

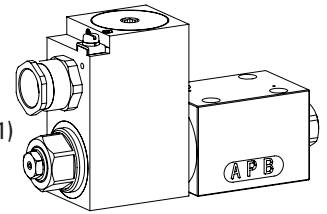
## Solenoid operated spool valve

### Flange construction

- ◆ 4/2-way impulse valve
- ◆ 4/3-way with spring centred mid position
- ◆ 4/2-way with spring reset
- ◆  $Q_{max} = 80 \text{ l/min}$
- ◆  $p_{max} = 350 \text{ bar}$

### 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  
 ⓧ 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, Group A, B, C, D T4  
 Class II & III, Division I, Group E, F, G T4



## 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.

## APPLICATION

These valves are suitable for applications in explosion-hazard areas, open cast and also in mines. 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 / 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](http://www.wandfluh.com)

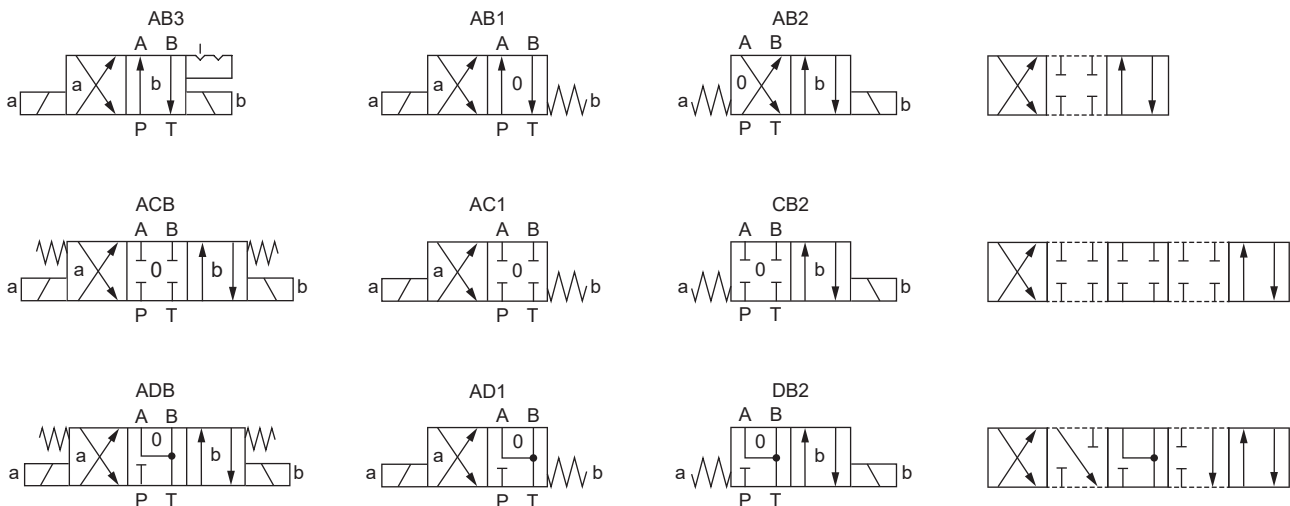
## ACTUATION

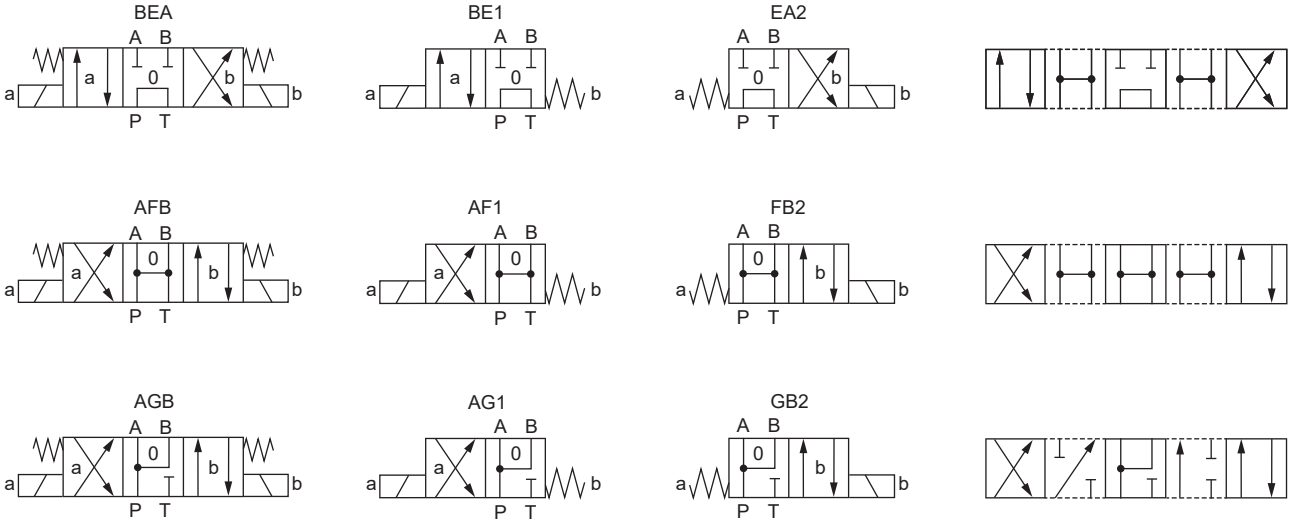
Actuation	Switching solenoid, wet pin push type, pressure tight
Execution	MKY45 / 18x60 (Data sheet 1.1-183)
Connection	Cable gland for cable Ø 6,5... 14 mm

