

# Directional poppet valves

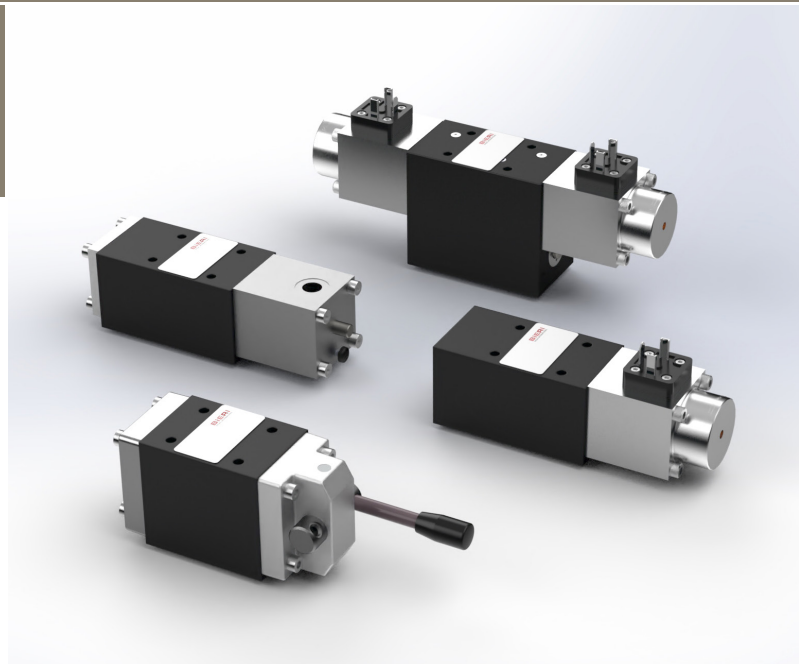
## Type WV700

NG 6 ISO

up to 25 l/min, up to 700 bar

### Features

- Direct operated
- Poppet tight
- High operational safety and reliable switching
- High duty cycles and long lifetime



### Applications

- Control of cylinders and motors as superior and space-saving alternatives to spool valves which require additional shutoff valves
- Machine tools
- Lifting and screwing technology
- Test rigs
- Power units
- Bridge building

### Design

- 1 up to 4 valve cartridges depending on valve type
- Hidden manual override
- Available as 2/2-, 3/2-, 4/2-, 3/3- or 4/3-directional poppet valve with solenoid-, manual- or pneumatic actuation
- Pressure balanced valve cones
- Use of check valves and orifice plates with intermediate plate possible (see technical data sheets ZP700, RV700 and BL700)

### Technical data

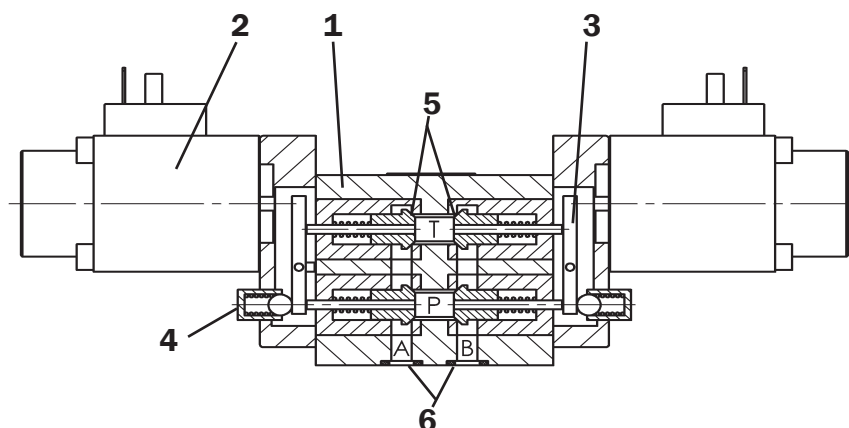
Hydraulic fluid	mineral oil according to DIN 51524 (other fluids on request)
Fluid temperature range	- 20 to 80 °C
Ambient temperature range	- 30 to 50 °C
Viscosity range	5 to 400 mm <sup>2</sup> /s
Porting	NG 6 according to DIN 24340 / ISO 4401 / CETOP RP 121 H
Max. operating pressure connection P, A, B	700 bar
Max. operating pressure connection T	350 bar
Max. flow rate	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 power)	24 VDC (29 W), 106 VDC (29 W), 205 VDC (30 W)
Voltage tolerance	+/- 10%
Switching time	40 - 120 ms
Degree of protection	IP 54 according to EN 60529 / DIN 40050 (on request IP 65)
Material	valve body: steel galvanized, black chromated, aluminium solenoid: steel browned

