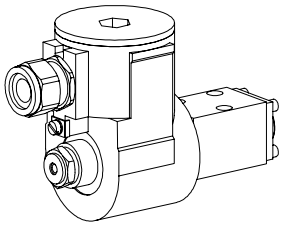
Solenoid poppet valve

- 2/2-, 3/2- and 3/4-way type
- Q_{max} = 15 l/min
- p_{max} = 350 bar

NG4-Mini®

II 2 G
EEx d II C



DESCRIPTION

Direct opperated poppet valve flange type NG4-Mini. Activated with explosion proof solenoid.
EEx: in accordance with european standards EN 50014, EN 50018
d: flameproof enclosure
Group II C: (gas group II A, II B) for all applications except mining
Zone 1: (and 2) explosive mixtures present intermittently
EC-type examination certificate:
Execution T4: PTB 98 ATEX 1009
Execution T6: PTB 98 ATEX 1008

FUNCTION

The central functioning element of all directly controlled poppet valves is the poppet valve cartridge NG4. The valve is operated by a explosion proof type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. From a mechanical and functional point of view, poppet valves can replace slide valves at any time. These valves are suitable for hazardeous areas in off-shore and shipbuilding applications as well as in chemical, oil and gas industry.

TYPE CODE

2/2- or 3/2-way construction						B	EXd	☐	2	04	☐	- S1788 -	☐	/ ☐	# ☐
3/4-way construction						B	EXd	3	4	04		- S1788 -	☐	/ ☐	# ☐

Mounting interface
Explosion proof solenoid
2-way (connections) 2
3-way (connections) 3
2 position
4 position
Nominal size 4-Mini
Normally closed, soleonid on A-Side 1a
Normally open, solenoid on B-Side 0b
Terminal box with out cable
Standard nominal voltage U_N: 24 VDC G24; 115 VAC R115; 230 VAC R230
Execution: T1…T4 T4; T1…T6 T6 (on request)
Design-Index (Subject to change)

GENERAL SPECIFICATIONS

Description	2/2-, 3/2-and 3/4-way poppet valve
Nominal size	NG4-Mini acc. to Wandfluh standard
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange 3 mounting holes for Cyl. screws M5x40 M5x60 with distance plate BDP4/20
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Admissible ambient temp. *:	
Execution T4	-20…+40 °C
Execution T6 (on request)	-20…+90 °C (operation as T1…T4) -20…+40 °C (operation as T5/T6)
Mounting position	any, preverable horizontal
Fastening torque	M_D = 5,5 Nm (quality 8,8)
Weight: 2/2-, 3/2-way	m = 3,4 kg
3/4-way	m = 5,4 kg
Volume flow direction	any (see characteristics)

ELECTRICAL CONTROL

Construction	Solenoid, wet pin push, pressure tight
Standard-nominal voltage	U_N = 24 VDC U_N = 115 VAC, U_N = 230 VAC DC wired with VDR AC = 50 to 60 Hz ± 2%; with integrated half wave rectifier and recovery diode
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 acc. to EN 60 529
Relative duty factor	100% DF
Switching cycles	12'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Through cable entry for cable diameter 11...14 mm
Temperature class:	(acc. to EN 50014)
Execution T4	T1…T4
Execution T6	T1…T6 (on request)
Nominal power:	
Execution T4	22 W (DC), 35 VA (AC)
Execution T6	7 W (DC), 12 VA (AC) (on request)

START-UP

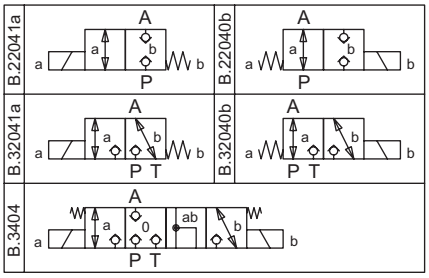
Information concerning the installation and commissioning is contained in the operating instructions supplied together with the solenoid coil.

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406 : 1999, class 20/18/14 (Required filtration grade ß10…16≥75) refer to data sheet 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Admissible fluid temp. *:	
Execution T4	-20…+40 °C
Execution T6 (on request)	-20…+70 °C (operation as T1…T4) -20…+40 °C (operation as T5 / T6)
Working pressure	p_{max} = 350 bar
Max. volume flow	Q_{max} = 15 l/min see characteristics

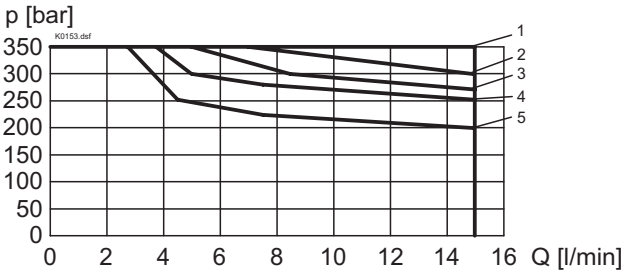
* Deviating pressure medium - or ambient temperatures are possible for special arrangements after checking and authorisation by a responsible inspector. Measures for the prevention of the exceeding of the admissible solenoid surface - and internal temperatures can be: a good ventilation, low ambient temperatures (for higher pressure medium temperatures), limitation of the maximum possible power supply voltage, a short switching-on duration, installation on large heat dissipating blocks, etc. The responsibility in all cases lies with the operator, resp. with his inspector.

