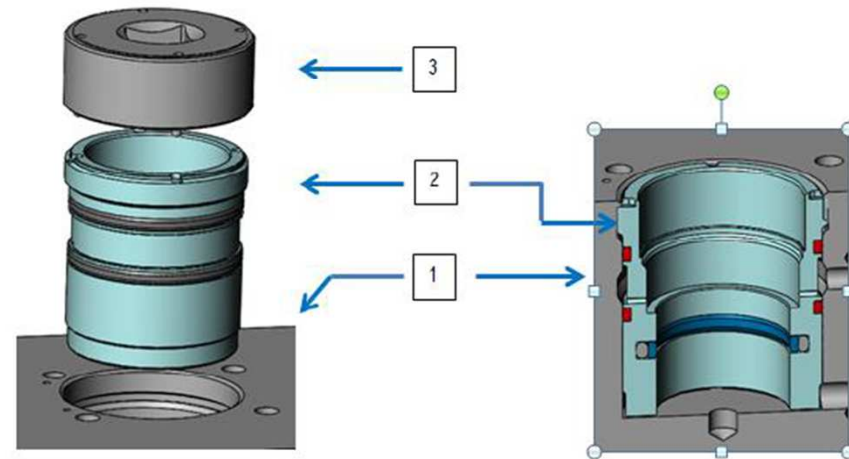
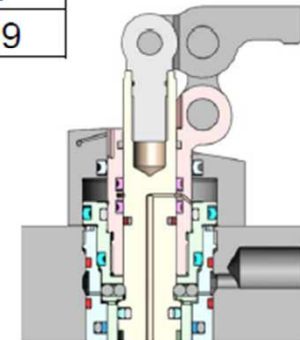
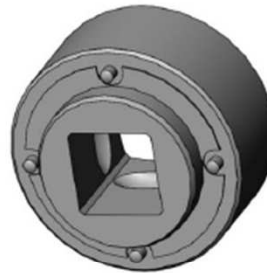
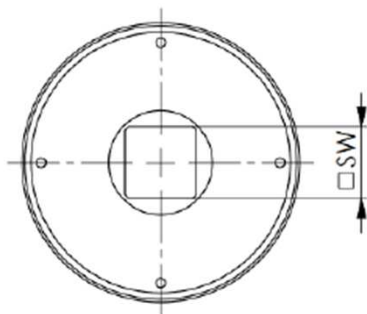
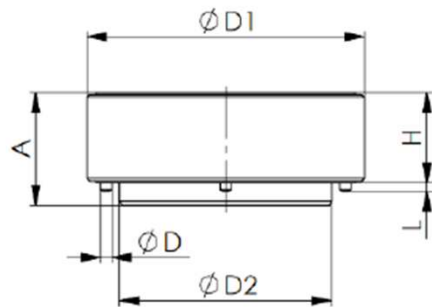
Please take a Torque wrench to screw in the sleeve.



