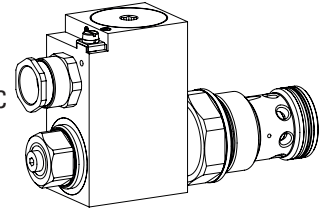


Solenoid operated poppet valve cartridge

- ◆ solenoid actuated
- ◆ pilot operated
- ◆ normally open and normally closed
- ◆ 2/2-way
- ◆ $Q_{max} = 300 \text{ l/min}$
- ◆ $p_{max} = 350 \text{ bar}$

M42 x 2 ISO 7789

- ⊕ II 2 G Ex db IIC T6, T4
- ⊕ II 2 D Ex tb III C T80 °C, T130 °C
- ⊕ I M2 Ex db I Mb
- Class I Division 1
- Class I Zone 1



DESCRIPTION

Pilot operated 2/2-way solenoid poppet valve in screw-in cartridge construction for cavity according to ISO 7789. The AB and CB execution is closed in the energised position, the BA and BC execution in the de-energised position. In this, the main spool closes practically leakage-free by means of the applied pressure. In the opposite flow direction, the valve opens after reaching the opening pressure. 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. For machining the cartridge cavity in steel and aluminum blocks, cavity tools are available (hire or purchase). Please refer to the data sheets in register 2.13.

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	
UL / CSA	x		x	x

The certificates can be found on www.wandfluh.com

ACTUATION

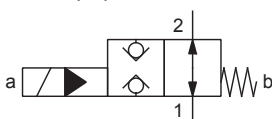
Actuation	Switching solenoid, wet pin push + pull type, pressure tight
Execution	MKY45 / 18x60 (data sheet 1.1-183) MKU45 / 18x60 (data sheet 1.1-184)
Connection	Cable gland for cable Ø 6,5... 14 mm

Attention! The UL execution is always supplied without cable gland

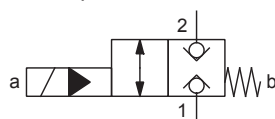


SYMBOL

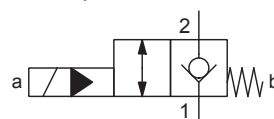
„Normally open“ AB



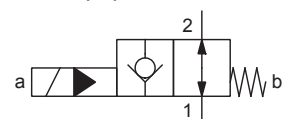
„Normally closed“ BA



„Normally closed“ BC



„Normally open“ CB



TYPE CODE

		S V Y PM42 - <input type="checkbox"/> - <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Poppet valve			
Pilot operated			
Ex-protection execution, Exd			
Screw-in cartridge M42 x 2			
Designation of symbols acc. to table			
Nominal voltage U _N	12 VDC 24 VDC	<input type="checkbox"/> G12 <input type="checkbox"/> G24	115 VAC 230 VAC
			<input type="checkbox"/> R115 <input type="checkbox"/> R230 (not for UL execution)
Nominal power P _N	9 W 15 W 17 W	<input type="checkbox"/> L9 <input type="checkbox"/> L15 <input type="checkbox"/> L17	<i>Ambient temperature up to:</i> 40 °C or 90 °C 70 °C 70 °C (only UL / CSA)
Certification	ATEX, IECEx, EAC, CCC, UKEX Australia	<input type="checkbox"/> AU	UL / CSA <input type="checkbox"/> UL MA <input type="checkbox"/> MA
Sealing material	NBR FKM (Viton) NBR -40° C	<input type="checkbox"/> <input type="checkbox"/> D1 <input type="checkbox"/> Z604	(only with 15 W)
Design index (subject to change)			

1.11-2092

GENERAL SPECIFICATIONS

Designation	2/2-way poppet valve
Construction	Pilot operated
Mounting	Screw-in cartridge construction
Nominal size	M42 x 2 according to ISO 7789
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 / L17) -40...+70 °C (L15 / L17)
Weight	2,4 kg
MTTFd	150 years

