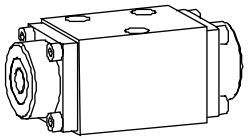
Spool valve hydraulic operation
- **4/2-way impuls valve**
- **4/3-way with spring centered mid position**
- **4/2-way with spring reset**
- **Q_{max} = 20 l/min, p_{max} = 315 bar**

NG4-Mini®

Cetop RP 121 H-P02



DESCRIPTION

Spool valve NG4-Mini, flange type in accordance with Cetop RP 121 H-P02 with 4 connections. Direct hydraulic operation via pilot ports in end covers. 5 chamber system. Spool with spring return or detented. Precise spool fit, low leak, long life. Threaded ports by means of additional connecting plate. Hardened spool. Valve body made of high quality casting. Valve body painted, end covers phosphated.

FUNCTION

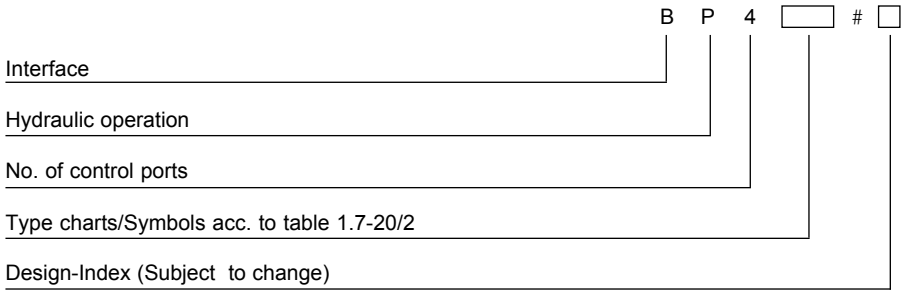
Pilot pressure shifts spool to end position.
• 4/2-way impulse
2 pilot ports. 2 detented spool positions. Spool held in position by detent unless oposite pilot port is pressurised to shift back.
• 4/3-way spring centered
2 pilot ports. 3 spool positions. Spool shifted to center position by spring as pilot pressure decays.
• 4/2-way spring offset
1 pilot port. 1 drain port on spring side, 2 spool positions. Spool shifted to home position by spring as pilot pressure decays.

APPLICATION

Hydraulically operated spool valves are mainly used to control the direction of movement and retain hydraulic cylinders and motors. The direction of movement is determined by the position of the valve spool and its symbol. Hydraulically operated valves are particularly suitable for use in installations where no dectric current is available or for applications in areas with a risk of explosion (chemical industry, tunnel construction). Mini-4 valves are used where both, reduced dimensions and weight are important.

CONTENT

TYPE CODE



GENERAL SPECIFICATIONS

Description	4/2-, 4/3-way spool valve
Nominal size	NG4-Mini to Cetop RP 121 H-P02
Construction	Direct operated spool valve
Operations	Hydraulic
Mounting	Flange 3 fixing holes for socket head cap screws M5x40
Connections	Threaded connection plates Multi-flange plates Longitudinal stacking system
Ambient temperature	-20…50°C
Mounting position	any, preferably horizontal
Fastening torque	M_D= 5,5 Nm (screw quality 8.8)
Weight	m = 0,6 kg

HYDRAULIC SPECIFICATIONS

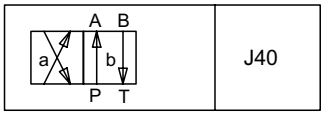
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406, classe 18/14 (Required filtration grade ß10…16≥75) refer to data sheet 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Fluid temperature	-20…+70°C
Operating pressure in port P, A, B	p_{max} = 315 bar
Tank pressure in port T	p_{max} = 90 bar resp. 10 bar below p_{st}
Max. Volume flow	Q_{max} = 20 l/min, see characteristics
Leakage volume flow	see characteristics

CONTROL HYDRAULIC

Min. pilot pressure	$p_{st\ min}$ = 10 bar
Max. pilot pressure	$p_{st\ max}$ = 100 bar
Control volume	V_{st} = 0,16 cm³

