

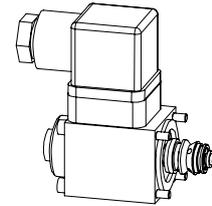


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Solenoid poppet valve cartridge

- normally closed
- $Q_{max} = 6 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG3

DESCRIPTION

The 2/2-way seating valve in slip-in cartridge form is the central control element of virtually all directly-controlled seating valves in nominal size 3-Mini. The seating valve cartridge, the spring, one O-ring and a washer are supplied separately. A solenoid (VDE standard 0580) is an optional addition.

Important: at the time the valve is taken into service, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The seating valve piston is held against the spring by the pressure-tight control solenoid. Because the seat-piston design has equal surface areas on both sides and since the seat/piston construction is balanced in terms of pressure, no undesirable closing and opening forces are generated. As a result, oil can flow in both directions through the seating valve. The seat/piston guide is sealed with an O-ring. The seat with a metallic seal closes off the valve so that there is no leakage oil.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge typ poppet valves can be neatly accommodated in valve blocks. Cavity tools are available for hire or sale for machining aluminium or steel.

See data sheet register no. 2.13.

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TYPE CODE

Poppet valve cartridge				2	2	03	#	<input type="checkbox"/>	
Poppet valve cartridge with solenoid				<input type="checkbox"/>	2	2	03	- <input type="checkbox"/>	# <input type="checkbox"/>
Medium-solenoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Super-solenoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
2-way (Connections)									
2 Position									
Nominal size 3									
Standard-nominal voltage U_N :	12 VDC	<input type="checkbox"/>	G12	110 VAC	<input type="checkbox"/>	R110			
	24 VDC	<input type="checkbox"/>	G24	115 VAC	<input type="checkbox"/>	R115			
				230 VAC	<input type="checkbox"/>	R230			
Design-Index (Subject to change)									

GENERAL SPECIFICATIONS

Description	2/2-way poppet valve
Nominal size	NG3
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	cartridge form
	4 solenoid fixing screws M3
Ambient temperature	-20...+50°C
Mounting position	any
Fastening torque	$M_D = 1,2 \text{ Nm}$ (quality 8.8)
Weight: 2203	$m = 0,015 \text{ kg}$
. 2203- . .	$m = 0,225 \text{ kg}$
Volume flow direction	any

HYDRAULIC SPECIFICATIONS

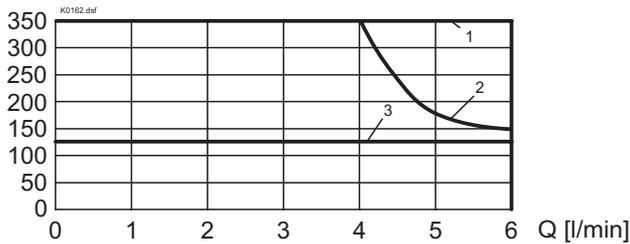
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 125 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 6 \text{ l/min}$, see characteristics

ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure tight
Standard-nominal flow	$U_N = 12 \text{ VDC}$ $U_N = 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*$ $U_N = 115 \text{ VAC}^*$ $U_N = 230 \text{ VAC}^*$ AC = 50 to 60 Hz
	* Rectifier integrated in the plug
	Other nominal voltages and nominal performances on request
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10 ⁷ (number of switching cycles, theoretically)
Connections/Power supply	Over device plug connection to ISO4400/ DIN 43650, (2P+E), other connections on request.
Solenoid:	- Medium SIN29V (data sheet 1.1-80) - Super SIS29V (data sheet 1.1-85)

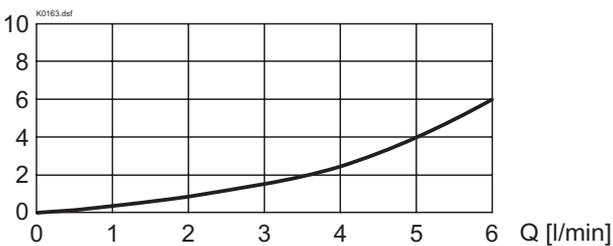
SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%

 p [bar]


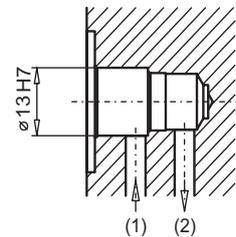
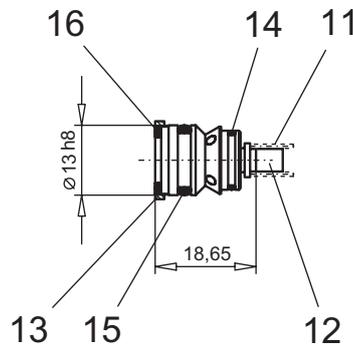
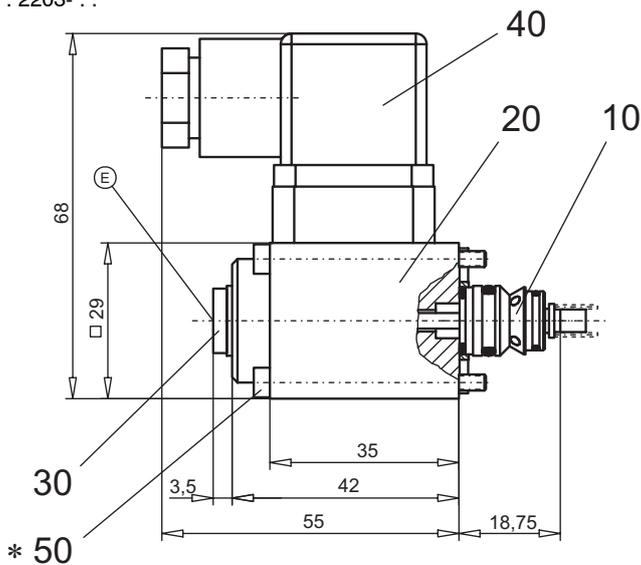
Type	Flow direction	
	1 → 2	2 → 1
M2203	3	3
S2203	1	2

 $\Delta p = f(Q)$ Pressure loss / flow characteristics

 Δp [bar]

DIMENSIONS

. 2203- . .

2203



For detailed cavity drawing and cavity tools see data sheet 2.13-1012

PARTS LIST

Position	Article	Description
10	500.0002	Poppet valve cartridge 2203
11	052.1607	Spring 0,8x6x8
12	222.0097	Pin
13	212.1580	Washer
14	160.1090	O-ring ID 9,00x1,00
15	160.2093	O-ring ID 9,25x1,78
16	160.1095	O-ring ID 9,50x1,6
20	260.2...	Medium-solenoid SIN29V
	260.3...	Super-solenoid SIS29V
30	239.2033	Plug (incl. seal) HB0
40	219.2002	Plug
50	246.0141	Socket head cap screw M3x40 DIN 912

* Cartridge supplied with fastening screw M3x40 for steel bodies/blocs. For aluminium bodies/blocs longer screws are recommended (min. 2 screw diameter).

E = air bleed screw

ACCESSORIES

Cartridge built-in flange- or sandwich body:

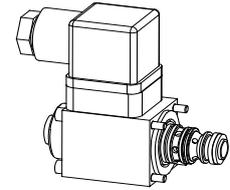
 Flange Register 1.11
 Sandwich Register 1.11

Special tool 983.2005 to poppet valve cartridge 2203

Explications techniques voir feuille 1.0-100E

Solenoid poppet valve cartridge

- normally open
- $Q_{max} = 6 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG3

DESCRIPTION

This 2/2-way poppet valve in slip-in cartridge design is mainly used in blocs for hydraulic integrated circuits. Poppet cartridge and spring will be supplied as separate items, if ordered, together with solenoid (VDE standard 0580) and fastening screws.

Important: at the time the valve is taken into service, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

If energised, the pressure proof solenoid presses the poppet onto the seat, acting against a spring. In deenergised state the poppet is lifted off its seat by the spring. One to the pressure balanced design of the poppet-spool no undesired opening as closing forces arise. As a result, oil can flow in both directions through the seating valve. The seat/piston guide is sealed with an O-ring. The seat with a metallic seal closes off the valve so that there is no leakage oil.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. Cavity tools are available for hire or sale for machining aluminium or steel. See data sheet register no. 2.13.

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TYPE CODE

Poppet valve cartridge				2	2	03	0-S1265	#	<input type="checkbox"/>	
Poppet valve cartridge with solenoid				<input type="checkbox"/>	2	2	03	0-S1265 -	#	<input type="checkbox"/>
Medium-solenoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
Super-solenoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
2-way (Connections)										
2 Position										
Nominal size 3										
Normally open										
Standard-nominal voltage U_N :	12 VDC	<input type="checkbox"/>	G12	110 VAC	<input type="checkbox"/>	R110				
	24 VDC	<input type="checkbox"/>	G24	115 VAC	<input type="checkbox"/>	R115				
				230 VAC	<input type="checkbox"/>	R230				

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

Description	2/2-way poppet valve
Nominal size	NG3
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	cartridge form
	4 solenoid fixing screws M3
Ambient temperature	-20... +50 °C
Mounting position	any
Fastening torque	$M_D = 1,2 \text{ Nm}$ (quality 8.8)
Weight: 22030-S1265	$m = 0,02 \text{ kg}$
22030-S1265- . . .	$m = 0,23 \text{ kg}$
Volume flow direction	any

ELECTRICAL CONTROL

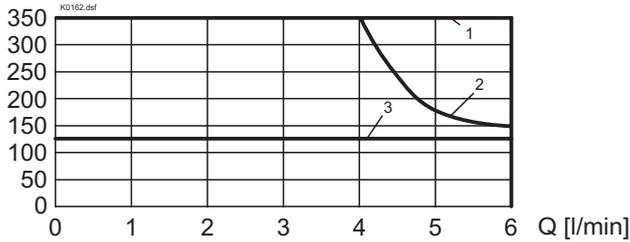
Construction	Solenoid, wet pin push type, pressure tight
Standard-nominal flow	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ AC = 50 to 60 Hz * Rectifier integrated in the plug
Voltage tolerance	Other nominal voltages and nominal performances on request
Protection class	±10% of nominal voltage
Relative duty factor	IP 65 to EN 60529
Switching cycles	100% DF (see data sheet 1.1-430)
Operating life	15 000/h
Connections / Power supply	10^7 (number of switching cycles, theoretically)
Solenoid:	Over device plug connection to ISO 4400 / DIN 43650, (2P+E), other connections on request
	– Medium SIN29V (data sheet 1.1-80)
	– Super SIS29V (data sheet 1.1-85)

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	Medium: $p_{max} = 125 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 6 \text{ l/min}$, see characteristics

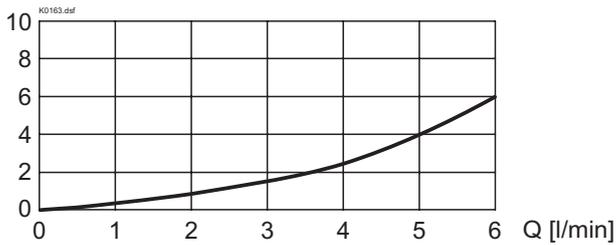
SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%

 p [bar]


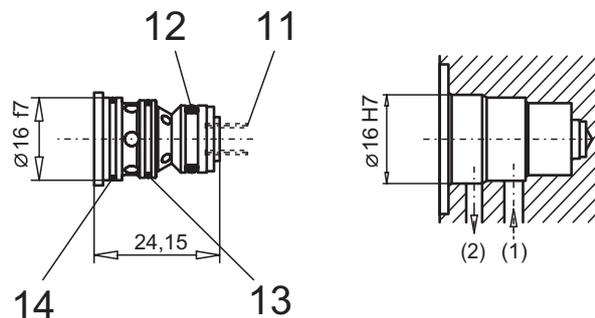
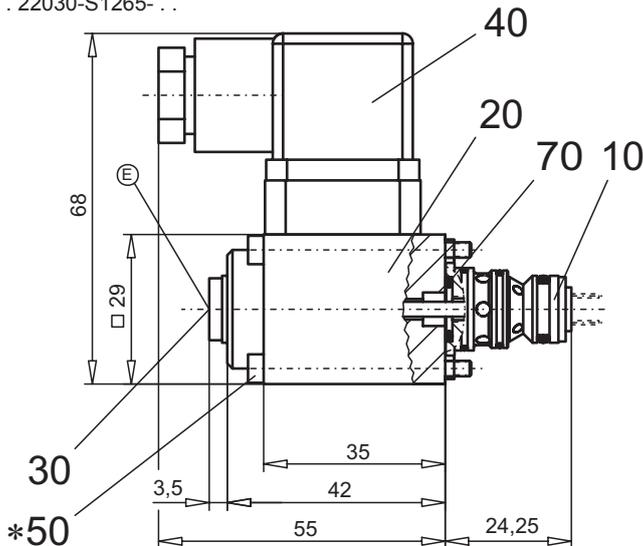
Type	Flow direction	
	1 → 2	2 → 1
M22030-S1265	3	3
S22030-S1265	1	2

 $\Delta p = f(Q)$ Pressure loss / flow characteristics

 Δp [bar]

DIMENSIONS

22030-S1265-...

22030-S1265



For detailed cavity drawing and cavity tools see data sheet 2.13-1016

E = air bleed screw

PARTS LIST

Position	Article	Description
10	500.0001	Poppet valve cartridge 22030-S1265
11	052.1607	Spring 0,8x6x8
12	160.2093	O-ring ID 9,25x1,78
13	160.1131	O-ring ID 13,00x1,00
14	160.1142	O-ring ID 14,00x1,00
20	260.2... 260.3...	Medium-solenoid SIN29V Super-solenoid SIS29V
30	239.2033	Plug (incl. seal) HB0
40	219.2002	Plug
50	246.0141	Socket head cap screw M3x40 DIN 912
70	160.1095	O-ring ID 9,50x1,6

* Cartridge supplied with fastening screw M3x40 for steel bodies/blocs. For aluminium bodies/blocs longer screws are recommended (min. 2 screw diameter).

