

Proportional pressure relief valves

Type PDB-6I

NG 6 ISO

up to 25 l/min, up to **700 bar**

Features

- Directly operated with wide useful range
- Pilot operated for high flow rate
- High degree of pressure stability
- Linear pressure-current characteristic
- External tank connection option with automatic disconnection of the directly operated valve from the system tank line
- Poppet tight



Applications

Electrical control of supply or working pressure in open or closed control loop:

- remote pressure setting
- maintaining pressure within small limits, independent of disturbance
- generating any pressure time curves
- Pre-relief of large volumes

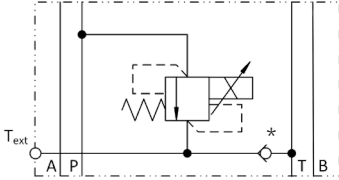
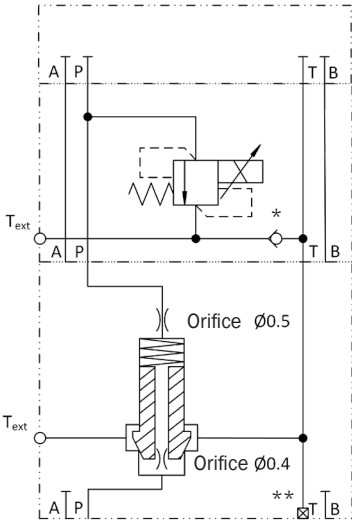
Design

- Easy-running proportional solenoid with 360° rotatable and replaceable plug-in coil
- Low friction, direct force transmission to the valve needle
- Manual override for manual function test
- The pilot operated valve consists of the direct operated valve, main stage and end plate
- The orifices of the main stage are easily exchangeable

Technical data

Hydraulic fluid	mineral oil according to DIN 51524 (other fluids on request)
Fluid temperature range	– 20 bis 80 °C
Ambient temperature range	– 30 to 50 °C
Viscosity range	5 to 400 mm ² /s
Porting	NG 6 according to DIN 24340 / ISO 4401 / CETOP RP 121 H
Nominal pressure stages	315 bar, 400 bar, 550 bar, 700 bar
Max. operating pressure connection P, A, B	700 bar
Max. operating pressure connection T	70 bar
Max. flow rate	directly operated: 8 l/min / pilot operated: 25 l/min
Filtration (recommendation)	according to NAS 1638 class 6 or ISO/DIN 4406 17/15/12
Duty cycle DC	100%
Solenoid voltage (nominal resistance)	24 VDC (5 Ohm)
Degree of protection	IP 65 according to EN 60529 / DIN 40050
Weight	directly operated: 2 kg / pilot operated: 3 kg
Dither frequency (recommendation)	60 - 400 Hz
Hysteresis	≤ 5% with optimal dither signal
Material	valve body: stainless steel Solenoid coil: ZnNi-plated (1000 h salt spray test)

Product information

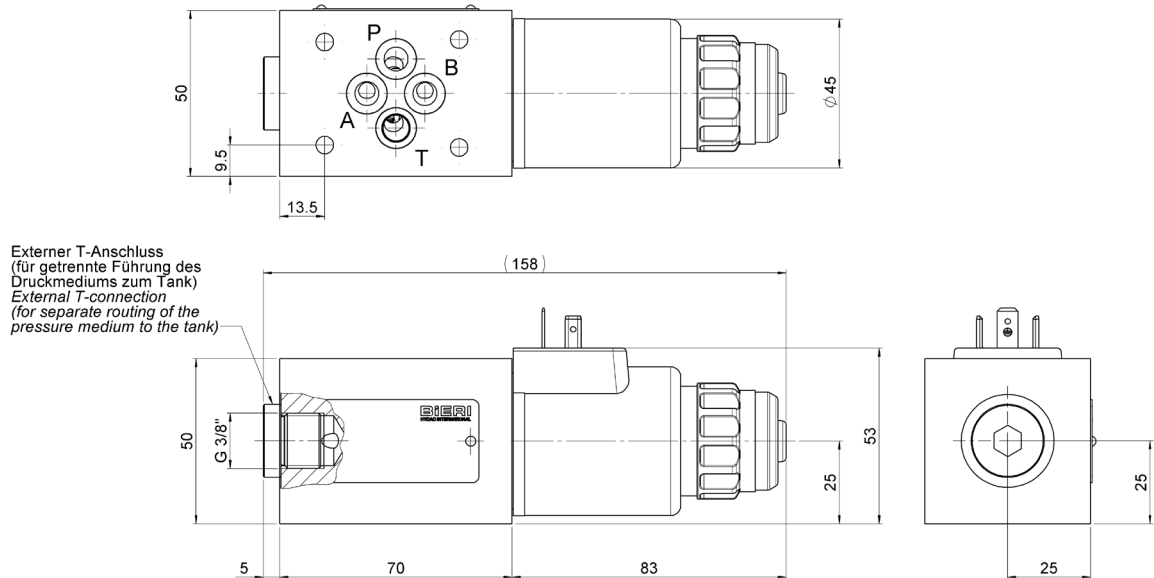
Max. operating pressure	315 bar	400 bar	550 bar	700 bar
Max. flow rate	8 l/min			
Part No.	4487130	4487227	4487226	4487214
Symbol				
Max. flow rate	25 l/min			
Part No.	4590611	4590612	4590613	4590614
Symbol				

