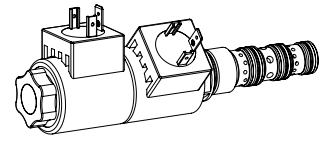


Proportional spool valve

Screw-in cartridge construction

- ◆ direct operated
- ◆ $Q_{max} = 28 \text{ l/min}$
- ◆ $Q_{Nmax} = 18 \text{ l/min}$
- ◆ $p_{max} = 350 \text{ bar}$

7/8"-14 UNF
Wandfluh standard


DESCRIPTION

Direct operated proportional spool valve in screw-in cartridge construction. Precise spool fit, low leakage, long service life time. The volume flow adjustment takes place by a Wandfluh proportional solenoid. The valve works according to the pull-push principle. With the control of the solenoids, the volume flow direction P to A or P to B can be selected. Thanks to the optimum spool form, sensitive movement processes are possible. For the control, Wandfluh proportional amplifiers are available (see register 1.13).

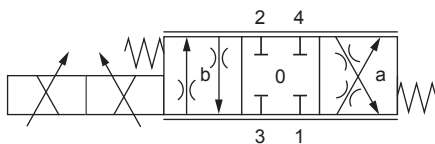
APPLICATION

Proportional spool valves are perfectly suitable for demanding tasks due to the high resolution, large volume flow and low hysteresis. The applications are in the industry as well as in the mobile hydraulics for the smooth control of hydraulic actuators. Some examples: control of the rotor blades of wind generators, forestry and earth moving machines, machine tools and paper production machines, simple position controls, robotics and fan control.

SYMBOL

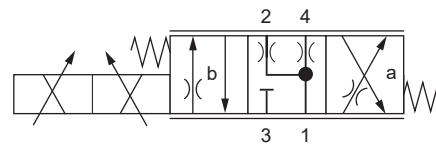
Symmetrical control

ACB-S



Meter-in control

ADB-V



TYPE CODE

		WD P PU10 - <input type="text"/> - 18 - <input type="text"/> / <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> # <input type="text"/>									
Spool valve, directly operated											
Proportional											
Screw-in cartridge 7/8"-14 UNF											
Designation of symbols acc. to table											
Nominal volume flow rate Q_N	18 l/min										
Nominal voltage U_N	12 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	24 VDC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	without coil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slip-on coil	Metal housing, round	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Metal housing, square	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Connection execution	Connector socket EN 175301-803 / ISO 4400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Connector socket AMP Junior-Timer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Connector Deutsch DT04-2P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sealing material	NBR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	FKM (Viton)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manual override	without	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	with	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design index (subject to change)											

1.10-2720

GENERAL SPECIFICATIONS

Designation	Proportional spool valve
Construction	Direct operated
Mounting	Screw-in cartridge construction
Nominal size	7/8"-14 UNF according to Wandfluh standard
Actuation	Proportional solenoid
Ambient temperature	-25...+70 °C if >50 °C, I _G is only conditionally achievable
Weight	0,69 kg (W) 0,79 kg (M)
MTTFd	150 years

ELECTRICAL SPECIFICATIONS

Protection class	Connection execution D: IP65 Connection execution J: IP66 Connection execution G: IP67 and IP69K
Relative duty factor	100 % DF
Standard nominal voltage	12 VDC, 24 VDC
Limiting current at 50 °C	I _G = 550 mA (W), 560 mA (M), U _N = 24VDC I _G = 1100 mA (W), 1080 mA (M), U _N = 12VDC

Note! Other electrical specifications see data sheet 1.1-169 (slip-on coil W) and 1.1-171 (slip-on coil M)



MANUAL OVERRIDE

Optionally: HP

SURFACE TREATMENT

- ◆ The cartridge body is gas-nitro-carburised
- ◆ The armature tube is zinc coated
- ◆ The slip-on coil is zinc- / nickel-coated

STANDARDS

Cartridge cavity	Wandfluh standard
Solenoids	DIN VDE 0580
Connection execution D	EN 175301 – 803
Protection class	EN 60 529
Contamination efficiency	ISO 4406

