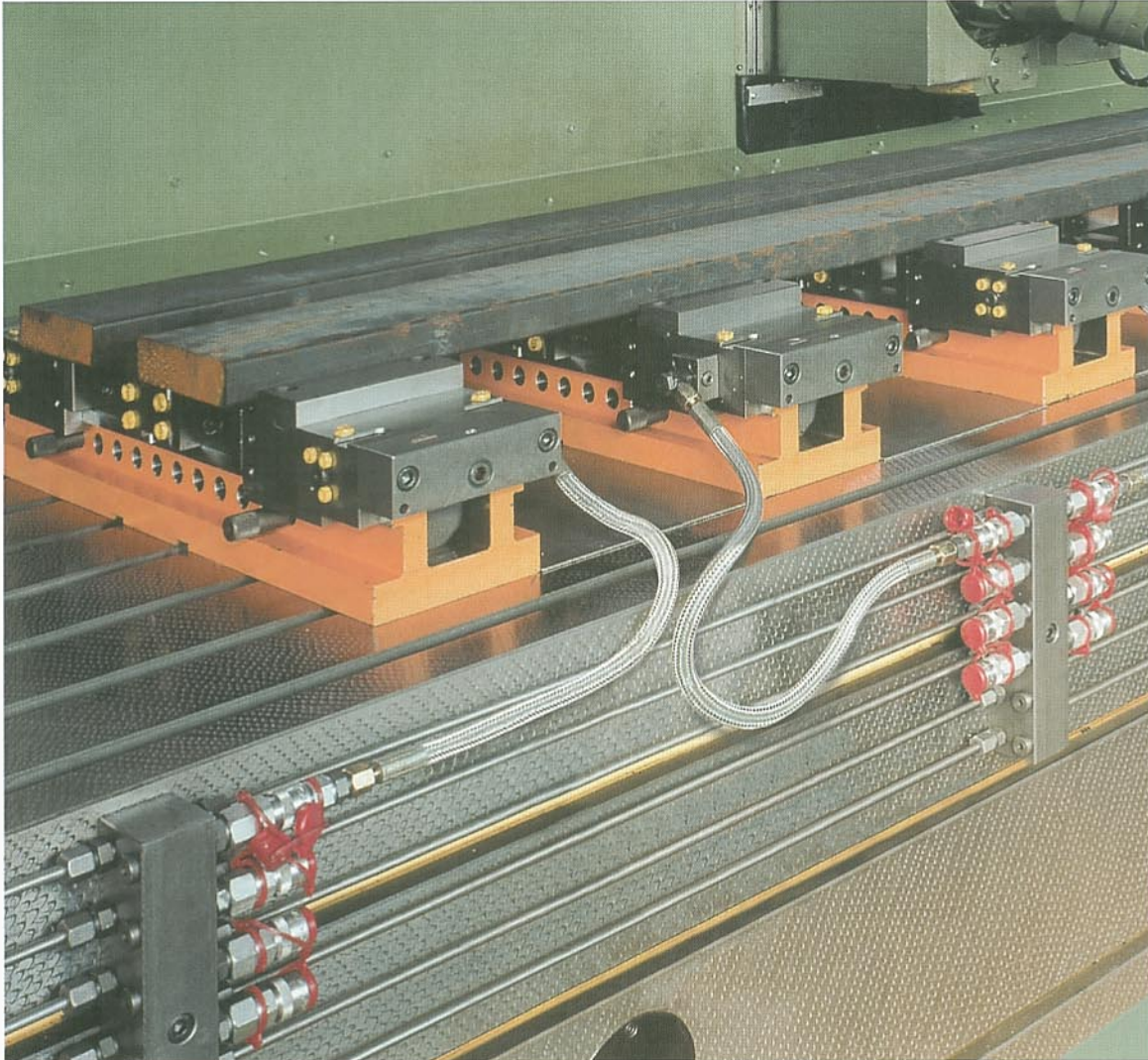


Accessories, hydraulic



Installation and commissioning of hydraulically operated machine vices.