> Screw-in tool for 6958C

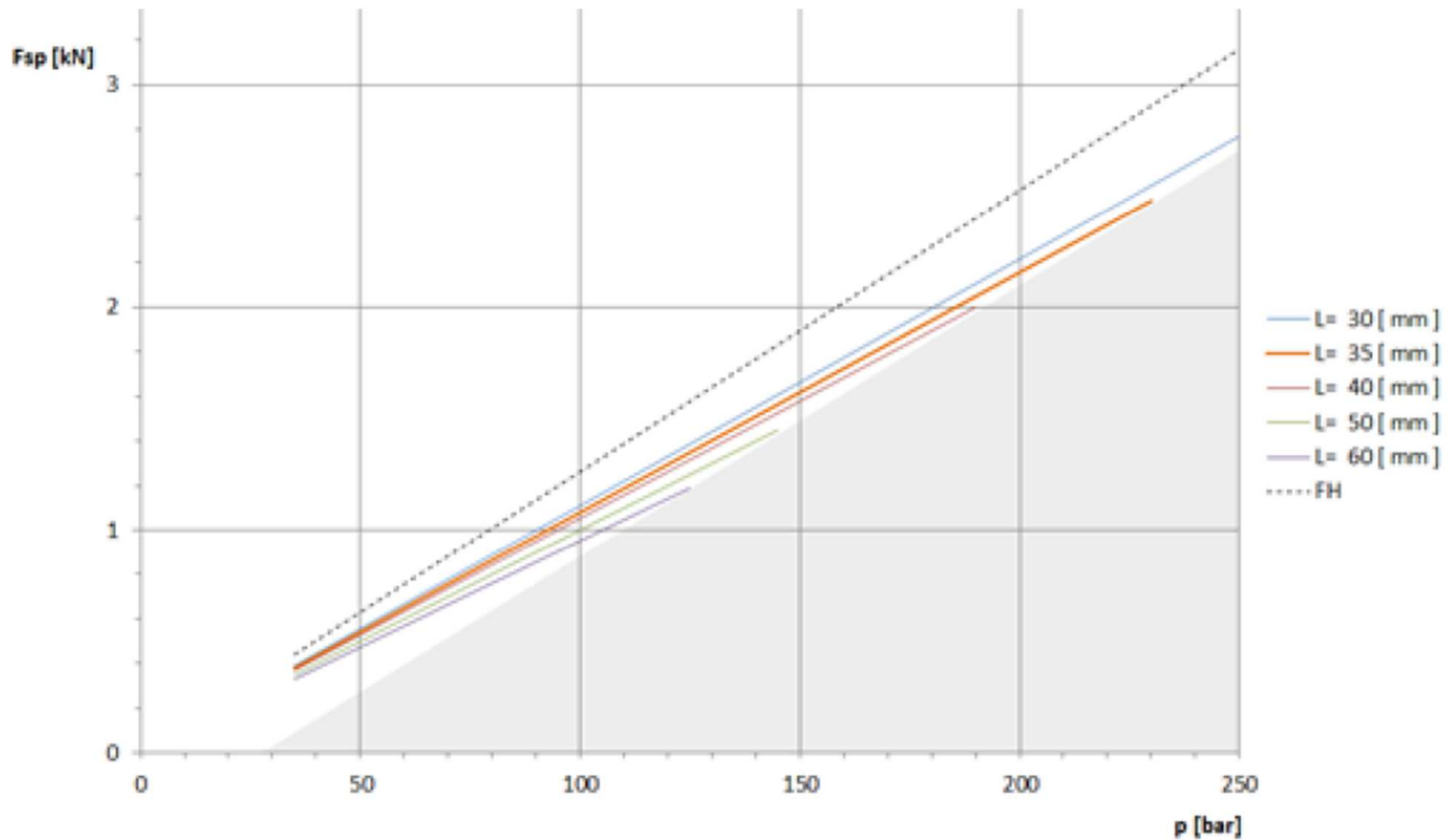
6958C-110-XX Screw-in tool

order no.	Article no.	for size	SW	A	ØD	ØD1	ØD2	H	L	Md max.	Weight
			[Zoll]							[Nm]	[g]
557875	6958C-110-03	03	1/2	20	2	35	23,9	16	1,5	25	96
557876	6958C-110-04	04	1/2	20	2	39,5	29,9	16	1,5	25	129