## Type code

<b>Example</b>	WV	700	-	6	-	4	/	2	-	C	-	24	-	V	-			00
<b>Directional poppet valves</b>																		
<b>Size</b>	700																	
<b>Nominal size</b>	6																	
<b>Number of ports</b>	2, 3 or 4																	
<b>Number of positions</b>	2 or 3																	
<b>Switching functions</b>	see overview „product information“																	
<b>Control method</b>	24 solenoid 24 VDC 106 solenoid 106 VDC 205 solenoid 205 VDC HR Manual lever / detent HF Manual lever / spring return AIR Air other actuation types on request!																	
<b>Seal material</b>	V FKM		other seal materials on request!															
	<b>Design</b> 00 ... 99 For internal purposes																	
	<b>Index</b> Please leave blank For internal purposes																	
	<b>Design revision</b> Please leave blank For internal purposes																	

## Function and design

- 1 Valve body
- 2 Solenoid
- 3 Actuating lever
- 4 Resetting element
- 5 Poppet/Cone
- 6 Connections



**Product information (solenoid actuation)**

Valve type	2/2			
Switching function	E4	BE4	E2	BE2
Part No. 24 VDC	see data sheet WVH-6I	see data sheet WVH-6I	see data sheet WVH-6I	see data sheet WVH-6I
Part No. 106 VDC	see data sheet WVH-6I	see data sheet WVH-6I	see data sheet WVH-6I	see data sheet WVH-6I
Part No. 205 VDC	see data sheet WVH-6I	see data sheet WVH-6I	see data sheet WVH-6I	see data sheet WVH-6I
Symbol				
Weight	2,4 kg	2,4 kg	2,4 kg	2,4 kg
Valve type	3/2			
Switching function	X	C		
Part No. 24 VDC	see data sheet WVH-6I	see data sheet WVH-6I		
Part No. 106 VDC	see data sheet WVH-6I	see data sheet WVH-6I		
Part No. 205 VDC	see data sheet WVH-6I	see data sheet WVH-6I		
Symbol				
Weight	2,4 kg	2,4 kg		
Valve type	3/3			
Switching function	H	E	G	G3
Part No. 24 VDC	3679310	3679393	3679352	4041598
Part No. 106 VDC	on request	on request	on request	on request
Part No. 205 VDC	on request	on request	on request	on request
Symbol				
Weight	3,4 kg	3,4 kg	3,4 kg	3,4 kg
Valve type	4/2		4/3	
Switching function	X	C	P3	G-2ERV
Part No. 24 VDC	4002929	4002938	4041723	3679920
Part No. 106 VDC	on request	on request	on request	on request
Part No. 205 VDC	on request	on request	on request	on request
Symbol				
Weight	2,6 kg	2,6 kg	3,4 kg	3,9 kg
Valve type	4/3			
Switching function	H	E	P	J
Part No. 24 VDC	3679712	3679690	3679874	3679749
Part No. 106 VDC	on request	on request	on request	on request
Part No. 205 VDC	on request	on request	on request	on request
Symbol				
Weight	3,4 kg	3,4 kg	3,4 kg	3,4 kg

