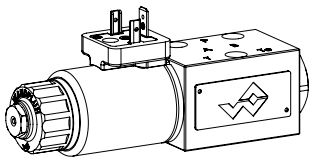
Proportional pressure reducing valve

Flange construction

- direct operated
- Q_{max} = 4 l/min
- p_{max} = 350 bar
- $p_{N\ red\ max}$ = 25 bar

NG4-Mini
Wandfluh standard



DESCRIPTION

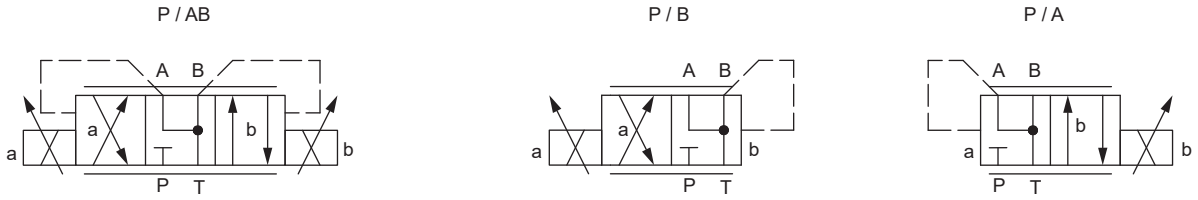
Direct operated proportional pressure reducing valve in flange construction. Proportionally to the solenoid current, the solenoid force increases on the a-side and on the b-side, respectively, whereby the pressure increases in port B and A, respectively. The valve operates practically independently of the input pressure. Pressure increase in the consumer port to above the adjusted value, e.g. through an active consumer, is avoided by discharging excess oil to the tank. With the solenoid deenergised, the oil flows freely from consumer port to the tank. For the control, Wandfluh proportional amplifiers are available (see register 1.13).

APPLICATION

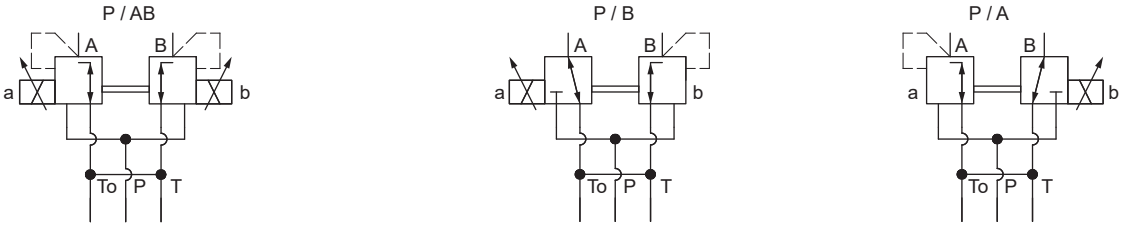
This pressure reducing valve is used as a pilot valve for proportional spool valves NG10 (WV_FA10). The electrical remote control in conjunction with process controls allows economical solutions with repeatable processes.

SYMBOL

simplified



detailed



ACTUATION

Actuation	Proportional solenoid, wet pin push type, pressure tight
Execution	W.S37 / 19 x 50 (Data sheet 1.1-173) M.S35 / 19 x 50 (Data sheet 1.1-174)
Connection	Connector socket EN 175301 – 803 Connector socket AMP Junior-Timer Connector Deutsch DT04 – 2P

INSTALLATION NOTES

Mounting type	Flange mounting 3 fixing holes for socket head screws M5 x 40
Mounting position	Any, preferably horizontal
Tightening torque	Fixing screws M_D = 5,2 Nm (screw quality 8.8, zinc coated) M_D = 5 Nm knurled nut

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

TYPE CODE

M D P F A04 - [ ] - [ ] - [ ] / [ ] [ ] - [ ] [ ] # [ ]

Pressure reducing valve				
Direct operated				
Proportional				
Flange construction				
Mounting interface according to Wandfluh standard, NG4-Mini				
Regulation	in A and B	P/AB	in B	P/B
	in A	P/A		
Nominal pressure range $p_{N\,red}$	25 bar	25		
Nominal voltage U_N	12 VDC	G12		
	24 VDC	G24		
	without coil	X5		
Slip-on coil	Metal housing round			W
	Metal housing square			M
Connection execution	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	Manual override			HB4,5
	Screw plug			HB0
Design index (subject to change)				

2.3-825

GENERAL SPECIFICATIONS

Designation	Proportional pressure reducing valve
Construction	Direct operated
Mounting	Flange construction
Nominal size	NG4-Mini according to Wandfluh standard
Actuation	Proportional solenoid
Ambient temperature	-25…+70 °C
Weight	900 kg (1 solenoid) 1300 kg (2 solenoids)
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 = 1360 mA (U_N = 12VDC) I_G = 680 mA (U_N = 24VDC)

Note! Other electrical specifications see data sheet 1.1-173 (slip-on coil W) and 1.1-174 (slip-on coil M)