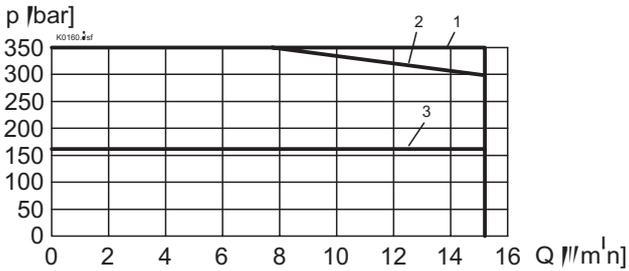
ACCESSORIES

 Cartridge built-in sandwich body:
 Sandwich

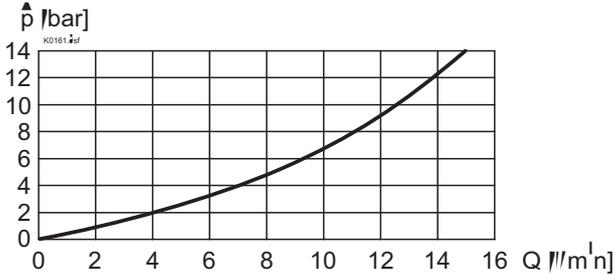
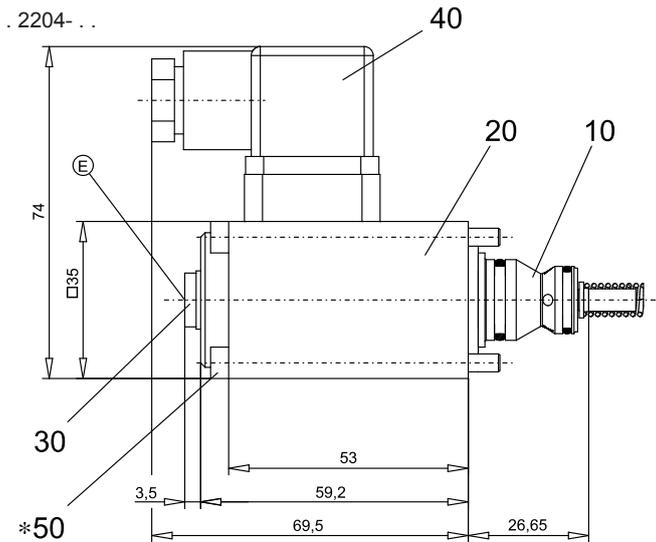
Register 1.11

Special tool 983.2007 to poppet valve cartridge 22030-S1265

Technical explanation see data sheet 1.0-100

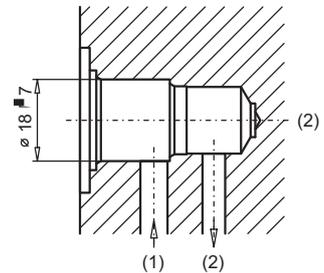
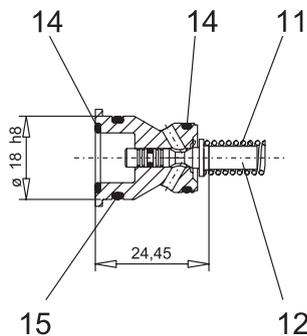
CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%


Type	Flow direction	
	1 → 2	2 → 1
M2204	3	3
S2204	1	2

 $\Delta p = f(Q)$ Pressure loss / flow characteristics

DIMENSIONS


E = air bleed screw

2204K



For detailed cavity drawing and cavity tools see data sheet 2.13-1013

PARTS LIST

Position	Article	Description
10	500.9111	Poppet valve cartridge 2204K
11	053.2101	Spring 1x7,4x16,5
12	222.0056	Pin
14	160.2121	O-ring ID 12,00x1,5
15	160.2140	O-ring ID 14,00x1,78
20	260.4...	Medium-solenoid SIN35V
	260.5...	Super-solenoid SIS35V
30	239.2033	Plug (incl. seal) HB0
40	219.2002	Plug
50	246.1161	Socket head cap screw M4x60 DIN 912

* Cartridge supplied with fastening screw M4x60 for steel bodies/blocs. For aluminium bodies/blocs longer screws are recommended (min. 2 screw diameter).

ACCESSORIES

Cartridge built-in flange- or sandwich body:

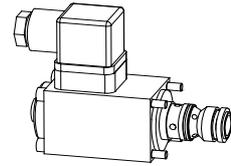
 Flange Register 1.11
 Sandwich Register 1.11

Special tool 983.2000 to poppet valve cartridge 2204K

Technical explanation see data sheet 1.0-100E

Solenoid poppet valve cartridge

- normally open
- $Q_{max} = 15 \text{ l/min}$
- $p_{max} = 250 \text{ bar}$

NG4

DESCRIPTION

This 2/2-way poppet valve in slip-in cartridge design is mainly used in blocs for hydraulic integrated circuits. Poppet cartridge and spring will be supplied as separate items, if ordered, together with solenoid (VDE standard 0580) and fastening screws.

Important: at the time the valve is taken into service, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

If energised, the pressure proof solenoid presses the poppet auto the seat, acting against a spring. In deenergised state the poppet is lifted off its seat by the spring. One to the pressure balanced design of the poppet-spool no undesired opening as closing forces arise. As a result, oil can flow in both directions through the seating valve. The seat/piston guide is sealed with an O-ring. The seat with a metallic seal closes off the valve so that there is no leakage oil.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge typ poppet valves can be neatly accommodated in valve blocks. Cavity tools are available for hire or sale for machining aluminium or steel. See data sheet register no. 2.13.

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TYPE CODE

Poppet valve cartridge				2	2	04	0-S1265	#	<input type="checkbox"/>	
Poppet valve cartridge with solenoid				<input type="checkbox"/>	2	2	04	0-S1265 -	#	<input type="checkbox"/>
Medium-solenoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
Super-solenoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
2-way (Connections)										
2 Position										
Nominal size 4										
Normally open										
Standard-nominal voltage U_N :	12 VDC	<input type="checkbox"/>	G12	110 VAC	<input type="checkbox"/>	R110				
	24 VDC	<input type="checkbox"/>	G24	115 VAC	<input type="checkbox"/>	R115				
				230 VAC	<input type="checkbox"/>	R230				

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

Description	2/2-way poppet valve
Nominal size	NG4
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	cartridge form
	4 solenoid fixing screws M4
Ambient temperature	-20...+50 °C
Mounting position	any
Fastening torque	$M_D = 2,6 \text{ Nm}$ (quality 8.8)
Weight: 22040-S1265	$m = 0,045 \text{ kg}$
. 22040-S1265- . .	$m = 0,5 \text{ kg}$
Volume flow direction	any

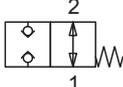
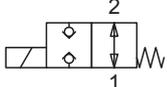
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 250 \text{ bar}$
Max. volume flow	$Q_{max} = 15 \text{ l/min}$, see characteristics

ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure tight
Standard-nominal flow	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ AC = 50 to 60 Hz * Rectifier integrated in the plug Other nominal voltages and nominal performances on request
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15 000/h
Operating life	10 ⁷ (number of switching cycles, theoretically)
Connections/Power supply	Over device plug connection to ISO 4400/DIN 43 650, (2P+E), other connections on request
Solenoid:	- Medium SIN35V (data sheet 1.1-105) - Super SIS35V (data sheet 1.1-110)

SYMBOLS

22040-S1265	. 22040-S1265- . .
	

CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%

 p [bar]


Type	Flow direction	
	1 → 2	2 → 1
M22040-S1265	3	3
S22040-S1265	1	2

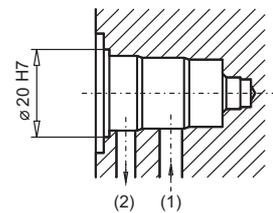
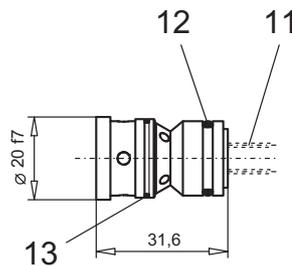
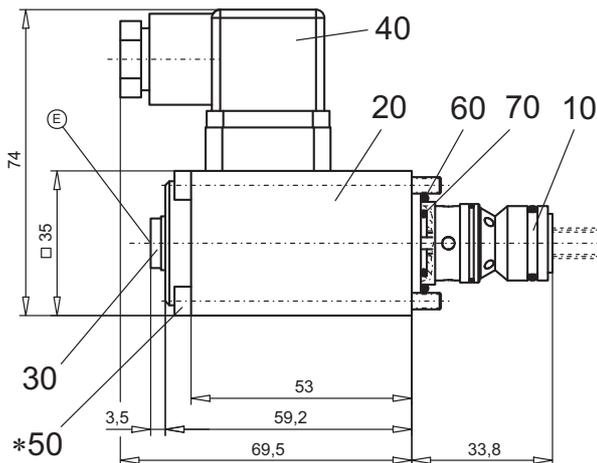
 $\Delta p = f(Q)$ Pressure loss / flow characteristics

 Δp [bar]

DIMENSIONS

. 22040-S1265- . .

22040-S1265



For detailed cavity drawing and cavity tools see data sheet 2.13-1017

E = air bleed screw

PARTS LIST

Position	Article	Description
10	500.1005	Poppet valve cart. 22040-S1265 Medium
	500.1006	Poppet valve cart. 22040-S1265 Super
11	053.2101	Spring 1 x 7,4 x 16,5 Medium
	053.2107	Spring 1 x 7,4 x 19,25 Super
12	160.2140	O-ring ID 14,00 x 1,78
13	160.1161	O-ring ID 16,00 x 1,00
20	260.4...	Medium-solenoid SIN35V
	260.5...	Super-solenoid SIS35V
30	239.2033	Plug (incl. seal) HB0
40	219.2002	Plug
50	246.1161	Socket head cap screw M4 x 60 DIN 912
60	160.2204	O-ring ID 20,35 x 1,78
70	160.2120	O-ring ID 12,42 x 1,78

* Cartridge supplied with fastening screw M4 x 60 for steel bodies/blocs. For aluminium bodies/blocs longer screws are recommended (min. 2 screw diameter).

ACCESSORIES

Cartridge built-in sandwich body:

Sandwich

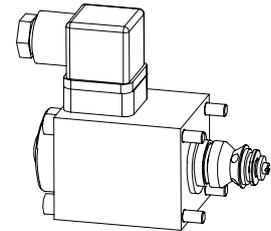
Register 1.11

Special tool 983.2006 to poppet valve cartridge 22040-S1265

Technical explanation see data sheet 1.0-100

Solenoid poppet valve cartridge

- normally closed
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG6

DESCRIPTION

The 2/2-way seating valve in slip-in cartridge form is the central control element of virtually all directly-controlled seating valves in nominal size 6. The seating valve cartridge, the stroke limiting piston, the spring, one O-ring and a washer are supplied separately. A solenoid (VDE standard 0580) is an optional addition.

Important: at the time the valve is taken into service, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The seating valve piston is held against the spring by the pressure-tight control solenoid. Because the seat-piston design has equal surface areas on both sides and since the seat/piston construction is balanced in terms of pressure, no undesirable closing and opening forces are generated. As a result, oil can flow in both directions through the seating valve. The seat/piston guide is sealed with an O-ring. The seat with a metallic seal closes off the valve so that there is no leakage oil.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. Cavity tools are available for hire or sale for machining aluminium or steel. See data sheet register no. 2.13.

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TYPE CODE

Poppet valve cartridge				2	2	06	#	<input type="checkbox"/>	
Poppet valve cartridge with solenoid				<input type="checkbox"/>	2	2	06	- <input type="checkbox"/>	# <input type="checkbox"/>
Medium	<input type="checkbox"/>								
Super	<input type="checkbox"/>								
2-way (Connections)	_____								
2 Positions	_____								
Nominal size 6	_____								
Standard-nominal voltage U_N :	12 VDC	<input type="checkbox"/>	G12	110 VAC	<input type="checkbox"/>	R110			
	24 VDC	<input type="checkbox"/>	G24	115 VAC	<input type="checkbox"/>	R115			
				230 VAC	<input type="checkbox"/>	R230			
Design-Index (Subject to change)	_____								

GENERAL SPECIFICATIONS

Description	2/2-way poppet valve cartridge
Nominal size	NG6
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	cartridge form
	4 solenoid fixing screws M5
Ambient temperature	-20...+50°C
Mounting position	any
Fastening torque	$M_D = 5,2 \text{ Nm}$ (quality 8.8)
Weight: 2206	$m = 0,04 \text{ kg}$
. 2206- . .	$m = 0,8 \text{ kg}$
Volume flow direction	any

ELECTRICAL CONTROL

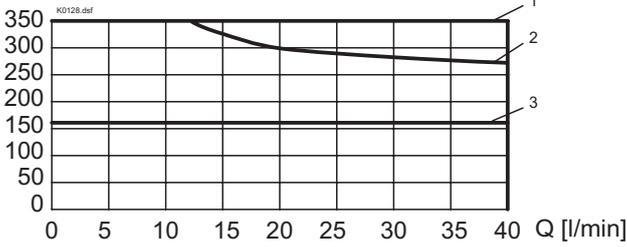
Construction	Solenoid, wet pin push, pressure tight
Standard-nominal flow	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ $\text{AC} = 50 \text{ to } 60 \text{ Hz}$ * Rectifier integrated in the plug
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connections/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Solenoid:	- Medium SIN45V (1.1-120) - Super SIS45V (1.1-125)

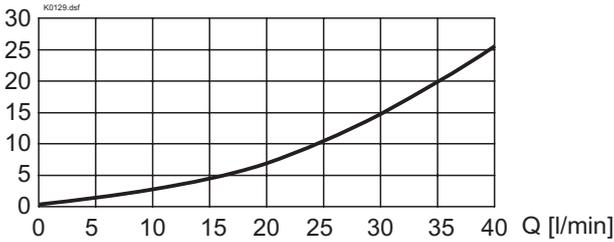
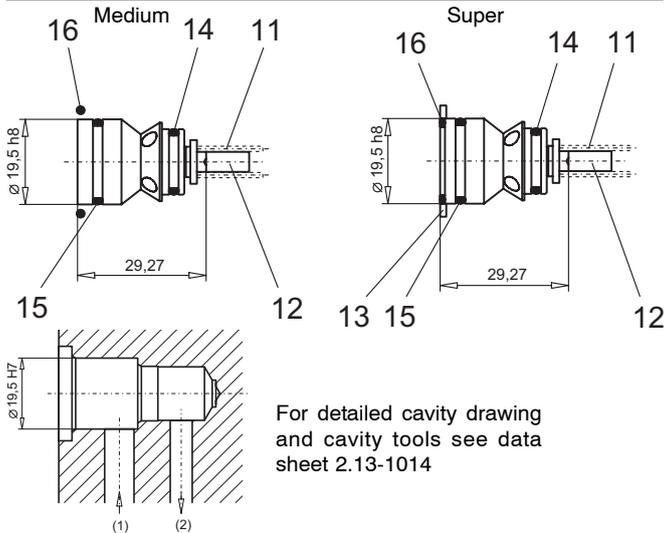
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 40 \text{ l/min}$, see characteristics

SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%

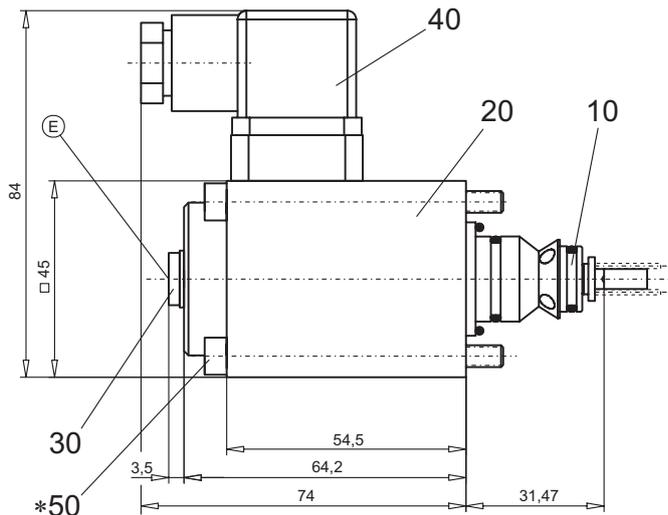
 p [bar]

 $\Delta p = f(Q)$ Pressure loss / flow characteristics

 Δp [bar]

DIMENSIONS

PARTS LIST

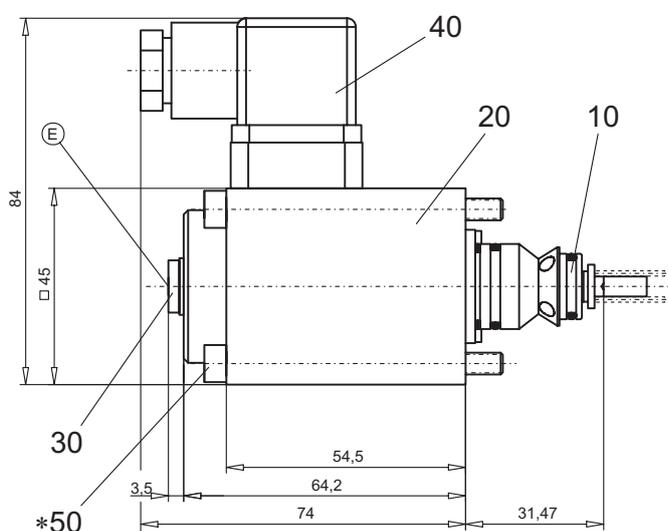
Position	Article	Description
10	500.3000	Poppet valve cartridge 2206 Medium
	500.3013	Poppet valve cartridge 2206 Super
11	053.2600	Spring 1,2x7,2x15 Medium
	052.2605	Spring 1,2x7,2x16 Super
12	222.0041	Pin
13	212.0502	Washer (only for Super)
14	160.2108	O-ring ID 10,82x1,78
15	160.2156	O-ring ID 15,60x1,78
16	160.2236	O-ring ID 23,52x1,78 Medium
	160.2161	O-ring ID 16,00x1,5 Super
20	260.6 . . .	Medium-solenoid SIN45V
	260.7 . . .	Super-solenoid SIS45V
30	239.2033	Plug (incl. seal) HB0
40	219.2002	Plug
50	249.2001	Socket head cap screw M5x63

Type	Flow directions	
	1 → 2	2 → 1
M2206	3	3
S2206	1	2

Medium



Super



E = air bleed screw

* Cartridge supplied with fastening screw M5x63 for steel bodies/blocs. For aluminium bodies/blocs longer screws are recommended (min. 2 screw diameter).