* Internal check valve ensures automatic disconnection of the system tank line when using the side tank outlet

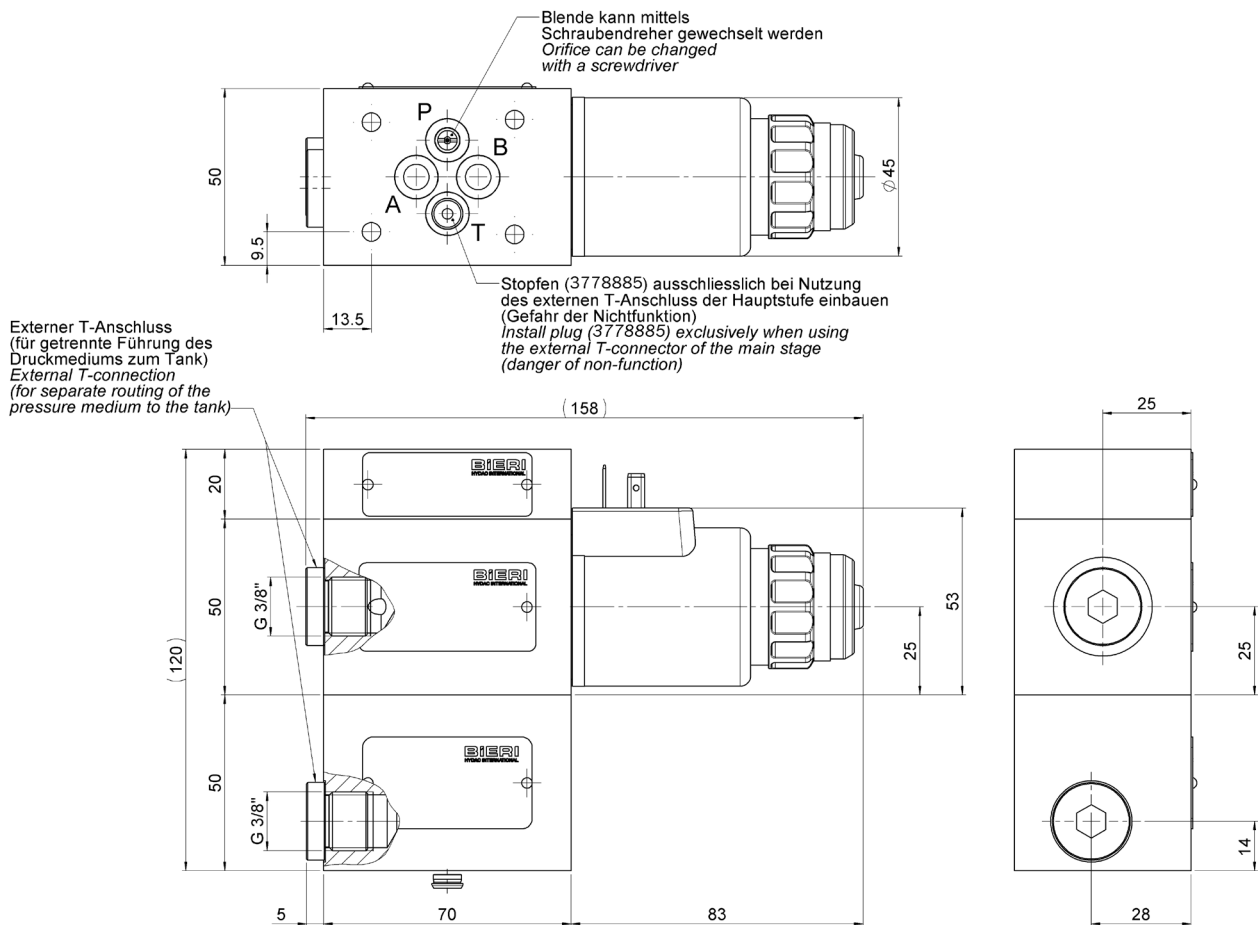
** Plug (3778885) enclosed loose. Only install if the external tank connection of the main stage is used.

