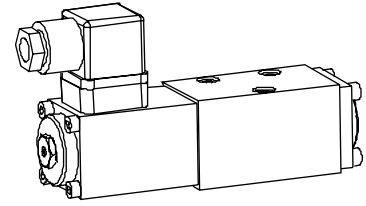


Proportional directional valve

- pressure compensated
- $Q_{max} = 8 \text{ l/min}$
- $p_{max} = 250 \text{ bar}$

NG4-Mini[®]

Cetop RP 121 H-P02


DISCRIPTION

Directly controlled spool valve, actuated by a proportional solenoid, in five chamber design. Wet solenoid in oil. Spools with precision machined oil passages control the oil volume which is proportional to the solenoid current. Reduced pressure drop achieved by optimised flow channels. Precise spool fit, long life. Spool made of hardened steel, valve body made of high quality cast iron suitable for hydraulic valves. Flange type, threaded connection by means of a connecting plate.

FUNCTION

Spool stroke, aperture and volume flow increase proportionally to the increase in the electric current at the proportional solenoid. This special design senses and compensates load induced flow changes. Flow remains constant with varying pressure. The optimised shape of the spool results in a good resolution of flow important for sensitive motion control. To operate proportional directional valves Wandfluh electronic amplifiers are required. (see register 1.13)

APPLICATION

Because of the high resolution and low hysteresis, these valves are particularly suitable for demanding tasks. Applications: handling operations, robots, actuators, radar controlled vehicles, tool making and paper production machines, in other words anywhere where precise control systems are needed.

CONTENT

GENERAL SPECIFICATIONS	1.10-06/1
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ELECTRICAL SPECIFICATIONS	1.10-06/1
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DIMENSIONS	1.10-06/3
PARTS LIST	1.10-06/3
ACCESSORIES	1.10-06/3

TYPE CODE

VWS	4		-		-	TF	-		#	
Proportional control valve										
Number of control ports										
Symbol type see chart on page 2										
Nominal volume flows:										
$Q_N = 2 \text{ l/min}$	<input type="text" value="02"/>	$Q_N = 6 \text{ l/min}$	<input type="text" value="06"/>							
$Q_N = 4 \text{ l/min}$	<input type="text" value="04"/>	$Q_N = 8 \text{ l/min}$	<input type="text" value="08"/>							
Normally closed										
Supply voltage	12 VDC	<input type="text" value="G12"/>								
	24 VDC	<input type="text" value="G24"/>								
Design-Index (Subject to change)										

GENERAL SPECIFICATIONS

Nominal size	NG4-Mini to Cetop RP 121 H-P02
Designation	4/2-, 4/3- Proportional control valve
Construction	Direct operated spool valve
Mounting	Flange, 4 holes for socket cap screws M5x40
Fastening torque	$M_D = 5,5 \text{ Nm}$ (screw quality 8.8)
Pipe connection flange	Connection plates, Multi-station subplate, Longitudinal stacking system
Mounting position	any
Ambient temperature	-20...+50° C
Weight: 4/2-way	$m = 1,1 \text{ kg}$
4/3-way	$m = 1,4 \text{ kg}$

ELECTRICAL SPECIFICATIONS

Construction	Proportional solenoid, wet pin push type, pressure tight.	
Standard-Nominal voltage	$U = 12 \text{ VDC}$	$U = 24 \text{ VDC}$
Limiting current	$I_G = 1250 \text{ mA}$	$I_G = 680 \text{ mA}$
Relative duty factor	100% DF (see data sheet 1.1-430)	
Protection class	IP 65 to DIN 40050	
Connection/Power supply	Over device plug connection to ISO 4400/ DIN 43650 (2P+E)	
Other electrical specifications	see data sheet 1.1-115 (PI35V)	