ACTUATION

Actuation	Proportional solenoid, wet pin pull and push type, pressure tight.
Execution	W.E37 / 16 x 40 (Data sheet 1.1-169) M.E35 / 16 x 40 (Data sheet 1.1-171)
Connection	Connector socket EN 175301 – 803 Connector socket AMP Junior-Timer Connector Deutsch DT04 – 2P

HYDRAULIC SPECIFICATIONS

Working pressure	p _{max} = 350 bar
Tank pressure	p _{Tmax} = 250 bar
Maximum volume flow	Q _{max} = 28 l/min, see characteristics
Leakage oil	See characteristics
Hysteresis	≤ 5 % at optimal dither signal
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)
Contamination efficiency	Class 18 / 16 / 13
Filtration	Required filtration grade β _{6...10} ≥ 75, see data sheet 1.0-50

SEALING MATERIAL

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

ACCESSORIES

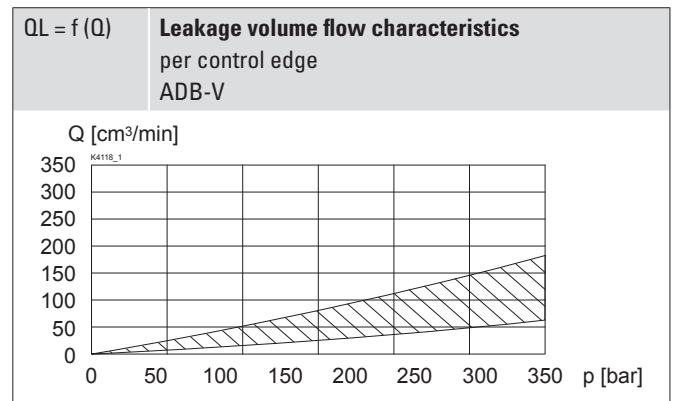
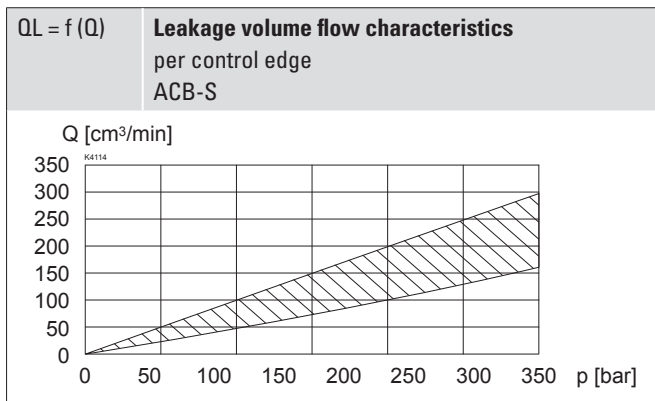
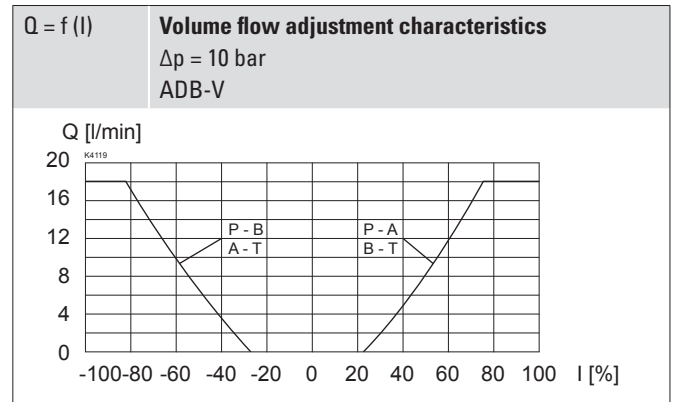
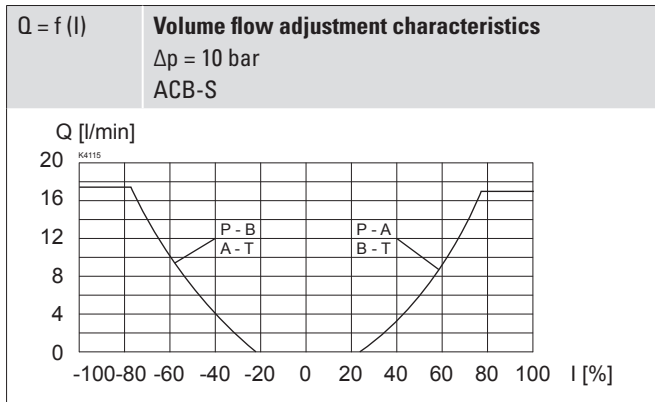
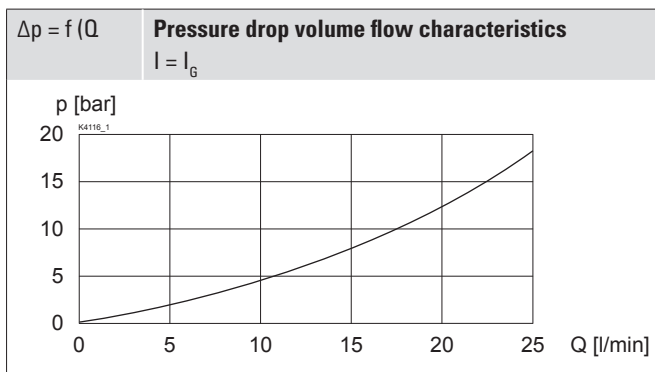
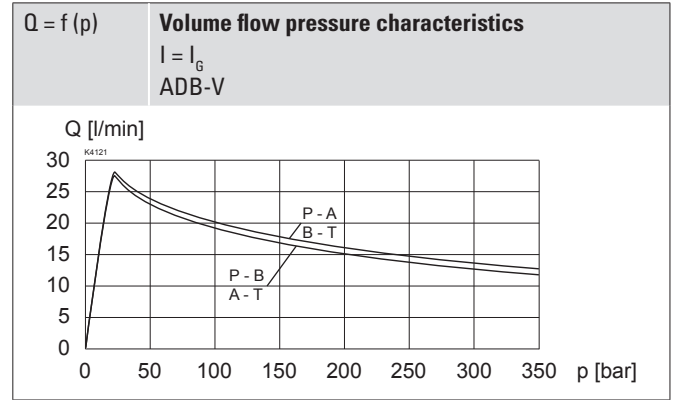
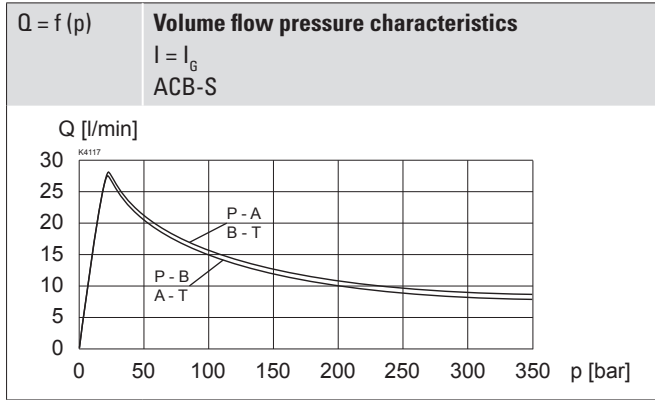
Mating connector grey (A)	Article no. 219.2001
Mating connector black (B)	Article no. 219.2002
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50
Relative duty factor	Data sheet 1.1-430

INSTALLATION NOTES

Mounting type	Screw-in cartridge type 7/8"-14 UNF
Mounting position	Any, preferably horizontal
Tightening torque	M _D = 50 Nm Screw-in cartridge M _D = 5 Nm knurled nut

