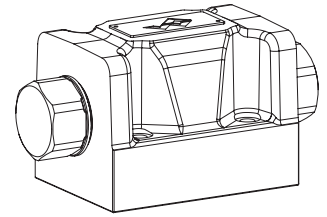


Spool valve

Flange construction

- ◆ hydraulically operated
- ◆ 4/2-way impulse execution detented
- ◆ 4/3-way with spring centred mid position
- ◆ 4/2-way with spring reset
- ◆ $Q_{max} = 160$ l/min
- ◆ $p_{max} = 350$ bar

NG10
ISO 4401-05



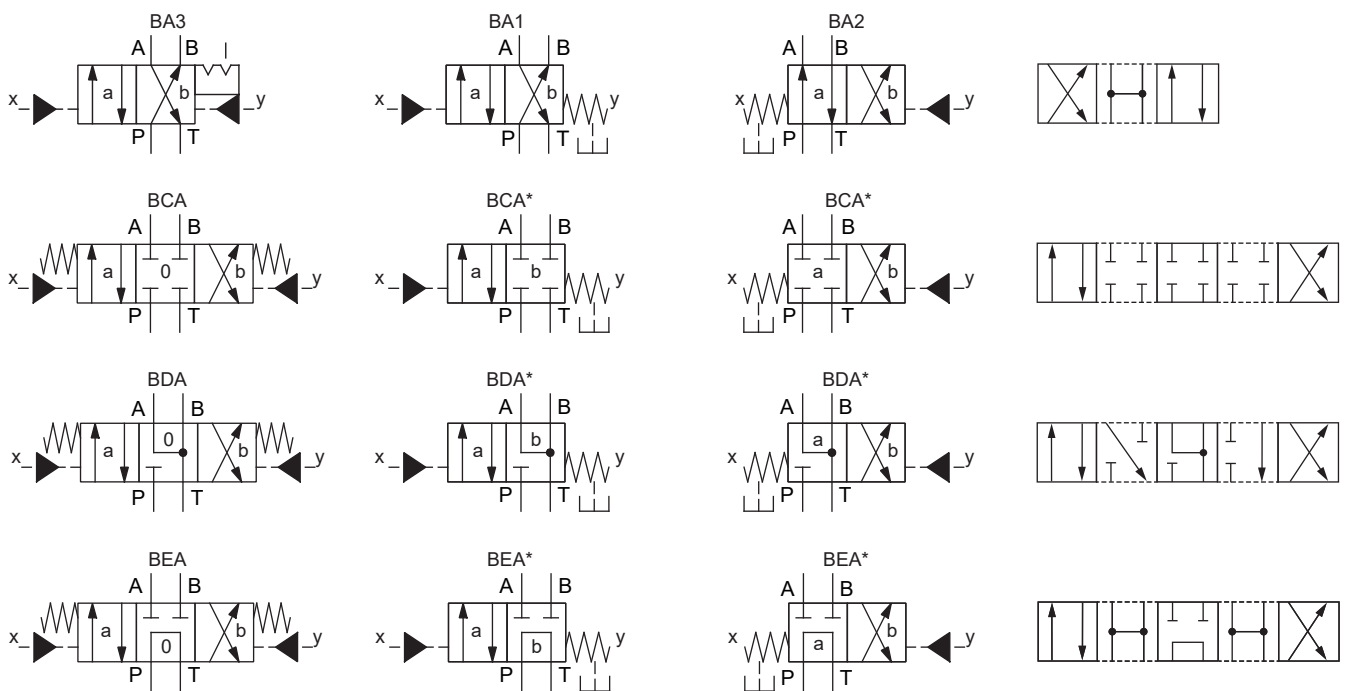
DESCRIPTION

Direct operated spool valve hydraulically operated via pilot port with 4 connections in a 5 chamber system. Spool detented or with spring reset. 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.

APPLICATION

Spool valves are mainly used for controlling direction of movement and stopping of hydraulic cylinders and motors.