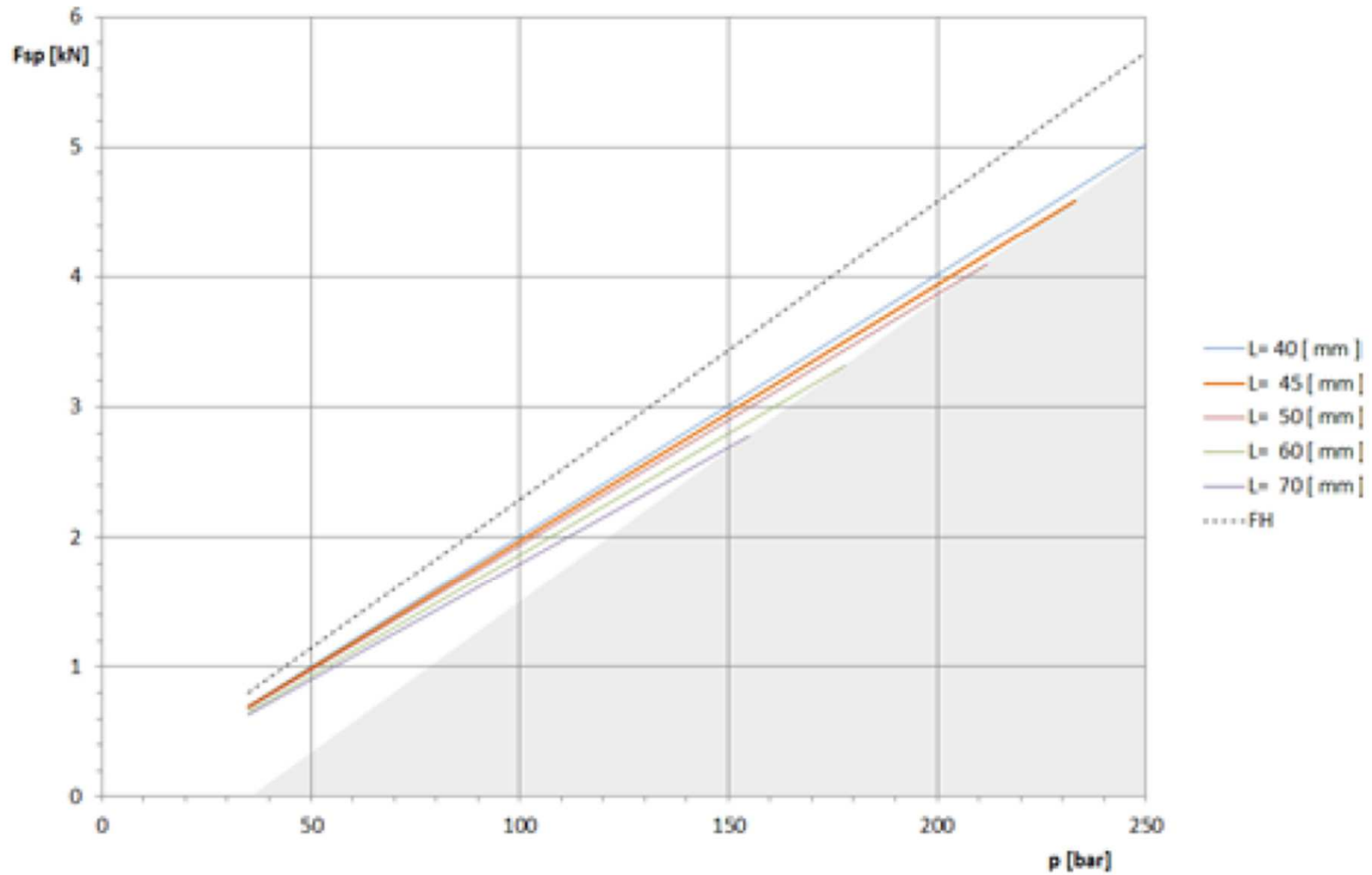


> Vertical clamp with linear stroke 6958C-03





> Vertical clamp with linear stroke 6958C-04





> Bore clamp 6970CD

6970CD Bore clamp

double acting,

Operating pressure: min. 40 bar
 max. 100 bar / 150 bar

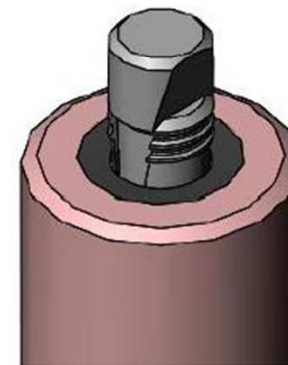
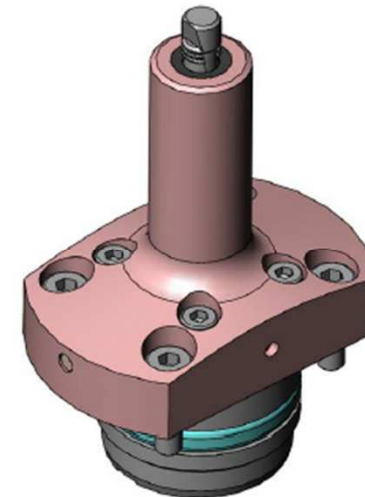
Sizes: 4
 with **two** clamping sleeve segments

Bore diameter Ø: 5,2 – 7,7 mm

Traction by 100 bar: 2,76 kN

Oil supply: via oil channels in device body

Support control: pneumatic



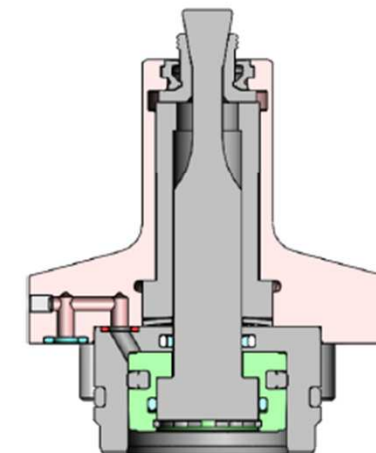
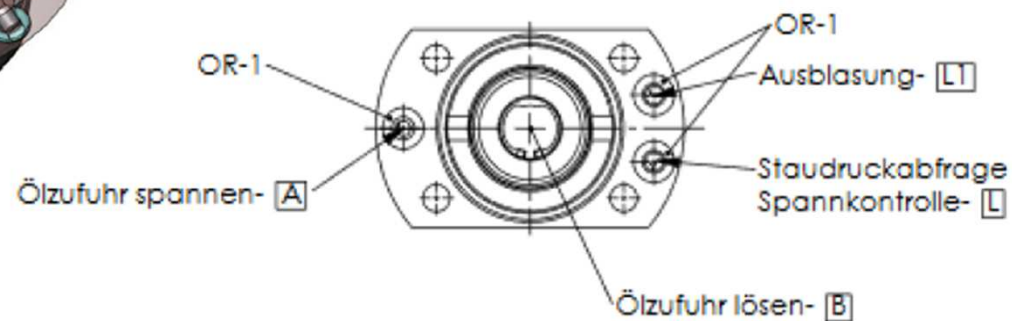
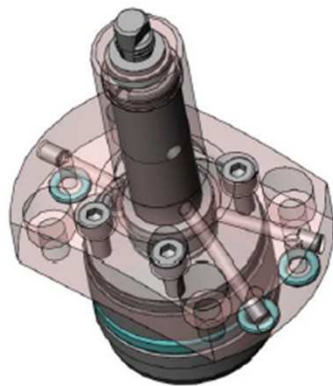
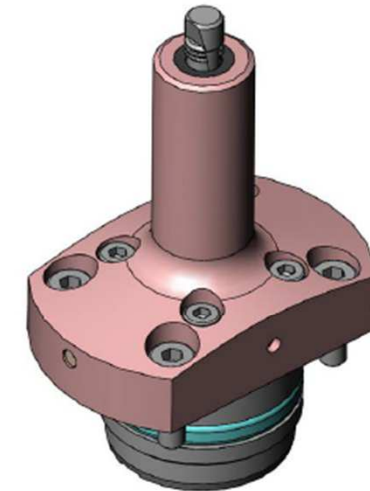


> Bore clamp 6970CD

Features:

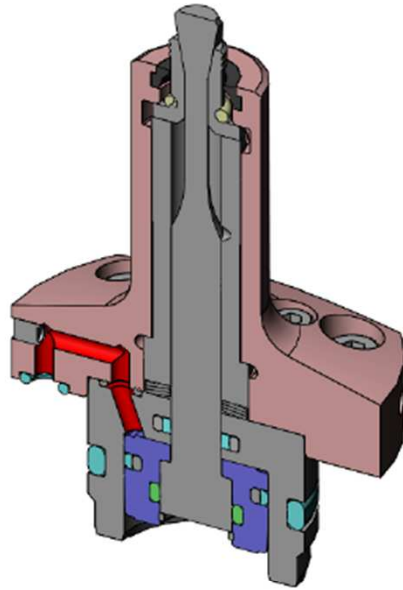
The integrated air connection L1 is for cleaning the clamping area. The blow-off can also be used as a mount check for blind holes.

The integrated air connection L is for clamping control, the pull-down movement opens the passage of a compressed air hole, thereby creating a pressure drop of approx. 2 bar, which can be evaluated as a clamping control.

