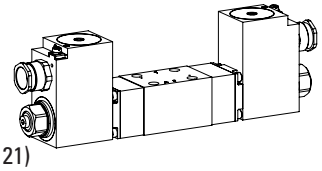
Solenoid operated poppet valve detented

Flange construction

- 3/2-way
- Q_{max} = 40 l/min
- p_{max} = 350 bar

NG6
ISO 4401-03



Ex db IIC T6, T4 Gb (Zone 1)
Ex tb III C T80 °C, T130 °C Db (Zone 21)
Ex db I Mb
Ⓔx II 2 G Ex db IIC T6, T4
Ⓔx II 2 D Ex tb III C T80 °C, T130 °C
Ⓔx I M2 Ex db I Mb
Class I, Division 1, Group A, B, C, D T4
Class II & III, Division I, Group E, F, G T4

DESCRIPTION

Direct operated 3/2-way solenoid poppet valve in flange construction. By means of the pressure tight switching solenoid, the poppet valve spool is opened or closed acting against the spring and is held in the switching position by the form-closed detent. Due to the poppet spool construction with pressure compensation on both sides, the flow through the valve is possible in both directions. The metallically sealing seat closes the valve virtually leak free. The pressure tight encapsulated Ex-protection solenoid coil prevents an explosion on the inside penetrating to the outside as well as an ignitable surface temperature.

APPLICATION

These valves are suitable for applications in explosion-hazard areas, open cast and also in mines. Poppet valves are used where tight closing functions of the valve are essential like leakage-free load holding, clamping or gripping.

CERTIFICATES

	Surface	Mining	Standard -25 °C to…	Z604 -40 °C to…
ATEX / UKEX	x	x	x	x
IECEx	x	x	x	x
CCC	x	x	x	x
EAC	x	x	x	x
Australia	x	x	x	x
MA		x	x	
USA / Canada	x		x	x
PESO	x		x	x

The certificates can be found on www.wandfluh.com

ACTUATION

Actuation	Switching solenoid, wet pin push type, pressure tight
Execution	MKY45 / 18x60 (data sheet 1.1-183)
Connection	Cable gland for cable Ø 6,5…14 mm

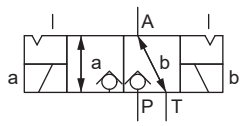
Attention! The UC execution is always supplied without cable gland

STANDARDS

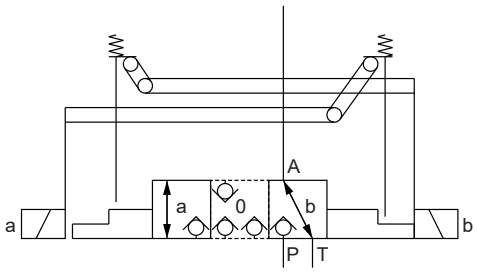
Explosion protection	Directive 2014 / 34 / EU (ATEX)
Flameproof enclosure	EN / IEC / UL 60079-1, 31
Cable entry	EN 60079-0, 1, 7, 15, 31
Mounting interface	ISO 4401-03
Protection class	EN 60 529
Contamination efficiency	ISO 4406

SYMBOL

Simplified



Detailed



TYPE CODE

A Exd 3 2 06 rr - [ ] / [ ] / [ ] - [ ] # [ ]

International standard interface ISO					
Explosion-proof execution, Ex d					
3 way (connections)					
2 switching positions					
Nominal size 6					
Detent	on both sides				
Nominal voltage U_N	12 VDC	G12	115 VAC	R115	
	24 VDC	G24	230 VAC	R230	
			Ambient temperature up to:		
Nominal power P_N	9 W	L9	40 °C or 90 °C		
	15 W	L15	70 °C		
Certification	ATEX, UKEX, IECEx, EAC, CCC		USA / Canada	UC-M187	
	Australia	AU	India	PE	
	MA	MA			
Sealing material / Temperature range	NBR				
	FKM (Viton)	D1			
	NBR -40 °C	Z604	(only with 15 W)		
Design index (subject to change)					

1.11-3146

GENERAL SPECIFICATIONS

Designation	3/2-way poppet valve
Construction	Direct operated
Mounting	Flange construction
Nominal size	NG6 according to ISO 4401-03
Actuation	Ex-protection switching solenoid
Ambient temperature	**Operation as T6** -25…+40 °C (L9) **Operation as T4** -25…+90 °C (L9) -25…+70 °C (L15) -40…+70 °C (L15)
Weight	5,4 kg
MTTFd	150 years

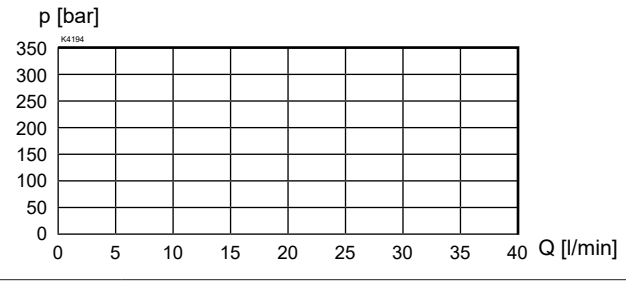
HYDRAULIC SPECIFICATIONS

Working pressure	p_{max} = 350 bar
Maximum volume flow	Q_{max} = 40 l/min, see characteristic
Volume flow direction	Any (see characteristic)
Leakage oil	Poppet type, max. 0,05 ml / min (approx. 1 drop / min) at 30 cSt
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm²/s…320 mm²/s
Temperature range fluid	**Operation as T6** NBR -25…+40 °C (L9) FKM -20…+40 °C (L9) **Operation as T4** NBR -25…+70 °C (L9 or L15) FKM -20…+70 °C (L9 or L15) NBR 872 -40…+70 °C (L15)
Contamination efficiency	Class 20 / 18 / 14
Filtration	Required filtration grade ß 10…16 ≥ 75, see data sheet 1.0-50

