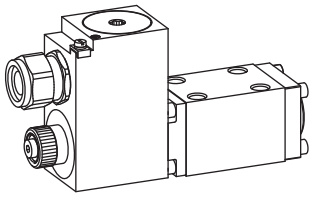
Solenoid poppet valve

- **2/2-, 3/2- and 3/4-way type**
- **Q_{max} = 40 l/min**
- **p_{max} = 350 bar**

NG6

ISO 4401-03

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



DESCRIPTION

Direct opperated poppet valve flange type NG6. Activated with Wandfluh explosion proof solenoid.
The solenoid spool is zinc-/nickel-coated.
Solenoid coil in accordance with directive 94/9/EG (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: Pressure-proof encapsulation
tD: Protection by the housing
Device group II: For all explosion-hazard zones, except for underground workings
Gas group IIC: Gas groups IIA + IIB included
Device category 2G: For zones 1 and 2 (gas)
Device category 2D: For zones 21 and 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 NG6. With the controlling solenoid, resp. with the spring located opposite, the poppet valve spools are either opened or closed. Thanks to the poppet valve spool design with the same surface area on both sides and with pressure balancing, no undesirable hydraulic closing - and opening forces are generated. Therefore, the oil flow through the poppet valve is possible in both directions. The valve seals tightly at all closed seats without any oil leakage.

APPLICATION

Poppet valves from Wandfluh are used wherever absolutely tight sealing closing functions, such as the holding of loads, tensioning and clamping are of decisive importance. Mechanically and functionally, poppet valves may be used fully interchangeably instead of spool valves at any time. These valves are particularly suitable for use in explosion hazard environments in the shipping- and offshore industries, in the chemical industry as well as in the oil- and gas industry.

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

TYPE CODE

2/2- or 3/2-way construction	A	EXd	[ ]	2	06	[ ]	-	[ ]	-	[ ]	#	[ ]
3/4-way construction	A	EXd	3	4	06		-	[ ]	-	[ ]	#	[ ]

International connection standard ISO
Explosion protection version
2-way (connections) [2]
3-way (connections) [3]
2 switching positions
4 switching positions
Nominal size 6
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- und 3/4-way poppet valve
Nominal size	NG6 acc. to ISO 4401-03
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange four mounting holes for cyl. screws, or M5x45
Connections	Threaded connection plates 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 = 3,3 kg
3/4-way	m = 5,4 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
Verschmutzungsgrad	(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 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} = 40 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

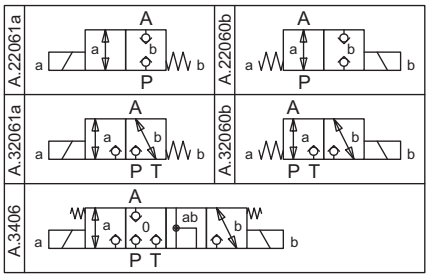
Construction	Solenoid, wet pin push, pressure tight
Standard-nominal voltage	U_N = 12 VDC, 24 VDC, 115 VAC, 230 VAC AC = 50 to 60 Hz ± 2% with built-in two way rectifier and recovery diode
Voltage tolerance	±10% of nominal voltage
Protection class	IP65 acc. to EN 60 529
Relative duty factor	100% DF
Switching 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 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: 11-183

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.

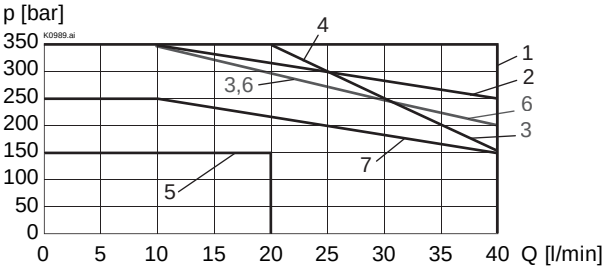
SYMBOLS



CHARACTERISTICS Oil viscosity υ = 30 mm²/s

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

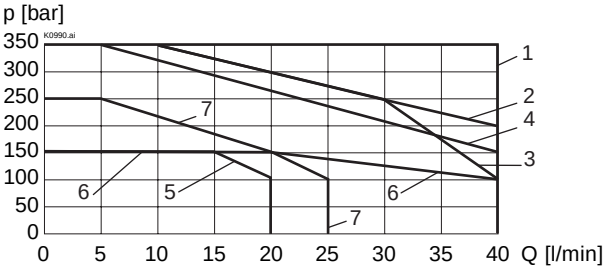
Execution L15 (measured at 50 °C)



