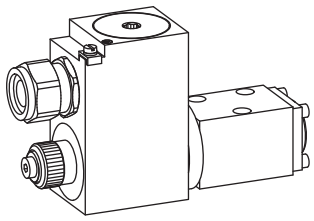
Solenoid poppet valve
- **2/2-, 3/2- and 3/4-way type**
- **Q_{max} = 15 l/min**
- **p_{max} = 350 bar**

NG4-Mini®

II 2 G Ex d II C
II 2 D Ex tD A21 IP65



DESCRIPTION

Direct opperated poppet valve flange type NG4-Mini. Activated with Wandfluh explosion proof solenoid. The solenoid coil is zinc-/nickel-coated.
Solenoid coil in accordance with directive 94/9/EC (ATEX) for explosion-hazard zones.
Ex: In accordance with European standards EN 60079-0, EN 60079-1 (gas)
EN 61241-0, EN 61241-1 (dust)
d: Flameproof enclosures
tD: Protection by enclosure
Device group II: For all explosion-hazard zones, except mining
Gas group IIC: Gas groups IIA+IIB included
Device category 2G: For zones 1 and 2 (gas)
Device category 2D: For zones 21+22 (dust)
Zones: 1/21 and 2/22
EC-type examination certificate:
PTB 07 ATEX 1023

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	☐	-	☐	-	☐	#	☐
3/4-way construction	B	EXd	3	4	04		-	☐	-	☐	#	☐

Mounting interface
Explosion proof solenoid
2-way (connections) [2]
3-way (connections) [3]
2 position
4 position
Nominal size 4-Mini
Normally closed, solenoid on A-Side [1a]
Normally open, solenoid on B-Side [0b]
Standard nominal voltage U_N: 12 VDC [G12]; 24 VDC [G24]; 115 VAC [R115]; 230 VAC [R230]
Nominal power P_N: 9 W [L9] (Ambient temp. by: 40 °C or 90 °C); 15 W [L15] (70 °C)
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 asdfasdfaf, 3 mounting holes for Cyl. screws M5x40 or M5x60 with distance plate BDP4/12
Connections	Threaded connection plates and Multi-flange subplates, Longitudinal stacking system
Admissible ambient temp	Execution L9 -20…+40 °C (operation as T1…T6/T80 °C) -20…+90 °C (operation as T1…T4/T130 °C) Execution L15 -20…+70 °C (operation as T1…T4/T130 °C) In case of U_N < 20V, the max. ambient temperature has to be reduced by 10 °C.
Mounting position	any, preverable horizontal
Fastening torque	M_D = 5,5 Nm (quality 8.8)
Weight: 2/2-, 3/2-way	m = 3,2 kg
3/4-way	m = 5,0 kg
Volume flow direction	any (see characteristics)

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 Nr. 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Admissible fluid temp.	Execution L9 -20…+40 °C (operation as T1…T6/T80 °C) -20…+70 °C (operation as T1…T4/T130 °C) Execution L15 -20…+70 °C (operation as T1…T4/T130 °C)
Working pressure	p_{max} = 350 bar
Max. volume flow	Q_{max} = 15 l/min, see characteristics

In case of the execution L15 for ambient temperatures of up to 70 °C the characteristic performance values were established at an ambient temperature of 50 °C.

ELECTRICAL CONTROL

Construction	Solenoid, wet pin push, pressure tight
Standard-nominal voltage	U_N = 12 VDC, U_N = 24 VDC U_N = 115 VAC, U_N = 230 VAC AC = 50 to 60 Hz ± 2%; with built-in two-way rectifier and recovery diode
Voltage tolerance	±10% of nominal voltage
Protection class	IP65/IP67 acc. to EN 60 529
Relative duty factor	100% DF
Switching cycles	12000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection / Power supply	Through cable gland for cable diameter ∅ 11…14 mm
Temperature classe:	(acc. to EN 60079-0)
Execution L9	T1…T6
Execution L15	T1…T4
Nominal power:	
Execution L9	9 W
Execution L15	15 W

For further electrical characteristics, refer to the data sheet of the solenoid coil 1.1-183

SECURITY OPERATED

The solenoid coil must only be put into operation, if the requirements of the operating instructions supplied are observed to their full extent.
In case of non-observance, no liability can be assumed.

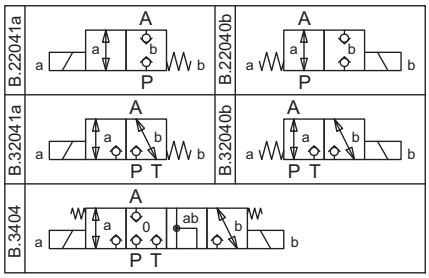
INSTALLATION

Tightening torque of the coil fixing nut M_D = 15 Nm. For stack assembly please observe the remarks in the operating instructions.