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

		WF F F A10 - <input type="text"/> - <input type="text"/> - <input type="text"/> <input type="text"/> - <input type="text"/> # <input type="text"/>				
Spool valve, direct operated						
Hydraulically actuated						
Flange construction						
International standard interface ISO, NG10						
Designation of symbols acc. to table						
Pilot oil	via control plate via mounting interface	<input type="text"/> te <input type="text"/> ae				
Sealing material	NBR FKM (Viton) NBR 872	<input type="text"/> <input type="text"/> D1 <input type="text"/> y-Z604				
Orifice diameter		<input type="text"/> Q0,9 up to 70 bar pilot pressure <input type="text"/> Q0,7 up to 160 bar pilot pressure <input type="text"/> Q0,6 up to 350 bar pilot pressure				
Surface protection	Standard Zinc-nickel	<input type="text"/> <input type="text"/> K8				
Design index (subject to change)						

1.7-42

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	3,0 kg
MTTFd	150 years

HYDRAULIC SPECIFICATIONS

Working pressure	$p_{max} = 350$ bar
Tank pressure	p_{Tmax} for te = 160 bar p_{Tmax} for ae = 70 bar
Maximum volume flow	$Q_{max} = 160$ l/min, see characteristics
Leakage oil	See characteristics
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm ² /s...320 mm ² /s
Temperature range fluid	-25...+70 °C (NBR) -20...+70 °C (FKM) -40...+70 °C (NBR 872)
Contamination efficiency	Class 20 / 18 / 14
Filtration	Required filtration grade $\beta_{10...16} \geq 75$, see data sheet 1.0-50

STANDARDS

Mounting interface	ISO 4401-05
Contamination efficiency	ISO 4406

SEALING MATERIAL

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

ACTUATION

Actuation	Hydraulically operated
Pilot pressure	Recommended $p_v = 20$ bar $\Delta p (x-y) < 3$ bar for a stable position $\Delta p (x-y) > 12$ bar for secure switching

INSTALLATION NOTES

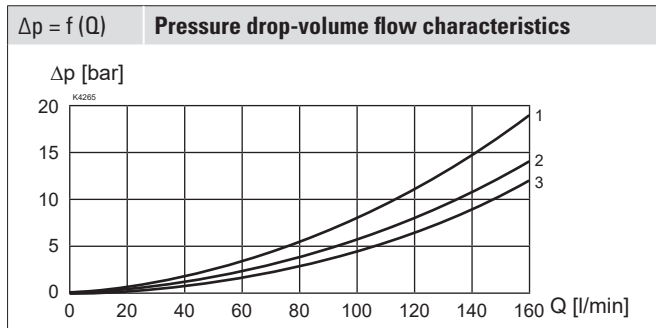
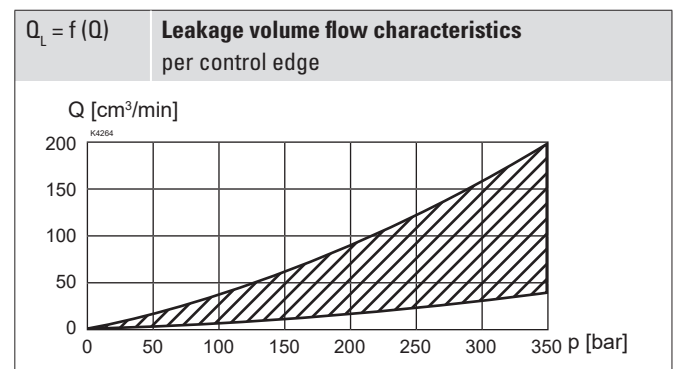
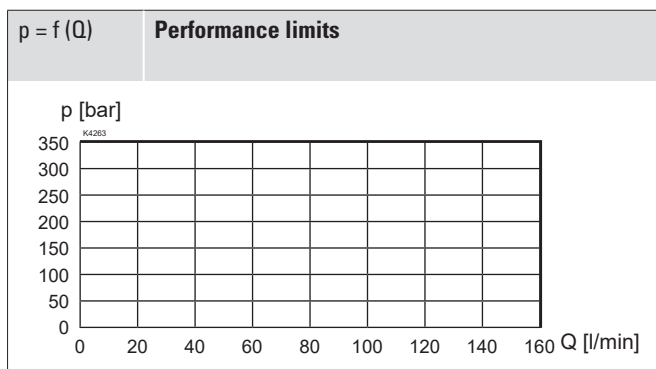
Mounting type	Flange mounting 4 fixing holes for socket head screws M6 x 40
Mounting position	Any, preferably horizontal
Tightening torque	$M_D = 10.5 \text{ Nm} \pm 10 \%$, quality 8.8