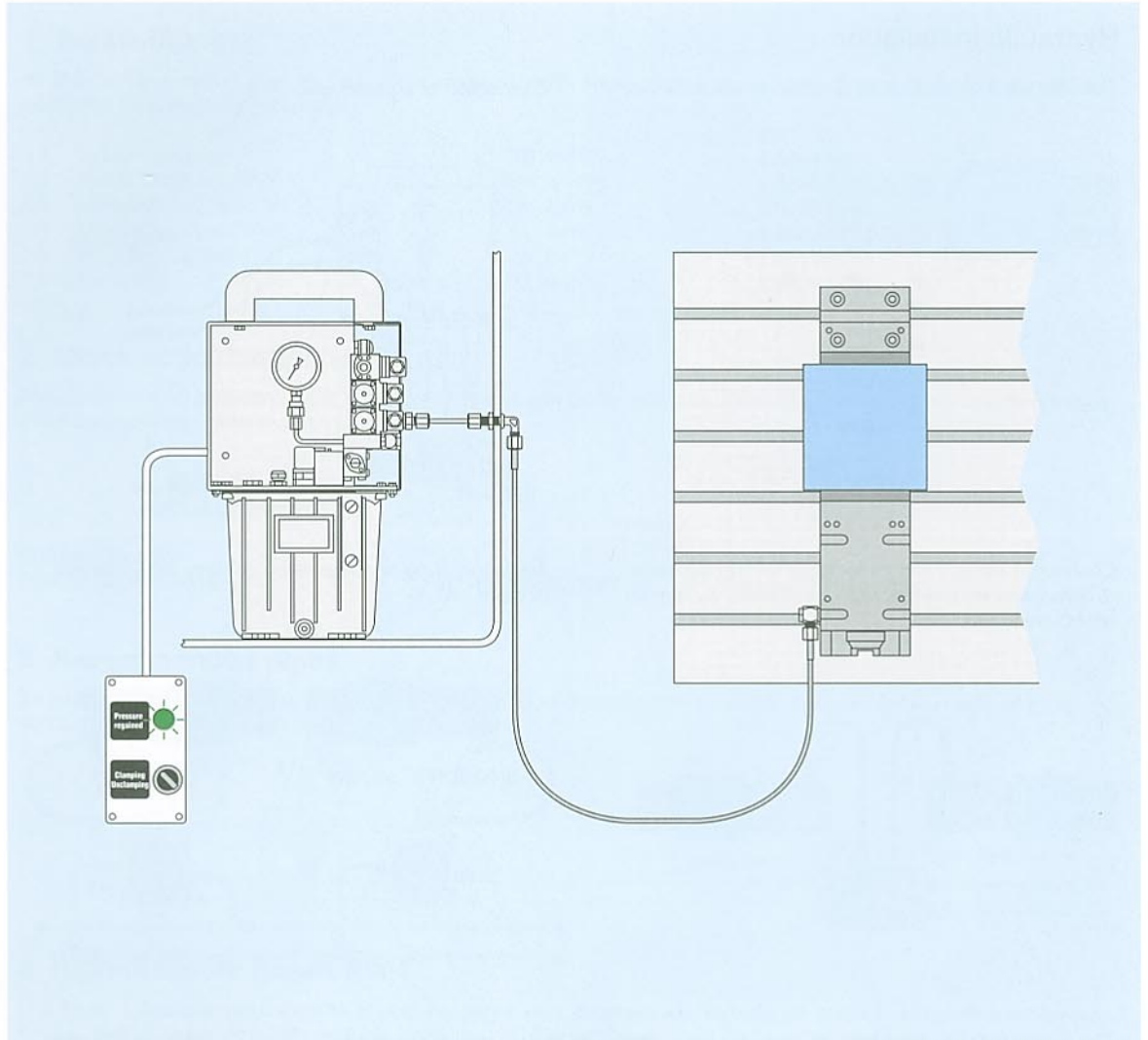
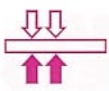
Hydraulically operated machine vices are normally single-acting, and they are opened by a strong return spring.