PERFORMANCE SPECIFICATIONS

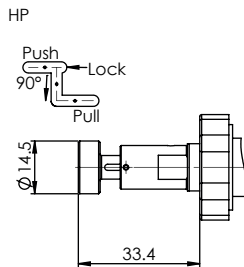
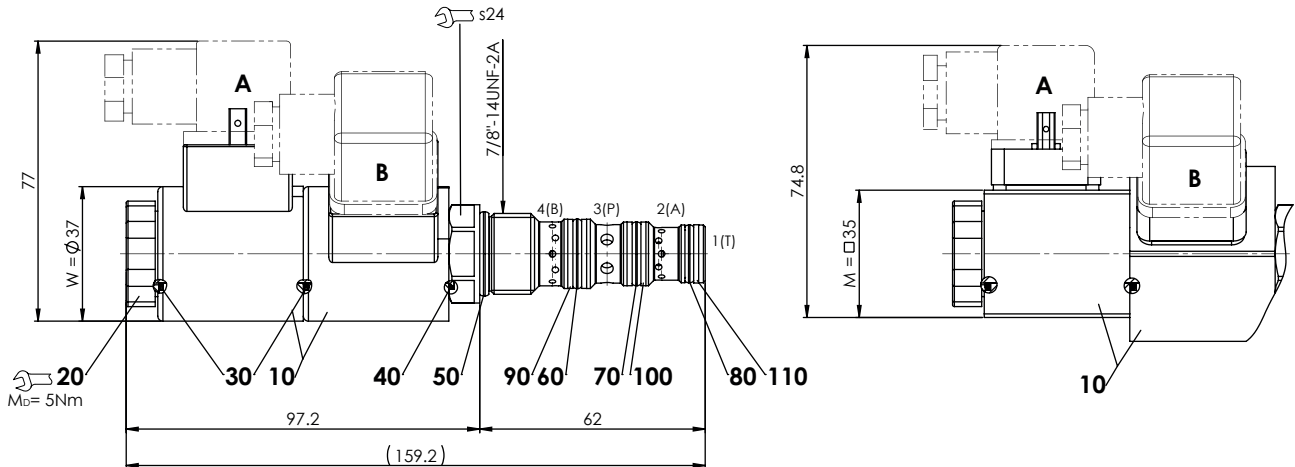
Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$



Note! All values were measured over two control edges. The connections A and B were short-circuited.

DIMENSIONS

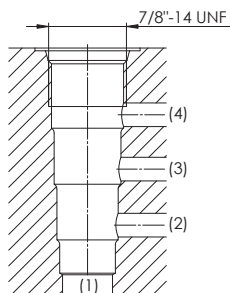
4/3-way spool valve



Attention! The actuation of the manual override is possible up to a tank pressure of approx. 100 bar. The manual override cannot be retrofitted.

HYDRAULIC CONNECTION

Cavity drawing according to Wandfluh standard



Attention! For detailed cavity drawing and cavity tools see data sheet 2.13-1057



PARTS LIST

Position	Article	Description
10	206.2...	W.E37 / 16 x 40
	260.4...	M.E35 / 16 x 40
20	157.2600	Knurled nut M 16 x 1 x 9
30	160.2156	O-ring ID 15,60 x 1,78 (NBR)
40	160.1162	O-ring ID 16,00 x 1,25 (NBR)
50	160.2188	O-ring ID 18,77 x 1,78 (NBR)
	160.6188	O-ring ID 18,77 x 1,78 (FKM)
60	160.2156	O-ring ID 15,60 x 1,78 (NBR)
	160.6156	O-ring ID 15,60 x 1,78 (FKM)
70	160.2140	O-ring ID 14,00 x 1,78 (NBR)
	160.6141	O-ring ID 14,00 x 1,78 (FKM)
80	160.2120	O-ring ID 12,42 x 1,78 (NBR)
	160.6124	O-ring ID 12,42 x 1,78 (FKM)
90	049.3196	Backup ring rd 16,1 x 19 x 1,4
100	049.3177	Back-up ring rd 14,6 x 17,5 x 1,4
110	049.3166	Backup ring rd 13,1 x 16 x 1,4