Note!


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

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
BA1 / BA2 / BA3	3	3	-	2	1
BCA	3	3	-	2	1
BDA	3	3	-	2	1

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
Filtration	Data sheet 1.0-50

SURFACE TREATMENT

Standard:

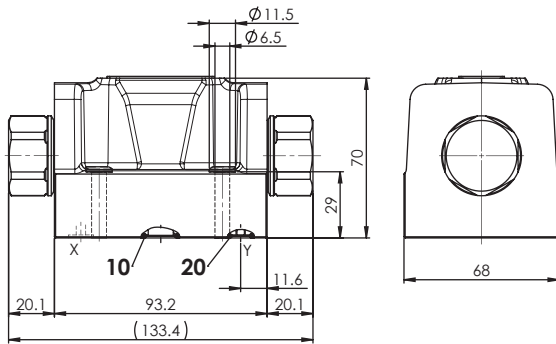
- The valve body is painted with a two component paint
- The screw plug and the control plate are zinc-nickel coated

Optionally (K8):

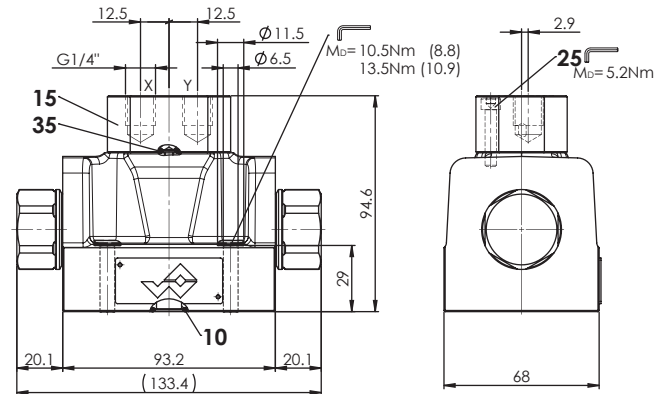
- All external parts are zinc-nickel coated
- ISO 9227 (800 h) salt spray test

DIMENSIONS

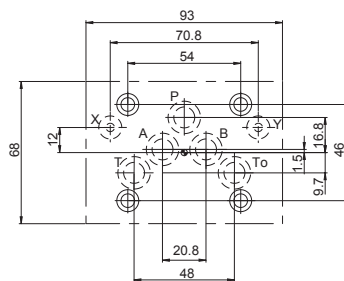
Pilot control ae



Pilot control te



HYDRAULIC CONNECTION



PARTS LIST

Position	Article	Description
10	160.2120	O-ring ID 12,42 x 1,78 (NBR)
	160.6124	O-ring ID 12,42 x 1,78 (FKM)
15	173.1516	Pilot plate NG4-Mini
20	160.2076	O-ring ID 7,65 x 1,78 (NBR)
	160.6076	O-ring ID 7,65 x 1,78 (FKM)
25	246.2126	Socket head screw M5 x 25 DIN 912
35	160.2052	O-ring ID 5,28 x 1,78 (NBR)
	160.6052	O-ring ID 5,28 x 1,78 (FKM)