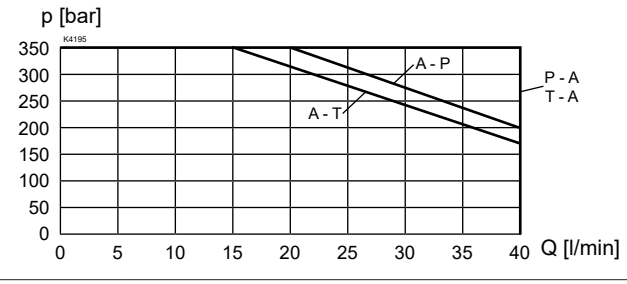
PERFORMANCE SPECIFICATIONS

Oil viscosity υ = 30 mm²/s

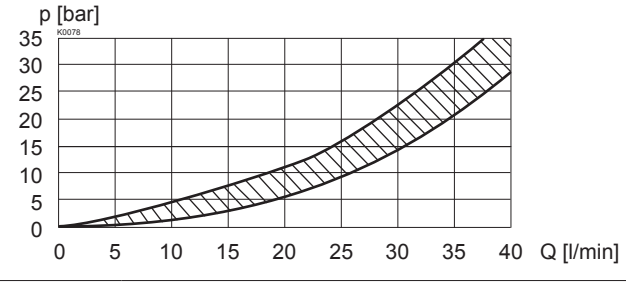
p = f (Q) **Performance limits L15**
Measured with nominal voltage -10% at 50 °C



P = f (Q) **Performance limits L9**
Measured with nominal voltage -10% at 40 °C
Execution L9 90 °C on request



Δp = f (Q) **Pressure drop volume flow characteristics**



Note! With the L15 execution for ambient temperatures up to 70 °C, the performance specifications have been evaluated with an ambient temperature of 50 °C

Attention! Long periods of non-actuation can reduce the switching performance

ELECTRICAL SPECIFICATIONS

Protection class	IP65 / 66 / 67
Relative duty factor	100 % DF
Switching frequency	12'000 / h
Voltage tolerance	± 10 % with regard to nominal voltage
Standard nominal voltage	12 VDC, 24VDC, 115 VAC, 230 VAC AC = 50 to 60 Hz ± 2 %, with built-in two-way rectifier
Standard nominal power	9 W, 15 W
Temperature class	Nominal power 9 W: T1…T6 Nominal power 15 W: T1…T4

Note! Other electrical specifications see data sheet 1.1-183

SEALING MATERIAL

NBR or FKM (Viton) as standard, choice in the type code

SURFACE TREATMENT

- The valve body is painted with a two component paint
- The cover, the slip-on coil and the armature tube are zinc-nickel coated

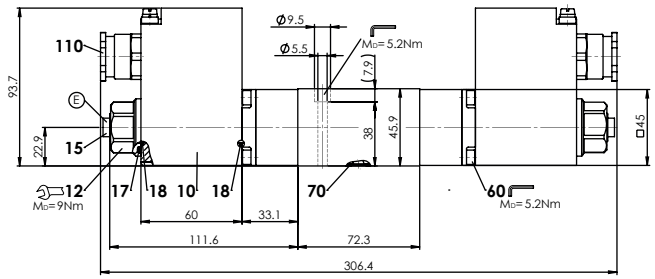
MANUAL OVERRIDE

Screw plug (HB0), no actuation possible
Optionally: HB6 or HN(K)
→ See data sheet 1.1-311

VALVES INSTALLED

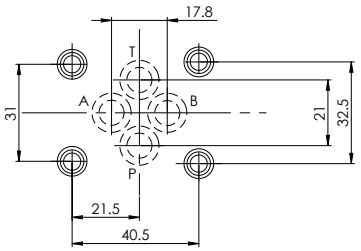
The central functioning element is the poppet valve cartridge NG6, data sheet 1.11-2030.

DIMENSIONS



E = Air bleed screw
Dimensions of the solenoid coil see data sheet 1.1-183

HYDRAULIC CONNECTION



PARTS LIST

Position	Article	Description
10	263.6...	Solenoid coil MK.45 / 18 x 60
12	154.2603	Knurled nut Ex M18 x 1,5 x 18
15	239.2033	Screw plug HB0 (incl. seal)
17	160.2251	O-ring ID 25,07 x 2,62 (NBR)
18	160.2170	O-ring ID 17,17 x 1,78 (NBR)
60	246.2136	Socket head screw M5 x 35 DIN 912
70	160.2093	O-ring ID 9,25 x 1,78 (NBR) „-25 °C to…"
	160.7092	O-ring ID 9,25 x 1,78 (NBR) „-40 °C to…"
	160.6092	O-ring ID 9,25 x 1,78 (FKM)
110	111.1080	Cable gland M20 x 1,5

ACCESSORIES

Fixing screws	Data sheet 1.0-60
Threaded subplates	Data sheet 2.9-30
Multi-station subplates	Data sheet 2.9-60
Module type manifold blocks	Data sheet 2.9-100
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50
Relative duty factor	Data sheet 1.1-430

COMMISSIONING

Attention!

When commissioning, the valve must be vented under pressure (max. two rotations of screw E).

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 is assumed.

INSTALLATION NOTES

Mounting type	Flange mounting 4 fixing holes for socket head screws M5 x 45
Mounting position	Any, preferably horizontal
Tightening torque	Fixing screws M_D = 5,2 Nm (screw quality 8.8, zinc coated) M_D = 9 Nm knurled nut

Note! The length of the fixing screw depends on the base material of the connection element.

Attention! For stack assembly please observe the remarks in the operating instructions