Type	Flow direction			
	P - A	A - T	A - P	T - A
AEXd22061a	1	-	6	-
AEXd22060b	1	-	3	-
AEXd32061a	1	2	5	1
AEXd32060b	1	4	7	1
ABEXd3406	1	1	6	6

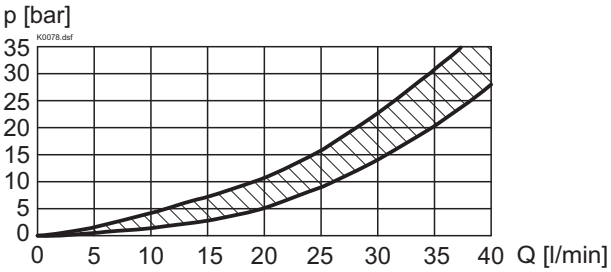
Execution L9 / 90 °C on request

Execution L9 (measured at 40 °C)



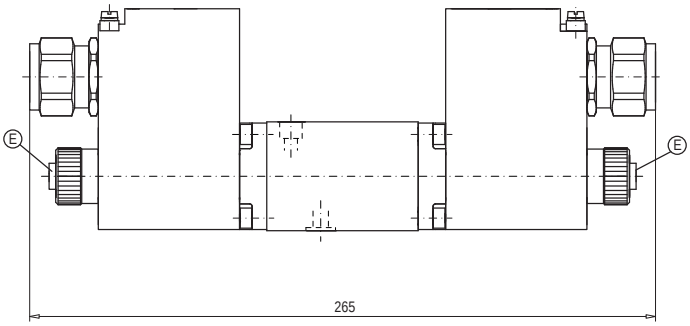
Type	Flow direction			
	P - A	A - T	A - P	T - A
AEXd22061a	1	-	6	-
AEXd22060b	1	-	3	-
AEXd32061a	1	2	5	1
AEXd32060b	1	4	7	1
AEXd3406	1	1	6	6

Δp = f (Q) Pressure loss / flow characteristics



DIMENSIONS

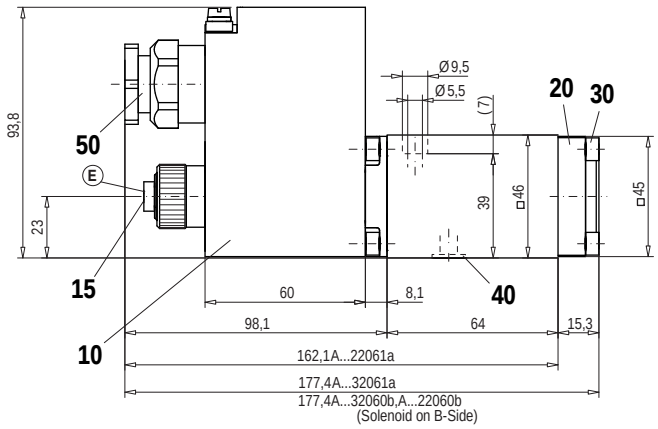
3/4-way poppet valve

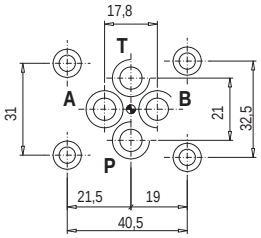


E = air bleed screw

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

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





PARTS LIST

Position	Article	Description
10	263.6 …	Coil type MKY 45/18x60-...
15	239.2033	Plug (incl. sealing ring) HB0
20	058.4215	Cover
30	246.2117	Socket head cap screw M5x16 DIN 912
40	160.2093	O-ring ID 9,25x1,78
50	111.1080	Cable entry brass M20x1,5

ACCESSOIRES

Threaded connecting plates see Reg. 2.9

Technical explanation see data sheet 1.0-100