Usual flow direction

**Product information (manual actuation, detent)**

Valve type	2/2			
Switching function	E4	BE4	E2	BE2
Part No.	on request	on request	on request	on request
Symbol				
Weight	1,9 kg	1,9 kg	1,9 kg	1,9 kg
Valve type	3/2			
Switching function	X	C		
Part No.	on request	on request		
Symbol				
Weight	1,9 kg	1,9 kg		
Valve type	3/3			
Switching function	H	E	G	G3
Part No.	4041785	3679397	3679387	3679382
Symbol				
Weight	1,9 kg	1,9 kg	1,9 kg	1,9 kg
Valve type	4/2		4/3	
Switching function	X	C	PP3	G-2ERV
Part No.	on request	on request	on request	3679924
Symbol				
Weight	2,1 kg	2,1 kg	2,9 kg	2,9 kg
Valve type	4/3			
Switching function	H	E	PP	J
Part No.	3679742	3679705	3679898	3679754
Symbol				
Weight	1,9 kg	1,9 kg	1,9 kg	1,9 kg

Usual flow direction

**Product information (manual actuation, spring return)**

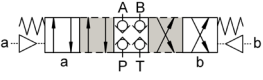
<b>Valve type</b>	<b>2/2</b>			
<b>Switching function</b>	<b>E4</b>	<b>BE4</b>	<b>E2</b>	<b>BE2</b>
Part No.	on request	on request	on request	on request
Symbol				
Weight	1,9 kg	1,9 kg	1,9 kg	1,9 kg
<b>Valve type</b>	<b>3/2</b>			
<b>Switching function</b>	<b>X</b>	<b>C</b>		
Part No.	on request	on request		
Symbol				
Weight	1,9 kg	1,9 kg		
<b>Valve type</b>	<b>3/3</b>			
<b>Switching function</b>	<b>H</b>	<b>E</b>	<b>G</b>	<b>G3</b>
Part No.	4041774	3679395	3679385	3679376
Symbol				
Weight	1,9 kg	1,9 kg	1,9 kg	1,9 kg
<b>Valve type</b>	<b>4/2</b>		<b>4/3</b>	
<b>Switching function</b>	<b>X</b>	<b>C</b>	<b>PP3</b>	<b>G-2ERV</b>
Part No.	on request	on request	on request	3679923
Symbol				
Weight	2,1 kg	2,1 kg	2,9 kg	2,9 kg
<b>Valve type</b>	<b>4/3</b>			
<b>Switching function</b>	<b>H</b>	<b>E</b>	<b>PP</b>	<b>J</b>
Part No.	3679739	3679693	3679896	4041787
Symbol				
Weight	1,9 kg	1,9 kg	1,9 kg	1,9 kg