DESIGNATION

Execution L9:	II 2 G Ex d IIC T6	Ta = -25...40 °C
	II 2 D Ex tD A21 IP65 T80 °C	
	II 2 G Ex d IIC T4	Ta = -25...90 °C
	II 2 D Ex tD A21 IP65 T130 °C	
Execution L15:	II 2 G Ex d IIC T4	Ta = -25...70 °C
	II 2 D Ex tD A21 IP65 T130 °C	

SYMBOLS

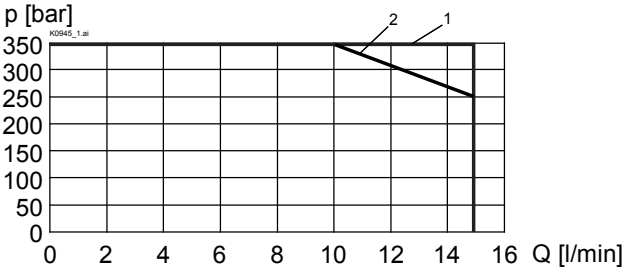


CHARACTERISTICS Oil viscosity υ = 30 mm²/s

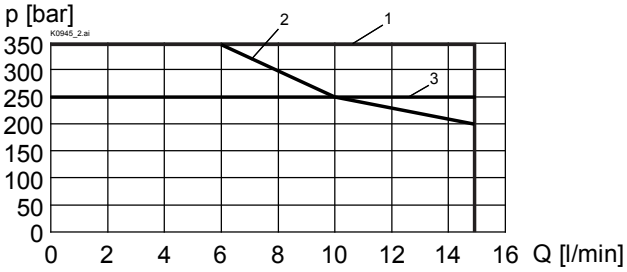
Execution L9 / 90 °C on request

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

Execution L15 (measured at 50 °C)



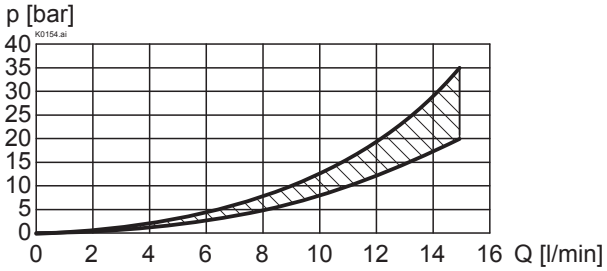
Execution L9 (measured at 40 °C)



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

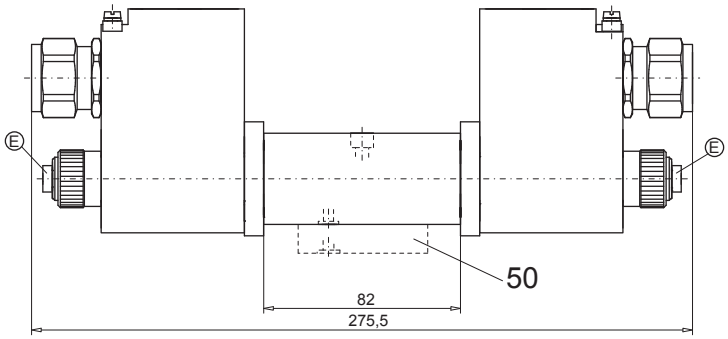
Type	Flow direction			
	P - A	A - T	A - P	T - A
BEXd22041a	1	-	1	-
BEXd22040b	1	-	2	-
BEXd32041a	1	2	1	1
BEXd32040b	1	1	3	1
BEXd3404	1	1	1	1

Δ = f (Q) Pressure loss / flow characteristics



DIMENSIONS

3/4-way poppet valve

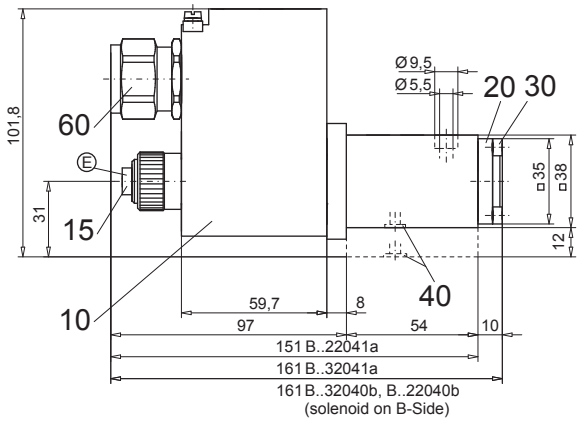


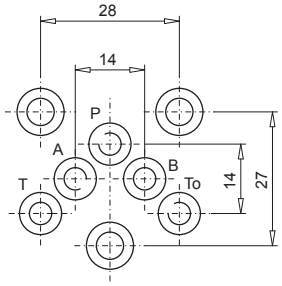
E = air bleed screw

Dimensions of the solenoid coil, refer to data sheet 1.1-183

Order distance plate BDP4 / 12 separatley

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





PARTS LIST

Position	Article	Description
10	263.6 …	Sool MKY45/18x60-...
15	239.2033	Plug HB0 (incl. seal)
20	057.4202	Cover
30	246.1113	Socket head cap screw M4x12 DIN 912
40	160.2052	O-ring ID 5,28x1,78
50	173.1450	Distance plate BDP4/12
60	111.1080	Cable gland brass M20

ACCESSORIES

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

Technical explanation see data sheet 1.0-100