

2.2 Directional seated valve type G, WG and others

Directional seated valves are a type of directional valve. As ball valves they have zero leakage in the closed state.

The directional seated valve type G, WG, H, P, K, T and D is available as a 2/2, 3/2, 4/2, 3/3 and 4/3 directional seated valve with different actuation types. Actuation using a hand lever enables switchable pressures of up to 700 bar.

Appropriate connection blocks enable direct pipe connection. The directional seated valves are available in a combination of valves in valve bank type VB.

Features and benefits:

- Zero-leakage ball valve construction with high switching reliability
- Solenoid, pressure, mechanical or manual actuation
- Low shifting forces and gentle, smooth switching
- Operating pressures up to 700 bar

Intended applications:

- Machine tools (cutting and non-cutting)
- Clamping equipment, punching tools, jigs
- Rubber and plastics machinery
- Oil hydraulics and pneumatics



Nomenclature:	Directional seated valve, zero leakage
Design:	Individual valve, manifold mounting combination with sub-plates for pipe connection
Actuation:	Solenoid Pressure (hydraulic, pneumatic) Mechanical (roller, pin) Manual (hand lever, adjusting knob)
p_{max}:	700 bar
Q_{max}:	120 l/min

Design and order coding example

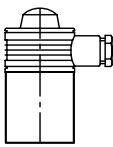

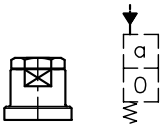
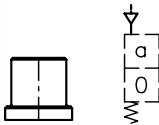
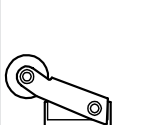
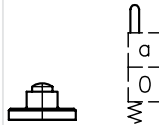
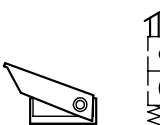
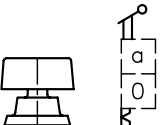
G	R2	- 3	R	- 1/2	- G24
					Solenoid voltage 12V DC, 24V DC, 110V AC, 230V AC
					Indiv. connection blocks for pipe connection Additional versions:
					<ul style="list-style-type: none"> ▪ Connection blocks with by-pass check valve or pressure limiting valve between P and R ▪ Connection block with bridge rectifier circuit. Check valves in "GRAETZ"-circuitry ensure flow direction through the valve
					Additional elements
					<ul style="list-style-type: none"> ▪ With check valve insert for port P ▪ With check valve insert for port P ▪ With return pressure stop for port R ▪ Position monitoring (size 3 and 4)
					Size Size 0 to 4
					<ul style="list-style-type: none"> ▪ Size 1 also available with industrial connection hole pattern NG 6 (CETOP), type NG ▪ Size 12 with interchangeable coil ▪ Size 22 reinforced version 700 bar
					Function
					<ul style="list-style-type: none"> ▪ 2/2-way directional valve (R2, S2) ▪ 3/2-way directional valve (3, Z3) ▪ 3/3-way directional valve (21, 39) ▪ 4/3 directional valve (22, 45, 46, 47, 48, 49) ▪ 4/2-way directional valve (4, Z4)
					Actuation
					<ul style="list-style-type: none"> ▪ Solenoid (G, WG) ▪ Hydraulic (H) ▪ Pneumatic (P) ▪ Mechanical (K, T, F, D)

Function

2/2-way directional valve		3/2-way directional valve		3/3-way directional valve	4/3-way directional valve	4/2-way directional valve	
R2	S2	3	Z3	21, 39	22, 45, 46, 47, 48, 49	4	Z4
					<p>22</p> <p>45</p> <p>46</p> <p>47</p> <p>48</p> <p>49</p>		

- Simplified symbols for 3/3-, 4/3- and 4/2-way functions
- Type 21, 22 not in size 4
- Type 39, 45, 46, 47, 48, 49 only in size 22
- Type 4, Z4 only in size 1

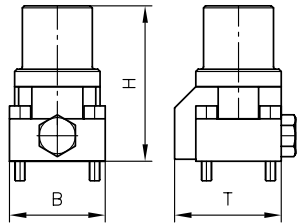
Actuation:

Solenoid		Pressure		Mechanical		Manual	
G	WG	Hydraulic	Pneumatic	Roller	Pin	Hand lever	Turn knob
H	P	K	T	F	D		
							
Solenoid voltages: 12V DC, 24V DC (type G) 230V AC (type WG)		Control pressure $p_{\text{contr. max}}$ [bar]: 400... 700		Shifting force [N]: 25... 80		Shifting force [N]: 25... 80	
		Control pressure $p_{\text{contr. min}}$ [bar]: 9... 16		Shifting travel [mm]: 10.5... 30		Shifting travel [mm]: 20.5... 45	
		15		51... 20		45... 98	
		2.5... 4		4 and 5			

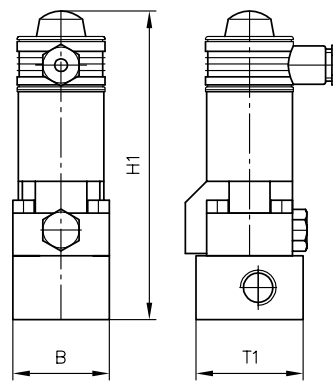
- Valve with solenoid actuation also available in ATEX-compliant version (24V DC)

General parameters and dimensions

Individual valve



Valve with connection block



Dimensions

Size	H _{max}	H1 _{max}	B		T _{max}	T1	m _{max} [kg]
			2/2- and 3/2-way	3/3- and 4/3-way			
0	90.5	110.5	36	75	41.5	40.0	0.8/1.0
1, 12	115	145	45	92	50	50	1.4/1.9
2, 22	126.5; 134.5	156.5; 161.5	56; 56	116; 116	62.5; 67.5	56; 56	2.9/3.9; 3.0/4.0
3	162	202	70	144	91.5	70	5.7/7.1
4	226	226	80	162	127	125	16.3/20.1