Hydraulic oil is preferably supplied by power units which operate intermittently. The required pressure is preset on a pressure switch which controls the pump motor. When the set pressure is reached, the motor is switched off. Another pressure switch is used for machine safety and releases the machine.

In this situation, the directional valves are idle, and the operating pressure is maintained by an integral directional valve.

If pressure drops 10% below the set value, the pressure switch controlling the pump motor restarts the motor until the set pressure is regained. The pressure switch for machine safety stops the machine if the clamping pressure falls by more than 15%.

Clamping and unclamping is carried out using hand valves, selector switches (with illuminated display for the operating pressure, if required), foot-operated switch or controlled by a signal in the automatic mode.



Commissioning and maintenance

Read the operating manual before putting the system into operation. Only use fresh clean oil. Bleed (flush) the complete system at low pressure (= 20 bar) at the highest point while the pump is running, in order to eliminate any bubbles.

Hydraulic valves are very sensitive to dirt. Make sure that no impurities get into the hydraulic fluid. We recommend that the oil is changed once a year.

Recommended oil:

Oil temperature (°C)
0 – 40
10 – 50
20 – 60

Designation to DIN 51524
HLP 22
HLP 32
HLP 46

Viscosity to DIN 51519
ISOVG 22
ISOVG 32
ISOVG 46

Dynamic pressure in the hydraulic system

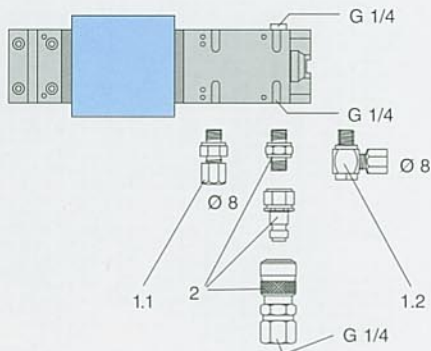
Due to friction in pipes, screw fittings and valves, a pressure of between 1 and 2 bar is necessary to deliver the oil. The spring resetting force of the clamping slide is designed for a dynamic pressure of 5 bar.

If the slide moves slowly or does not fully enter, the dynamic pressure must be reduced (larger pipe diameter, shorter pipes).

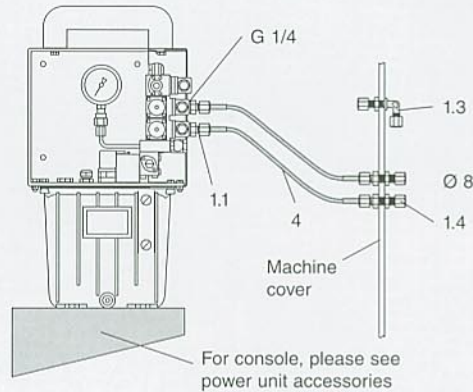


Hydraulic installation

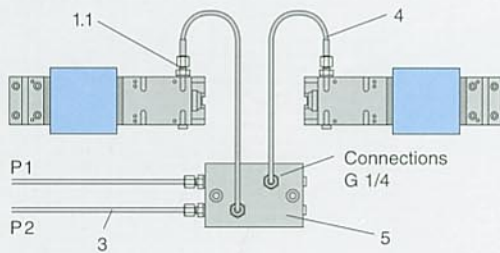
Possible ways of connecting a hydraulic machine vice