HYDRAULIC SPECIFICATIONS

Working pressure	p _{max} = 350 bar
Opening pressure	1,5 bar 1 → 2 version BC / CB 1,5 bar 2 → 1 version BC / CB 2,0 bar 1 → 2 version AB / BA 2,0 bar 2 → 1 version AB / BA
Maximum volume flow	Q _{max} = 300 l/min, see characteristics
Leakage oil	Poppet type, max. 0,15 ml / min (approx. 3 drops / min) at 30 cSt
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm ² /s...320 mm ² /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 / L17) FKM -20...+70 °C (L9 or L15 / L17) NBR 872 -40...+70 °C (L15 / L17)
Contamination efficiency	Class 20 / 18 / 14
Filtration	Required filtration grade β 10...16 ≥ 75, see data sheet 1.0-50

ELECTRICAL SPECIFICATIONS

Protection class	IP65 / 66 / 67
Relative duty factor	100 % DF
Switching frequency	5'000 / 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, 17 W
Temperature class	Nominal power 9 W: T1...T6 Nominal power 15 W / 17 W: T1...T4

Note! Other electrical specifications see data sheet 1.1-183 and 1.1-184

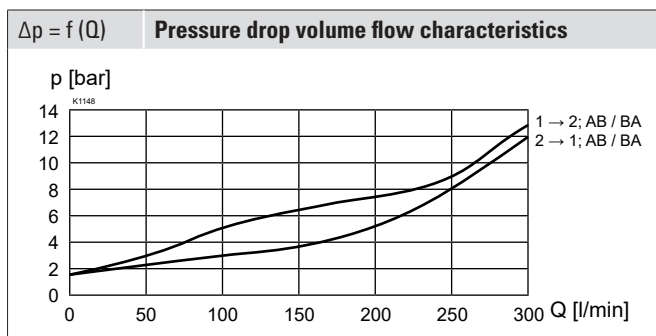
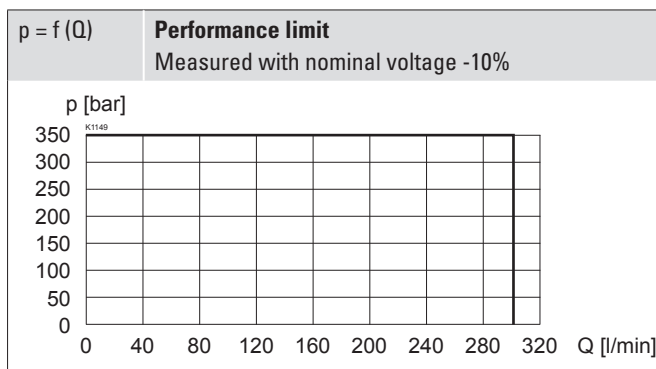


STANDARDS

Cartridge cavity	ISO 7789
Explosion protection	Directive 2014 / 34 / EU (ATEX)
Flameproof enclosure	EN / IEC / UL 60079-1, 31
Cable entry	EN 60079-0, 1, 7, 15, 31
Protection class	EN 60 529
Contamination efficiency	ISO 4406

PERFORMANCE SPECIFICATIONS

Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$

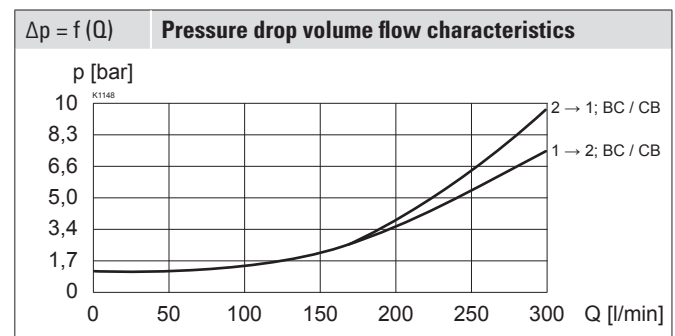


Note! The switching times depend on the volume flow, pressure and viscosity. In case of very large volume flows, the switching time for closing can get considerably longer.