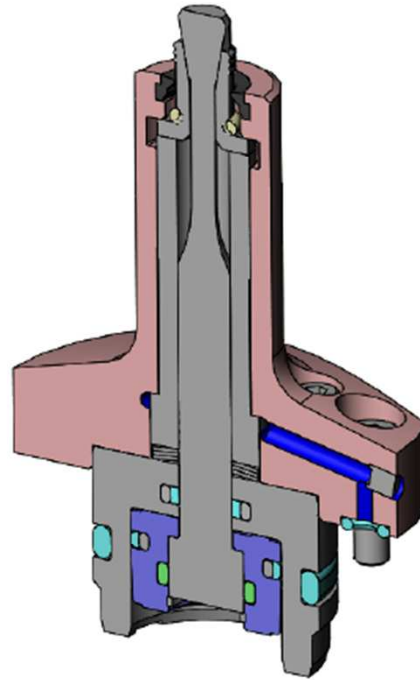




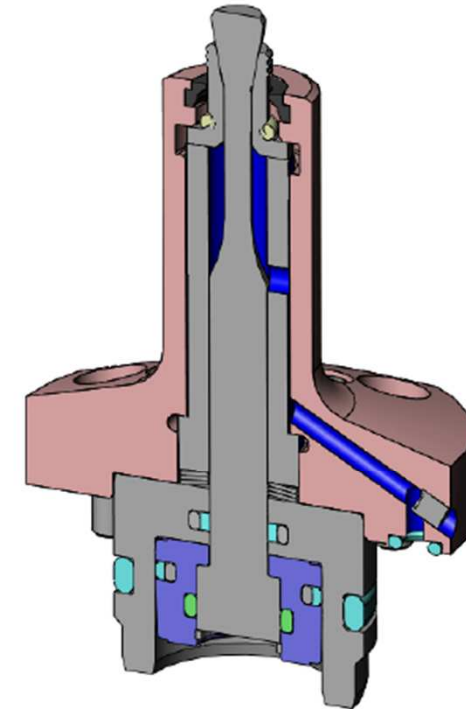
> Bore clamp 6970CD



Hydraulic-Clamping line



Clamping control



Blow out



> Bore clamp 6970CD

6970CD Bore clamp

double acting

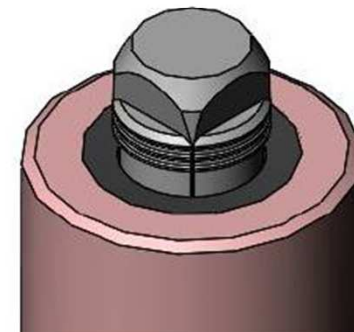
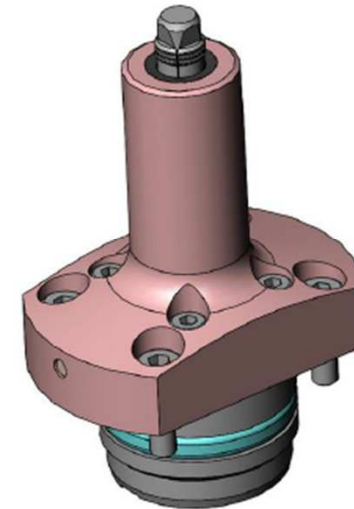
Operating pressure: min. 40 bar
 max. 150 bar

Size: 6
 with **four** clamping sleeve
 segments

Traction by 100 bar : 2,76 kN
 4,40 kN
 5,00 kN

Oil supply: via oil channels in device body

Support control: pneumatic

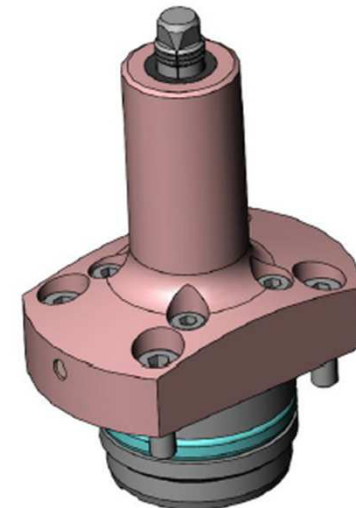
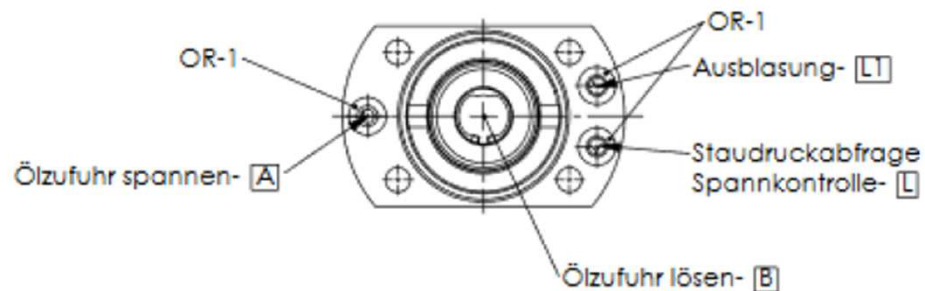


> Bore clamp 6970CD

Features:

The integrated air connection L1 is for cleaning the clamping area. The blow-off can also be used as a mount check for blind holes.