Usual flow direction

Type WV700

NG 6 ISO  
up to 25 l/min, up to 700 bar

## Product information (pneumatic actuation)

Valve type	4/3
Switching function	E
Part No.	on request
Symbol	
Weight	3,4 kg

 Usual flow direction

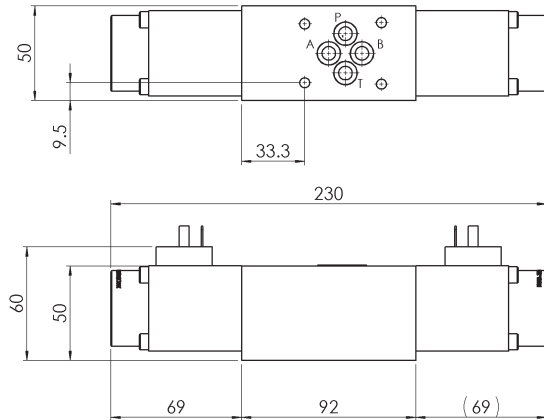
**Actuating pressure:** 3 - 8 bar

## Dimensional drawings

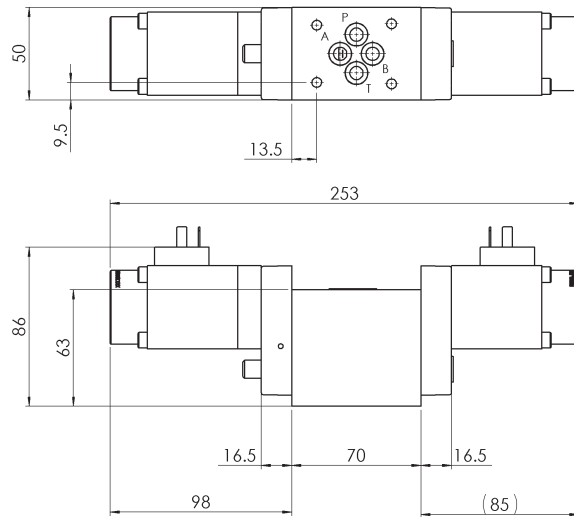
### Solenoid actuation

#### 3/3-directional poppet valves

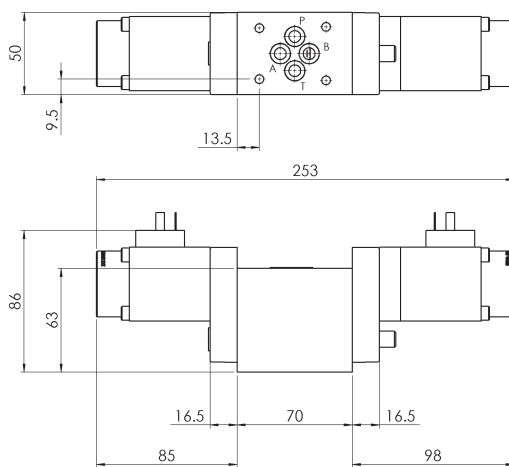
Switching functions H and E



Switching function G

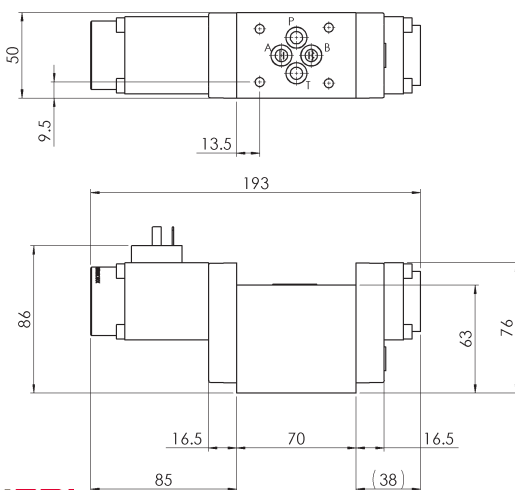


Switching function G3

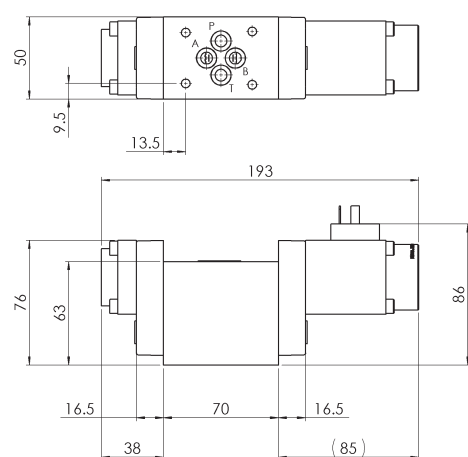


