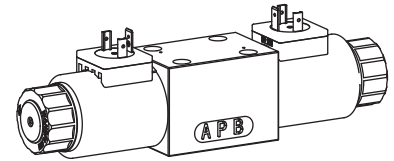


Proportional directional valve

- not pressure compensated
- $Q_{max} = 42 \text{ l/min}$
- $Q_{Nmax} = 32 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG6
 ISO 4401-03

DESCRIPTION

Direct operated proportional spool valve in flange design NG6 acc. to ISO 4401-03/7790 with 4 ports. The spool valve is designed to the 5 chamber principle. The volume flow is adjusted by a Wandfluh proportional solenoid (VDE standard 0580). Low pressure drop due to the body design and spool profiling. The spool is made of hardened steel. The body made of high grade hydraulic casting for long service life is painted. The armature tube and the plug crew are zinc coated. The solenoid coil is zinc-/nickel-coated.

FUNCTION

Proportionally to the solenoid current spool stroke, spool opening and valve volume flow will increase. Proportional directional valves NG6 are not load-compensated. The optimum spool shape and progressive characteristics curve allow fine motion control. To control the valve Wandfluh proportional amplifiers are available (see register 1.13).

APPLICATION

Proportional directional spool valves are well suited for demanding applications where high resolution, high volume flow and low hysteresis are requested. They are implemented in industrial hydraulics as well as in mobile hydraulics for the smooth control of hydraulic actuators. Application examples: pitch control of wind generators, forest and earth moving machines, machine tools and paper production machines with simple position controls, robotics and fan control.

TYPE CODE

		W	D	P	F	A06	-		-		-		/			-		#	
Spool valve																			
Direct operated																			
Proportional																			
Flange construction																			
International standard interface ISO, nominal size 6																			
Description of symbols acc. to table 1.10-77/2																			
Nominal volume flow Q_N	5 l/min					5													
	10 l/min					10													
	16 l/min					16													
	32 l/min					32													
Standard nominal voltage U_N	12 VDC					G12													
	24 VDC					G24													
	without solenoid coil					X5													
Slip-on coil	Metal housing, round					W													
	Metal housing, square					M*													
Electric connection	Connector socket EN 175301-803 / ISO 4400																		D
	Connector socket AMP Junior-Timer																		J
	Connector Deutsch DT04-2P																		G
Sealing material	NBR																		
	FKM (Viton)					D1													
Manual override	Integrated																		
	Push-button																		HF1
	Spindle																		HS1
Design-Index (Subject to change)																			

* Only available in conjunction with other nominal voltages and connection versions (see data sheet 1.1-181)

GENERAL SPECIFICATIONS

Nominal size	NG6 acc. to ISO 4401-03 / 7790	Ambient temperature	-20...+70 °C (slip-on coil «W») if > +50 °C, then $I_G - 10\%$
Designation	Direct operated proportional spool valve		-20...+70 °C (slip-on coil «*M»)
Construction	Direct operated spool valve	Mounting position	any, preferably horizontal
Operation	Proportional solenoid	Fastening torque	$M_0 = 5,5 \text{ Nm}$ (screw quality 8.8) for fixing screws $M_0 = 7 \text{ Nm}$ for knurled nut
Mounting	Flange, 4 fixing holes for socket head cap screws M5x50		
Connections	Connection plates Multi-station flange subplate Longitudinal stacking system		

Weight	
4/3-way	m = 2,0 kg
4/2-way (1 solenoid)	m = 1,5 kg

ELECTRICAL SPECIFICATIONS

Construction	Proportional solenoid, wet pin push type, pressure tight	
Standard-Nominal voltage	$U_N = 12$ VDC	$U_N = 24$ VDC
	on request	$I_G = 930$ mA
Limiting current		
Relative duty factor	100% DF (see data sheet 1.1-430)	
Protection class to EN 60529	Connection version D: IP 65 J: IP 66 G: IP 67 and 69K	
Connection/Power supply	Over device plug connection	
Coil versions	W.E45/23x50 (data sheet 1.1-182)	
Other electrical specifications	see data sheet 1.1-182 (W) 1.1-181 (M)	

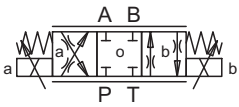
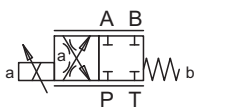
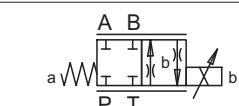
HYDRAULIC SPECIFICATIONS