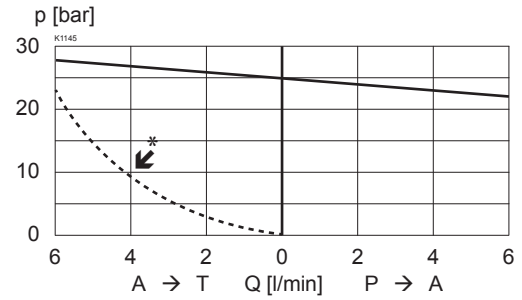
HYDRAULIC SPECIFICATIONS

Working pressure	p_{max} = 350 bar
Nominal pressure range	$P_{N\,red}$ = 25 bar
Minimum adjustable pressure	< 0,5 bar
Volume flow range	Q = 0…4 l/min
Leakage oil	**p_{sys} = 350 bar** p_{red} = 0 bar: < 100 ml/min p_{red} = 25 bar: < 320 ml/min
Hysteresis	≤ 4 % at optimal dither signal
Repeatability	≤ 1 % at optimal dither signal
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm²/s…320 mm²/s
Temperature range fluid	-25…+70 °C (NBR) -20…+70 °C (FKM)
Contamination efficiency	Class 18 / 16 / 13
Filtration	Required filtration grade ß 6…10 ≥ 75, see data sheet 1.0-50

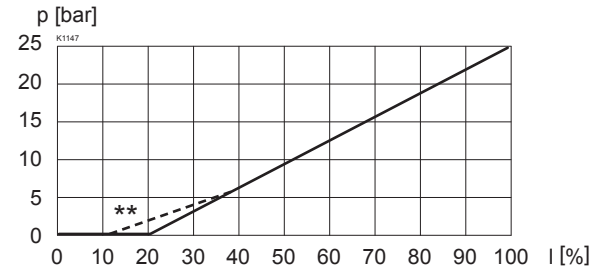
PERFORMANCE SPECIFICATIONS

Oil viscosity υ = 30 mm²/s

p_{red} = f (Q)	**Pressure volume flow characteristics** Statically adjusted at nominal pressure 25 bar execution *Limit of the operating range

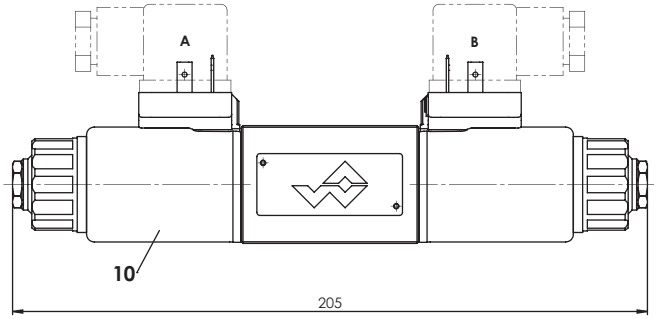


p_{red} = f (n)	**Pressure adjustment characteristics** Measured at Q = 0 l/min (static) 25 bar execution **Slightly increased hysteresis

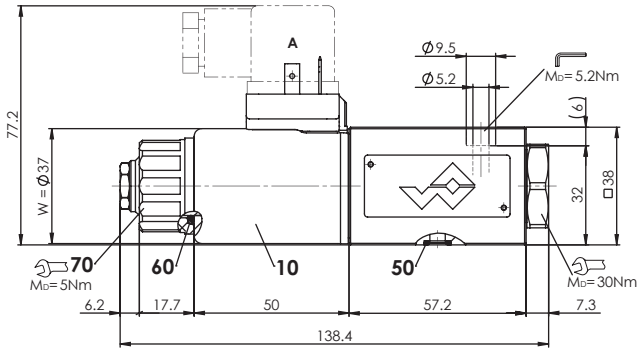


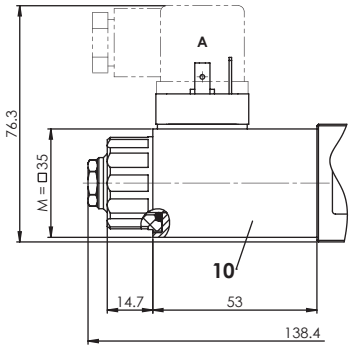
DIMENSIONS

Actuation on both sides

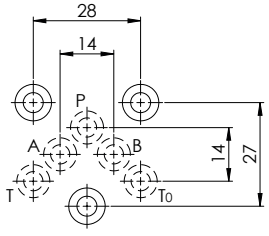


Actuation on A or B side





HYDRAULIC CONNECTION



PARTS LIST

Position	Article	Description
10	206.2… 260.5…	W.S37 / 19 x 50 M.S35 / 19 x 50
50	160.2052 160.6052	O-ring ID 5,28 x 1,78 (NBR) O-ring ID 5,28 x 1,78 (FKM)
60	160.2187	O-ring ID 18,72 x 2,62 (NBR)
70	154.2700	Knurled nut

ACCESSORIES

Proportional amplifier	Register 1.13
Threaded subplates	Data sheet 2.9-10
Multi-station subplates	Data sheet 2.9-50
Module type manifold blocks	Data sheet 2.9-90
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50

STANDARDS

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

SURFACE TREATMENT

- The valve body is painted with a two component paint
- The slip-on coil and the armature tube are zinc nickel coated

MANUAL OVERRIDE

HB4,5
Optionally: Screw plug (HB0), no actuation possible

SEALING MATERIAL

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

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