#### 4/2-directional poppet valves

Switching function X

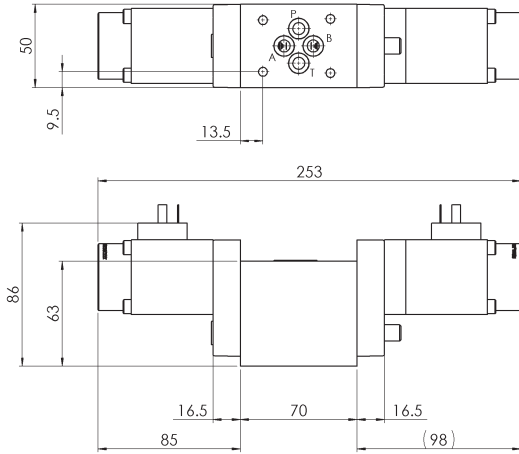


Switching function C

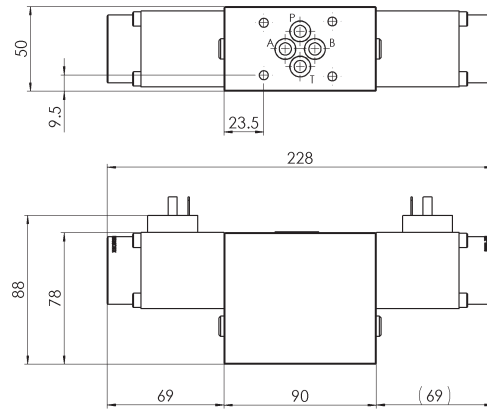


4/3-directional poppet valves

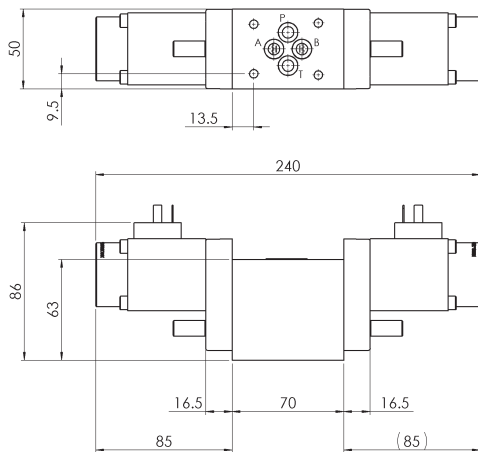
Switching function P3



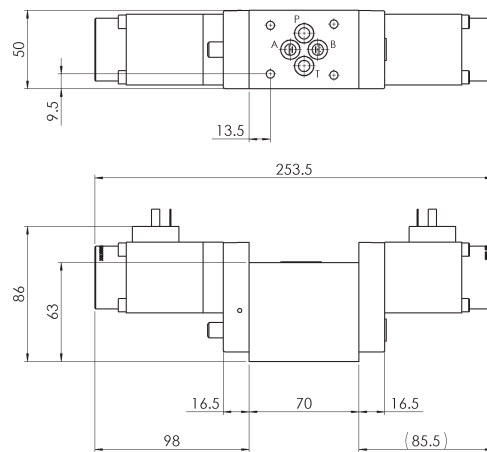
Switching function G-2ERV



Switching functions H, E and J



Switching function P

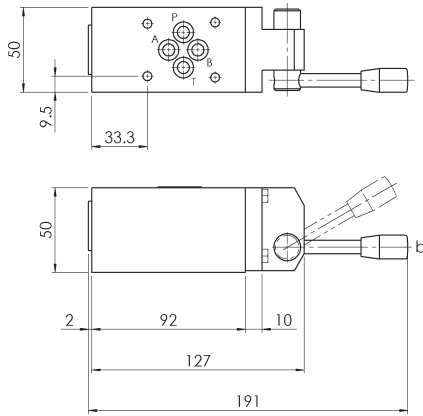




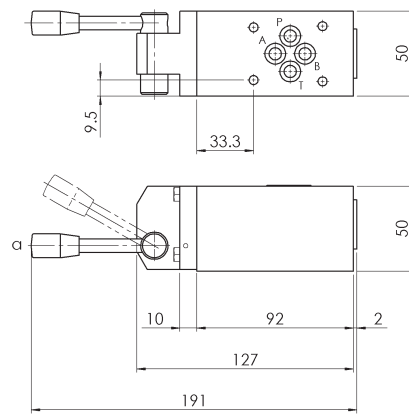
**Manual actuation**

**2/2-directional poppet valves**

**Switching functions E4, BE4 and BE2**

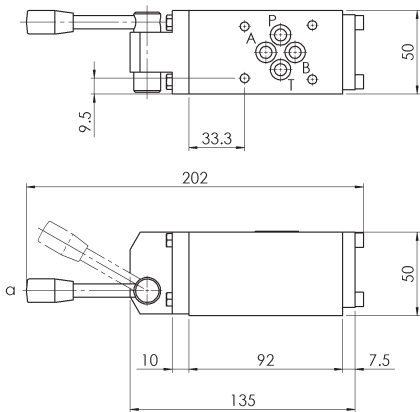