Dimensional drawings

Directly operated



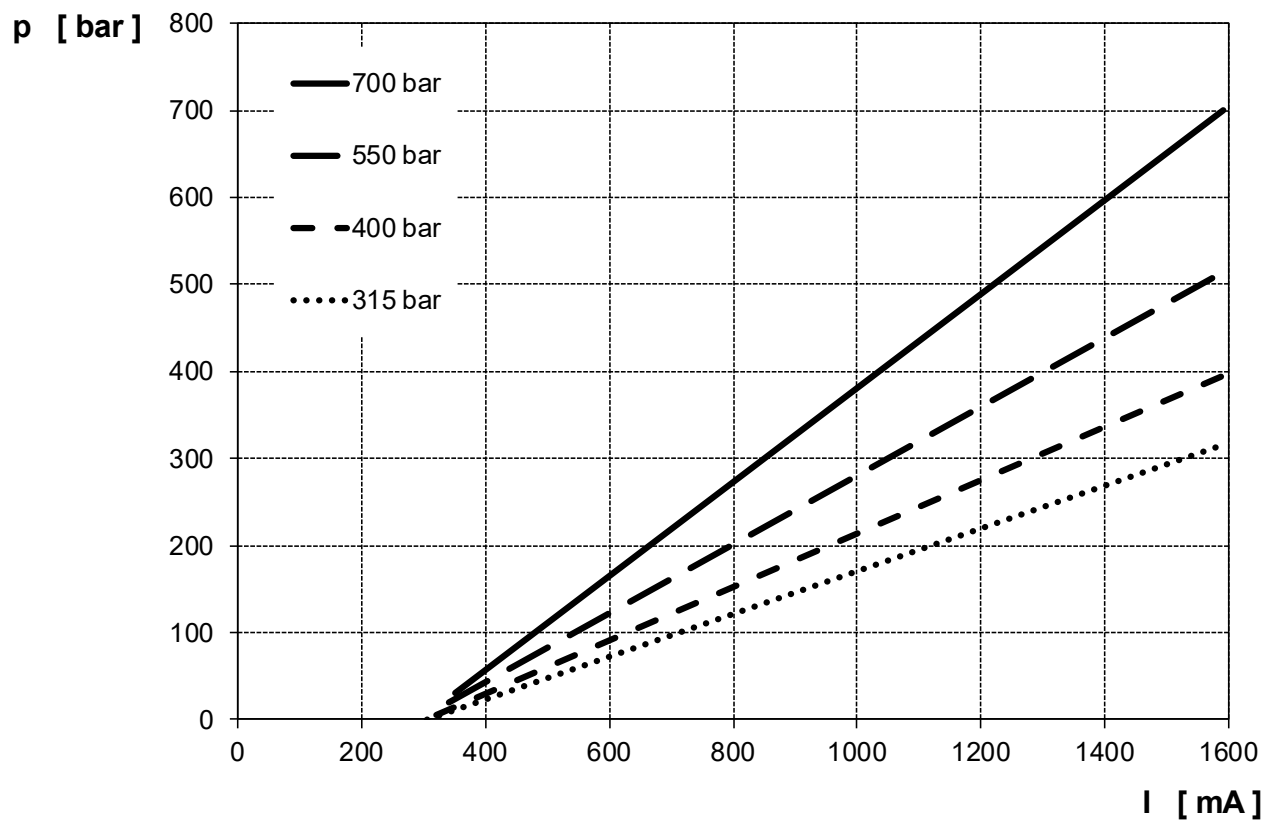
