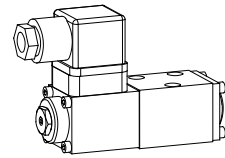


Proportional directional valve

- not pressure compensated
- $Q_{max} = 10 \text{ l/min}$
- $Q_N = 5 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG3-Mini[®]

DESCRIPTION

Direct operated proportional spool valve in flange design NG3-Mini according to Wandfluh standard 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). The spool is made of hardened steel. The body made of high grade hydraulic casting for long service life is painted. The cover and the solenoid are zinc coated.

FUNCTION

Proportionally to the solenoid current spool stroke, spool opening and valve volume flow will increase. Proportional directional valves NG3-Mini 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. They are implemented in industrial hydraulics as well as in mobile hydraulics for the smooth control of hydraulic actuators.

Mini-3 valves are used where both, reduced dimensions and weight are important.

TYPE CODE

		WDP F A03 - <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> # 2	
Spool valve, direct operated, proportional			
Flange construction			
Interface acc. to Wandfluh standard, NG3-Mini			
Description of symbols acc. to table			
Nominal volume flow Q_N	1 l/min	<input type="checkbox"/>	
	2 l/min	<input type="checkbox"/>	
	5 l/min	<input type="checkbox"/>	
Nominal voltage U_N	12 VDC	<input type="checkbox"/>	
	24 VDC	<input type="checkbox"/>	
Sealing material	NBR	<input type="checkbox"/>	
	FKM (Viton)	<input type="checkbox"/>	
Design-Index (Subject to change)			

GENERAL SPECIFICATIONS

Nominal size	NG3-Mini acc. to Wandfluh standard
Designation	4/2-, 4/3-way prop. directional valve
Construction	Direct operated spool valve
Mounting	Flange, 3 fastening holes for socket head cap screws M4x30
Fastening torque	2,8 Nm (qual. 8.8)
Pipe connection	Connection plates Multi-station flange subplate Longitudinal stacking system
Mounting position	any, preferably horizontal
Ambient temperature	-20...+50°C
Weight: 1 solenoid-version	m = 0,5 kg
2 solenoid-version	m = 0,6 kg

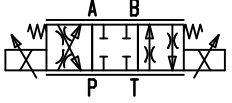
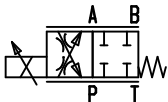
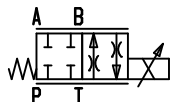
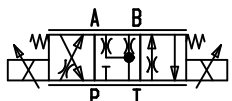
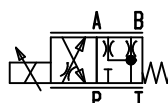
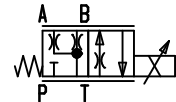
ELECTRICAL SPECIFICATIONS

Construction	Proportional solenoid, wet pin push type, pressure tight	
Standard-Nominal voltage	U = 12 VDC	U = 24 VDC
	Limiting current	$I_G = 1080 \text{ mA}$
Relative duty factor	100% DF (see data sheet 1.1-430)	
Protection class	IP 65 acc. to EN 60 529	
Connection/Power supply	Over device plug connection acc. to ISO 4400/DIN 43650 (2P+E)	
Other electrical specifications	see data sheet 1.1-90 (PI29V)	

HYDRAULIC SPECIFICATIONS

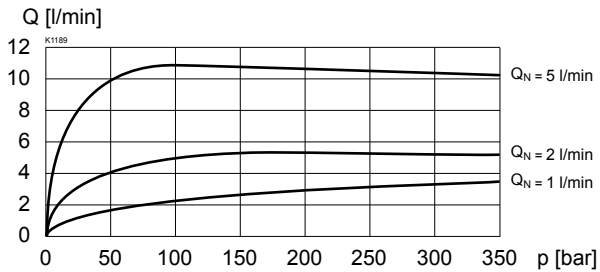
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 (Required filtration grade $\beta_{6...10} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure in port P, A, B	$p_{max} = 350 \text{ bar}$ ($p_T < 20 \text{ bar}$) $p_{max} = 315 \text{ bar}$ ($p_T > 20 \text{ bar}$)
Tank pressure in port T	$p_{Tmax} = 100 \text{ bar}$
Nominal volume flow	$Q_N = 1 \text{ l/min}, 2 \text{ l/min}, 5 \text{ l/min}$ at 10 bar pressure drop over 2 metering edges
Max. volume flow	$Q_{max} = 10 \text{ l/min}$ see characteristic
Leakage volume flow	see characteristic
Hysteresis	$\leq 5\% *$ * by optimal dithersignal