**Attention!** The UC execution is always supplied without cable gland



## 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"/>			
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="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	115 VAC <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	
	24 VDC <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	230 VAC <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	
Nominal power $P_N$	9 W <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<i>Ambient temperature up to:</i>		
	15 W <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	40 °C or 90 °C		
Certification	ATEX, UKEX, IECEx, CCC, EAC	<input type="text"/> <input type="text"/>			
	Australia	<input type="text"/> <input type="text"/>	USA / Canada	<input type="text"/> <input type="text"/>	
	MA	<input type="text"/> <input type="text"/>	India	<input type="text"/> <input type="text"/>	
Sealing material	NBR	<input type="text"/> <input type="text"/>			
	FKM (Viton)	<input type="text"/> <input type="text"/>			
	NBR -40 °C	<input type="text"/> <input type="text"/>	(only with 15 W)		
Design index (subject to change)					

1.3-34

## 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	<b>Operation as T6</b> -25...+40 °C (L9) <b>Operation as T4</b> -25...+90 °C (L9) -25...+70 °C (L15) -40...+70 °C (L15)
Weight	2,8 kg (1 solenoid) 4,6 kg (2 solenoids)
MTTFd	150 years

## 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



## HYDRAULIC SPECIFICATIONS

Working pressure	$p_{max} = 350 \text{ bar}$
Tank pressure	$p_{Tmax} = 200 \text{ bar}$
Maximum volume flow	$Q_{max} = 80 \text{ l/min}$ , see characteristics
Leakage oil	See characteristics
Fluid	Mineral oil, other fluid on request
Viscosity range	12 mm <sup>2</sup> /s...320 mm <sup>2</sup> /s
Temperature range fluid	<b>Operation as T6</b> NBR -25...+40 °C (L9) FKM -20...+40 °C (L9) <b>Operation as T4</b> 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 $\beta_{10...16} \geq 75$ , see data sheet 1.0-50

## MANUAL OVERRIDE

HB4,5 as standard  
 Optionally: HN (K)  
 → see data sheet 1.1-311

## SURFACE TREATMENT

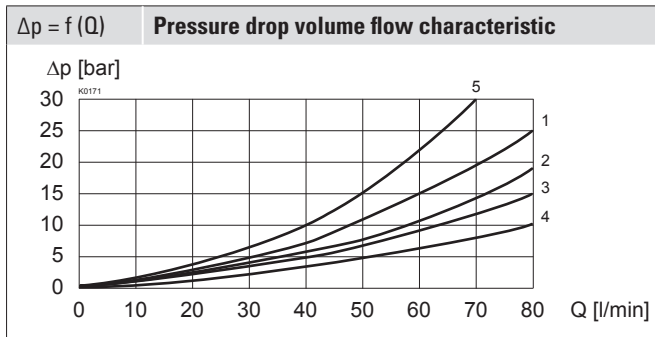
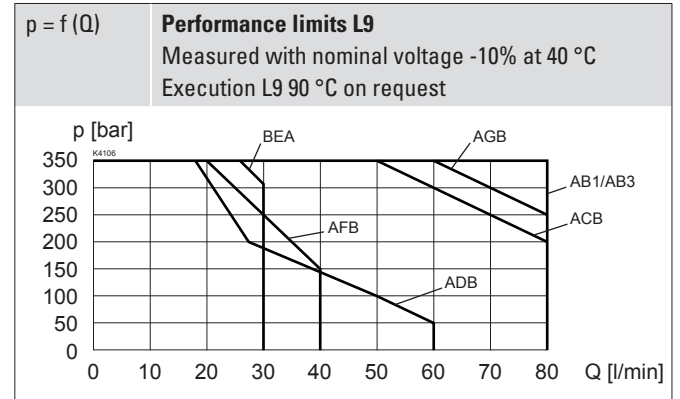
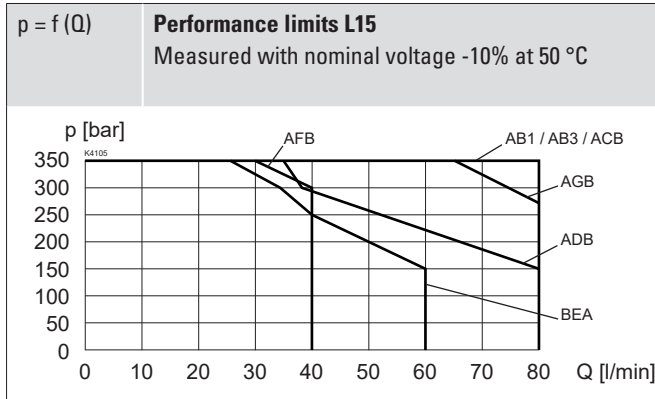
The valve body, the armature tube, the slip-on coil and the screw plug are zinc-nickel coated.