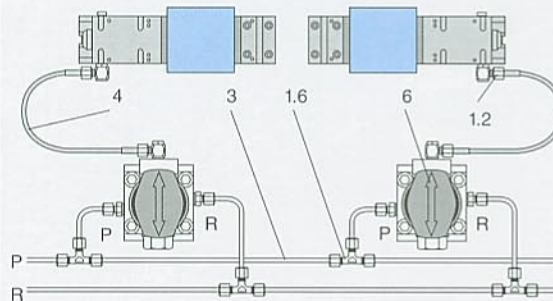
Connection of a power unit



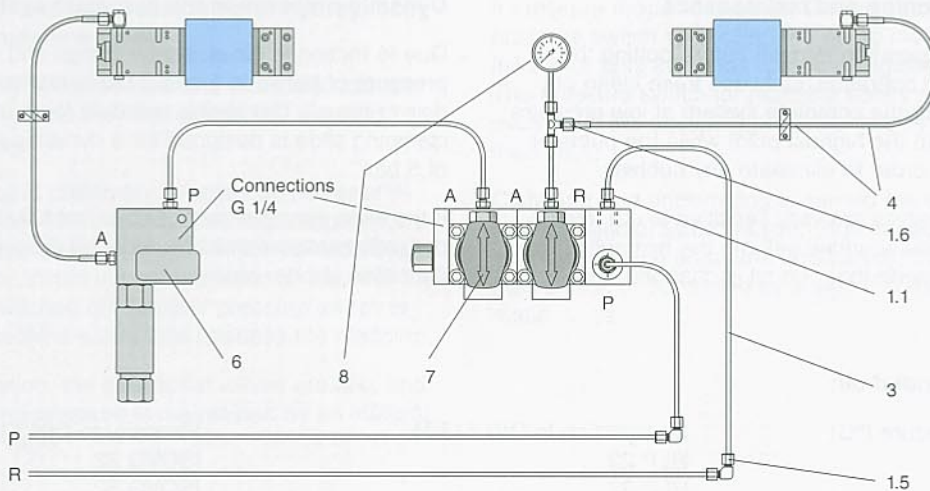
Connection using a distributor block for two separate circuits for reciprocal machining, activated by remote control pendants



Activation using hand-operated 3/2 way valves for two or more circuits



Two control circuits with hand-operated 3/2 way valves. One circuit with pressure control valve for pressure reduction



1 Screw fittings

to DIN 2353, screwed plug to DIN 3852 shape B, with edge sealing, heavy-duty design, without the need for additional seals such as Teflon tape.

		Part no.
1.1	Straight coupling	GE 8-PSR 2.8001.0001
1.2	Swivel banjo coupling	WH 8-PSR 2.8029.0002
1.3	90° elbow bulkhead fitting	WSV 8-PS 2.8020.0008
1.4	Straight bulkhead fitting	SV 8-PS 2.8003.0003
1.5	90° elbow coupling	W 8-PS 2.8019.0017
1.6	T-coupling	T 8-PS 2.8009.0001

2 Quick-action coupling NW 4

For rapid coupling and uncoupling of hoses which are not under pressure. Following uncoupling, the coupling halves close automatically. Max. operating pressure: 700 bar.