TYPE CHARTS / DESIGNATIONS OF SYMBOLS

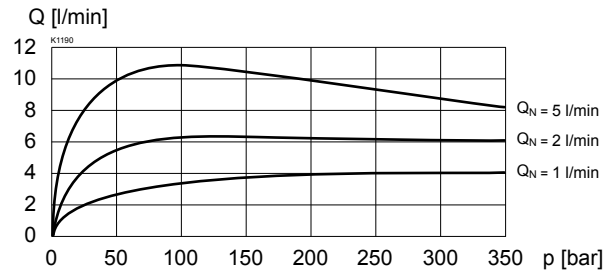
	ACB - S S = Symmetrical control mode
	AC1 - S S = Symmetrical control mode
	CB2 - S S = Symmetrical control mode
	ADB - V V = Meter-in control mode
	AD1 - V V = Meter-in control mode
	DB2 - V V = Meter-in control mode

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

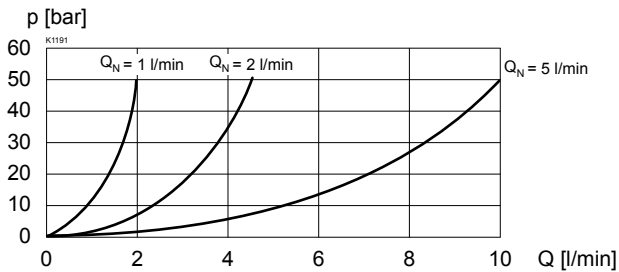
$Q = f(p)$ Volume flow-pressure-characteristics ($l = l_0$)
Types: ACB, AC1, CB2



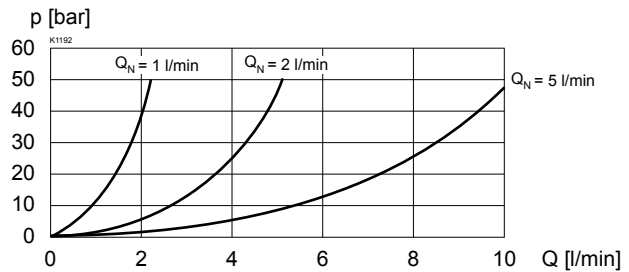
$Q = f(p)$ Volume flow-pressure-characteristics ($l = l_0$)
Types: ADB, AD1, DB2



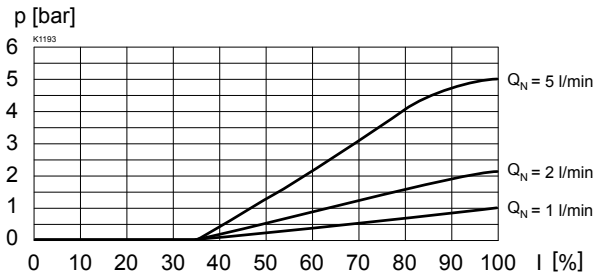
$\Delta p = f(Q)$ Pressure loss/flow-characteristics ($l = l_0$)
Types: ACB, AC1, CB2



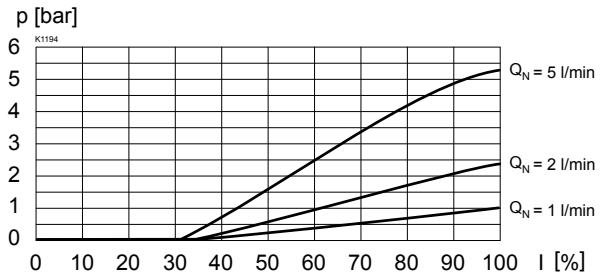
$\Delta p = f(Q)$ Pressure loss/flow-characteristics ($l = l_0$)
Types: ADB, AD1, DB2