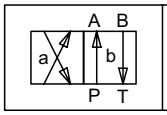
TYPE LIST / DESIGNATION OF SYMBOLS

4/2-way valve impulse

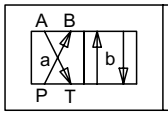


J40

4/2-way valve with spring reset

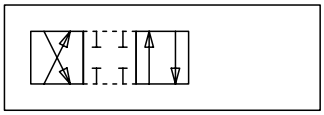


Z40a

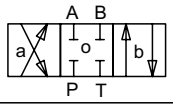
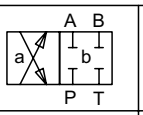
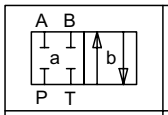
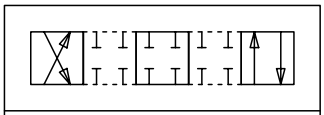
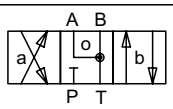
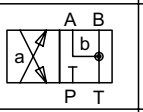
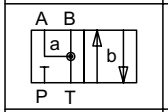
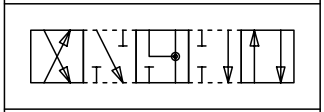
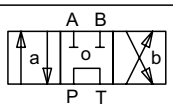
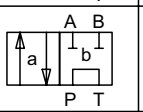
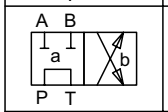
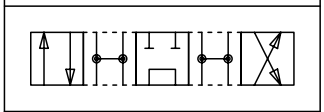
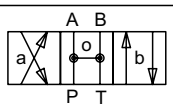
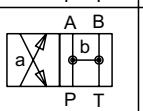
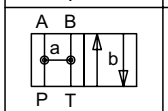
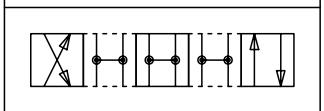
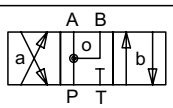
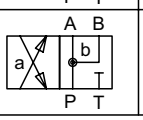
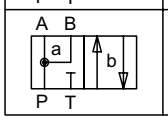
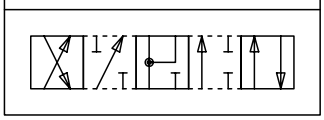


Z40b

Transitional functions



4/3-way valve spring centered or detented

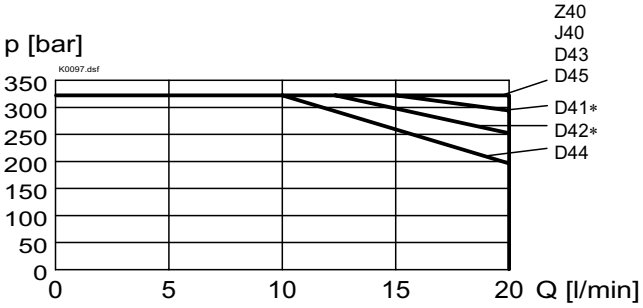
	D41		* D41		* D41	
	D42		* D42		* D42	
	D43		* D43		* D43	
	D44		* D44		* D44	
	D45		* D45		* D45	

On all 4/2-way valves with spring reset the spring side must be connectet to a tank or drain line.

∗ The 4/2-way valves with spring reset are being delivered as 4/3-way valves.

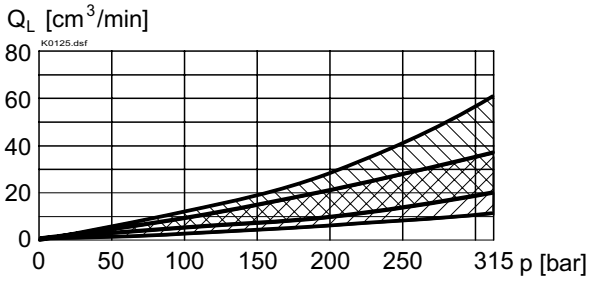
CHARACTERSISTICS Oilviscosity υ = 30 mm²/s