SYMBOLS



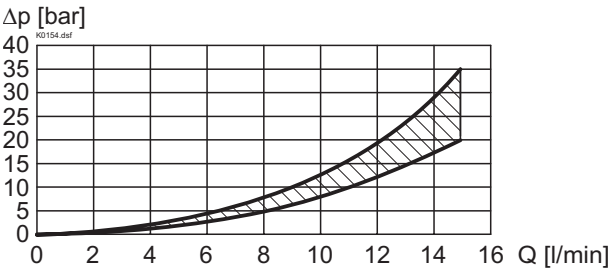
CHARACTERISTICS (T6 on request) Oil viscosity υ = 30 mm²/s

p = f (Q) Performance limits with standard voltage -10 %



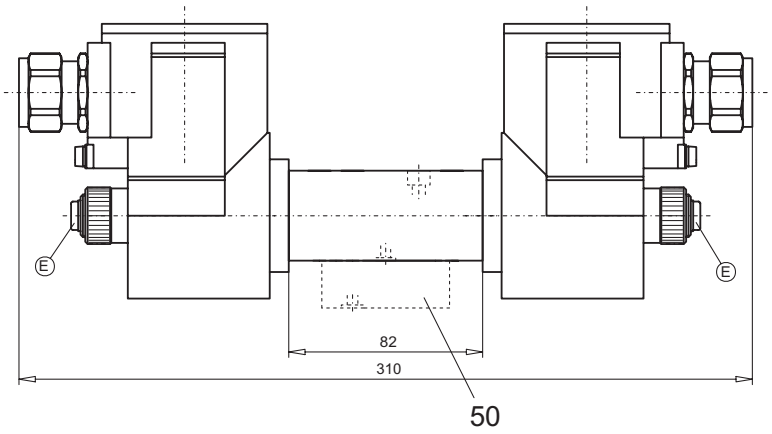
Type	Flow direction P - A	A - T	A - P	T - A
BEXd22041a	1	-	2	-
BEXd22040b	1	-	4	-
BEXd32041a	1	3	5	1
BEXd32040b	1	4	5	1
BEXd3404	1	1	2	2

Δp = f (Q) Pressure drop volume flow characteristics



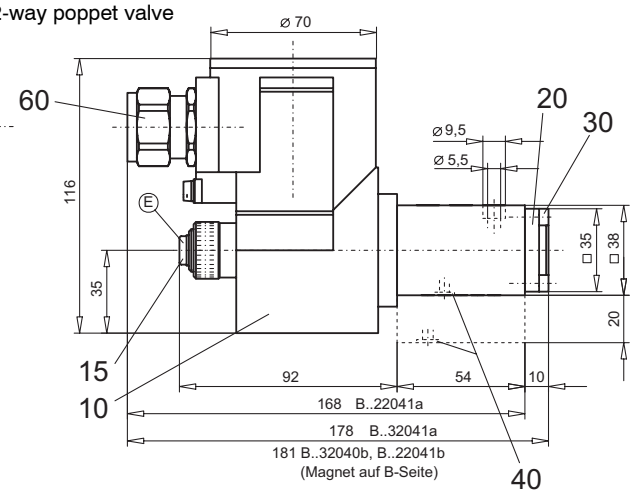
DIMENSIONS

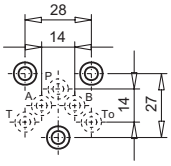
3/4-way poppet valve



Order distance plate
BDP4/20 separatly

2/2-way poppet valve
3/2-way poppet valve





PARTS LIST

Position	Article	Description
10	207.5 ...	Coil type EExd
15	239.2033	Plug HB0 (incl. seal)
20	057.4202	Cover
30	246.1113	Socket head cap screw M4x12 DIN912
40	160.2052	O-ring ID 5,28x1,78
50	173.1451	Distance plate BDP4/20
60	111.1080	Cable entry brass M20

ACCESSORIES

Threaded connecting plates, Multi-flange subplates and Longitudinal stacking system see Reg. 2.9

Technical explanation see data sheet 1.0-100E