SURFACE TREATMENT

- ◆ The cartridge body, the slip-on coil and the armature tube are zinc-nickel coated

Type	Flow direction	Switching times	
		Energised	De-energised
AB	1 → 2	approx. 200 ms	approx. 35 ms
	2 → 1	approx. 250 ms	approx. 35 ms
BA	1 → 2	approx. 35 ms	approx. 200 ms
	2 → 1	approx. 35 ms	approx. 250 ms
BC	2 → 1	approx. 35 ms	approx. 300 ms
CB	2 → 1	approx. 300 ms	approx. 40 ms



Attention! Measured with cavity according to data sheet 2.13-1059 (annular groove)



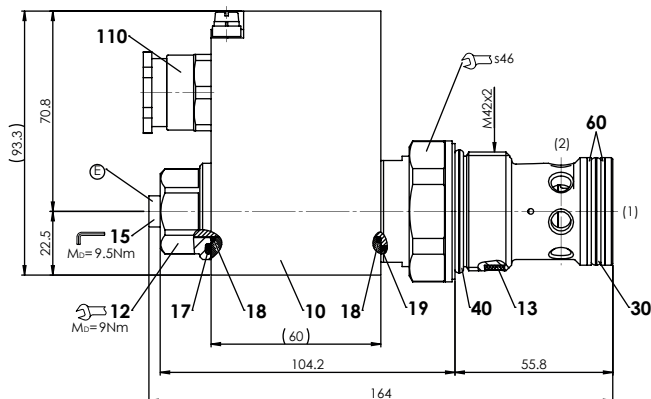
MANUAL OVERRIDE

Screw plug (HB0), no actuation possible.
 Optionally HN (K) or HG (K) (pushing) resp. HZ (K) (pulling)
 → See data sheet 1.1-311

Attention! The manual override HZ (K) cannot be retrofitted.



DIMENSIONS



E = Air bleed screw

Dimensions of the solenoid coil see data sheet 1.1-183 and 1.1-184

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
13	212.0013	Plastic disc rd 7 x 1,5
15	239.2033	Screw plug HB0 (incl. seal)
110	111.1080	Cable gland M20 x 1,5
	251.3017	Seal kit SV.PM42 NBR
	251.30..	Seal kit SV.PM42 D1
	251.3020	Seal kit SV.PM42 Z604

Seal kit consisting of

17	O-ring	ID 25,07 x 2,62
18	O-ring	ID 17,17 x 1,78
19	O-ring	ID 26,00 x 1,00
30	O-ring	ID 32,99 x 2,62
40	O-ring	ID 37,77 x 2,62
60	Back. ring	PTFE rd 33,5 x 38 x 1,4

SEALING MATERIAL

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

COMMISSIONING

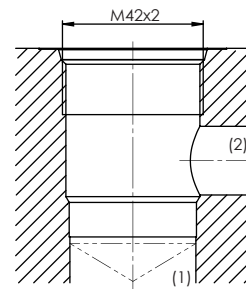
Attention! When commissioning, the valve must be vented under pressure (max. two rotations of screw E).



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.

HYDRAULIC CONNECTION

Cavity drawing according to ISO 7789-42-01-0-07



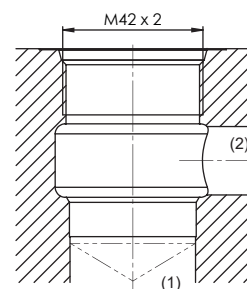
Note!

Detailed cavity drawing refer to data sheet 2.13-1050



HYDRAULIC CONNECTION

Cavity drawing according to ISO 7789-42-01-0-07 (with annular groove) recommended for minimum delta p values



Note!

Detailed cavity drawing refer to data sheet 2.13-1059



ACCESSORIES

Threaded body	Data sheet 2.9-2xx
Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50
Relative duty factor	Data sheet 1.1-430

INSTALLATION NOTES

Mounting type	Screw-in cartridge M42 x 2
Mounting position	Any, preferably horizontal
Tightening torque	$M_D = 420$ Nm Screw-in cartridge $M_D = 5$ Nm knurled nut

Note!

Without varying pressure load in connection 2, a tightening torque reduced by 15% is sufficient



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