Pilot operated

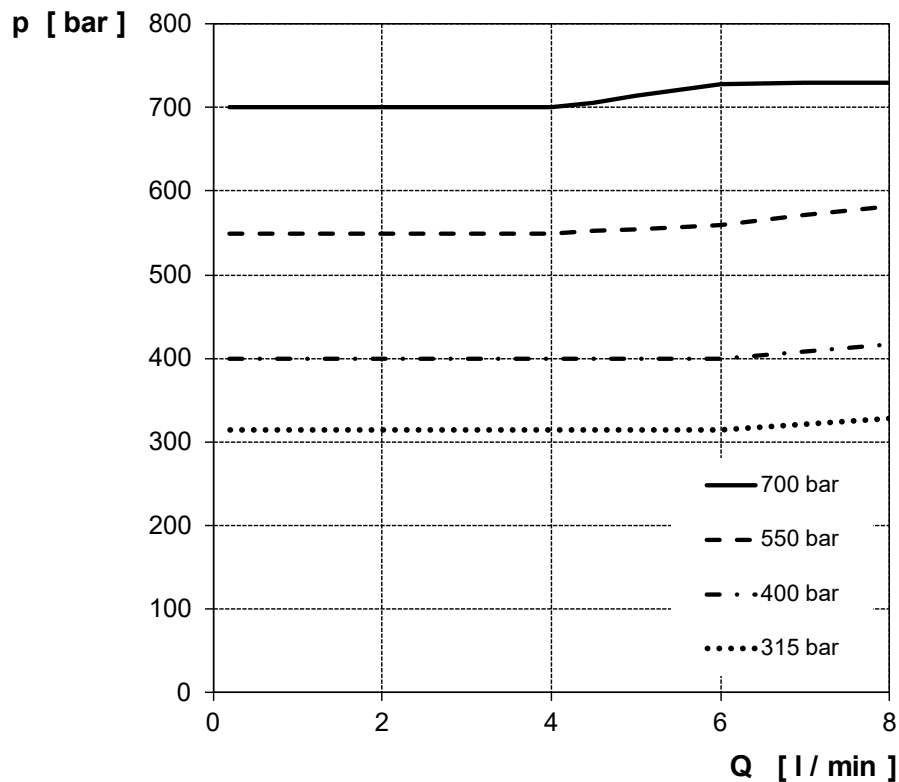
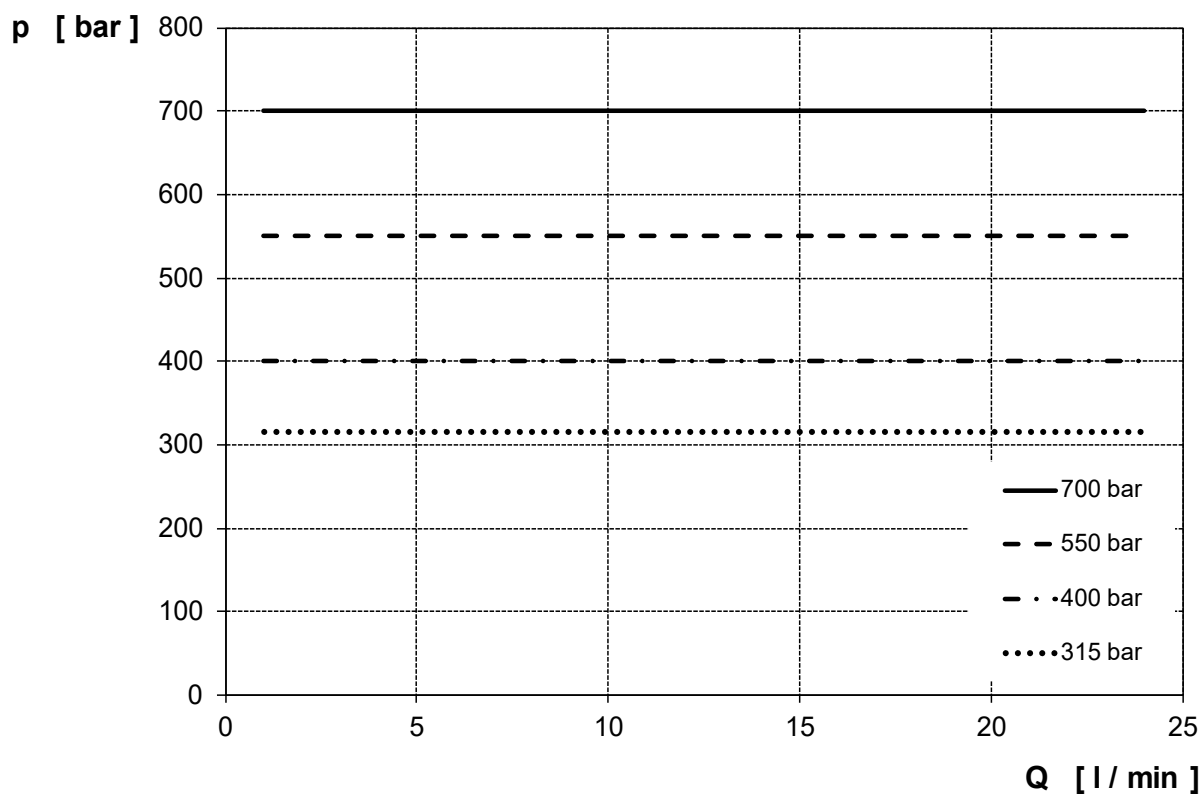