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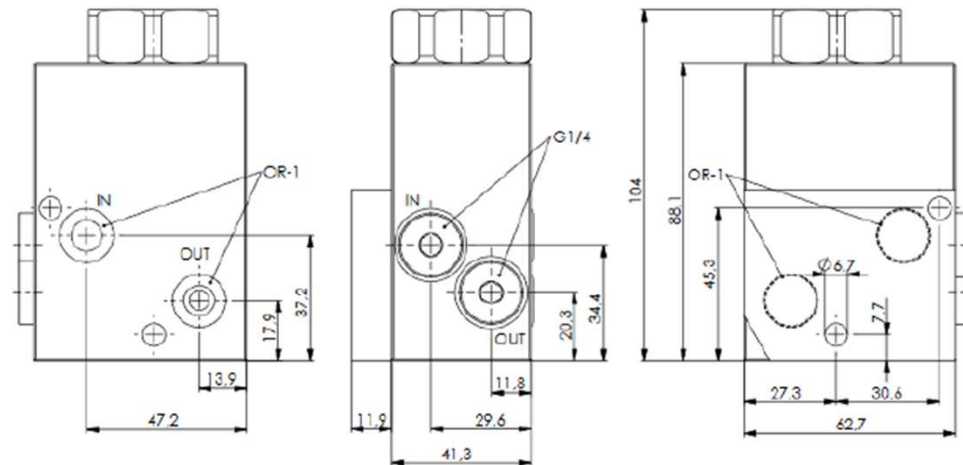
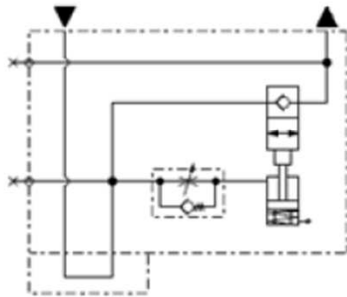
> Delay Valve for releasing clamping circuit 6918-100

6918-100 Delay Valve for releasing clamping circuit
for O-ring connection

Operating pressure: min. 30 bar
max. 350 bar

Size: 1

Oil connection: oil channels
in device body



Order no.	Articel no.	Delay setting range [sec]	Q max. [l/min]	Filtration [µm]	OR-1 O-Ring Order no.	Weight [g]
556992	6918-100	3-7	11,4	25	474429	1970



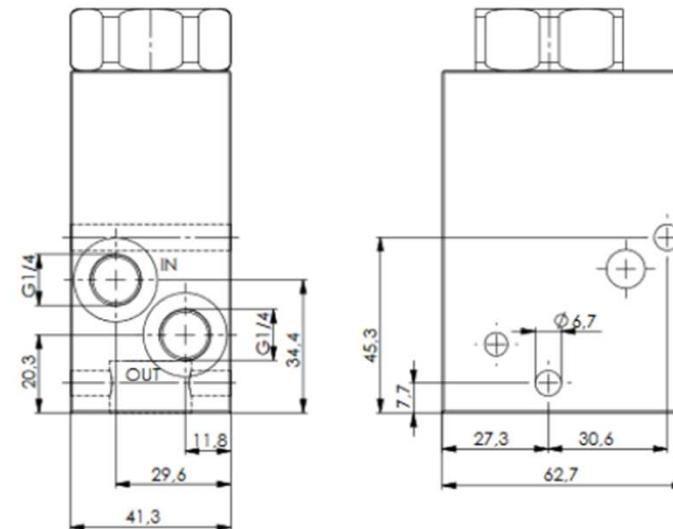
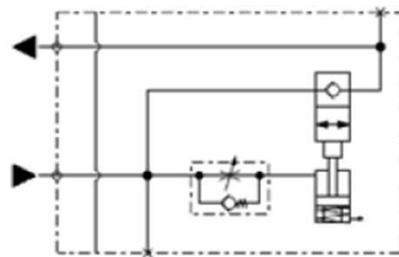
> Delay Valve for releasing clamping circuit 6918-110

6918-110 Delay Valve for releasing clamping circuit
for pipeline connection

Operating pressure: min. 30 bar
 max. 350 bar

Size: 1

Oil connection: Pipeline connection



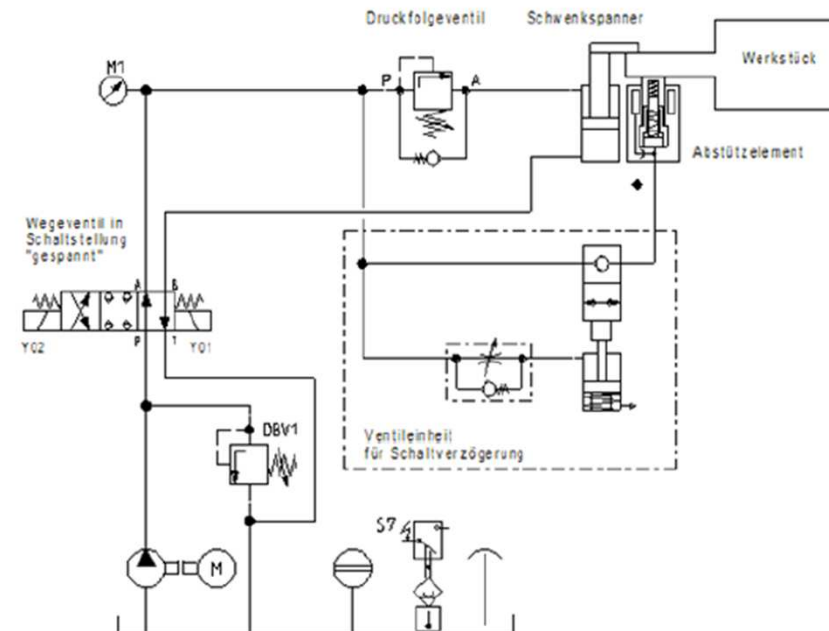
Order no.	Articel no.	Delay setting range	Q max.	Filteration	Weight
		[sec]	[l/min]	[µm]	[g]
556993	6918-110	3-7	11,4	25	1700



> Delay Valve for releasing clamping circuit

Functional description clamping

- Step 1 : The directional valve switches to clamping
- Step 2 : The delay valve is freely flowed through
The support element attaches and clamped on the workpiece
- Step 3 : The pressure sequence valve before the swing clamp above that support element opens. The workpiece is clamped over the support element.
- Step 4 : The workpiece machining takes place.