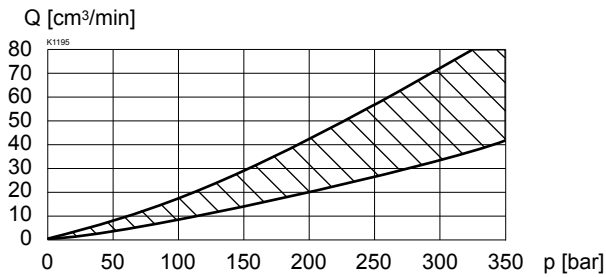
$Q = f(I)$ Volume flow-signal-characteristics ($\Delta p = 10 \text{ bar}$)
 Types: ACB, AC1, CB2



$Q = f(I)$ Volume flow-signal-characteristics ($\Delta p = 10 \text{ bar}$)
 Types: ADB, AD1, DB2

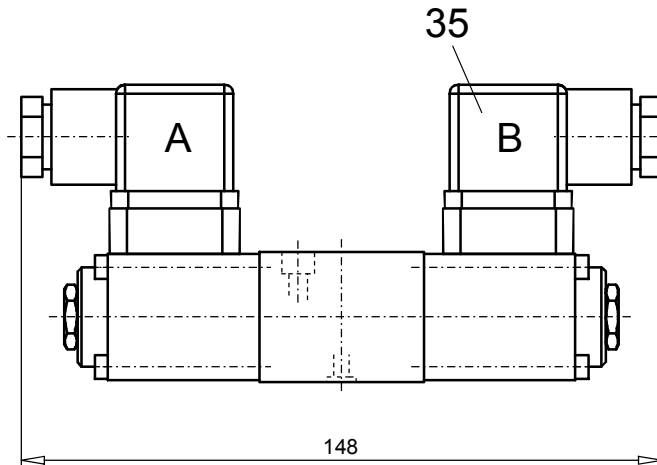


$Q_L = f(p)$ Leakage-characteristics

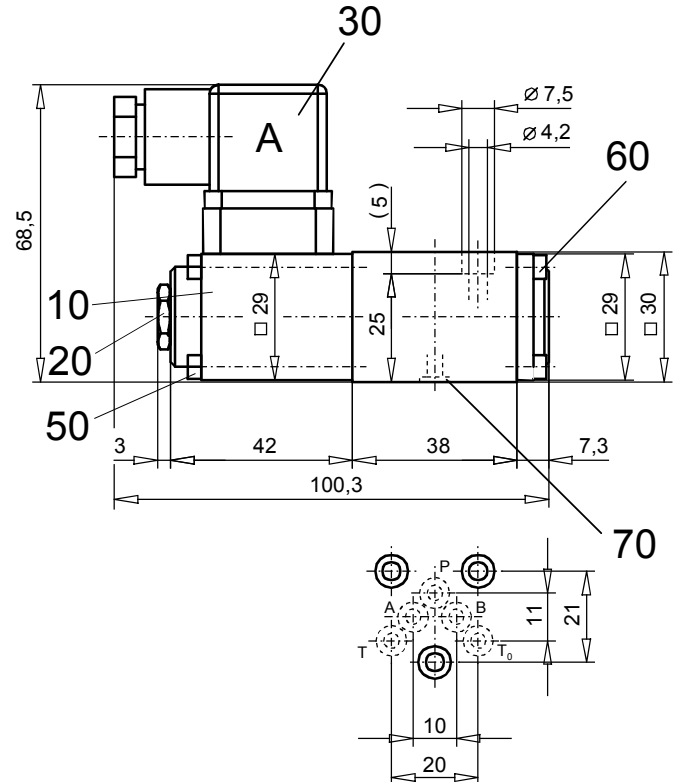


DIMENSIONS

4/3-way valve



4/2-way valve



PARTS LIST

Position	Article	Description
10	256.2453 256.2418	Proportional solenoid PI29V-G24 Proportional solenoid PI29V-G12
20	253.8000	Plug with integrated manual override HB4,5
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
50	246.0141	Socket head cap screw M3x40 DIN 912
60	246.0109	Socket head cap screw M3x8 DIN 912
70	160.2045	O-ring ID 4,50x1,5

ACCESSORIES

Sub-plates
 Proportional-amplifier

Register 2.9
 Register 1.13

Technical explanation see data sheet 1.0-100