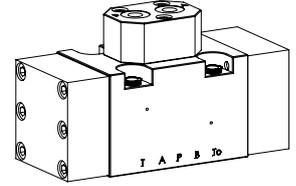


## Spool valve

### Flange construction

- ◆ hydraulically operated
- ◆ 4/2-way impulse execution detented
- ◆ 4/3-way with spring centred mid position
- ◆ 4/2-way with spring reset
- ◆  $Q_{max} = 100 \text{ l/min}$
- ◆  $p_{max} = 350 \text{ bar}$

**NG10**  
**ISO 4401-05**



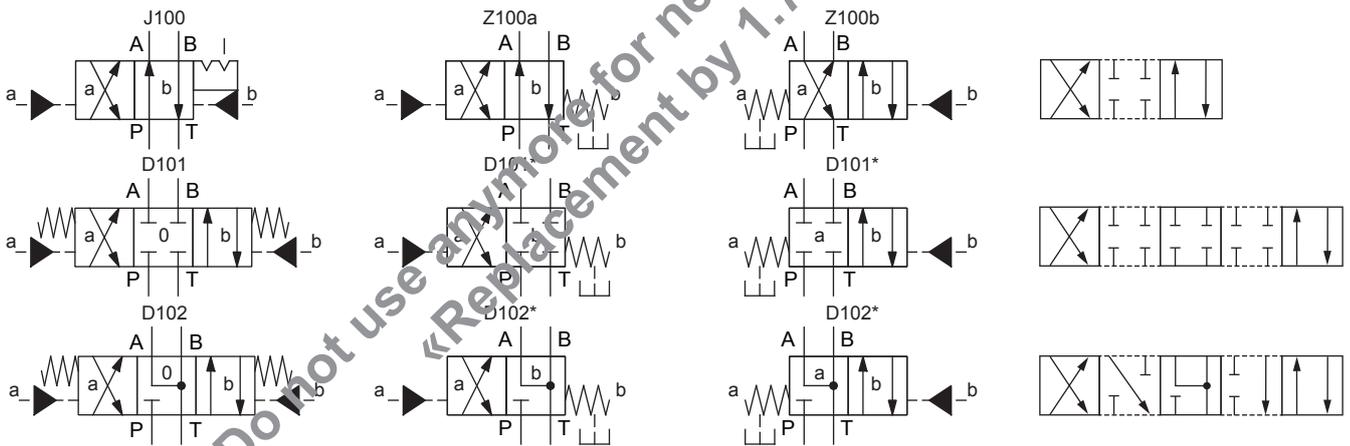
## DESCRIPTION

Direct operated spool valve hydraulically operated via pilot port with 4 connections in a 5 chamber system. Spool detented or with spring. Without actuation, the spool is held in the center position by the spring (4/3), or switched back to the offset position (4/2). With the detent, the spool is held in the last switching position selected. Precise spool fit, low leakage, long service life time. Spool made from hardened steel, body from high quality hydraulic cast steel.

## APPLICATION

Spool valves are mainly used for controlling direction of movement and stopping of hydraulic cylinders and motors. The direction of movement is determined by the position of the spool and its symbol.

## SYMBOL



\* These 4/2-way valves with spring reset are being delivered as 4/3-way valves.

### Note!



When the pilot ports are not actuated (without pressure), or not needed, the leakage oil must be discharged.

**TYPE CODE**

International standard interface ISO	A P 4 <input type="text"/> - <input type="text"/> # <input type="text"/>	
Hydraulically operated		
Number of control ports		
Designation of symbols acc. to table		
Sealing material	NBR <input type="checkbox"/>	FKM (Viton) <input type="checkbox"/>
		D1 <input type="checkbox"/>
Design index (subject to change)	1.7-40	

**GENERAL SPECIFICATIONS**

Designation	4/2-, 4/3-spool valve
Construction	Direct operated
Mounting	Flange construction
Nominal size	NG10 according to ISO 4401-05
Actuation	Hydraulically operated
Ambient temperature	-25...+70 °C
Weight	4,0 kg
MTTFd	150 years

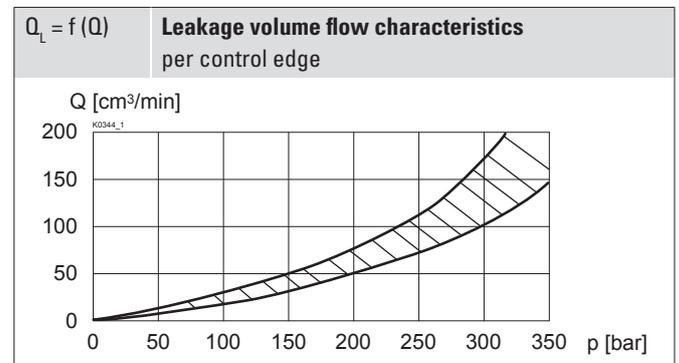
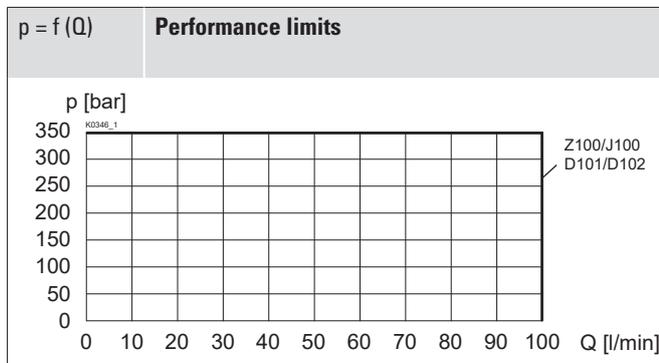
**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 350$ bar
Tank pressure	$p_{Tmax} = 200$ bar Resp. 12 bar lower than the control pressure
Maximum volume flow	$Q_{max} = 100$ l/min, see characteristics
Leakage oil	See characteristics
fluid	Mineral oil, other fluid on request
Viscosity range	12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s
Temperature range	-25...+70 °C (NBR) -20...+70 °C (FKM)
fluid	
Contamination efficiency	Class 20 / 18 / 14
Filtration	Required filtration grade $\beta_{10...16} \geq 75$ , see data sheet 1.0-50