> Delay Valve for releasing clamping circuit

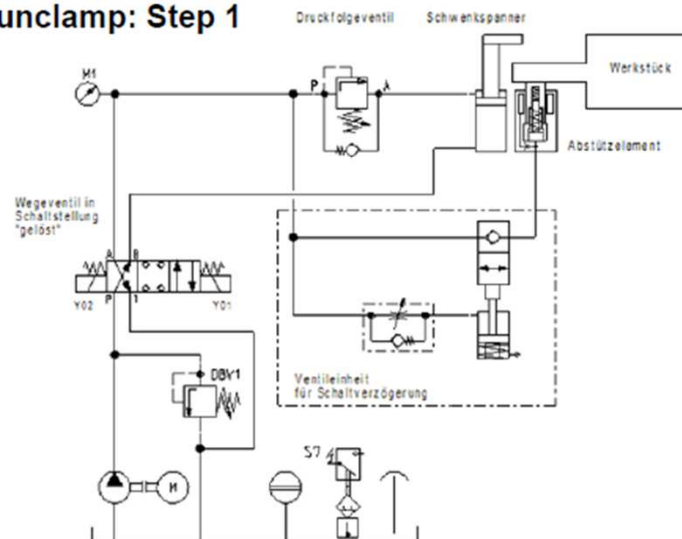
Functional description for unclamping

The directional control valve switches to release. The swing clamp is pressure-free. The delay valve delays the pressure reduction on the support element.

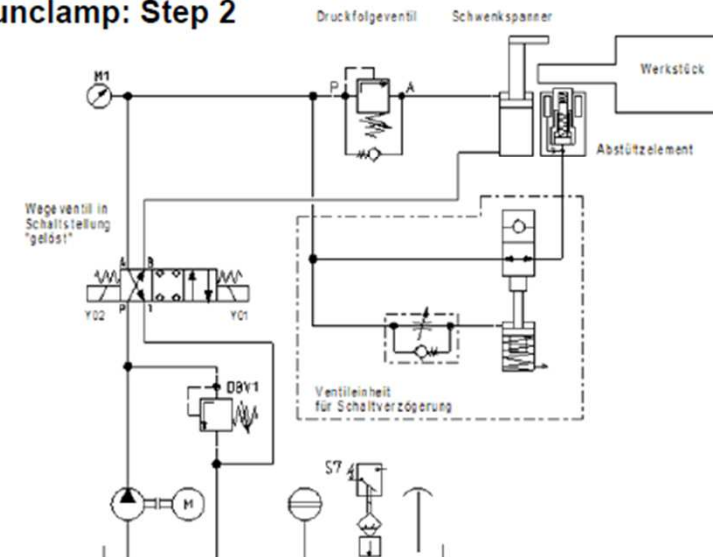
Pressing through the support element is prevented

The support element is on the release process protected by swing clamp against overload. The delay valve ensures, that the pressure on the swing clamp take down before the pressure on the support element.

unclamp: Step 1



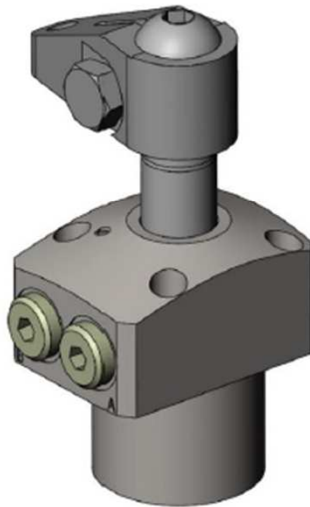
unclamp: Step 2



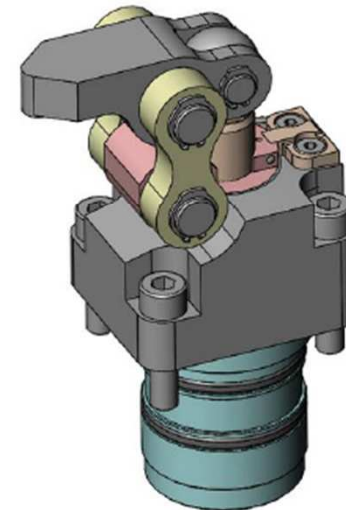


> Hydraulic low-pressure clamping elements

**6941KP Swing clamp
double acting**



**6943C Vertical Clamp, with linear stroke
double acting**



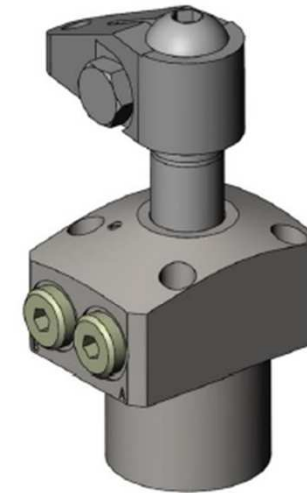
> Swing clamp 6941KP

**6941KP-XX-XX Swing clamp,
low pressure, double acting**

Operating pressure: min. 20 bar
 max. 100 bar

Sizes: 3
 planned 5 sizes

max. clamping force:	6941KP-03-31+22	3,3 kN
	6941KP-04-21+22	4,5 kN
	6941KP-05-21+22	5,5 kN
	6941KP-09-21+22	9,2 kN
	6941KP-11-21+22	11,0 kN