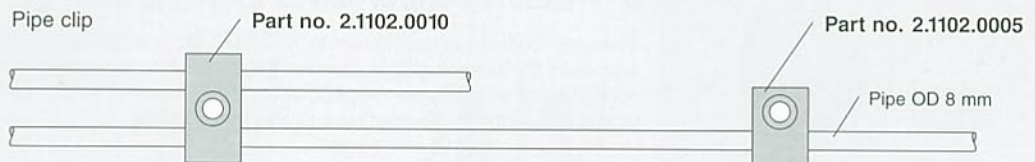
Double connector
Part no. 5.0491.0016

Plug
Part no. 2.8050.1004

Coupling
Part no. 2.8050.2004

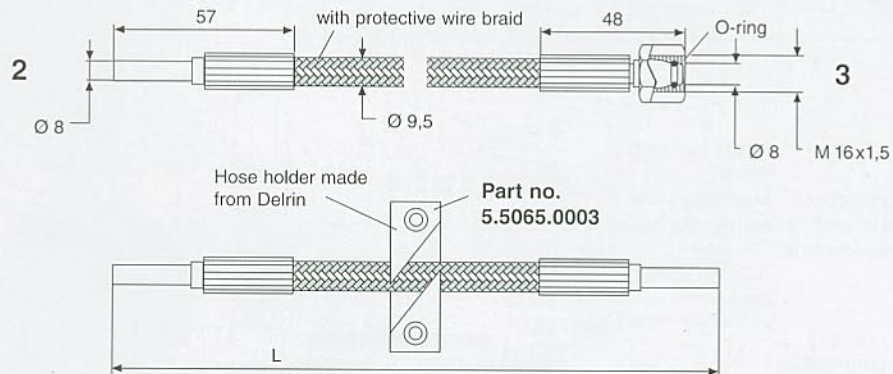
3 Recommended pipes

Seamless smooth steel pipes to DIN 2391 NBK, outside diameter 8 mm, inside diameter 5 mm, max. oil pressure 400 bar, burst pressure 1860 bar.



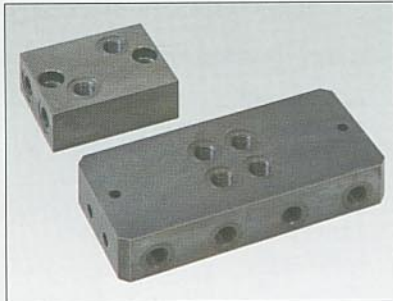
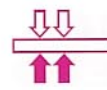
4 High-pressure hoses NW4

The freely selectable hose lengths should be generously dimensioned, in order to avoid kinking, abrasion marks, torsion, tensile stress and unacceptable bending radii. Prevent hoses from coming into contact with hot chips. Burst pressure 2000 bar, smallest bending radius 40 mm. For more information, see DIN 20066.



Part no. **4 . 500 . 1500 . 2.3**

Hose inside diameter (mm) ————
 Max. operating pressure 500 bar ————
 Hose length L (mm) ————
 Design of both hose connections ————

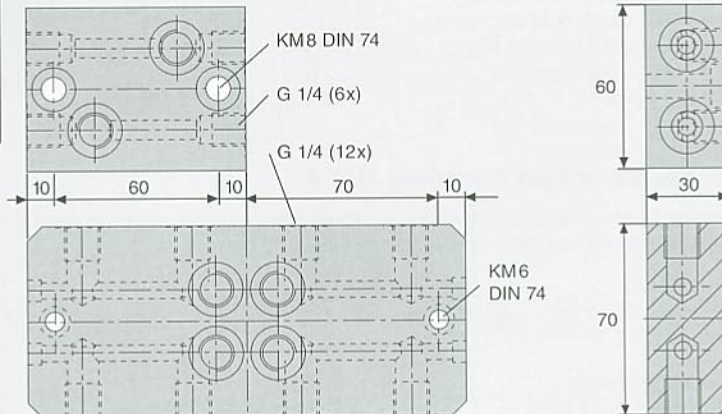


Manifold block for 2 circuits
Part no. 5.0481.0063

Manifold block for 4 circuits
for installation on a machining centre
with a pendulum table for
reciprocal machining
Part no. 5.0481.0148

5 Manifold blocks

Manifold blocks which can be screw-fastened facilitate installation of connecting pipes between the power unit and the hydraulic machine vice. Special versions are available on request.



6 Pressure control valves for fixing settings

Pressure control valves serve to maintain the set pressure and consequently the clamping force, even in the case of an increasing inlet pressure. If the inlet pressure drops to zero, the oil returns, and the machine vice is automatically opened by a strong return spring.