## COMMISSIONING

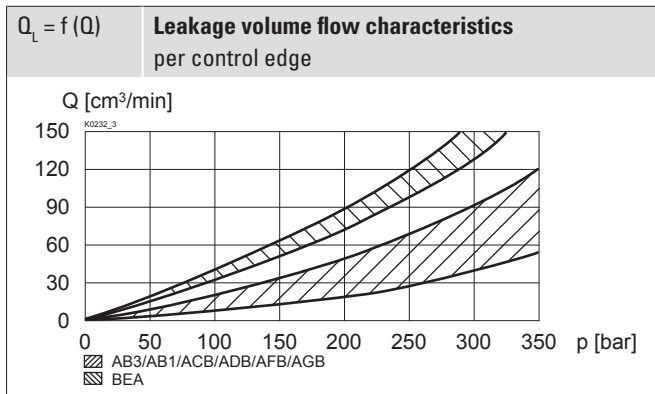
**Attention!** The solenoid coil must only be put into operation, if the requirements of the operating instructions supplied are observed to their full extent. In case of non-observance, no liability can be assumed.



**PERFORMANCE SPECIFICATIONS**

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


Symbol	Flow direction				
	P - A	P - B	P - T	A - T	B - T
AB1	2	2	-	1	1
AB3	2	2	-	1	1
ACB	2	2	-	1	1
ADB	2	2	-	3	3
BEA	2	2	5	2	2
AFB	4	4	-	3	3
AGB	4	4	-	1	1


**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

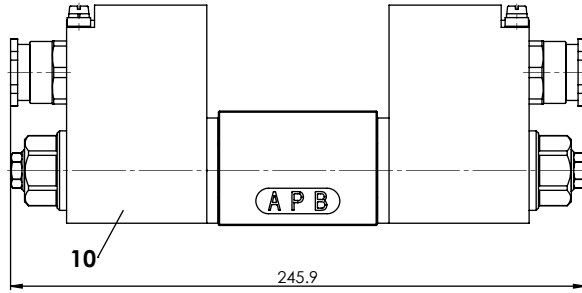
**Attention!**


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

## DIMENSIONS

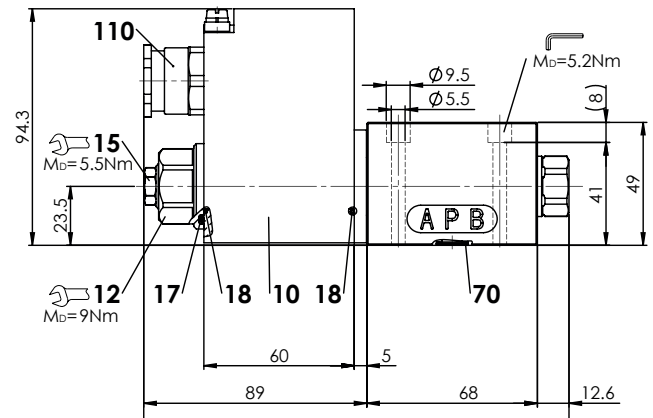
4/3-way spool valve (spring centring)

4/2-way spool valve (impulse)

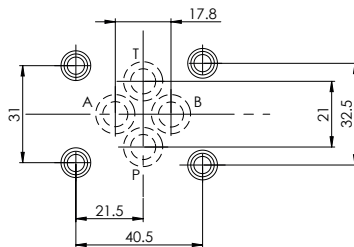


Dimensions of the solenoid coil, refer to data sheet 1.1-183

4/2-way spool valve (spring reset)



## HYDRAULIC CONNECTION



## SEALING MATERIAL

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

## 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

## 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

## 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	253.8001	HB6 Manual override „-25 °C to...”
	253.8025	HB6-Z604 Manual override „-40 °C to...”
110	111.1080	Cable gland M20 x 1,5
	251.2218	Seal kit WDYFA06

### Seal kit consisting of:

17	O-ring	ID 25,07 x 2,62
18	O-ring	ID 17,17 x 1,78
70	O-ring	ID 9,25 x 1,78

## INSTALLATION NOTES

Mounting type	Flange mounting 4 fixing holes for socket head screws M5 x 50
Mounting position	Any, preferably horizontal
Tightening torque	Fixing screws $M_D = 5,2 \text{ Nm}$ (screw quality 8.8, zinc coated) $M_D = 9 \text{ Nm}$ 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