

Solenoid operated spool valve stainless

Flange construction

- ◆ 4/2-way impulse valve
- ◆ 4/3-way with spring centred mid position
- ◆ 4/2-way with spring reset
- ◆ $Q_{max} = 50 \text{ l/min}$
- ◆ $p_{max} = 350 \text{ bar}$

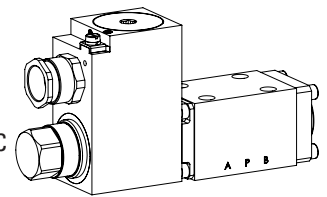
DESCRIPTION

Direct operated solenoid spool valve with 4 connections in 5 chamber design. With the solenoids deenergised, the spool is held in the center position by the spring (4/3), or switched back to the offset position (4/2). With the impulse spool (4/2), the spool is held in the switching position by the detent. 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.

NG6

ISO 4401-03

- ⊕ 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



APPLICATION

These valves are suitable for applications in explosion-hazard areas, open cast and also in mines. The stainless execution is especially suitable for the use in wet and salty environment. Spool valves are mainly used for controlling direction of movement and stopping of hydraulic cylinders and motors.

CERTIFICATES

	Surface	Mining	Standard -25 °C to...	Z604 -40 °C to...
ATEX	x	x	x	x
IECEX	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

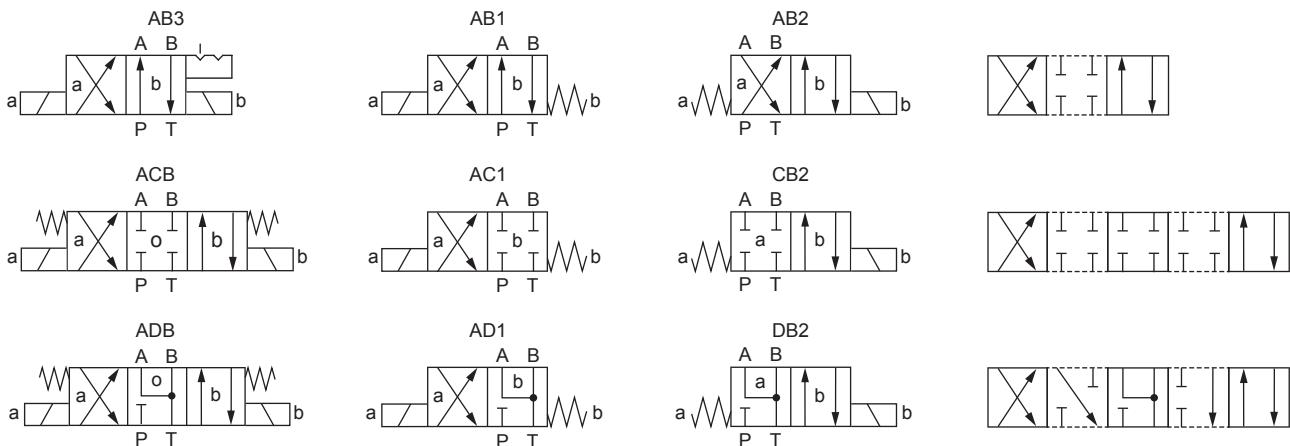
ACTUATION

Actuation	Switching solenoid, wet pin push type, pressure tight
Execution	MKY45 / 18x60 (data sheet 1.1-183) MKY45 / 18x60 K9 (data sheet 1.1-183S) 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



TYPE CODE

		WD Y F A06 - <input type="text"/> - <input type="text"/> / <input type="text"/> / <input type="text"/> - <input type="text"/> <input type="text"/> # <input type="text"/>	
Spool valve direct operated			
Explosion proof execution Ex d			
Flange construction			
International standard interface ISO, NG6			
Designation of symbols acc. to table			
Nominal voltage U_N	12 VDC <input type="checkbox"/> G12 24 VDC <input type="checkbox"/> G24	115 VAC <input type="checkbox"/> R115 230 VAC <input type="checkbox"/> R230	
Nominal power P_N	9 W <input type="checkbox"/> L9 15 W <input type="checkbox"/> L15 17 W <input type="checkbox"/> L17	Ambient temperature up to: 40 °C or 90 °C 70 °C 70 °C (only UL / CSA)	
Certification	ATEX, IECEx, EAC <input type="checkbox"/> Australia <input type="checkbox"/> AU MA <input type="checkbox"/> MA	UL / CSA <input type="checkbox"/> UL	
Sealing material	NBR <input type="checkbox"/> FKM (Viton) <input type="checkbox"/> D1 NBR 872 <input type="checkbox"/> y-Z604	(only with 15 W)	
Stainless	with K8 coil <input type="checkbox"/> K9 with K9 coil <input type="checkbox"/> K10	(not for UL execution)	
Design index (subject to change)			