ACCESSORIES

Cartridge built in flange- or sandwich body:

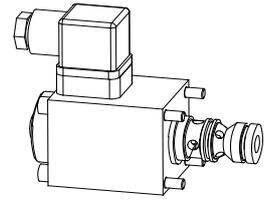
 Flange Register 1.11
 Sandwich Register 1.11

Special tool 983.2001 to poppet valve cartridge 2206.

Technical explanation see data sheet 1.0-100E

Solenoid poppet valve cartridge

- normally open
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 315 \text{ bar}$

NG6

DESCRIPTION

This 2/2-way poppet valve in slip-in cartridge design is mainly used in blocs for hydraulic integrated circuits. Poppet cartridge and spring will be supplied as separate items, if ordered, together with solenoid (VDE standard 0580) and fastening screws.

Important: at the time the valve is taken into service, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

If energised, the pressure proof solenoid presses the poppet auto the seat, acting against a spring. In deenergised state the poppet is lifted off its seat by the spring. One to the pressure balanced design of the poppet-spool no undesired opening as closing forces arise. As a result, oil can flow in both directions through the seating valve. The seat/piston guide is sealed with an O-ring. The seat with a metallic seal closes off the valve so that there is no leakage oil.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge typ poppet valves can be neatly accommodated in valve blocks. Cavity tools are available for hire or sale for machining aluminium or steel. See data sheet register no. 2.13.

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TYPE CODE

Poppet valve cartridge				2	2	06	0-S1265	#	<input type="checkbox"/>
Poppet valve cartridge with solenoid	<input type="checkbox"/>			2	2	06	0-S1265 -	<input type="checkbox"/>	# <input type="checkbox"/>
Medium-solenoid	<input type="checkbox"/>	<input type="checkbox"/>							
Super-solenoid		<input type="checkbox"/>							
2-way (Connections)									
2 Position									
Nominal size 6									
Normally open									
Standard-nominal voltage U_N :									
12 VDC			<input type="checkbox"/>	G12			110 VAC	<input type="checkbox"/>	R110
24 VDC			<input type="checkbox"/>	G24			115 VAC	<input type="checkbox"/>	R115
							230 VAC	<input type="checkbox"/>	R230

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

Description	2/2-way poppet valve
Nominal size	NG6
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	cartridge form
	4 solenoid fixing screws M5
Ambient temperature	-20...+50 °C
Mounting position	any
Fastening torque	$M_D = 5,2 \text{ Nm}$ (quality 8.8)
Weight: 22060-S1265	$m = 0,06 \text{ kg}$
22060-S1265- . .	$m = 0,8 \text{ kg}$
Volume flow direction	any (see characteristics)

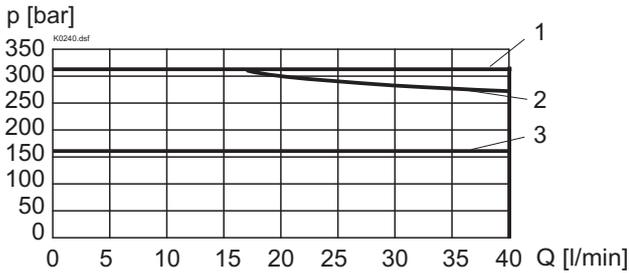
ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure tight
Standard-nominal flow	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ $AC = 50 \text{ to } 60 \text{ Hz}$ * Rectifier integrated in the plug
Voltage tolerance	Other nominal voltages and nominal performances on request
Protection class	$\pm 10\%$ of nominal voltage
Relative duty factor	IP 65 to EN 60529
Switching cycles	100% DF (see data sheet 1.1-430)
Operating life	15000/h
Connections/Power supply	10^7 (number of switching cycles, theoretically)
Solenoid:	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request – Medium SIS45V (1.1-120) – Super SIS45V (1.1-125)

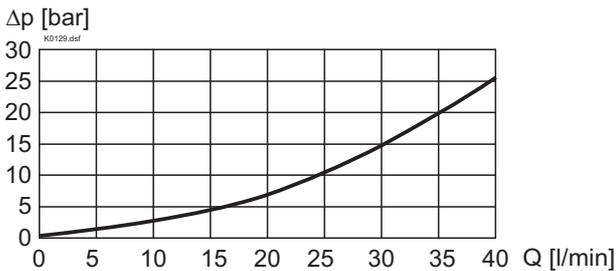
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 315 \text{ bar}$
Max. volume flow	$Q_{max} = 40 \text{ l/min}$, see characteristics

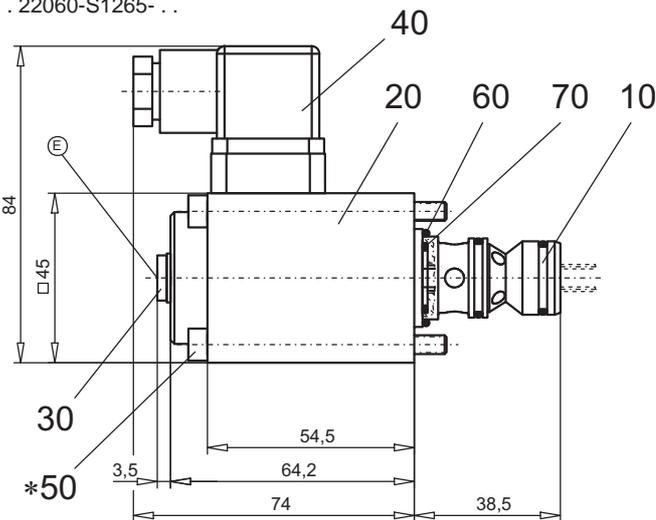
SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%


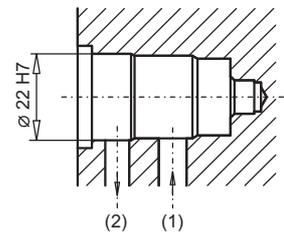
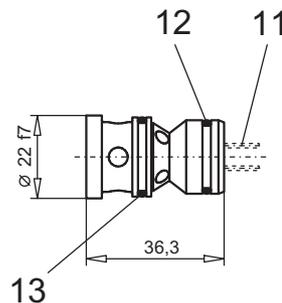
Type	Flow direction	
	1 → 2	2 → 1
M22060-S1265	3	3
S22060-S1265	1	2

 $\Delta p = f(Q)$ Pressure loss / flow characteristics

DIMENSIONS

22060-S1265-...



22060-S1265



For detailed cavity drawing and cavity tools see data sheet 2.13-1018

E = air bleed screw

PARTS LIST

Position	Article	Description
10	500.3002 500.3017	Poppet valve cart. 22060-S1265 Medium Poppet valve cart. 22060-S1265 Super
11	053.2600 052.2605	Spring 1,2x7,2x15 Medium Spring 1,2x7,2x16 Super
12	160.2156	O-ring ID 15,60x1,78
13	160.2170	O-ring ID 17,17x1,78
20	260.6... 260.7...	Medium-solenoid SIN45V Super-solenoid SIS45V
30	239.2033	Plug (incl. seal) HB0
40	219.2002	Plug
50	249.2001	Socket head cap screw M5x63
60	160.2236	O-ring ID 23,52x1,78
70	160.2156	O-ring ID 15,60x1,78

* Cartridge supplied with fastening screw M5x63 for steel bodies/blocs. For aluminium bodies/blocs longer screws are recommended (min. 2 screw diameter).

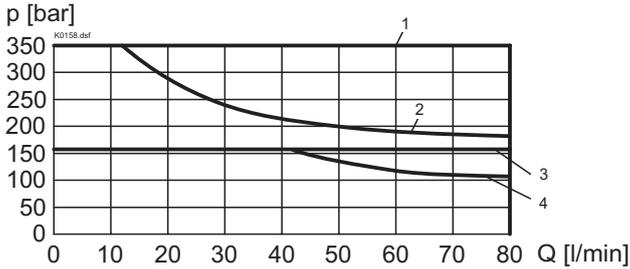
ACCESSORIES

 Cartridge built-in sandwich body:
 Sandwich

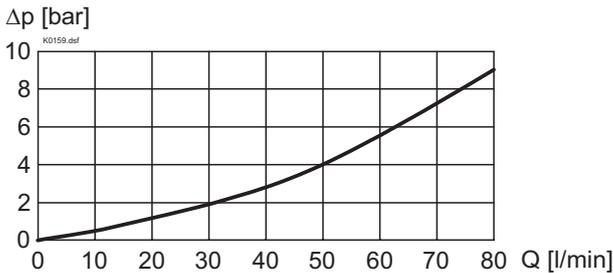
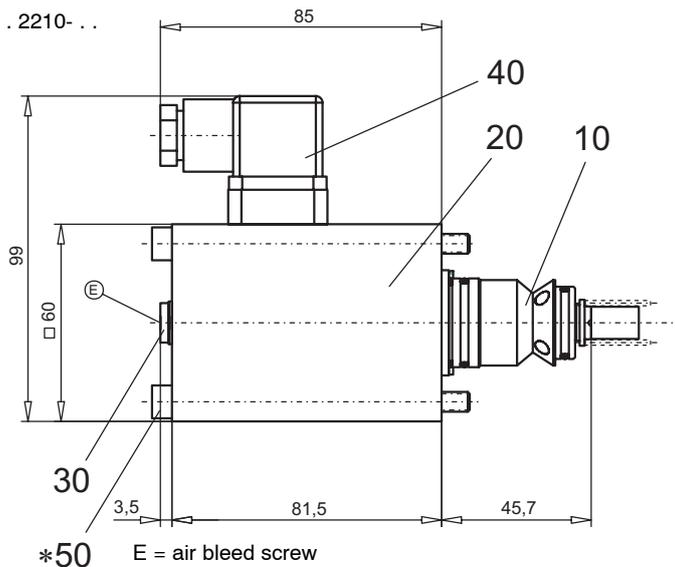
Register 1.11

Special tool 983.2003 to poppet valve cartridge 22060-S1265

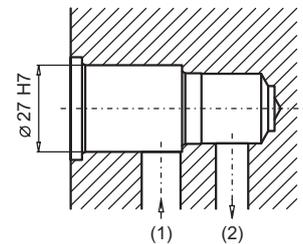
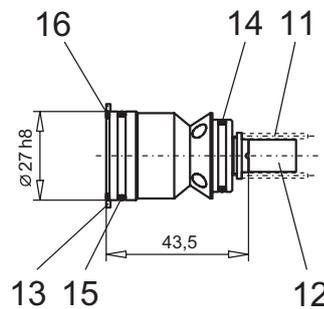
Technical explanation see data sheet 1.0-100

CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%


Type	Flow direction	
	1 → 2	2 → 1
M2210	3	4
S2210	1	2

 $\Delta p = f(Q)$ Pressure loss / flow characteristics

DIMENSIONS


2210



For detailed cavity drawing and cavity tools see data sheet 2.13-1015

PARTS LIST

Position	Article	Description
10	500.4010	Poppet valve cartridge 2210
11	052.4202	Spring 1,6x13,6x26
12	222.0042	Pin
13	212.0504	Washer
14	160.2188	O-ring ID 18,77x1,78
15	160.2236	O-ring ID 23,52x1,78
16	160.2230	O-ring ID 23,00x1,5
20	260.8... 260.9...	Medium-solenoid SIN60V Super-solenoid SIS60V
30	239.2033	Plug (incl. seal) HB0
40	219.2002	Plug
50	246.3190	Socket head cap screw M6x90 DIN 912

* Cartridge supplied with fastening screw M6x90 for steel bodies/blocs. For aluminium bodies/blocs longer screws are recommended (min. 2 screw diameter).

ACCESSORIES

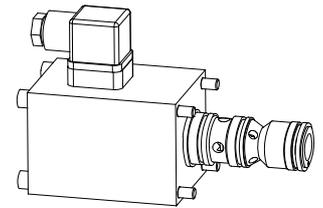
Cartridge built-in flange- or sandwich body:
 Flange Register 1.11
 Sandwich Register 1.11

Special tool 983.2002 to poppet valve cartridge 2210.

Technical explanation see data sheet 1.0-100E

Solenoid poppet valve cartridge

- normally open
- $Q_{max} = 80 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG10

DESCRIPTION

This 2/2-way poppet valve in slip-in cartridge design is mainly used in blocs for hydraulic integrated circuits. Poppet cartridge and spring will be supplied as separate items, if ordered, together with solenoid (VDE standard 0580) and fastening screws.

Important: at the time the valve is taken into service, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

If energised, the pressure proof solenoid presses the poppet auto the seat, acting against a spring. In deenergised state the poppet is lifted off its seat by the spring. One to the pressure balanced design of the poppet-spool no undesired opening as closing forces arise. As a result, oil can flow in both directions through the seating valve. The seat/piston guide is sealed with an O-ring. The seat with a metallic seal closes off the valve so that there is no leakage oil.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge typ poppet valves can be neatly accommodated in valve blocks. Cavity tools are available for hire or sale for machining aluminium or steel. See data sheet register no. 2.13.