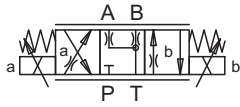
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 (Required filtration grade $\beta_{6...10} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure in port P, A, B	$p_{max} = 350$ bar
Tank pressure in port T	$p_{Tmax} = 250$ bar
Nominal volume flow	$Q_N = 5$ l/min, 10 l/min, 16 l/min, 32 l/min
Max. volume flow	see characteristic
Leakage volume flow	on request
Hysteresis	$\leq 5\%$ * * at optimal dither signal

MANUAL OVERRIDE

- Integrated (-) Actuation pin integrated in the armature tube.
- Push-button (HF1) integrated in the knurled nut.
Actuation by pressing the pin
- Spindle (HS1) integrated in the knurled nut.
Actuation by turning the spindle (infinitely variable valve actuation)

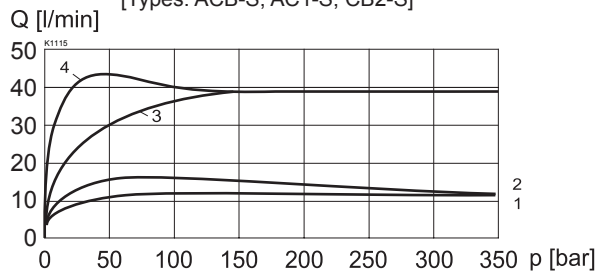
TYPE CHARTS / DESIGNATIONS OF SYMBOLS

	ACB - S S = Symmetrical control mode
	AC1 - S S = Symmetrical control mode
	CB2 - S S = Symmetrical control mode

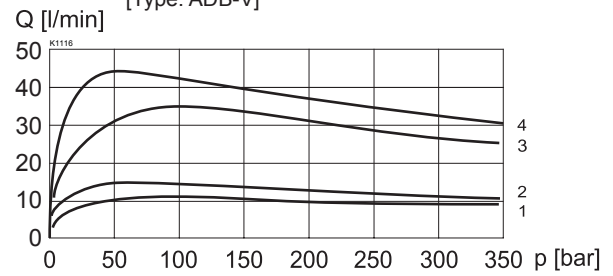
	ADB - V V = Meter-in control mode
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CHARACTERISTICS oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$

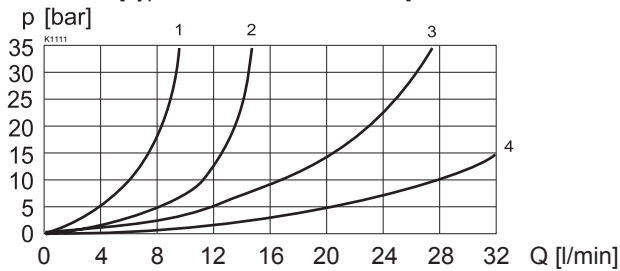
$Q = f(p)$ Volume flow pressure characteristics ($l = l_G$)
 [Types: ACB-S, AC1-S, CB2-S]



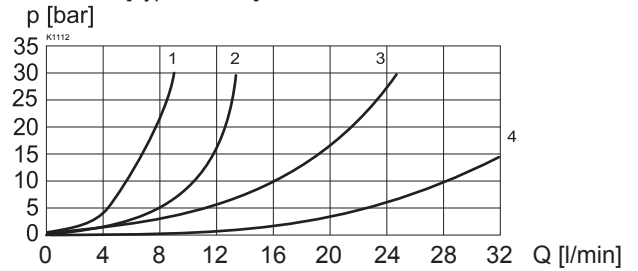
$Q = f(p)$ Volume flow pressure characteristics ($l = l_G$)
 [Type: ADB-V]



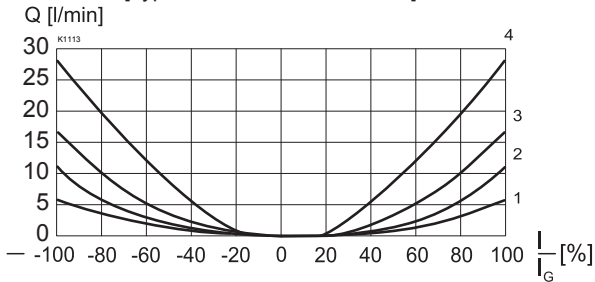
$\Delta p = f(Q)$ Pressure loss/flow characteristics ($l = l_G$)
 [Types: ACB-S, AC1-S, CB2-S]