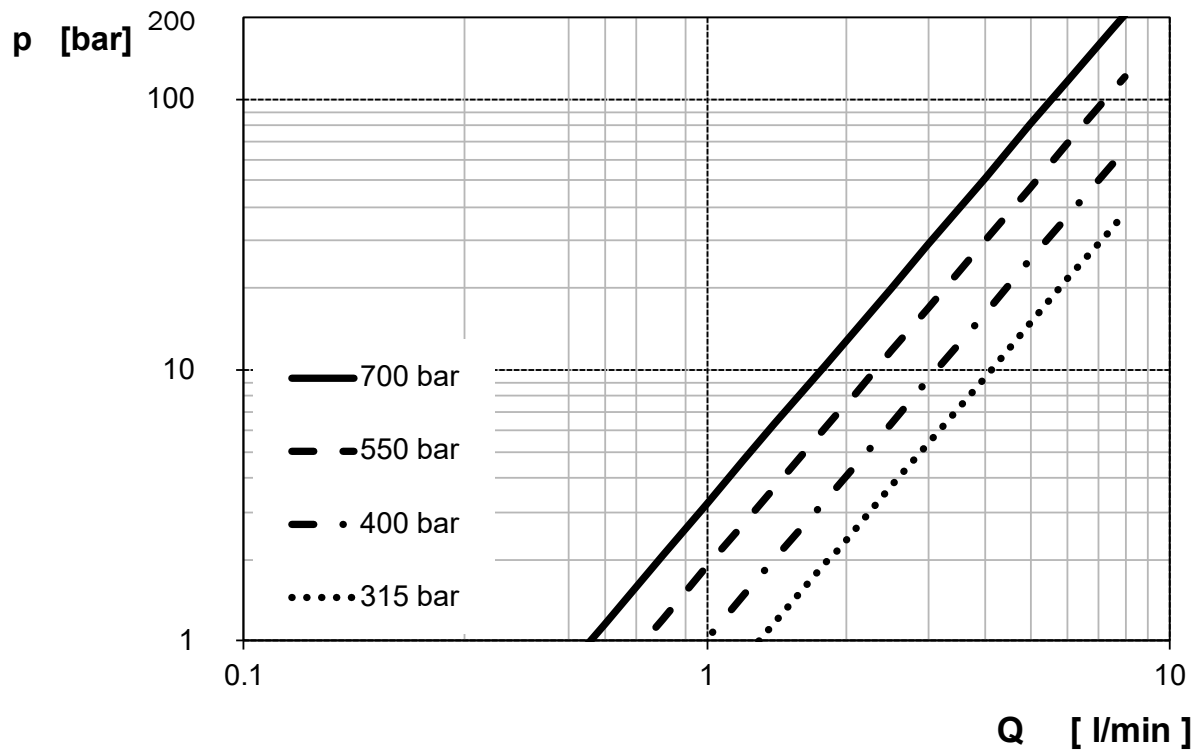
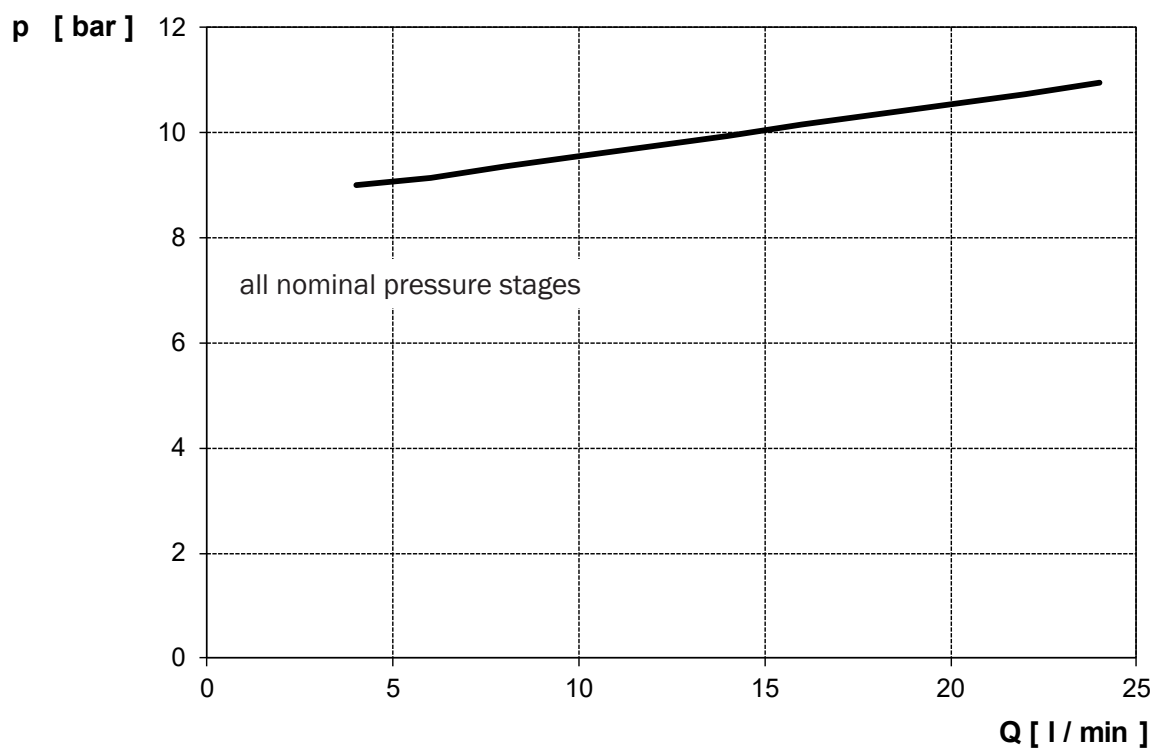
Technical drawing of a square plate with the following specifications:

- Overall Dimensions:** 51 min. (width) x 50 min. (height).
- Top Edge Features:**
 - Left corner: (10) (fillet radius).
 - Center: 0 (dimension to center line).
 - Right side: 12.7 ± 0.2, 2 x 21.5 ± 0.2, 30.2 ± 0.2, 2 x 40.5 ± 0.1.
- Left Edge Features:**
 - Top: 0 (dimension to center line).
 - Below top: 5.1 ± 0.2.
 - Below that: 2 x 15.5 ± 0.2.
 - Below that: 25.9 ± 0.2.
 - Bottom: 31 ± 0.1.
- Internal Features:**
 - Top center: T (feature).
 - Bottom center: P (feature).
 - Right side: 0.75 ± 0.1, 0 (dimension to center line).
 - Bottom right: 31.75 ± 0.1.
- Surface Finish:** Rz 4, 0.02 (surface texture symbol).
- Bottom Edge Features:**
 - Left: 4 x Ø6.5 max.
 - Right: 4 x M5 ∇ 10.

(Q = 1 l/min)



Pressure $p(Q, \text{nominal pressure stage})$ **Directly operated****Pilot operated**

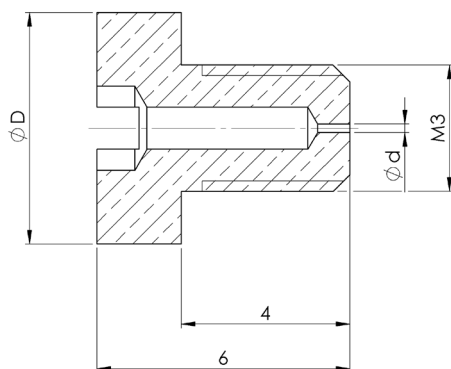
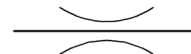
Minimum pressure $p_{min}(Q, \text{nominal pressure stage})$ **Directly operated****Pilot operated**

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Accessories

Part description	Type code	Part No.
Screw-in orifice Ø 0.2 (for mounting in the P connection)	BL700-6-D5,5-0,2-A*00	3688087
Screw-in orifice Ø 0.3 (for mounting in the P connection)	BL700-6-D5,5-0,3-A*00	3985507
Screw-in orifice Ø 0.4 (for mounting in the P connection)	BL700-6-D5,5-0,4-A*00	3891841
Screw-in orifice Ø 0.5 (for mounting in the P connection)	BL700-6-D5,5-0,5-A*00	3688099
Screw-in orifice Ø 0.6 (for mounting in the P connection)	BL700-6-D5,5-0,6-A*00	3985546
Screw-in orifice Ø 0.7 (for mounting in the P connection)	BL700-6-D5,5-0,7-A*00	3985547
Screw-in orifice Ø 0.8 (for mounting in the P connection)	BL700-6-D5,5-0,8-A*00	3985549
Screw-in orifice Ø 0.9 (for mounting in the P connection)	BL700-6-D5,5-0,9-A*00	3985550

Dimensional drawing**Symbol**

Part description	For valve type	Part No.
1 x Plug for solenoid grey	all	6132484
1 x Plug for solenoid black	all	3728850
4 x Socket head screw ISO 4762-M5 x 60-12.9	directly operated	4576469
4 x Tie bolt, M5 x 152-12.9	pilot operated	4455766
4 x Special hexagonal nut-M5 x 2d-12	pilot operated	4455768

For pressure relief valves see technical data sheet DB500/700/1000.

Other mounting screws, tie bolts and subplates see technical data sheet AP700/RP700/EP700.

Spare parts

Part description	For valve type	Part No.
4 x O-ring, 9.25 x 1.78, FKM	all	4455692
1 x Plug (when using external T-connection)	all	3778885
1 x Solenoid coil 24 VDC	all	4356848
1 x Pole tube nut	all	914559
1 x O-ring for pole tube nut	all	616992
1 x Plug for external T-connection	all	613141

Electronic controllers (available from HYDAC)

Open loop control (without actual system pressure feedback)

- manual adjustment of the actual pressure
- pressure adjustment with manual operated potentiometer or PLC-control

Closed loop control (with actual system pressure or force feedback)

- for automatic adjustment of system pressure to the pre-selected pressure
- for pressure setting with PLC, manual operated potentiometer or via BUS-system

Electronic selection table

design	HYDAC Part No.	HYDAC ordering code	amplifier mode („open loop control“)	controller mode („closed loop control“)	setpoint signal 0 ...10 V	setpoint signal 4 ... 20 mA	coupling via iO-Link	oscilloscope function	resolution (% current range)	solenoids in sectable form indep.	status monitoring control range	accessoires for the parameterization
Amplifier connector	6112594	EHCD-AP011XXXD	•		•			•	0,1	1		Interface box for amplifier connector (HYDAC - EHCD-APIFB) = 6108514
	6108508	EHCD-AP012XXXD	•			•		•	0,1	1		
Snap in module according EN50022	6158999	EHCD-AM005XXXU	•		•	•		•	0,01	2		USB-cable Typ B (Standard printer cable) 6249389
	6174133	EHCD-CUPREXAXPA	•	•	•	•		•	0,006	1		
	6174135	EHCD-CUPREXHXP	•	•	•	•		•	0,0025	1	•	
	6269387	EHCD-CUPR2LAXPA	•	•			•		0,01	2		

Safety

We recommend to operate the proportional pressure relief valves only in combination with a separate pressure relief valve to limit the pressure to the max. allowed value.

Bieri Hydraulik AG

Könizstrasse 274
CH-3097 Liebefeld
Tel. +41 31 970 09 09 | Fax +41 31 970 09 10
info@bieri hydraulics.com | www.bieri hydraulics.com

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.