1.3-34S

GENERAL SPECIFICATIONS

Designation	4/2-, 4/3-spool 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 / L17) -40...+70 °C (L15 / L17) In case of $U_N = 12$ VDC, the max. ambient temperature has to be reduced by 10 °C.
Weight	2,8 kg (1 solenoid) 4,6 kg (2 solenoids)
MTTFd	150 years

HYDRAULIC SPECIFICATIONS

Working pressure	$p_{max} = 350$ bar
Tank pressure	$p_{Tmax} = 200$ bar
Maximum volume flow	$Q_{max} = 50$ l/min, see characteristics
Leakage oil	See characteristics
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 (L15 / L17) FKM -20...+90 °C (L9) NBR 872 -40...+70 °C (L15 / L17)
Contamination efficiency	Class 20 / 18 / 14
Filtration	Required filtration grade $\beta_{10...16} \geq 75$, see data sheet 1.0-50

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, 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, 1.1-183S and 1.1-184


SEALING MATERIAL

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

SURFACE TREATMENT

-The valve body, the cover and the socket head screws are made of stainless steel

-The slip-on coil and the armature tube are zinc nickel coated

Optionally K10:

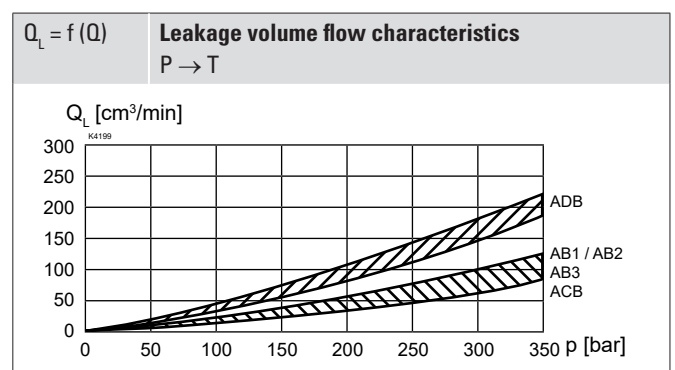
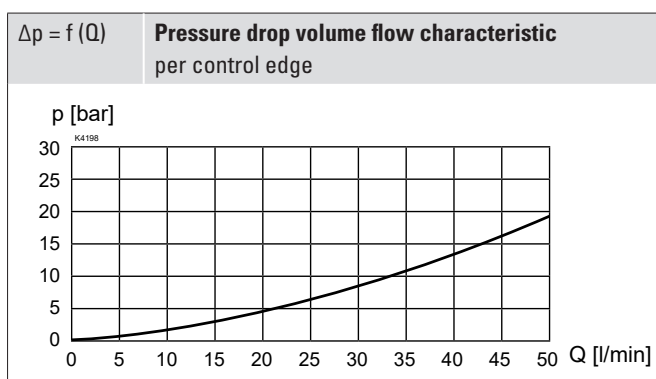
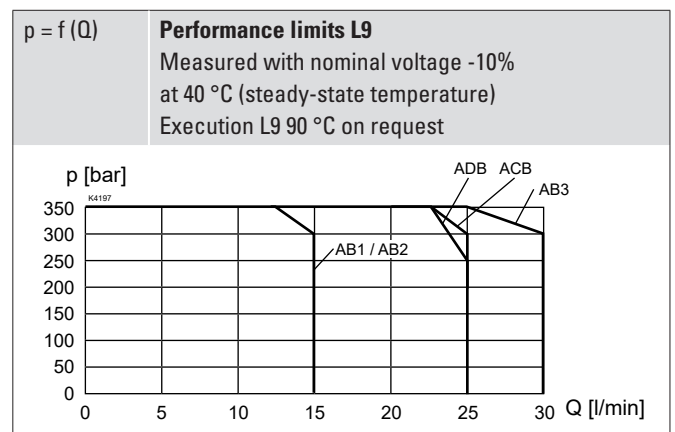
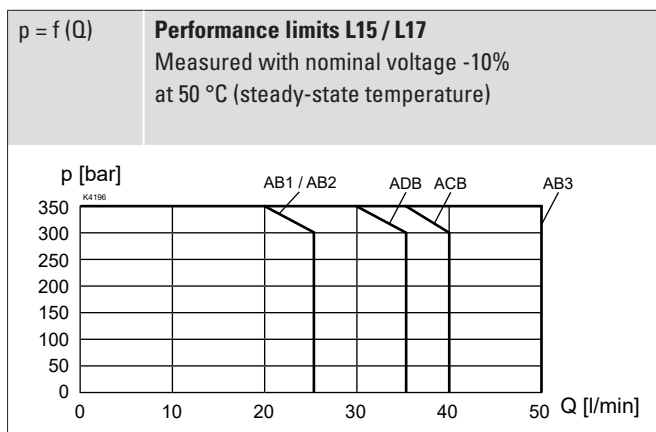
-The coil is made of stainless steel

COMMISSIONING

Attention! 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.