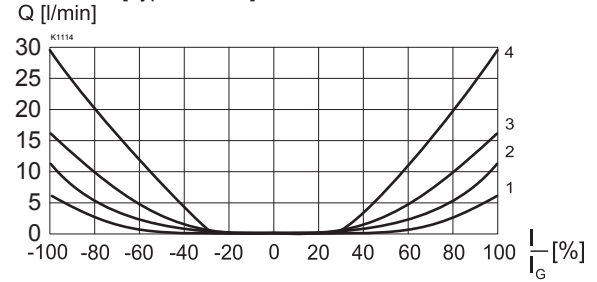
$\Delta p = f(Q)$ Pressure loss/flow characteristics ($l = l_G$)
 [Type: ADB-V]



$Q = f(l)$ Volume flow adjustment characteristics ($\Delta p = 10 \text{ bar}$)
 [Types: ACB-S, AC1-S, CB2-S]



$Q = f(l)$ Volume flow adjustment characteristics ($\Delta p = 10 \text{ bar}$)
 [Type: ADB-V]


Legend:

- 1: $Q_N = 5 \text{ l/min}$ 3: $Q_N = 16 \text{ l/min}$
 2: $Q_N = 10 \text{ l/min}$ 4: $Q_N = 32 \text{ l/min}$

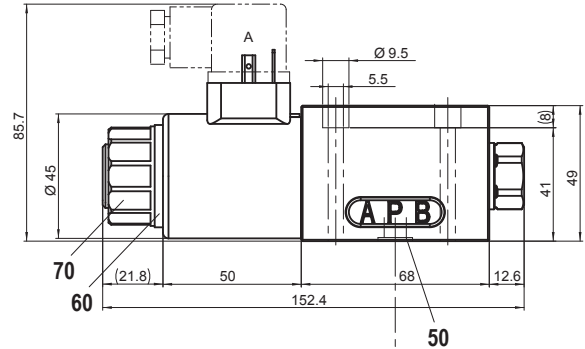
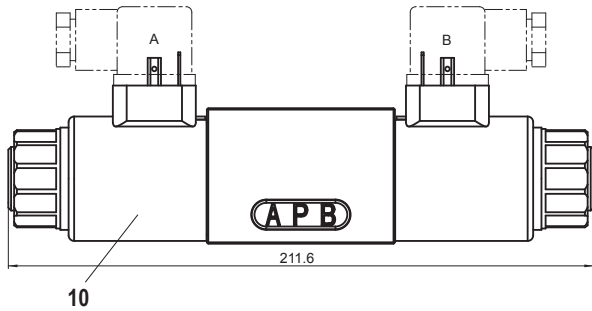

NOTE!

All values measured over 2 metering edges, A and B ports linked

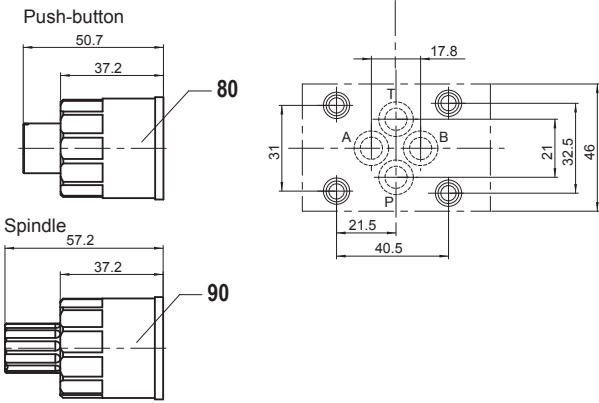
DIMENSIONS

4/3-way valve

4/2-way valve


PARTS LIST

Position	Article	Description
10	206.1...	W.E45/23x50
50	160.2093 160.6092	O-ring ID 9,25x1,78 (NBR) O-ring ID 9,25x1,78 (FKM)
60	160.2222 160.6222	O-ring ID 22,22x2,62 (NBR) O-ring ID 22,22x2,62 (FKM)
70	154.2701	Knurled nut
80	253.7991	Push-button
90	253.7002	Spindle


ACCESSORIES

Threaded connecting plates, Multi-flange subplates and Longitudinal stacking system see Reg. 2.9
 Proportional amplifier see Reg. 1.13
 Mating connector (A) EN175301-803 article no. 219.2001
 Mating connector (B) EN 175301-803 article no. 219.2002

Technical explanation see data sheet 1.0-100