**Switching function E2**

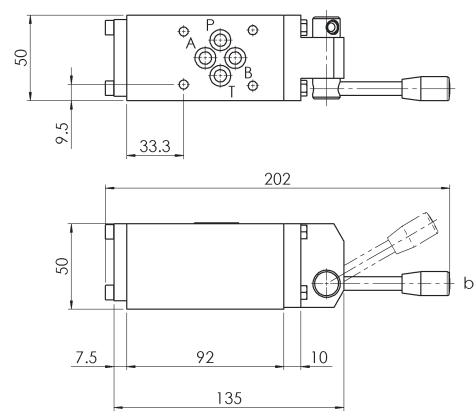


**3/2-directional poppet valves**

**Switching function X**

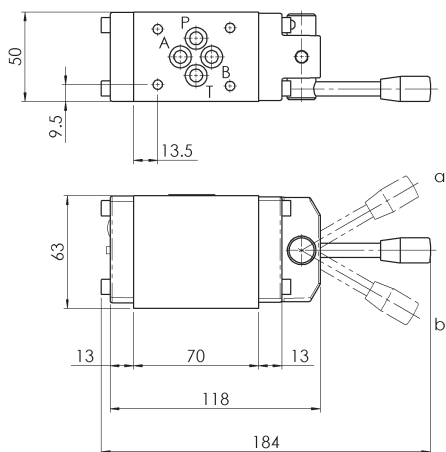


**Switching function C**



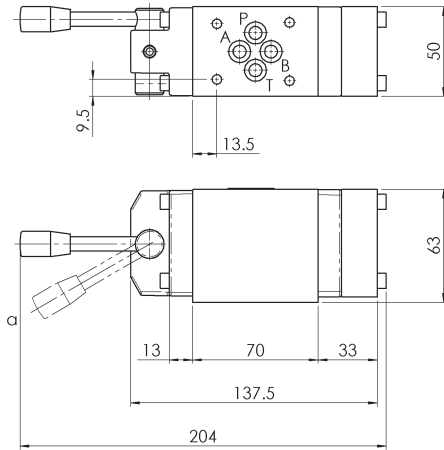
**3/3-directional poppet valves**

**All switching functions**

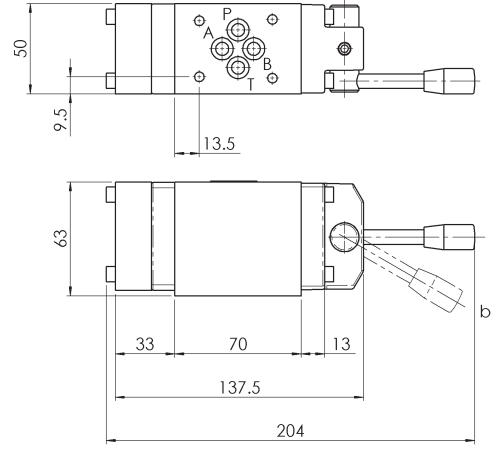


**4/2-directional poppet valves**

**Switching function X**

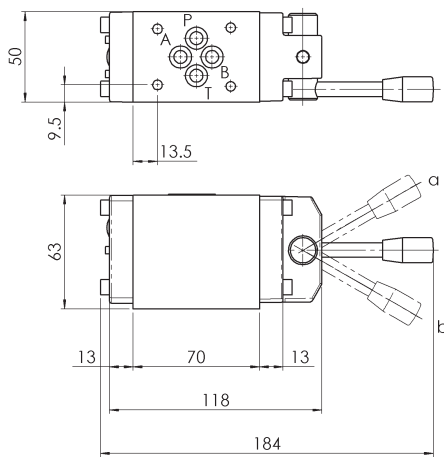


**Switching function C**

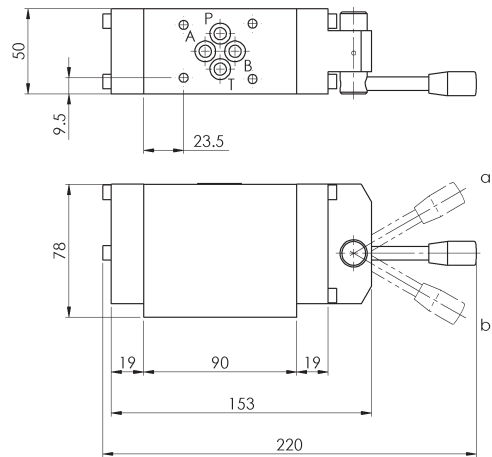


**4/3-directional poppet valves**

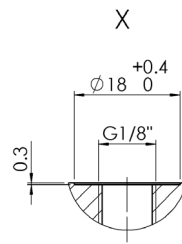
**Switching functions H, E, PP, J and PP3**