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TYPE CODE

Poppet valve cartridge				2	2	10	0-S1265	#	<input type="checkbox"/>	
Poppet valve cartridge with solenoid				<input type="checkbox"/>	2	2	10	0-S1265 -	#	<input type="checkbox"/>
Medium-solenoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
Super-solenoid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
2-way (Connections)										
2 Position										
Nominal size 10										
Normally open										
Standard-nominal voltage U_N :	12 VDC	<input type="checkbox"/>	G12	110 VAC	<input type="checkbox"/>	R110				
	24 VDC	<input type="checkbox"/>	G24	115 VAC	<input type="checkbox"/>	R115				
				230 VAC	<input type="checkbox"/>	R230				

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

Description	2/2-way poppet valve
Nominal size	NG10
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	cartridge form
	4 solenoid fixing screws M6
Ambient temperature	-20...+50 °C
Mounting position	any
Fastening torque	$M_D = 8,9 \text{ Nm}$ (quality 8.8)
Weight: 22100-S1265	$m = 0,21 \text{ kg}$
. 22100-S1265- . .	$m = 2,07 \text{ kg}$
Volume flow direction	any (see characteristics)

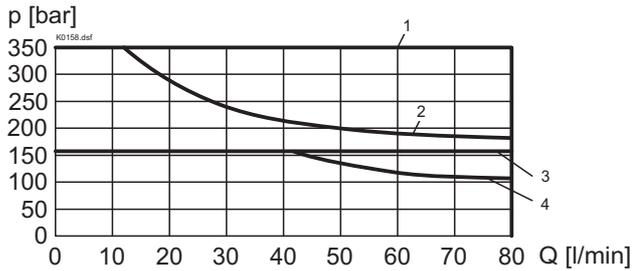
ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure tight
Standard-nominal flow	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ AC = 50 to 60 Hz * Rectifier integrated in the plug Other nominal voltages and nominal performances on request
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15 000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connections/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Solenoid:	- Medium SIN60V (Data sheet 1.1-145) - Super SIS60V (Data sheet 1.1-150)

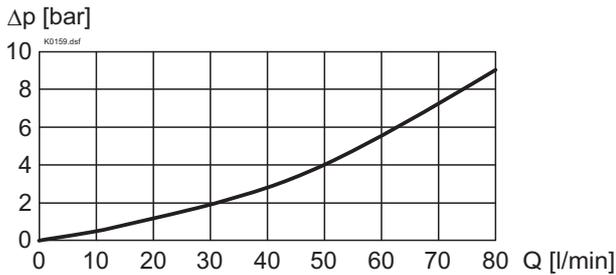
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 80 \text{ l/min}$, see characteristics

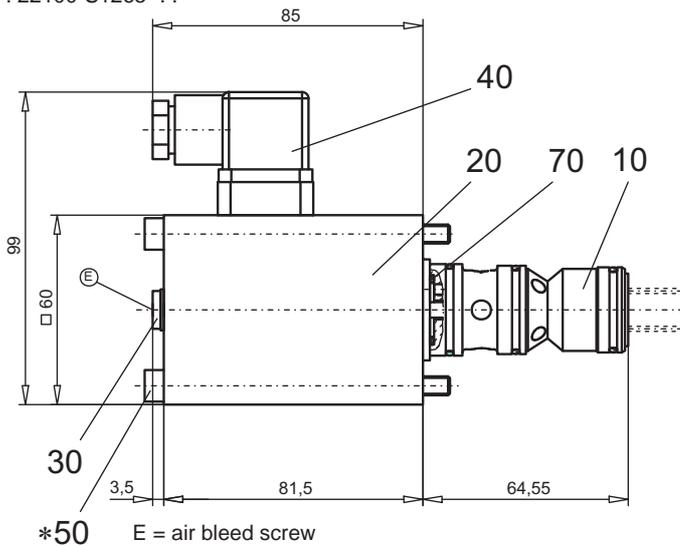
SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%


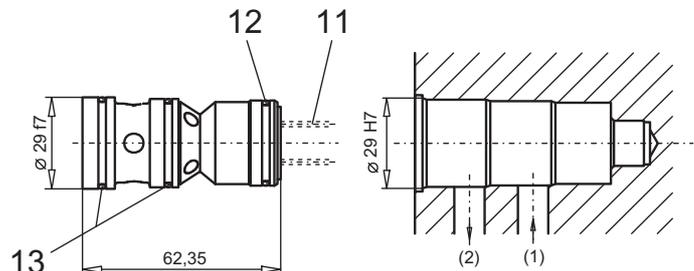
Type	Flow direction	
	1 → 2	2 → 1
M22100-S1265	3	4
S22100-S1265	1	2

 $\Delta p = f(Q)$ Pressure loss / flow characteristics

DIMENSIONS

22100-S1265-...



22100-S1265



For detailed cavity drawing and cavity tools see data sheet 2.13-1019

PARTS LIST

Position	Article	Description
10	500.4003	Poppet valve cart. 22100-S1265
11	052.4202	Spring 1,6 x 13,6 x 26
12	160.2236	O-ring ID 23,52 x 1,78
13	160.2252	O-ring ID 25,12 x 1,78
20	260.8... 260.9...	Medium-solenoid SIN60V Super-solenoid SIS60V
30	239.2033	Plug (incl. seal) HB0
40	219.2002	Plug
50	246.3190	Socket head cap screw M6 x 90 DIN 912
70	160.2188	O-ring ID 18,77 x 1,78

* Cartridge supplied with fastening screw M6x90 for steel bodies/blocs. For aluminium bodies/blocs longer screws are recommended (min. 2 screw diameter).

ACCESSORIES

Cartridge built-in sandwich body:

Sandwich

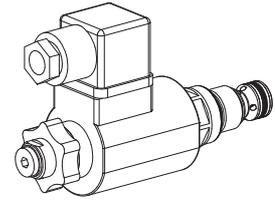
Register 1.11

Special tool 983.2004 to poppet valve cartridge 22100-S1265

Technical explanation see data sheet 1.0-100

Solenoid poppet valve cartridge
2/2- and 3/2-way version

- Direct operated
- $Q_{max} = 20 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M18x1,5
 ISO 7789

DESCRIPTION

Direct operated 2/2- and 3/2-way poppet valve in screw-in cartridge with thread M18 x 1,5 for cavity to ISO 7789, (3/2-way type to Wandfluh standard). The 2/2-way type can be supplied in a „normally closed“ and „normally open“ version. There are two versions of the slip-on coil. The coil type „M“ with steel housing and the more economical type „K“ with plastic moulded coil with the same performance as the steel type. The coil may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

FUNCTION

The pressure tight switching solenoid and in turn the spring on the opposite side shift the guided poppet into an either open or closed position. Due to the equal-area- and balanced-poppet-design there are no undesired opening or closing forces. Fluid may pass the poppet valve in both directions. The poppet piston is sealed by an o-ring. The seat with metallic seal closes leak free in both directions.

APPLICATION

Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks. To machine the cavities in steel or aluminium blocks cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13

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DIMENSIONS/ SECTIONAL DRAWING.....	3/4
CAVITIES.....	3/4
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ACCESSORIES.....	4

TYPE CODE

		S D S PM18 -		-		/		35 #		□	
Poppet valve											
Direct operated											
Super											
Screw-in cartridge M18x1,5											
2/2-way, „normally closed“						BA					
2/2-way, „normally open“						AB					
3/2-way						FG					
Standard-nominal voltage U_N :	12 VDC					G12	110 VAC	R110			
	24 VDC					G24	115 VAC	R115			
							230 VAC	R230			
Slip-on coil:	Plastic moulded					K	(only for 12 VDC and 24 VDC available)				
	Steel					M					
Connector socket:	ISO 4400 / DIN 43650					D					
	AMP Junior-Timer					J					
Coil types											
Design-Index (Subject to change)											

GENERAL SPECIFICATIONS

Description	Direct operated 2/2- and 3/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity to ISO 7789 (3/2-way type to Wandfluh standard)
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread M18x1,5
Ambient temperature	-20...+50 °C
Mounting position	any
Fastening torque	$M_D = 30 \text{ Nm}$ for cartridge $M_{Dmax} = 5 \text{ Nm}$ or coil retaining nut $m = 0,43 \text{ kg}$ version with plastic coil $m = 0,57 \text{ kg}$ version with steel coil
Masse	
Volume flow	any (note performance limits)

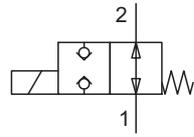
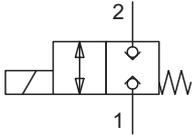
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, classe 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal flow	$Q_N = 15 \text{ l/min}$
Max. volume flow	$Q_{max} = \text{up to } 20 \text{ l/min}$
Pressure drop	$\Delta p = < 16 \text{ bar}$ with 15 l/min

SYMBOLS

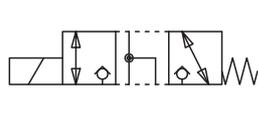
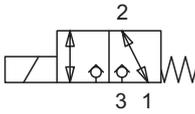
SDSPM18-BA...

SDSPM18-AB...



SDSPM18-FG...

Transitional function „FG“


ELECTRICAL CONTROL

Construction

solenoid, wet pin, push type, pressure tight with exchangeable slip-on coil

Standard nominal voltage:

 $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $\text{AC} = 50 \text{ up to } 60 \text{ Hz}$

* Rectifier integrated in connector socket

Other nominal voltages and wattages on request

Voltage tolerance

 $\pm 10\%$ of nominal voltage

Protection class

IP 65 acc. to EN 60529

(if correctly mounted)

Relative duty cycle

100% DF (see data sheet 1.1-430)

Switching cycles

5000/h

Operating life

 10^7 (number of switching cycles, theoretically)

Connections/Power supply

Versions see type code

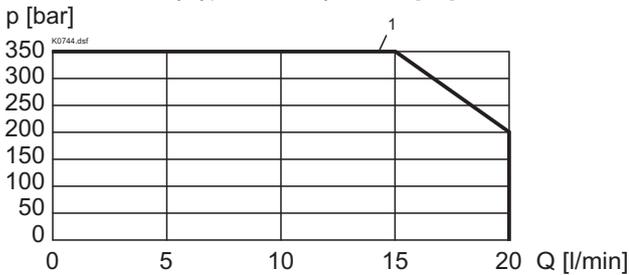
Solenoid type:

– Steel coil (M.35/16)

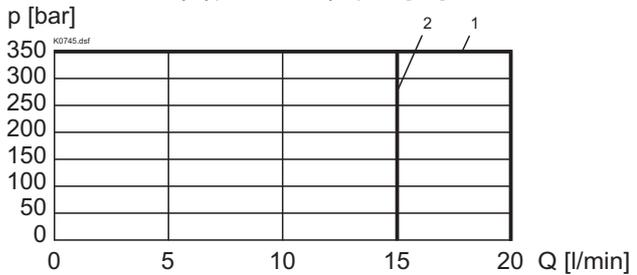
data sheet 1.1-170

– Plastic coil (K.35/16)

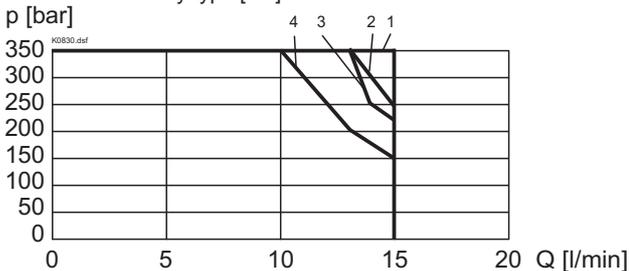
data sheet 1.1-172

CHARACTERISTICS oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature
 2/2-way type, „normally closed“ [BA]


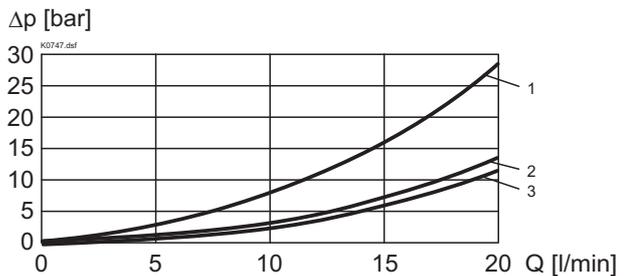
Version	Flow direction	
	1 → 2	2 → 1
SDSPM18-BA-.../„M“	1	1
SDSPM18-BA-.../„K“	1	1

 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature
 2/2-way type, „normally open“ [AB]


Version	Flow direction	
	1 → 2	2 → 1
SDSPM18-AB-.../„M“	2	1
SDSPM18-AB-.../„K“	2	1

 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature
 3/2-way type [FG]


Version	Flow direction			
	1 → 2	2 → 1	2 → 3	3 → 2
SDSPM18-FG-.../„M“	3	1	1	2
SDSPM18-FG-.../„K“	3	1	1	4

 $\Delta p = f(Q)$ Pressure volume flow characteristics


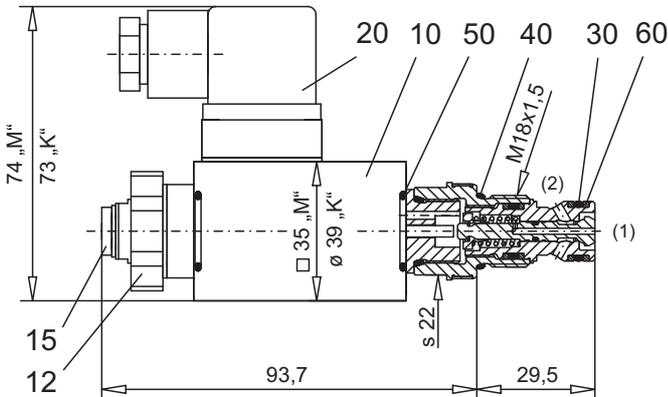
Version	Flow direction		
	1 → 2	2 → 1	3 → 2
SDSPM18-BA-...	2	2	–
SDSPM18-AB-...	2	2	–
SDSPM18-FG-...	–	3	1

REMARK!

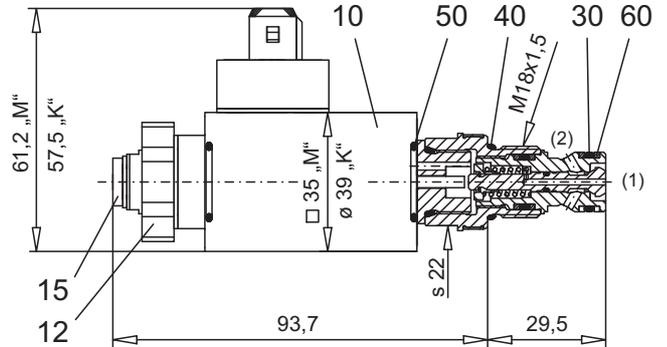
 Depending on application the volume flow may be increased but during shifting the total volume flow (3 → 2 and 2 → 1) must not be higher than $Q = 20 \text{ l/min}$

DIMENSIONS / SECTIONAL DRAWING

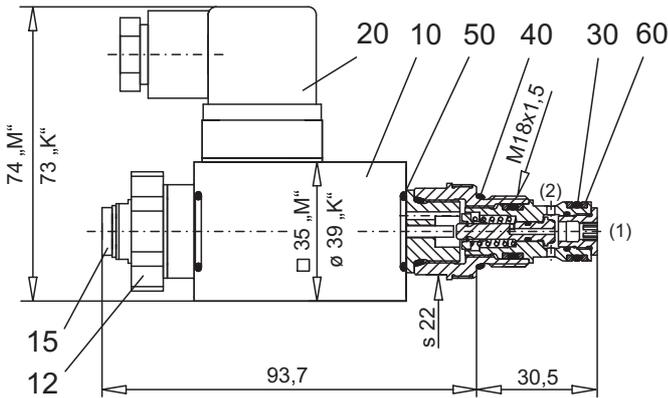
2/2-way version, „normally closed“ [BA]
with DIN connector socket



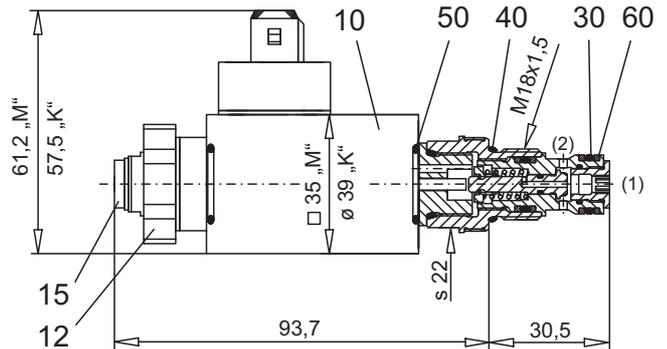
2/2-way version, „normally closed“ [BA]
with Junior-Timer connector socket