Size	Q _{max} [lpm]	P _{max} [bar]		Pressure				Mechanical		Manual		Ports P, R, A, B
		Solenoid		Pressure		Mechanical		Manual				
		G	WG	H	P	K	T	F	D			
0	6	300... 500		500	-	-	-	-	-	500	G 1/4	
1, 12	12	350... 500 (700)		500... 700		400... 700		400... 700		-	G 1/4 and G 3/8	
2	25	350 ... 500		500		400... 500		400... 500		-	G 3/8 and G 1/2	
22	25	700		500		400... 500		400... 500		-	G 3/8 and G 1/2	
3	65	350... 400		400	-	350	-	350	-	-	G 1/2 and G 3/4	
4	120	350		-	-	-	-	-	-	-	G 3/4 and G 1	

Circuit example:

RZ 4.0/2-12.3-B 75-V 5.5

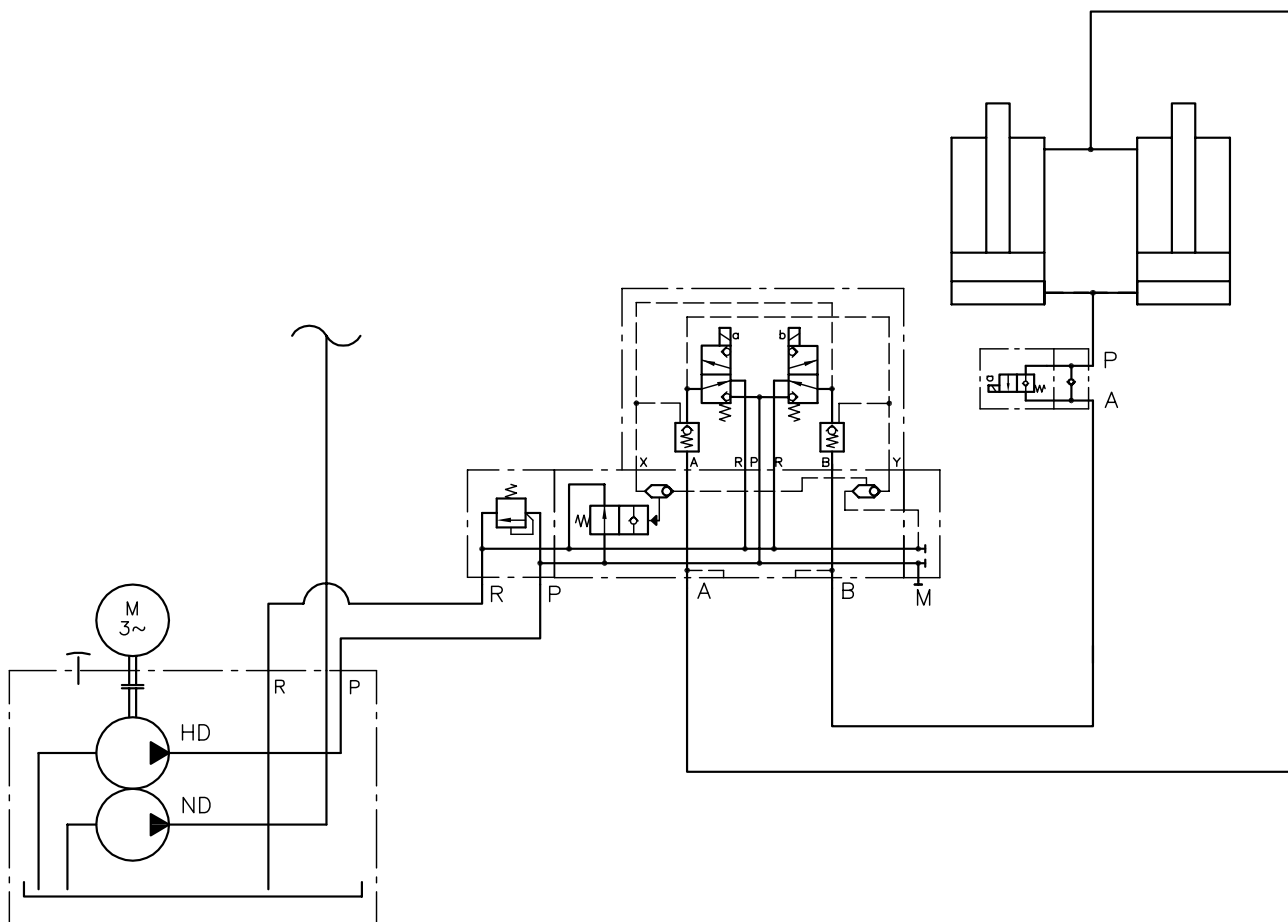
- 3 x 690/400 V 50 Hz

VB 22 AM 1/500

-G 49/U 22

-8 E-2-G 24

GR 2-12-3/8 C-G 24


Associated technical data sheets:

- [Directional seated valve type G, WG and others: D 7300](#)
- [Directional seated valve type NG, NGW and others: D 7300 N](#)
- [Directional seated valve type G, WG and others with position monitoring: D 7300 H](#)

Valve banks:

- Valve banks type VB: [Page 114](#)

Male connectors:

- [Line connector type MSD and others: D 7163](#)
- With economy circuit: [D 7813](#), [D 7833](#)