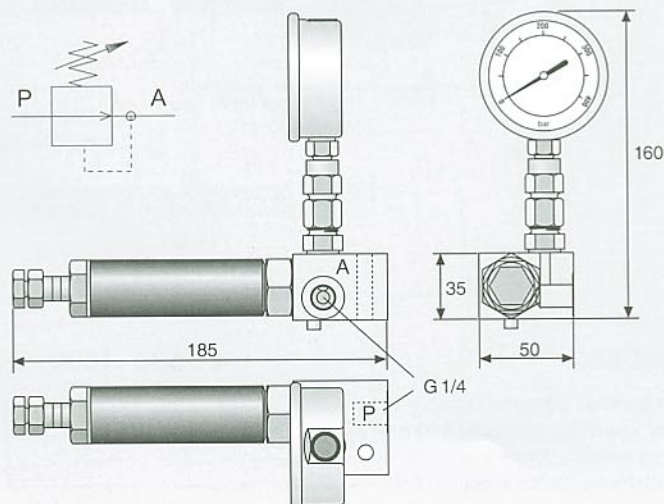
Part no.	Set pressure	Setting range
8.5610.8068	130 bar	15–130 bar
8.5610.8069	200 bar	20–200 bar
8.5610.8070	300 bar	30–300 bar

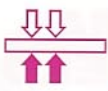
General

Type: 2-way ball seat valve
Type of connection: Mounting plate
Connections: G 1/4
Identification of ports: P = inlet
A = consumer
(application is a possible alternative)

Hydraulic parameters

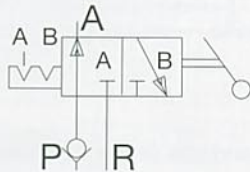
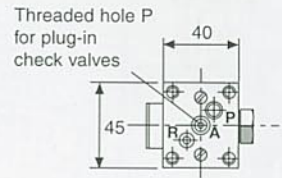
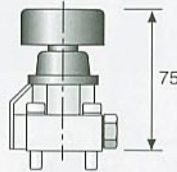
Operating pressure: port P
max. 400 bar
Flow: 15 l/min
Hydraulic oil: HLP 22, HLP 32,
HLP 46



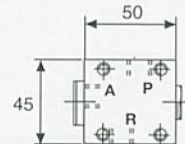
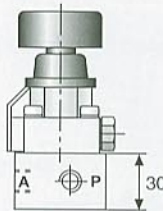


7 Hand-operated 3/2 way valves

For controlling hydraulically operated machine vices without oil leakage. In order to prevent cross influence in the event of multiple clamping, plug-in check valves are installed in the P port. The connector blocks have sieves in the A and P ports to prevent coarse impurities from entering the pipe.



3/2 way valve without connector block
Part no. 2.9220.1132

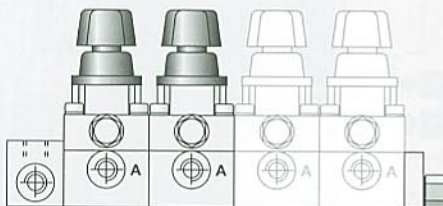


3/2 way valve
with connector block
Part no. 2.9220.1432

General

Type: Seat valve
 Type of connection: Mounting plate
 Connections: G 1/4
 Identification of ports: P = inlet
 A = consumer
 (See earlier comment)
 R = return
 Swing angle: 90°
 Actuating moment: 0.63 Nm

Hydraulic parameters
 Operating pressure: max. 500 bar
 Flow: 8 l/min.
 Hydraulic oil: HLP 22, HLP 32,
 HLP 46



3/2 way valve with connector block
2 clamping circuits Part no. 2.9221.0141
4 clamping circuits Part no. 2.9221.0143