2/2-way version „normally open“ [AB]
with DIN connector socket

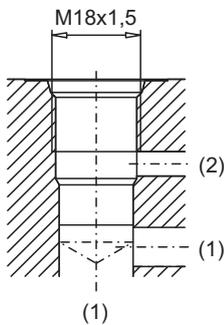


2/2-way version, „normally open“ [AB]
with Junior-Timer connector socket



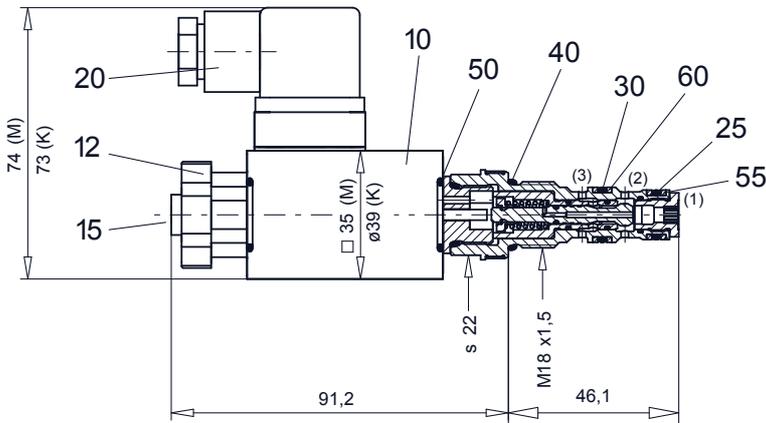
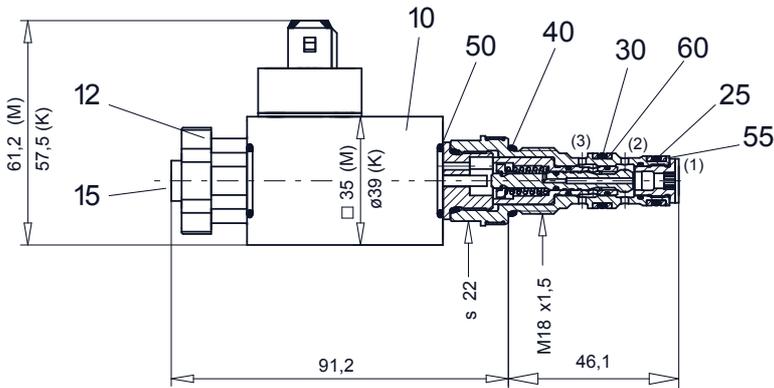
CAVITY

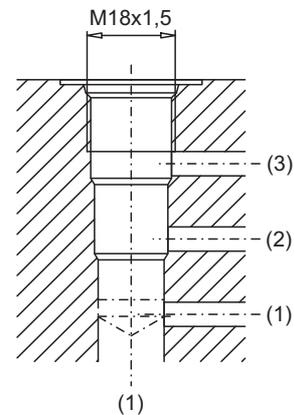
Cavity drawing for 2/2-way version
to ISO 7789-18-01-0-98



For detailed cavity drawing and cavity tools
see data sheet 2.13-1002

DIMENSIONS / SECTIONAL DRAWING

 3/2-way version
 with DIN connector socket

 3/2-way version
 with Junior-Timer connector socket

CAVITY

 Cavity drawing for 3/2-way version
 to Wandfluh standard

 For detailed cavity drawing and cavity tools
 see data sheet 2.13-1020

PARTS LIST

Position	Article	Description
10	260.4... 260.4... 206.23... 206.23..	Coil complete MD35/16-... Coil complete MJ35/16-... Coil complete KD35/16-... Coil complete KJ35/16-...
12	154.2601	Knurled nut M16 x 1 x 18
15	239.2033	Plug HB0 (incl. seal)
20	219.2002	Plug
25	160.2093	O-ring ID 9,25 x 1,78
30	160.2111	O-ring ID 11,11 x 1,78
40	160.2156	O-ring ID 15,60 x 1,78
50	160.6156	O-ring viton ID 15,60 x 1,78
55	049.3137	Back-up ring RD 10,6 x 13,5 x 1,4
60	049.3156	Back-up ring RD 12,1 x 15 x 1,4

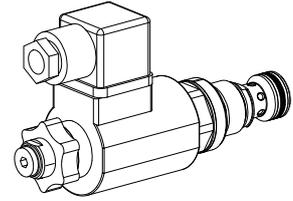
ACCESSORIES

 Cartridge built-in flange- or sandwich body
 Flange valve on request
 Sandwich valve on request

Technical explanation see data sheet 1.0-100

**Solenoid poppet valve cartridge
 2/2- and 3/2-way version**

- Direct operated
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M22x1,5
 ISO 7789

DESCRIPTION

Direct operated 2/2- and 3/2-way poppet valve in screw-in cartridge with thread M22x1,5 for cavity to ISO 7789. The 2/2-way type can be supplied in a „normally closed“ and „normally open“ version. There are two versions of the slip-on coil. The coil type „M“ with steel housing and the more economical type „K“ with plastic moulded coil and a somewhat reduced performance compared to the steel type. The coil may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

FUNCTION

The pressure tight switching solenoid and in turn the spring on the opposite side shift the guided poppet into an either open or closed position. Due to the equal-area- and balanced- poppet-design there are no undesired opening or closing forces. Fluid may pass the poppet valve in both directions. The poppet piston is sealed by an o-ring. The seat with metallic seal closes leak free in both directions.

APPLICATION

Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks and in size NG4 and NG6 flange and sandwich bodies. To machine the cavities in steel or aluminium blocks cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13

CONTENTS

GENERAL SPECIFICATIONS	1
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CHARACTERISTICS	2
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CAVITYS	3/4
PARTS LIST	4
ACCESSORIES	4

TYPE CODE

		S D S PM22 -		[] - [] / [] [] 35 # []	
Poppet valve					
Direct operated					
Super					
Screw-in cartridge M22x1,5					
2/2-way, „normally closed“		BA			
2/2-way, „normally open“		AB			
3/2-way		FG			
Standard-nominal voltage U_N :	12 VDC	G12	110 VAC	R110	
	24 VDC	G24	115 VAC	R115	
			230 VAC	R230	
Slip-on coil:	Plastic moulded	K	(only for 12 VDC and 24 VDC available)		
	Steel	M			
Connector socket:	ISO 4400 / DIN 43650	D			
	AMP Junior-Timer	J			
Coil types					
Design-Index (Subject to change)					

GENERAL SPECIFICATIONS

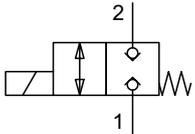
Description	Direct operated 2/2- and 3/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity to ISO 7789
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread M22x1,5
Ambient temperature	-20...+50°C
Mounting position	any
Fastening torque	$M_D = 50 \text{ Nm}$ for cartridge $M_{Dmax} = 5 \text{ Nm}$ or coil retaining nut
Masse	$m = 0,49 \text{ kg}$ 2/2-way valve with plastic coil $m = 0,63 \text{ kg}$ 2/2 valve with steel coil $m = 0,51 \text{ kg}$ 3/2-way valve with plastic coil $m = 0,65 \text{ kg}$ 3/2-way valve with steel coil
Volume flow	any (note performance limits)

HYDRAULIC SPECIFICATIONS

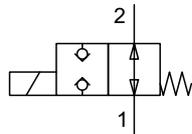
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, classe 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70° C
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal flow	$Q_N = 20 \text{ l/min}$
Max. volume flow	$Q_{max} = \text{up to } 40 \text{ l/min}$
Pressure drop	$\Delta p = < 7 \text{ bar}$ with 20 l/min

SYMBOLS

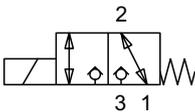
SDSPM22-BA...



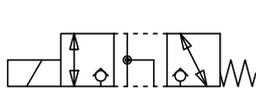
SDSPM22-AB...



SDSPM22-FG...



Transitional function „FG“


ELECTRICAL CONTROL

Construction solenoid, wet pin, push type, pressure tight with exchangeable slip-on coil

 Standard nominal voltage: $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $AC = 50 \text{ up to } 60 \text{ Hz}$

- * Rectifier integrated in connector socket
- Other nominal voltages and wattages on request

 Voltage tolerance $\pm 10\%$ of nominal voltage

Protection class IP 65 acc. to EN 60 529

(if correctly mounted)

Relative duty cycle 100% DF (see data sheet 1.1-430)

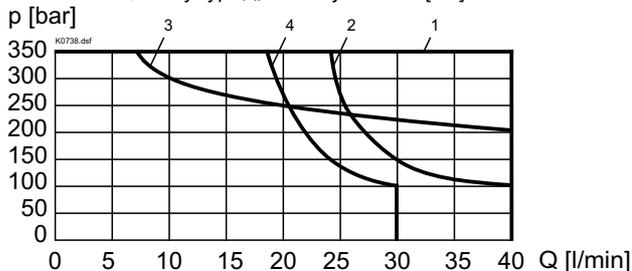
Switching cycles 5'000/h

 Operating life 10^7 (number of switching cycles, theoretically)

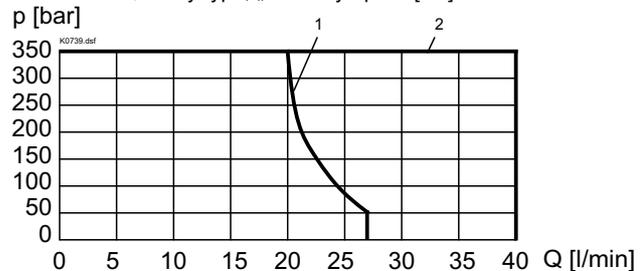
Connections/Power supply Versions see type code

Solenoid type:

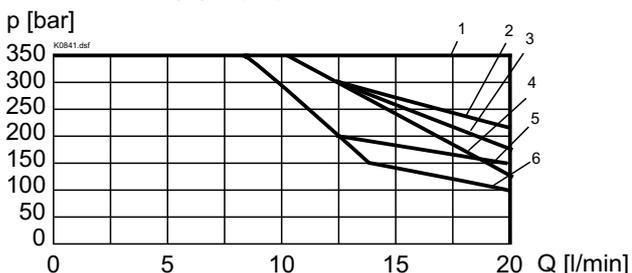
- Steel coil (M.35/16) data sheet 1.1-170
- Plastic coil (K.35/16) data sheet 1.1-172

CHARACTERISTICS oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature
 2/2-way type, „normally closed“ [BA]


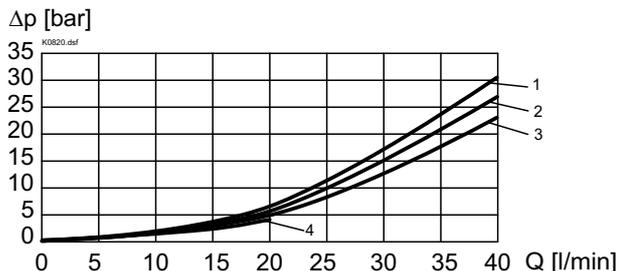
Version	Flow direction	
	1 → 2	2 → 1
SDSPM22-BA-.../„M“	1	2
SDSPM22-BA-.../„K“	3	4

 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature
 2/2-way type, „normally open“ [AB]


Version	Flow direction	
	1 → 2	2 → 1
SDSPM22-AB-.../„M“	1	2
SDSPM22-AB-.../„K“	1	2

 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature
 3/2-way type [FG]


Version	Flow direction			
	1 → 2	2 → 1	2 → 3	3 → 2
SDSPM22-FG-.../„M“	4	1	2	3
SDSPM22-FG-.../„K“	4	1	5	6

 $\Delta p = f(Q)$ Pressure volume flow characteristics


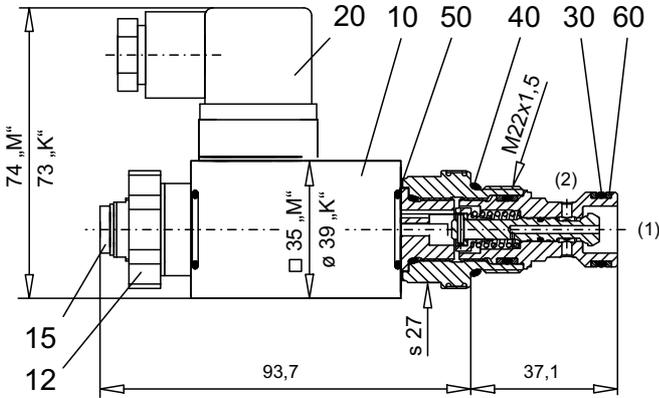
Version	Flow direction			
	1 → 2	2 → 1	2 → 3	3 → 2
SDSPM22-BA-...	1	2	-	-
SDSPM22-AB-...	3	4	-	-
SDSPM22-FG-...	-	4	1	1

REMARK!

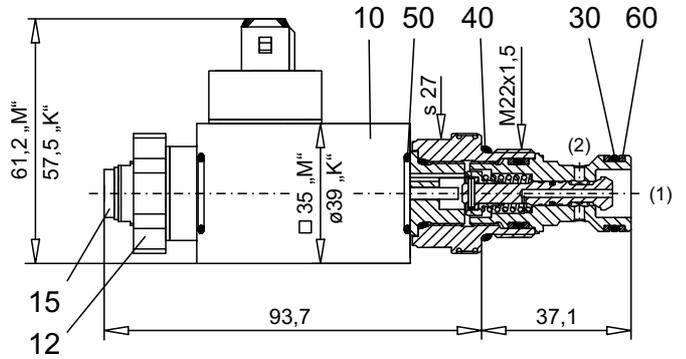
 Depending on application the volume flow may be increased but during shifting the total volume flow (3 → 2 and 2 → 1) must not be higher than $Q = 30 \text{ l/min}$

DIMENSIONS/SECTIONAL DRAWING

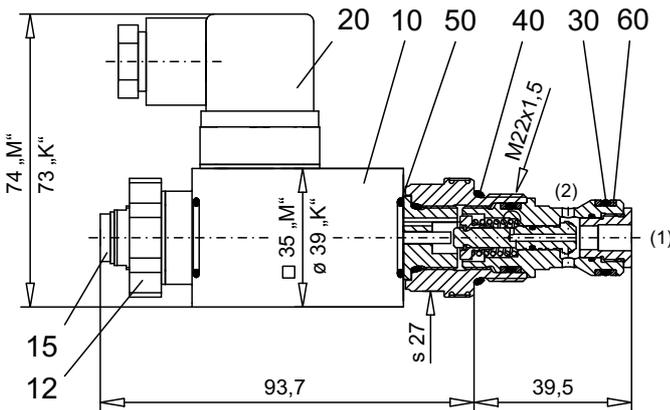
2/2-way version, „normally closed“ [BA]
with DIN connector socket



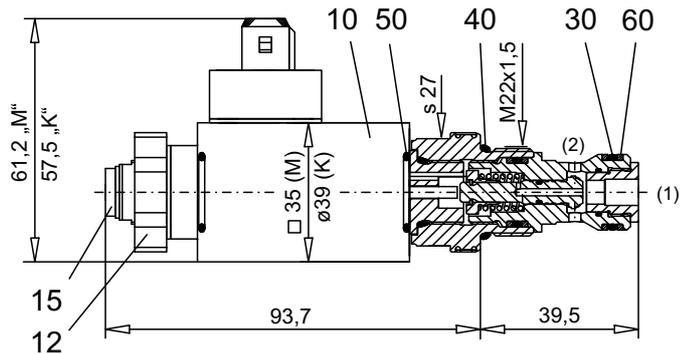
2/2-way version, „normally closed“ [BA]
with Junior-Timer connector socket