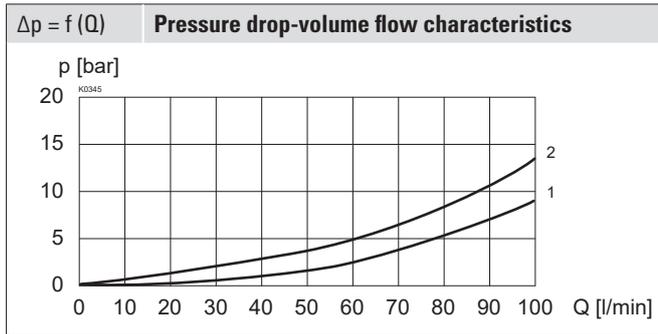
**ACTUATION**

Actuation	Hydraulically operated
Pilot pressure	$p_{min} = 12$ bar $p_{min} = 2,5$ bar (for AP1 J10) $p_{max} = 315$ bar
Control volume	$V = 1,5$ cm <sup>3</sup>

**PERFORMANCE SPECIFICATIONS**

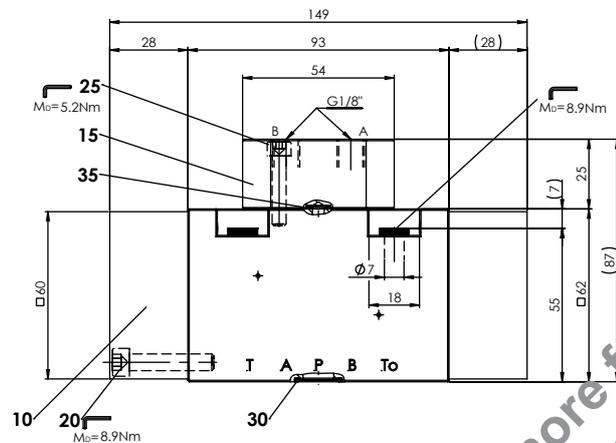
 Oil viscosity  $\nu = 30$  mm<sup>2</sup>/s


## PERFORMANCE SPECIFICATIONS

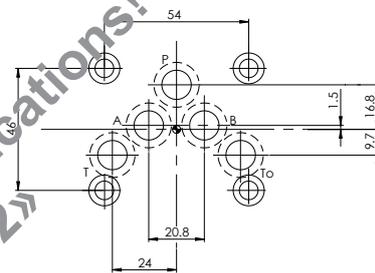
 Oil viscosity  $\nu = 30 \text{ mm}^2/\text{s}$ 


Symbol	Volume flow direction				
	P - A	P - B	P - T	A - T	B - T
Z100 / J100	1	1	-	1	2
D101	1	1	-	1	2
D102	1	1	-	1	2

## DIMENSIONS



## HYDRAULIC CONNECTION



## PARTS LIST

Position	Article	Description
10	059.2206	Cover
15	173.1503	Pilot plate NG4 Mini
20	246.3131	Socket head screw M6 x 30 DIN 912
25	246.2126	Socket head screw M5 x 25 DIN 912
80	160.2140	O-ring ID 14,00 x 1,78 (NBR)
50	160.2052	O-ring ID 5,28 x 1,78 (NBR)

## ACCESSORIES

Fixing screws	Data sheet 1.0-60
Threaded subplates	Data sheet 2.9-40
Multi-station subplates	Data sheet 2.9-70
Horizontal mounting blocks	Data sheet 2.9-110
Technical explanations	Data sheet 1.0-100
Hydraulic fluids	Data sheet 1.0-50
Filtration	Data sheet 1.0-50

## SEALING MATERIAL

NBR or FKM (Viton) as standard, choice in the type code

## STANDARDS

Mounting interface	ISO 4401-05
Contamination efficiency	ISO 4406

## INSTALLATION NOTES

Mounting type	Flange mounting 4 fixing holes for socket head screws M6 x 65
Mounting position	Any, preferably horizontal
Tightening torque	Fixing screws $M_0 = 8,9 \text{ Nm}$ (quality 8.8, zinc-coated)

### Note!



The length of the fixing screw depends on the base material of the connection element.

## SURFACE TREATMENT

- ◆ The valve body is painted with a two component paint
- ◆ The covers and the pilot port are zinc-nickel coated

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