**Switching function G-2ERV**

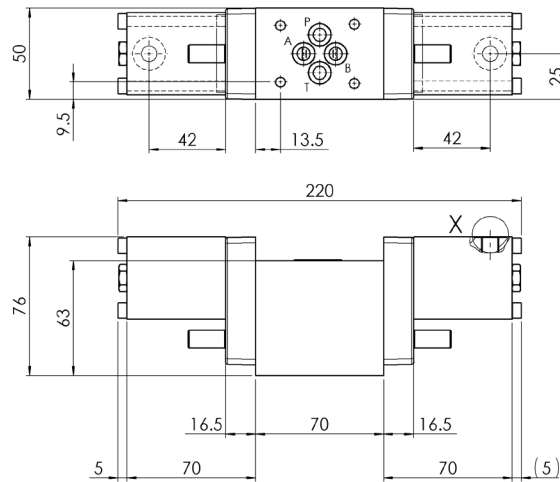


**Pneumatic actuation**



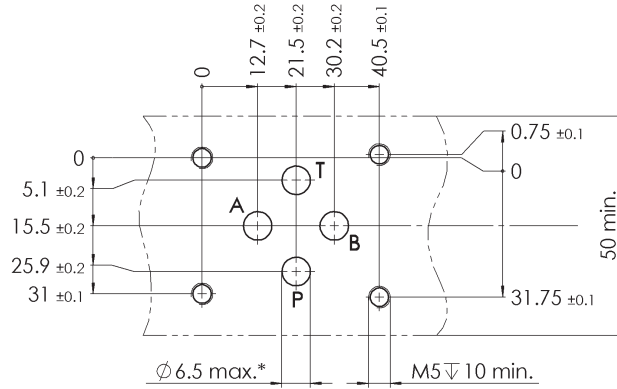
**4/3-directional poppet valves**

**Switching function H**



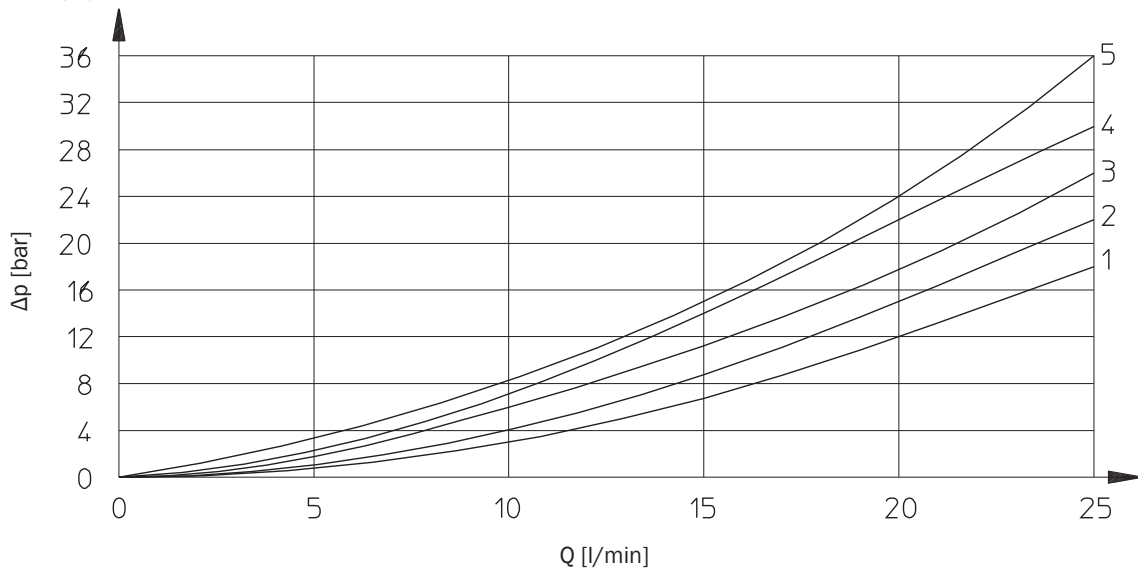
**Drilling pattern**

acc. DIN 24340-A6/ISO 4401-03 (CETOP O3)