2/2-way version „normally open“ [AB]
with DIN connector socket

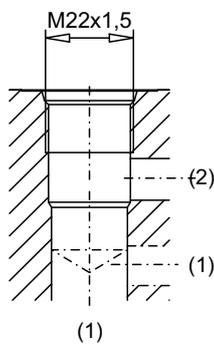


2/2-way version „normally open“ [AB]
with Junior-Timer connector socket



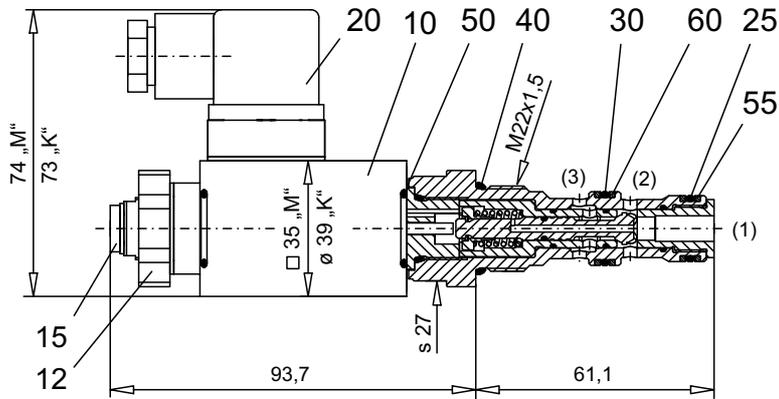
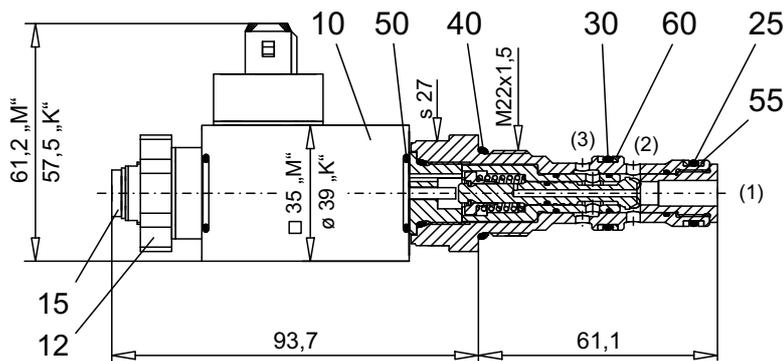
CAVITY

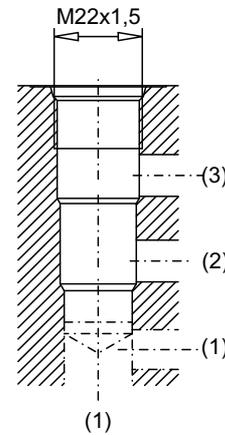
Cavity drawing for 2/2-way version
to ISO 7789-22-01-0-98



For detailed cavity drawing and cavity tools
see data sheet 2.13-1008

DIMENSIONS/SECTIONAL DRAWING

 3/2-way version
 with DIN connector socket

 3/2-way version
 with Junior-Timer connector socket

CAVITY

 Cavity drawing for 3/2-way version
 to ISO 7789-22-04-0-98

 For detailed cavity drawing and cavity tools
 see data sheet 2.13-1004

PARTS LIST

Position	Article	Description
10	260.4... 260.4... 206.23.. 206.23..	Coil complete MD35/16-... Coil complete MJ35/16-... Coil complete KD35/16-... Coil complete KJ35/16-...
12	154.2601	Knurled nut M16x1x18
15	239.2033	Plug HB0 (incl. seal)
20	219.2002	Plug
25	160.2140	O-ring ID 14,00x1,78
30	160.2156	O-ring ID 15,60x1,78
40	160.2188	O-ring ID 18,77x1,78
50	160.6156	O-ring viton ID 15,60x1,78
55	049.3176	Back-up ring RD 14,1x17x1,4
60	049.3196	Back-up ring RD 16,1x19x1,4

ACCESSORIES

Cartridge built-in flange- or sandwich body

Flange valve

Sandwich valve

register 1.11

register 1.11

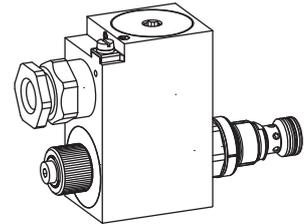
Technical explanation see data sheet 1.0-100E

Poppet valve cartridges
2/2- and 3/2-way versions

- direct operated
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M22x1,5
 ISO 7789

-  II 2 G Ex d IIC
-  II 2 D Ex tD A21 IP65
-  I M2 Ex d I Mb


DESCRIPTION
For explosion-hazard zones
ATEX, IECEx and GOST Ex certified

Direct operated 2/2-way solenoid poppet valve in screw-in cartridge design with thread M22x1,5 for cavity acc. to ISO 7789.

Activated with Wandfluh explosion proof solenoid.

Solenoid coil in acc. with directive 94/9/EC (ATEX) for explosion-hazard zones.

The flameproof enclosures (acc. to EN/IEC 60079-1/31 and EN/IEC 61241-1) prevents an explosion in the interior from getting outside.

The design prevents a surface temperature capable of igniting.

Type test certifications:

PTB 07 ATEX 1023

IECEx 010.0020

POCC CH.HO06.B00365

IECEx BVS 11.0018

BVS 11 ATEX E 037

The steel housing is zinc-/nickel-coated.

The zinc-/nickel coating serves as an excellent corrosion protection.

Details of the solenoid coil: refer to data sheet 1.1-183.

INSTALLATION

For stack assembly please observe the remarks in the operating instructions.

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.

FUNCTION

For the function «normally closed» with de-energised pull-type solenoid, and «normally open» with energised push-type solenoid, the differential area poppet piston is held in closed position by a spring and seals leak free from port 2 to 1. If pull-type solenoid is energised respectively push-type solenoid deenergised, the poppet piston will open flow passage from 2 to 1 after having reached the opening pressure. In the «normally closed» valve with deenergised solenoid respectively the «normally open» valve with energised solenoid flow passage from 1 to 2 is open when the opening pressure has been reached.

APPLICATION

These valves are suitable for applications in explosion-hazard zones, open cast and also in mines. Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding-, clamping- or gripping functions. The screw-in cartridges are mainly used in mobile or stationary integrated blocks and in size NG4-Mini and NG6 flange and sandwich bodies. To machine the cavities in steel or aluminium blocks, cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13.

TYPE CODE

		S D Y PM22 - <input type="checkbox"/> / <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Poppet valve			
Direct operated			
Explosion proof solenoid EEx d			
Screw-in cartridge M22 x 1,5			
2/2-way, «normally closed»		BA	
2/2-way, «normally open»		AB	
3/2-way		FG	
Standard nominal voltage U_N :	12 VDC	G12	
	24 VDC	G24	
	115 VAC	R115	
	230 VAC	R230	
Nominal power P_N :	15 W	L15	Ambient temp by: 70 °C
	21 W	L21	50 °C
Design-Index (Subject to change)			

GENERAL SPECIFICATIONS

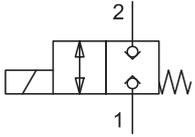
Description	Direct operated 2/2- and 3/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid
Mounting	Screw-in thread M22x1,5
Admissible ambient temperature	Execution L15: -20...+70 °C (operation as T1...T4/T130 °C) Execution L21: -20...+50 °C (operation 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	$M_D = 50 \text{ Nm}$ for fixing screw $M_O = 5 \text{ Nm}$ for knurled nut
Weight	$m = 2,25 \text{ kg}$ 2/2-way $m = 2,3 \text{ kg}$ 3/2-way
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

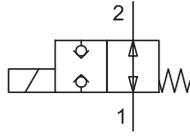
Fluid	Mineral oil, other fluid on request
Contamination	ISO 4406:1999, classe 18/16/13
Verschmutzungsgrad	(Required filtration grade $\beta_6 \dots 10 \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s bis 320 mm ² /s
Admissible fluid temperature	Execution L15: -20...+70 °C (operation as T1...T4/T130 °C) Execution L21: -20...+50 °C (operation as T1...T4/T130 °C)
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal flow	$Q_N = 20 \text{ l/min}$
Max. volume flow	$Q_{max} = 40 \text{ l/min}$
Pressure drop	see characteristics
Opening pressure	1,4 bar

SYMBOLS

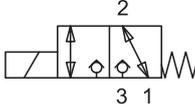
SDYPM22 - BA...



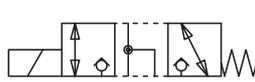
SDYPM22 - AB...



SDYPM22 - FG...



Transitional functions - «FG»...


ELECTRICAL CONTROL

Construction Switching solenoid, wet pin pull- or push type, pressure tight

 Standard-nominal voltage $U_N = 12 \text{ VDC}$, $U_N = 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}$, $U_N = 230 \text{ VAC}$
 AC = 50 to 60 Hz $\pm 2\%$;
 with integrated two way rectifier and recovery diode

 Voltage tolerance $\pm 10\%$ of nominal voltage

Protection class IP 67 acc. to EN 60529

Relative duty cycle 100% ED

Switching cycles 5 000/h

 Operating life 10^7 (number of switching cycles, theoretically)

 Connection/Power supply Through cable entry for cable diameter $\varnothing 6,5 \dots 14 \text{ mm}$

Temperature class acc. to EN 60079-0

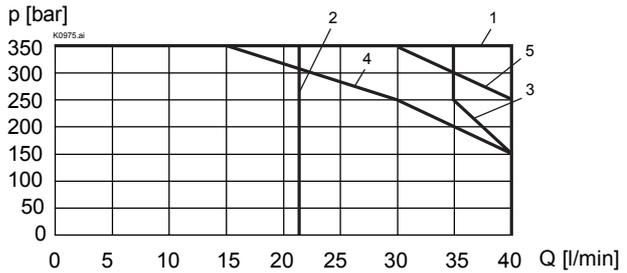
Execution L15/L21: T1...T4

Nominal power

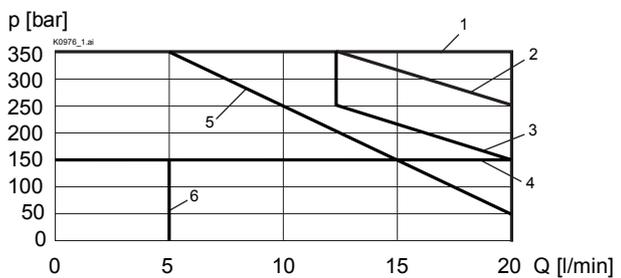
Execution L15: 15W

Execution L21: 21W

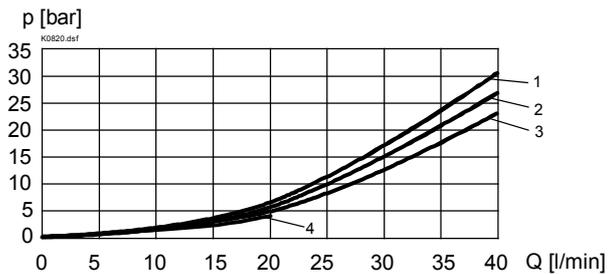
For further electrical characteristics, refer to the data sheet of the solenoid coil: 1.1-183

CHARACTERISTICS oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%
 2/2-way type (measured at 50°C)


Version	Flow direction	
	1 → 2	2 → 1
SDYPM22-BA-L21	1	1
SDYPM22-AB-L21	2	1
SDYPM22-BA-L15	4	3
SDYPM22-AB-L15	2	5

 $p = f(Q)$ Performance limit at -10%
 3/2-way type [FG] (measured at 50°C)


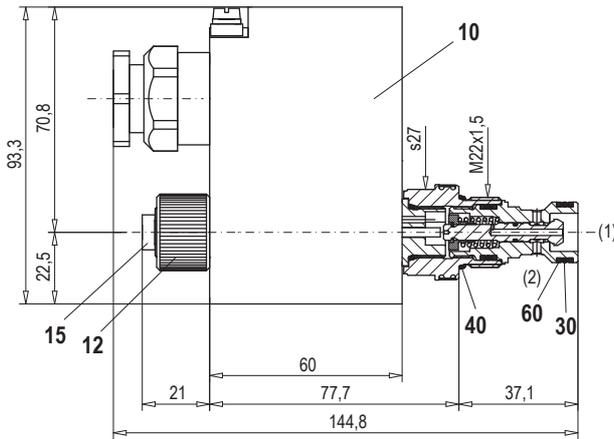
Version	Flow direction			
	1 → 2	2 → 1	2 → 3	3 → 2
SDYPM22-FG-L21	3	1	1	2
SDYPM22-FG-L15	5	1	4	6

 $\Delta p = f(Q)$ Pressure volume flow characteristics


Version	Flow direction			
	1 → 2	2 → 1	2 → 3	3 → 2
SDYPM22-BA-...	1	2	-	-
SDYPM22-AB-...	3	4	-	-
SDYPM22-FG-...	-	4	1	1

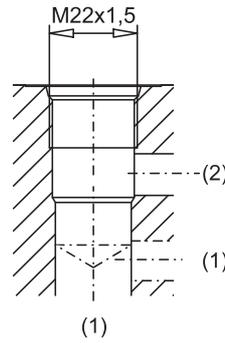
DIMENSIONS / SECTIONAL DRAWING

2/2-way, «normally closed» [BA]



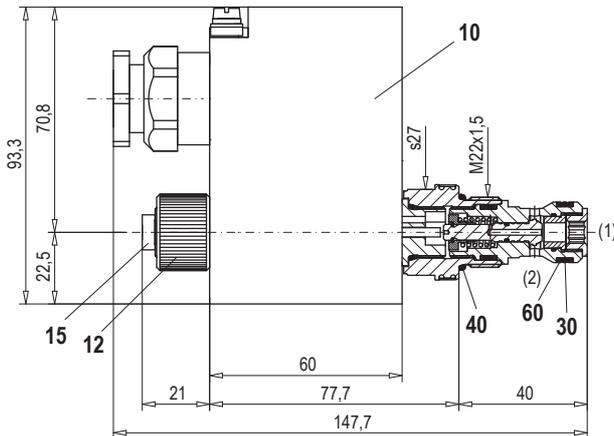
CAVITY

Cavity drawing for 2/2-way version to ISO 7789-22-01-0-98



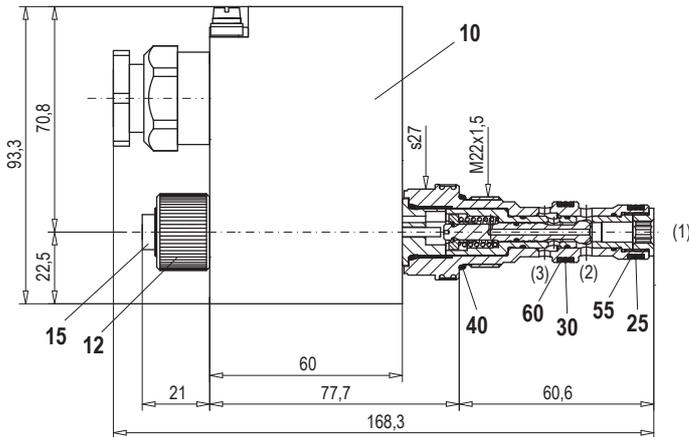
For detailed cavity drawing and cavity tools see data sheet 2.13-1008

2/2-way, «normally open» [AB]



DIMENSIONS / SECTIONAL DRAWING

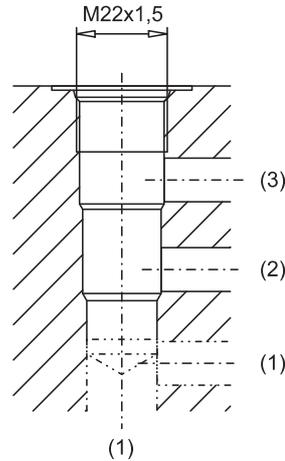
3/2-way version



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

CAVITY

Cavity drawing for 3/2-way version to ISO 7789-22-04-0-98



For detailed cavity drawing and cavity tools see data sheet 2.13-1004

PARTS LIST

Position	Article	Description
10	263.6...	Coil type MKY 45/18x60...
12	154.2601	Knurled nut M16x1x18
15	239.2033	Plug HB0 (incl. Seal)
25	160.2140	O-ring ID 14,00 x 1,78
30	160.2156	O-ring ID 15,60 x 1,78
40	160.2188	O-ring ID 18,77 x 1,78
55	049.3176	Back-up ring RD 14,1 x 17 x 1,4
60	049.3196	Back-up ring RD 16,1 x 19 x 1,4

ACCESSORIES

Cartridge built-in flange- or sandwich body:

Flange valve

register 1.11

Sandwich valve

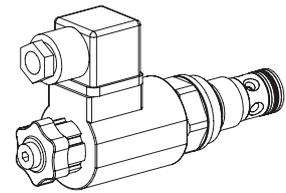
register 1.11

Technical explanation see data sheet

1.0-100

**Solenoid poppet valve cartridge
2/2-way versions**

- Pilot operated
- $Q_{max} = 80 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M22x1,5
 ISO 7789

DESCRIPTION

Pilot operated 2/2-way poppet valve in screw-in cartridge design with thread M22x1,5 for cavity to ISO 7789. The valve functions „normally open“ and „normally closed“ are available. There are two versions of the slip-on coil. The coil type „M“ with steel housing and the more economical type „K“ with plastic moulded coil with the same performance as the steel type. The coil may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

FUNCTION

For the function „normally closed“ with deenergised pull-type solenoid, and „normally open“ with energised push-type solenoid, the differential area poppet piston is held in closed position by a spring and seals leak free from port 2 to 1. If pull-type solenoid is energised respectively push-type solenoid deenergised, the poppet piston will open flow passage from 2 to 1 after having reached the opening pressure. In the „normally closed“ valve with deenergised solenoid respectively the „normally open“ valve with energised solenoid flow passage from 1 to 2 is open when opening pressure has been reached.