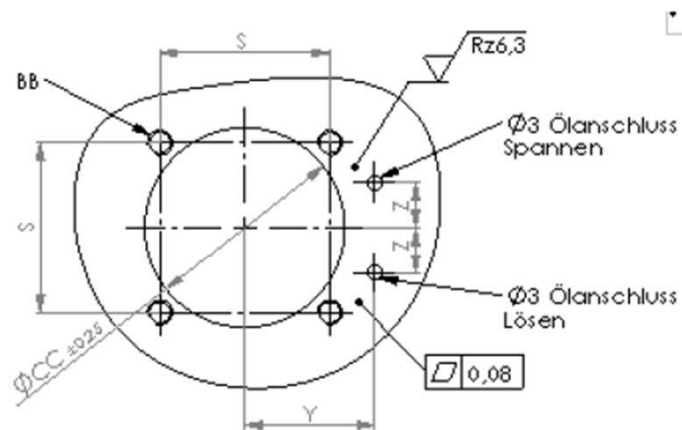
3 steel balls assures the **swing action**

Oil supply: via oil channels in device body
 or via threaded port

> Swing clamp 6941KP

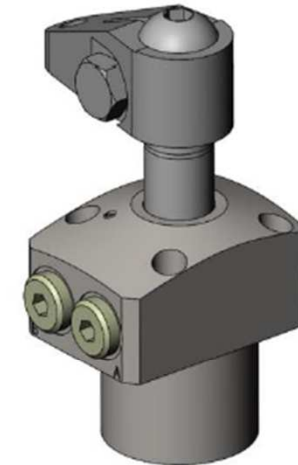
Installations dimensions:

Order no.	Articel no.	S	Z	BB	ØCC ±0,25	Y
556960	6941KP-03-21	31,4	8,5	M4	36,5	23,5
556961	6941KP-03-22	31,4	8,5	M4	36,5	23,5
556962	6941KP-04-21	34	9	M5	40,5	26
556963	6941KP-04-22	34	9	M5	40,5	26
556964	6941KP-05-21	40	11	M5	48,5	30
556965	6941KP-05-22	40	11	M5	48,5	30



Clamping arms for swing clamp 6941KP

The clamping arms are the same as for swing clamp 6951
For size 04 are a new version design

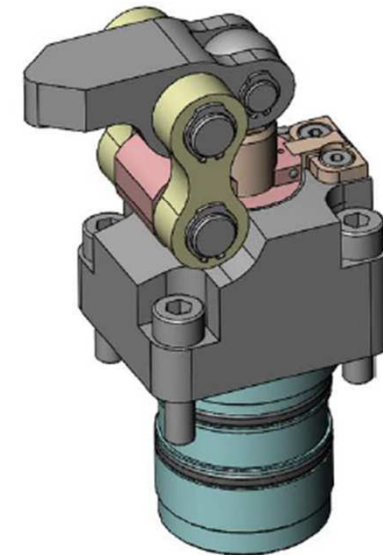


> Vertical Clamp with linear stroke 6943C

6943C-XX Vertical Clamp with linear stroke

Low pressure, double acting

Operating pressure:	min. 30 bar	
	max. 100 bar	
Sizes:	2	
	planned 4 sizes	
Clamping force:	6943C-03	2,45 kN
	6943C-04	4,20 kN
Linear stroke:	6943C-03	6,0 mm
	6943C-04	6,0 mm
Oil supply:	via oil channels in device body	





> Information

- **Alternations**
- Swing clamp 6952EP
- Sequence valve 6918-80-10

> Swing clamp 6952EP

No. 6952EP

Swing clamp, cartridge flange, precision design

double acting,
max. operating pressure 350 bar,
min. operating pressure 40 bar.



Order no.	Article no.	Clamping force at 350 bar Sp* [kN]	Vol. Sp [cm ³]	Vol. Lo [cm ³]	eff. piston area Sp [cm ²]	eff. piston area Lo [cm ²]	Md max. [Nm]	Clamping stroke M [mm]	Total stroke N [mm]	Q max. **	Weight [g]
554491	6952EP-02-21	2	0,92	2,46	0,63	1,7	100	6	14,5	0,165	370
554492	6952EP-02-22	2	0,92	2,46	0,63	1,7	100	6	14,5	0,165	370