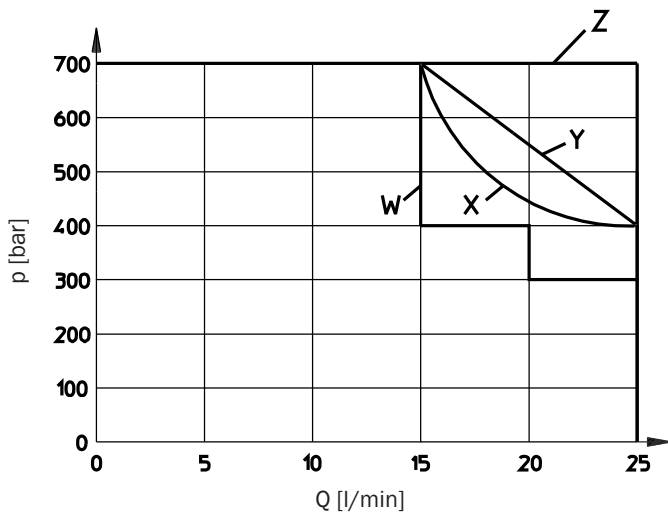


**Pressure drop**

( $v = 32 \text{ mm}^2/\text{s}$ )



Valve type	Switching function	Solenoid and air actuated					Manual actuated				
		P - A	P - B	A - T	B - T	P - T	P - A	P - B	A - T	B - T	P - T
2/2	E4, BE4					2					2
2/2	E2, BE2	2					2				
3/2	X, C	2		3			2		3		
4/2	X	3	3	2	2		2	3	2	1	
4/2	C	3	1	1	2		1	2	1	1	
3/3	H	3		3		2	3		3	2	
3/3	E	2		3			2		2		
3/3	G	2		2		3	1		1	2	
3/3	G3		3		3	4		2		2 3	
4/3	H	1	1	1	1	2	1	1	1	1	
4/3	E	3	2	2	3		1	1	2	1	
4/3	J	3	2	2	3		3	2	2	3	
4/3	P, PP	3	2	3	2	3	2	3	3	3	
4/3	P3, PP3	2	3	2	3	3	2	3	2	3	
4/3	G-2ERV	5	5	4	4	3	5	5	4	4	

**Hydraulic switching capacity (solenoid actuated)**

Hydraulic switching capacity at nominal operating voltage and ambient temperature range  $T_a = 40^\circ \text{C}$   
 $v = 32 \text{ mm}^2/\text{s}$

Valve type	Switching function	Line
4/2	X, C	Y
3/3	H, G, G3	X
3/3	E	Y
4/3	E	Z
4/3	J, H, P, P3, PP, PP3	X
4/3	G-2ERV	W

**Accessories****Plug for solenoid**

Part description	Part No.
Plug for solenoid grey	6132484
Plug for solenoid black	3728850
Plug for solenoid with rectifier / grey	3681390
Plug for solenoid with rectifier / black	3671158
Power reduction plug LRS2 KPL Z4 TR 2POL LED	4747017

**Screws**

Part description	Part No.
1 x Screw M5 x 60 12.9	618287
1 x Screw M5 x 70 12.9	6008834
1 x Screw M5 x 90 12.9	602855
1 x Screw M5 x 60 12.9 (zinc lamellar coating)	6090888
1 x Screw M5 x 70 12.9 (zinc lamellar coating)	6277554
1 x Screw M5 x 90 12.9 (zinc lamellar coating)	6277555

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

**Spare parts**

Part description	Part No.
Seal kit	4496158

**Bieri Hydraulik AG**

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