APPLICATION

Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks and in size NG4 and NG6 flange and sandwich bodies. To machine the cavities in steel or aluminium blocks cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
SYMBOLS	1
ELECTRICAL CONTROL	2
CHARACTERISTICS	2
DIMENSIONS/ SECTIONAL DRAWING	2/3
CAVITY	3
PARTS LIST	3
ACCESSORIES	3

TYPE CODE

		S V S PM22 - [] - [] / [] [] 35 # []	
Poppet valve	[]	[]	[]
Pilot operated	[]	[]	[]
Super	[]	[]	[]
Screw-in cartridge M22x1,5	[]	[]	[]
2/2-way, „normally closed“	[DC]	[]	[]
2/2-way, „normally open“	[CD]	[]	[]
Standard-nominal voltage U_N :	12 VDC [G12]	110 VAC [R110]	[]
	24 VDC [G24]	115 VAC [R115]	[]
		230 VAC [R230]	[]
Slip-on coil:	Plastic moulded [K]	(only for 12 VDC and 24 VDC available)	
	Steel [M]		
Connector	ISO 4400 / DIN 43650 [D]		
socket:	AMP Junior-Timer [J]		
Coil types	[]		
Design-Index (Subject to change)	[]		

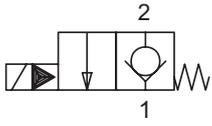
GENERAL SPECIFICATIONS

Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread M33x2
Ambient temperature	-20...+50° C
Mounting position	any
Fastening torque	$M_D = 50 \text{ Nm}$ for cartridge $M_{Dmax} = 5 \text{ Nm}$ for coil retaining nut
Weight	$m = 0,47 \text{ kg}$ 2/2-way with plastic coil $M = 0,61 \text{ kg}$ 2/2-way with steel coil
Volume flow	see symbols

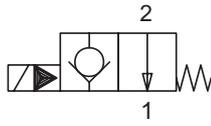
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, classe 18/16/13 (Required filtration grade $\beta_{10...16} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70° C
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal flow	$Q_N = 60 \text{ l/min}$
Max. volume flow	$Q_{max} = 80 \text{ l/min}$
Pressure drop	see characteristics
Opening pressure	1,4 bar

SYMBOLS



SVSPM22-DC...



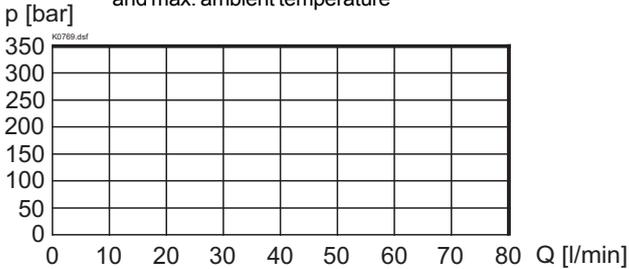
SVSPM22-CD...

ELECTRICAL CONTROL

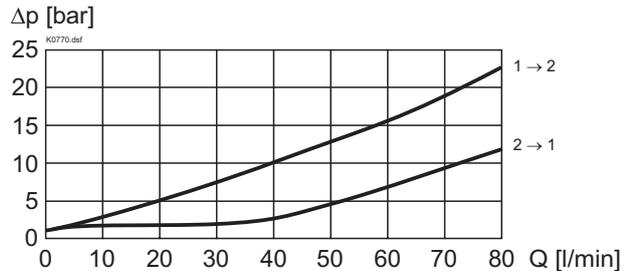
Construction	solenoid, wet pin, pull or push type, pressure tight with exchangeable slip-on coil
Standard nominal voltage:	U _N = 12 VDC, 24 VDC U _N = 110 VAC*, 115 VAC*, 230 VAC* AC = 50 up to 60 Hz
	- * Rectifier integrated in connector socket
	- Other nominal voltages and wattages on request
Voltage tolerance	±10 % of nominal voltage
Protection class	IP 65 acc. to EN 60529 (if correctly mounted)
Relative duty cycle	100% DF (see data sheet 1.1-430)
Switching cycles	5'000/h
Operating life	10 ⁷ (number of switching cycles, theoretically)
Connections/Power supply	Versions see type code
Solenoid type:	
- Steel coil (M.35/16)	data sheet 1.1-170
- Plastic coil (K.35/16)	data sheet 1.1-172

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

$p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature

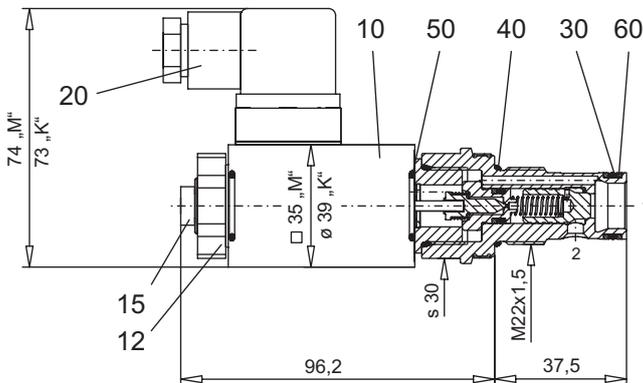


$\Delta p = f(Q)$ Pressure volume flow characteristics

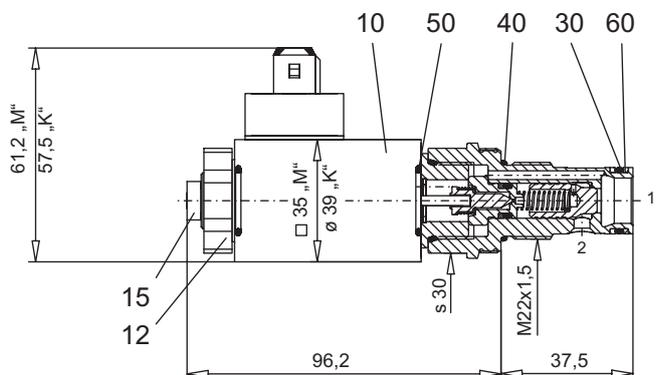


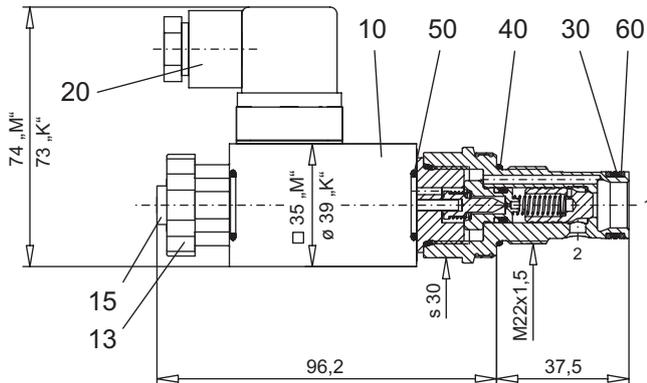
DIMENSIONS/SECTIONAL DRAWING

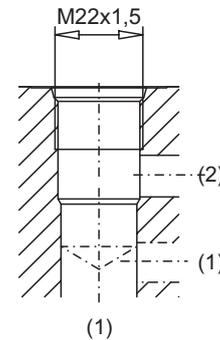
2/2-way version, „normally closed“ [DC] with DIN connector socket

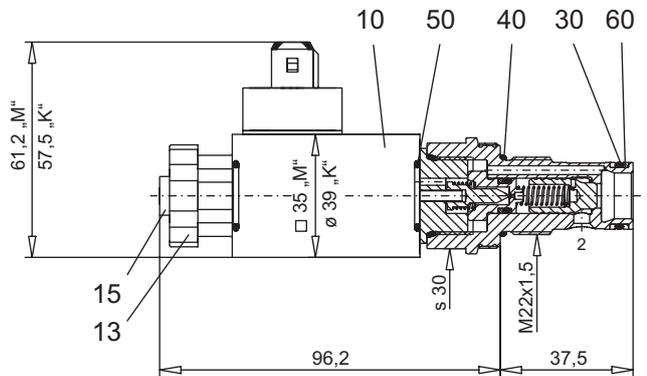


2/2-way version, „normally closed“ [DC] with Junior-Timer connector socket



2/2-way version „normally open“ [CD]
 with DIN connector socket

CAVITY

 Cavity drawing to
 ISO 7789-22-01-0-98

 For detailed cavity drawing and cavity tools
 see data sheet 2.13-1008

 2/2-way version, „normally open“ [CD]
 with Junior-Timer connector socket

PARTS LIST

Position	Article	Description
10	260.4... 260.4... 206.23.. 206.23..	Coil complete MD35/16-... Coil complete MJ35/16-... Coil complete KD35/16-... Coil complete KJ35/16-...
12	154.2600	Knurled nut M16x1x9
13	154.2601	Knurled nut M16x1x18
15	239.2033	Plug HB0 (incl. seal)
20	219.2002	Plug
30	160.2156	O-ring ID 15,60x1,78
40	160.2188	O-ring ID 18,77x1,78
50	160.6156	O-ring Viton ID 15,60x1,78
60	049.3196	Back-up ring RD 16,1x19x1,4

ACCESSORIES

Cartridge built-in flange- or sandwich body

Flange valve

Sandwich valve

register 1.11

register 1.11

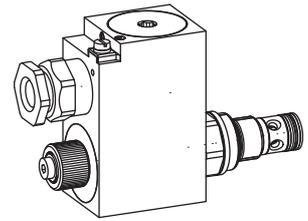
Technical explanation see data sheet 1.0-100E

Poppet valve cartridges
2/2-way versions

- Pilot operated
- $Q_{max} = 80$ l/min
- $p_{max} = 350$ bar

M22x1,5
 ISO 7789

- ⊕ II 2 G Ex d IIC
- ⊕ II 2 D Ex tD A21 IP65
- ⊕ I M2 Ex d I Mb


DESCRIPTION
For explosion-hazard zones
ATEX, IECEx and GOST Ex certified

Pilot operated 2/2-way solenoid poppet valve in screw-in cartridge design with thread M22 x1,5 for cavity acc. to ISO 7789.

Activated with Wandfluh explosion proof solenoid.

Solenoid coil in acc. with directive 94/9/EC (ATEX) for explosion-hazard zones.

The flameproof enclosures (acc. to EN/IEC 60079-1/31 and EN/IEC 61241-1) prevents an explosion in the interior from getting outside.

The design prevents a surface temperature capable of igniting.

Type test certifications:

PTB 07 ATEX 1023

IECEX 010.0020

POCC CH.HO06.B00365

IECEX BVS 11.0018

BVS 11 ATEX E 037

The steel housing is zinc-/nickel-coated.

The zinc-/nickel coating serves as an excellent corrosion protection.

Details of the solenoid coil: refer to data sheet 1.1-183.

INSTALLATION

Tightening torque of the coil fixing nut MD = 15Nm. For stack assembly please observe the remarks in the operating instructions.

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.

FUNCTION

For the function «normally closed» with de-energised pull-type solenoid, and «normally open» with energised push-type solenoid, the differential area poppet piston is held in closed position by a spring and seals leak free from port 2 to 1. If pull-type solenoid is energised respectively push-type solenoid deenergised, the poppet piston will open flow passage from 2 to 1 after having reached the opening pressure. In the «normally closed» valve with deenergised solenoid respectively the «normally open» valve with energised solenoid flow passage from 1 to 2 is open when the opening pressure has been reached.

APPLICATION

These valves are suitable for applications in explosion-hazard zones, open cast and also in mines. Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding-, clamping- or gripping functions. The screw-in cartridges are mainly used in mobile or stationary integrated blocks and in size NG4-Mini and NG6 flange and sandwich bodies. To machine the cavities in steel or aluminium blocks, cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13.

TYPE CODE

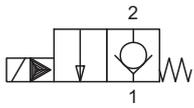
		S V Y PM22 - <input type="checkbox"/> - <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Poppet valve			
Pilot operated			
Explosion proof solenoid EEx d			
Screw-in cartridge M22x1,5			
2/2-way, «normally closed»	<input type="checkbox"/>	DC	
2/2-way, «normally open»	<input type="checkbox"/>	CD	
Standard-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 :	15 W	<input type="checkbox"/> L15	Ambient temp by: 70 °C
	9 W	<input type="checkbox"/> L9	40 °C or 90 °C (only for CD)
Design-Index (Subject to change)			

GENERAL SPECIFICATIONS

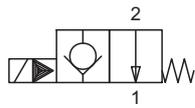
Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid
Mounting	Screw-in thread M22x1,5
Admissible ambient temperature	Execution L15: -20...+70 °C (operation as T1...T4/T130 °C) Execution L9: -20...+40 °C (operation as T1...T6/T80 °C) -20...+90 °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	$M_D = 50$ Nm for fixing screw $M_D = 5$ Nm for knurled nut
Weight	$m = 2,25$ kg
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, classe 18/16/13 (Required filtration grade $\beta_{6...10} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s bis 320 mm ² /s
Admissible fluid temperature	Execution L15: -20...+70 °C (operation as T1...T4/T130 °C) Execution L9: -20...+40 °C (operation as T1...T6/T80 °C) -20...+70 °C (operation as T1...T4/T130 °C)
Working pressure	$p_{max} = 350$ bar
Nominal flow	$Q_N = 60$ l/min
Max. volume flow	$Q_{max} = 80$ l/min
Pressure drop	see characteristics
Opening pressure	1,4 bar

SYMBOLS


SVYPM22-DC...



SVYPM22-CD...