PERFORMANCE SPECIFICATIONS

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



Note! With the L15 / L17 execution for ambient temperatures up to 70 °C, the performance specifications have been evaluated with an ambient temperature of 50 °C



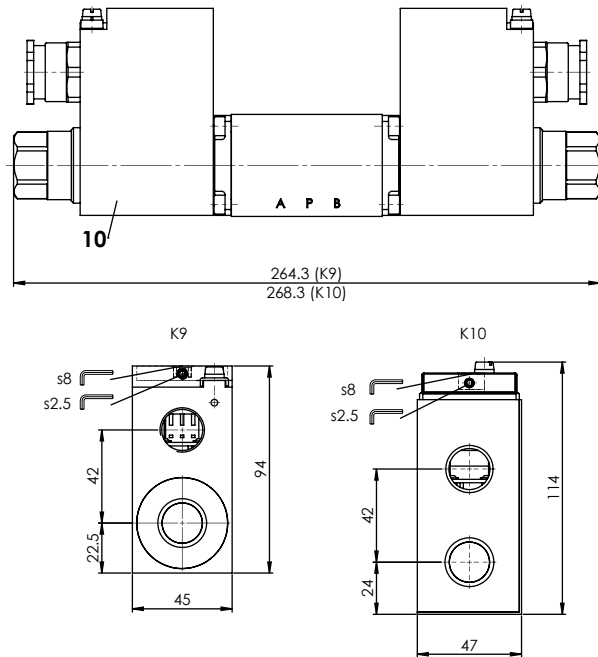
Attention! For valves for the temperature ranges „-40 °C to...“ (Z604) the leakage volume flow can be up to eight times higher.



DIMENSIONS

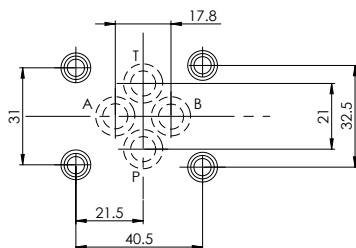
4/3-way spool valve (spring centring)

4/2-way spool valve (impulse)



Dimensions of the solenoid coil, refer to data sheet 1.1-183, 1.1-183S and 1.1-184

HYDRAULIC CONNECTION



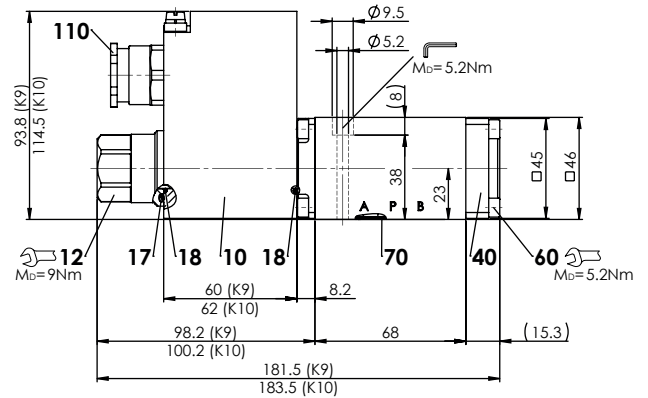
STANDARDS

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

ACCESSORIES

Technical explanations	Data sheet 1.0-100
Filtration	Data sheet 1.0-50
Relative duty factor	Data sheet 1.1-430

4/2-way spool valve (spring reset)



Note!



The K9 coil (K10 valve) is 1 mm larger than the valve body. Usually, a distance plate is necessary.

PARTS LIST

Position	Article	Description
10	263.6...	Solenoid coil MK.45 / 18 x 60
12	154.2201	Knurled nut Ex M18 x 1,5 x 30
17	160.2251	O-ring ID 25,07 x 2,62 (NBR)
18	160.2170	O-ring ID 17,17 x 1,78 (NBR)
40	058.4232	Cover 45 / 45 x 17,5 K9
60	246.2516	Socket head screw M5 x 16 A4 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

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 $M_D = 5,1 \text{ Nm}$ (screw quality A4) $M_D = 9 \text{ Nm}$ 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