Sp = clamping, Lo = unclamp

* Clamping task with clamping arm, standard

**Qmax. with clamping arm, standard



> Sequence valve 6918-18-80

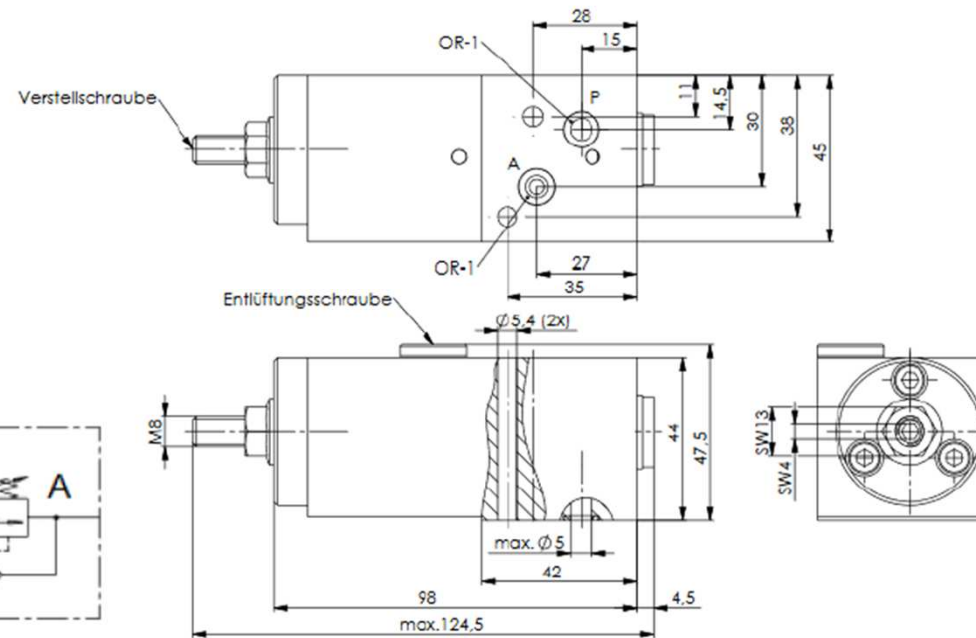
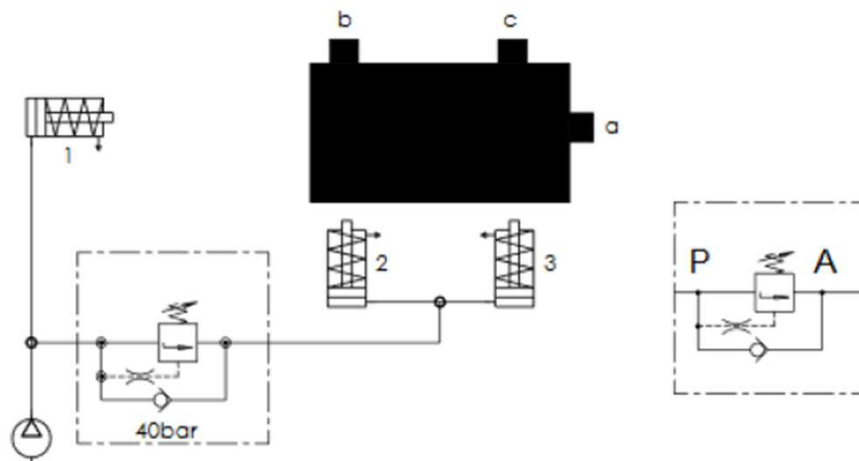
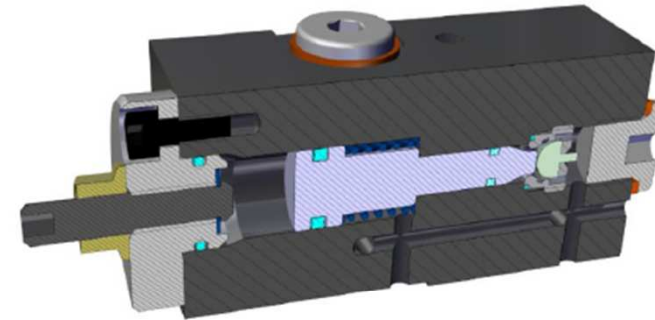
6918-80-10 Sequence valve Pressure time delayed

Operating pressure: min. 40 bar
max. 250 bar

Size: 1

Delay setting range: 0-10 seconds

inlet pressure = outlet pressure



> Sequence valve 6918-18-80

Design:

Sequence valve with NG 6. Hole pattern not standard.

The valve mainly consists of the housing, hydraulic piston, opening valve, throttle screw for coarse adjustment and the throttle screw for find adjustment.

Oil supply takes place through drilled channels in the clamping device.

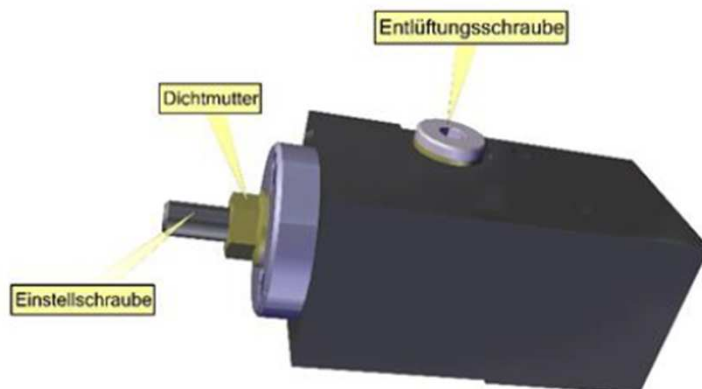
Application:

With this sequence valve with timer, pressure-independent switching sequences with a defined adjustable delay within a circuit can be achieved.

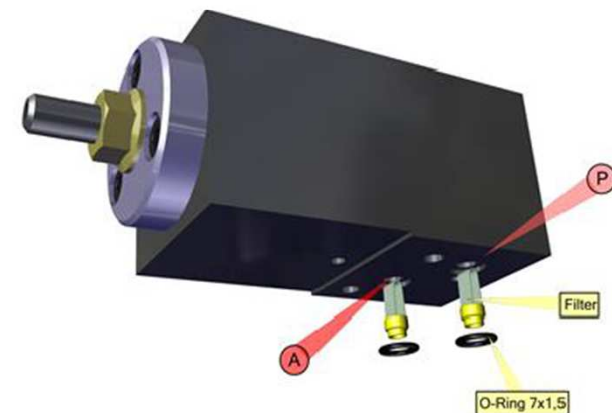
Features:

The compact shape makes it easier to mount on the clamping device. The hydraulic piston actuates the opening valve.

Setting depends on the viscosity of the hydraulic oil. Viscosity depends on the pressure and temperature. The setting is valid for an operating mode.



Vent screw
hexagon nut
Adjusting screw





■ > Thank you!

Danke für Ihre Aufmerksamkeit.

Tack. Merci beaucoup. Thank you. ¡muchas gracias!

Grazie. Dziękujemy. Спасибо. *Tak.* Bedankt.

**Für Fragen und Anregungen stehe ich
natürlich gerne zur Verfügung ...**