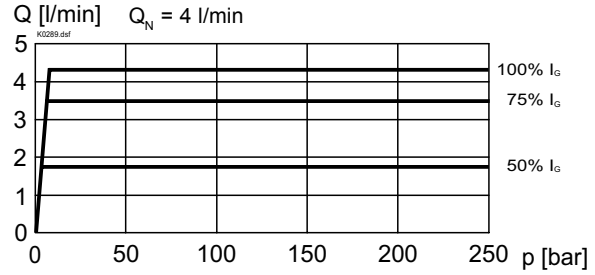
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406 class 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	$p_{max} = 250 \text{ bar}$ (ports P, A, B)
Tank pressure	max tank pressure in T $p_{max} = 160 \text{ bar}$
Nominal volume flows	$Q_N = 2 \text{ l/min}$ $Q_N = 6 \text{ l/min}$ $Q_N = 4 \text{ l/min}$ $Q_N = 8 \text{ l/min}$
Min. volume flow	$Q_{min} = 0,020 \text{ l/min}$
Leakage volume flow	on request
Resolution	1 mA *
Repeatability	≤ 1 % *
Hysteresis	≤ 2 % *
	* by optimal dithersignal

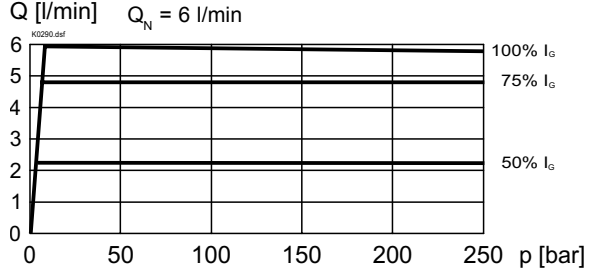
TYPE CHARTS/DESIGNATIONS OF SYMBOLS

	D41
	Z41a
	Z41b
	D42
	Z42a
	Z42b

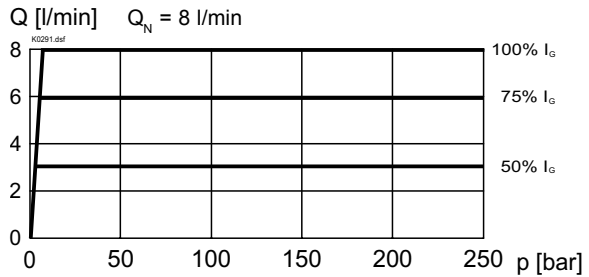
Q = f (p) Volume flow-pressure-characteristics



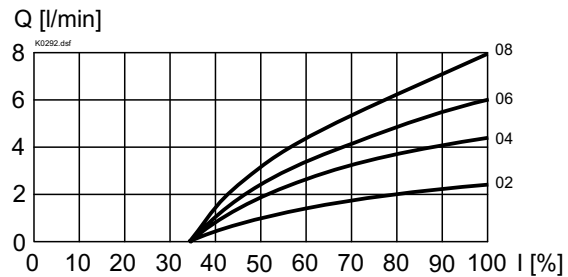
Q = f (p) Volume flow-pressure-characteristics



Q = f (p) Volume flow-pressure-characteristics

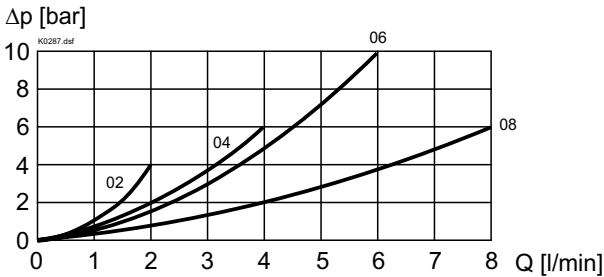


Q = f (I) Volume flow-signal-characteristics



CHARACTERISTICS oil viscosity $\nu = 30$ mm²/s

$\Delta p = f(Q)$ Pressure loss/flow-characteristics over 2 metering edges



Q = f (p) Volume flow-pressure-characteristics