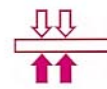


8 Pressure gauge

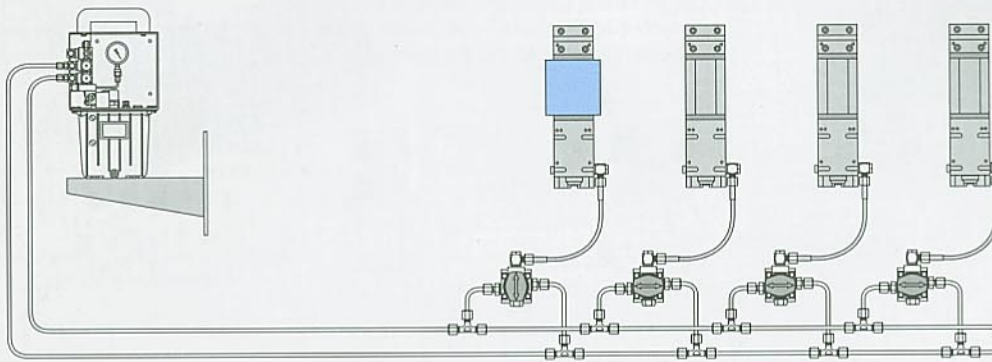
Design: steel tube spring and glycerine filling
 Ø 63 mm
 Range: 0-1000 bar
 Connection: G 1/4
 Part no. 1.3866.0004

Pressure gauge union with sealing cone
 Ø 8 and union nut M 16 x 1,5
 Part no. 2.8005.0023

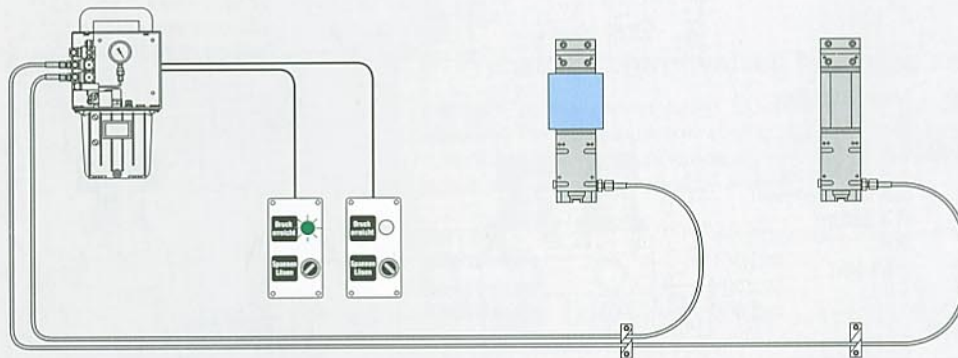
with pipe connection Ø 8
 Part no. 2.8005.0009



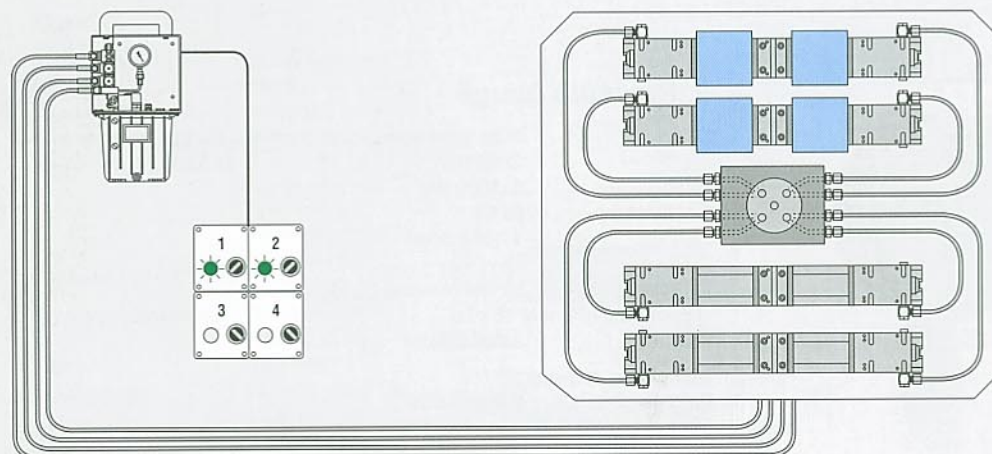
Example of installation: four or more clamping circuits, operated by hand-valve



Example of installation: two clamping circuits, operated by remote control pendants (e.g. for reciprocal machining)



Example of installation: swivel changer with four clamping circuits



Subject to change without notice. Printed in Germany