p = f (Q) Performance limits



∗ Performance limit with pv = 12 bar: Q = 20 l/min and 315 bar

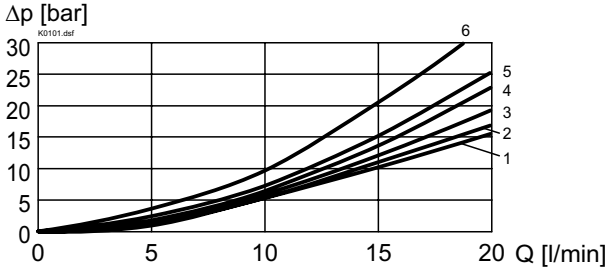
Q_L = f (p) Leakage volume flow characteristics per control edge



Leakage envelope J40/Z40/D41/D42/D44/D45

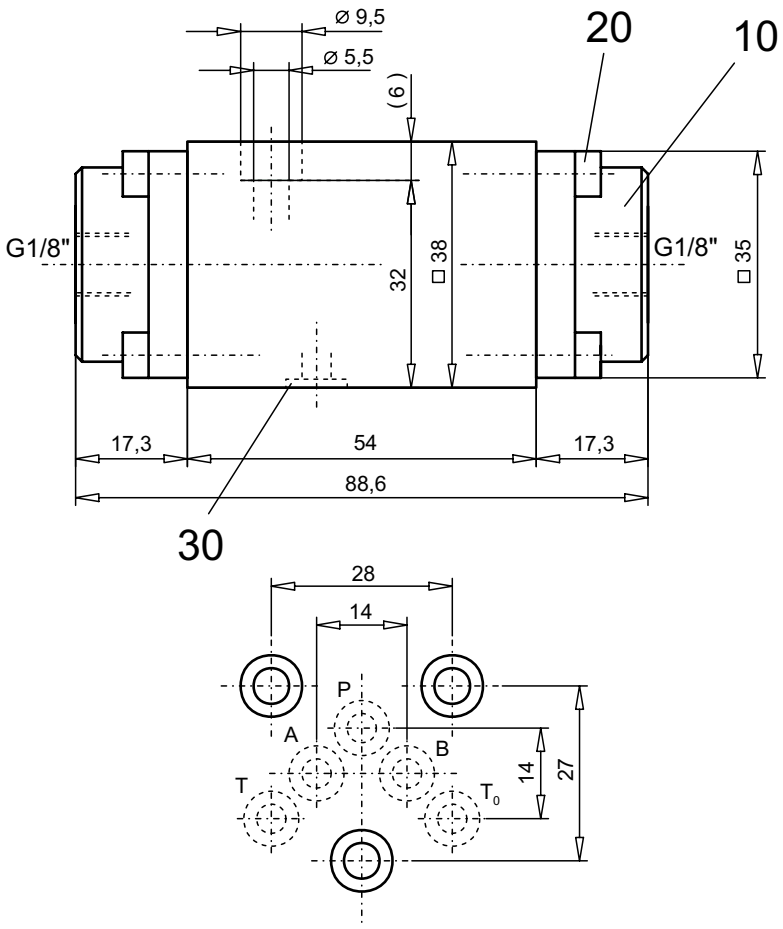
Leakage envelope D43

Δp = f (Q) Pressure drop volume flow characteristics



Symbol \ Pressure drop curve no.	Volume flow direction P - A	P - B	P - T	A - T	B - T
Z40/J40	5	5	-	2	2
D41	5	5	-	2	2
D42	5	5	-	1	1
D43	4	4	6	2	2
D44	4	4	3	2	2
D45	4	4	-	2	2

DIMENSIONS



PARTS LIST

Position	Article	Description
10	057.4600	Cover
20	246.1112	Socket head cap screw M5x12 DIN 912
30	160.2052	O-ring ID 5,28x1,78

ACCESSORIES

Threaded connection plates, Multi-flange plates and longitudinal stacking system register 2.9

Technical explanation see data sheet 1.0-100E