ELECTRICAL CONTROL

Construction Switching solenoid, wet pin pull- or push type, pressure tight

 Standard-nominal voltage $U_N = 12 \text{ VDC}$, $U_N = 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}$, $U_N = 230 \text{ VAC}$

 AC = 50 to 60 Hz $\pm 2\%$;
 with integrated two way rectifier
 and recovery diode

 Voltage tolerance $\pm 10\%$ of nominal voltage

Protection class IP 67 acc. to EN 60529

Relative duty cycle 100% DF

Switching cycles 5000/h

 Operating life 10^7 (number of switching cycles, theoretically)

 Connection/Power supply Through cable entry for cable diameter $\varnothing 6,5 \dots 14 \text{ mm}$ acc. to EN 60079-0

Temperature class

Execution L15: T1...T4

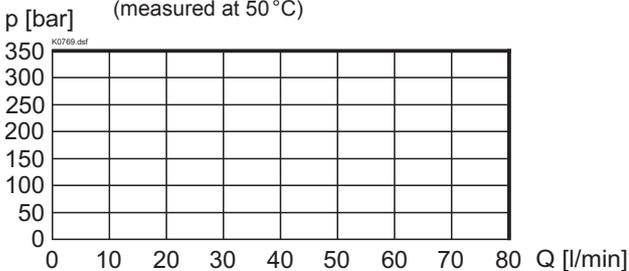
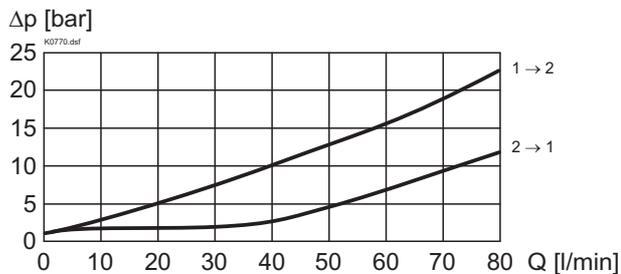
Execution L9: T1...T6

Nominal power

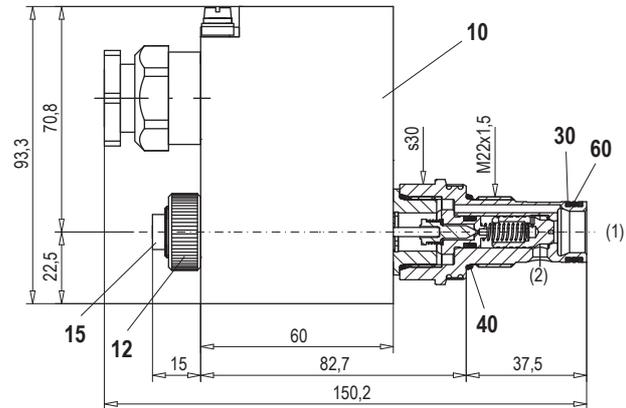
Execution L15: 15W

Execution L9: 9W

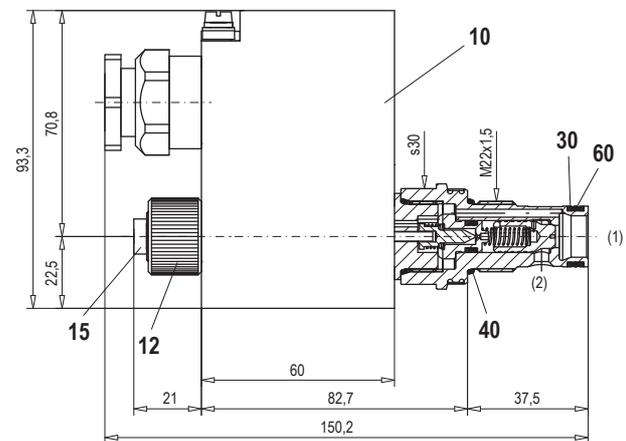
For further electrical characteristics, refer to the data sheet of the solenoid coil: 1.1-183

CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits with standard voltage -10% (measured at 50°C)

 $\Delta p = f(Q)$ Pressure drop volume flow characteristics

DIMENSIONS / SECTIONAL DRAWING

2/2-way version, «normally closed» [DC]



2/2-way version, «normally open» [CD]



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

PARTS LIST

Position	Article	Description
10	263.6...	Coil type MKY 45/18x60...
12	154.2600	Knurled nut M16x1x9
13	154.2601	Knurled nut M16x1x18
15	239.2033	Plug HB0 (incl. seal)
30	160.2156	O-ring ID 15,60x1,78
40	160.2188	O-ring ID 18,77x1,78
60	049.3196	Back-up ring RD 16,1x19x1,4

ACCESSORIES

Cartridge built-in in flange- or sandwich body:

Flange valve

register 1.11

Sandwich valve

register 1.11

 Cavity drawing ISO 7789-22-01-0-98
 and cavity tools see data sheet

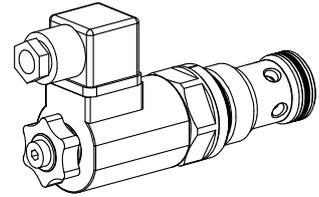
2.13-1008

Technical explanation see data sheet

1.0-100

Solenoid poppet valve cartridge
2/2-way versions

- Pilot operated
- $Q_{max} = 120 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M33x2
 ISO 7789

DESCRIPTION

Pilot operated 2/2-way poppet valve in screw-in cartridge design with thread M33x2 for cavity acc. to ISO 7789. The valve functions „normally open“ and „normally closed“ are available. There are two versions of the slip-on coil. The coil type „M“ with steel housing and the more economical type „K“ with plastic moulded coil with the same performance as the steel type. The coils may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

FUNCTION

In case of the version CD, the valve is closed in the flowing condition, in case of the DC in the non-flowing condition. In this, the differential spool is pressed against the seat by means of a spring and the applied pressure, and it closes free of leakage oil from 2 to 1. In the opposite direction of flow, the valve opens after reaching the opening pressure. During the switching of the valve, the volume flow direction from 2 to 1 is enabled.

In case of the version AB, the valve is closed in the flowing condition, in case of the BA in the non-flowing condition. In this, the differential spool is pressed against the seat by means of a spring and the applied pressure, and it closes free of leakage oil in both directions of flow.

APPLICATION

Wandfluh solenoid operated poppet valves are applied where a leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks and in size NG10 flange and sandwich bodies. To machine the cavities in steel or aluminium blocks cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13

CONTENT

GENERAL SPECIFICATIONS.....	1
HYDRAULIC SPECIFICATIONS.....	1
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CHARACTERISTICS.....	2
CAVITY.....	2
DIMENSIONS/ SECTIONAL DRAWING.....	3
PARTS LIST.....	3
ACCESSORIES.....	3

TYPE CODE

	S V S PM33 - <input type="checkbox"/> - <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> 35 # <input type="checkbox"/>			
Poppet valve				
Pilot operated				
Super				
Screw-in cartridge M33x2				
Designation see symbols				
Standard-nominal voltage U_N :	12 VDC	<input type="checkbox"/> G12	110 VAC	<input type="checkbox"/> R110
	24 VDC	<input type="checkbox"/> G24	115 VAC	<input type="checkbox"/> R115
			230 VAC	<input type="checkbox"/> R230
Slip-on coil:	Plastic moulded	<input type="checkbox"/> K	(only for 12 VDC and 24 VDC available)	
	Steel	<input type="checkbox"/> M		
Connector socket:	ISO 4400/DIN 43650	<input type="checkbox"/> D		
	AMP Junior-Timer	<input type="checkbox"/> J		
Coil types				
Design-Index (Subject to change)				

GENERAL SPECIFICATIONS

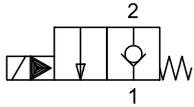
Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread M33x2
Ambient temperature	-20...+50 °C
Mounting position	any
Fastening torque:	$M_D = 80 \text{ Nm}$ for cartridge $M_{D_{max}} = 5 \text{ Nm}$ for coil retaining nut
Weight:	$m = 0,72 \text{ kg}$ 2/2-way with plastic coil $m = 0,86 \text{ kg}$ 2/2-way with steel coil
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

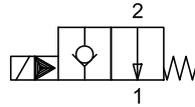
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) (see data sheet 1.0-50/2)
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal volume flow	$Q_N = 100 \text{ l/min}$
Max. volume flow	$Q_{max} = 120 \text{ l/min}$
Pressure drop	$\Delta p_{max} = < 10 \text{ bar}$ with 100 l/min
Opening pressure:	
Version CD/DC	2 → 1 = 2 bar / 1 → 2 = 1 bar
Version AB/BA	2 → 1 = 6 bar / 1 → 2 = 4 bar

SYMBOLS

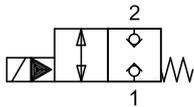
SVSPM33 - DC...



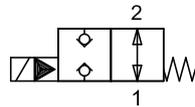
SVSPM33 - CD...



SVSPM33 - BA...



SVSPM33 - AB...


ELECTRICAL CONTROL

Construction Switching solenoid, wet pin pull- or push type, pressure tight

 Standard nominal voltage: $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 AC = 50 up 60 Hz

- * Rectifier integrated in connector socket

- Other nominal voltages and wattages on request

 Voltage tolerance $\pm 10\%$ of nominal voltage

 Protection class IP 65 acc. to EN 60 529
 (if correctly mounted)

Relative duty cycle 100 % DF (see data sheet 1.1-430)

Switching cycles 5'000/h

 Operating life 10^7 (number of switching cycles, theoretically)

Connections/Power supply Versions see type code

Solenoid type:

- Steel coil (M.35/16)

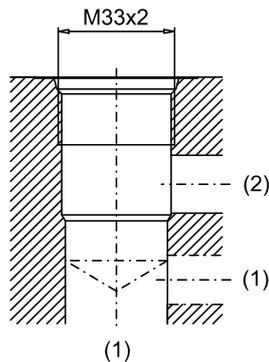
data sheet 1.1-170

- Plastic coil (K.35/16)

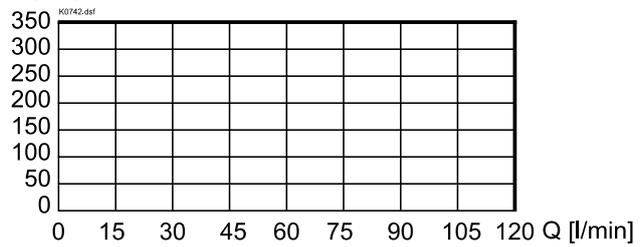
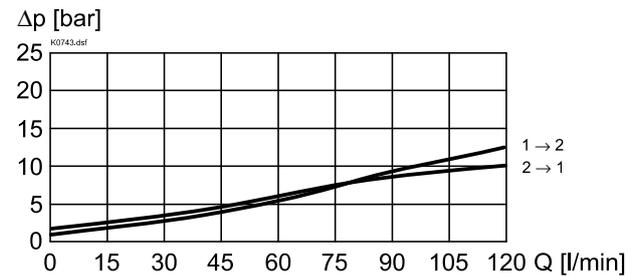
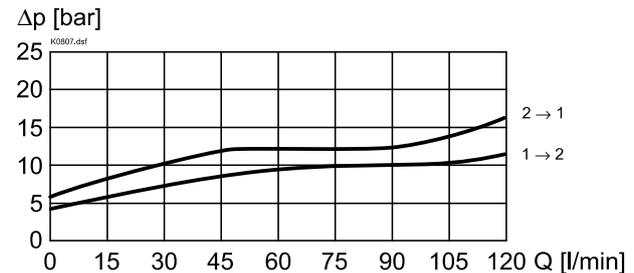
data sheet 1.1-172

CAVITY

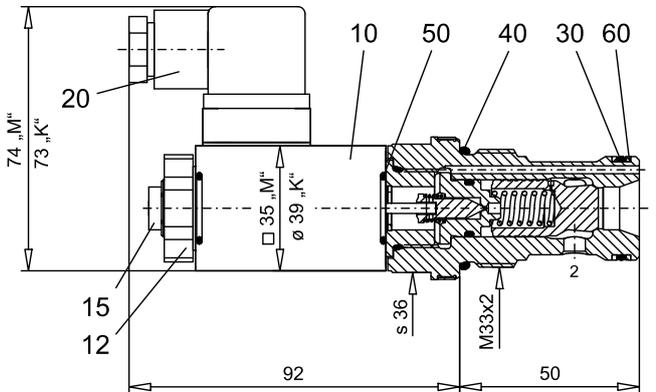
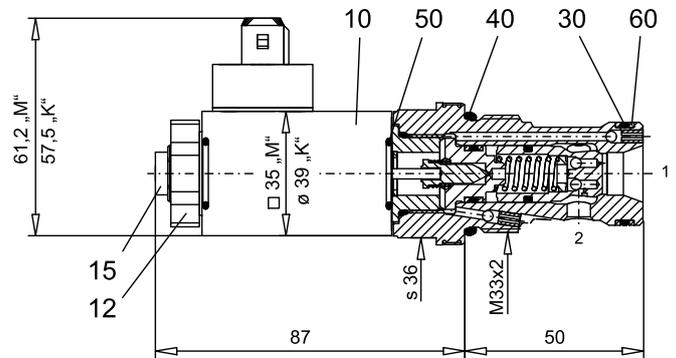
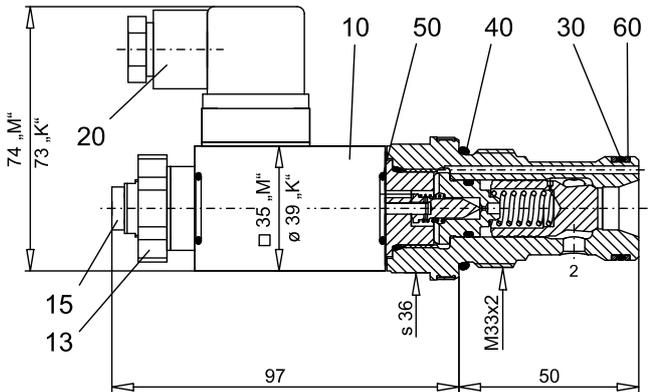
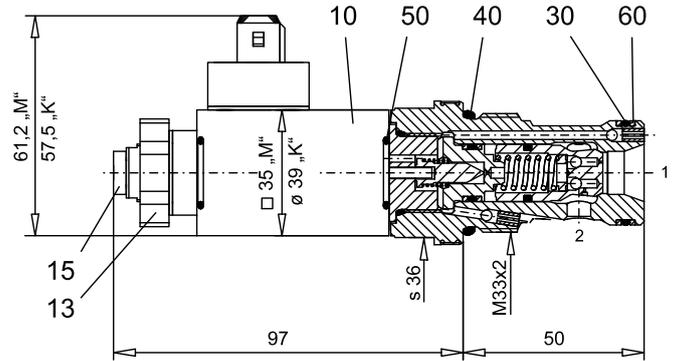
Cavity drawing to ISO 7789-33-01-0-98



For detailed cavity drawing and cavity tools see data sheet 2.13-1005

CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature

 $\Delta p = f(Q)$ Pressure volume flow characteristics [DC / CD]

 $\Delta p = f(Q)$ Pressure volume flow characteristics [BA / AB]


DIMENSIONS/SECTIONAL DRAWING

 2/2-way version, „normally closed“ [DC]
 with DIN connector socket

 2/2-way version, „normally closed“ [BA]
 with Junior-Timer connector socket

 2/2-way version „normally open“ [CD]
 with DIN connector socket

 2/2-way version „normally open“ [AB]
 with Junior-Timer connector socket

PARTS LIST

Position	Article	Description
10	260.4...	Coil complete MD35/16-...
	260.4...	Coil complete MJ35/16-...
	206.23..	Coil complete KD35/16-...
	206.23..	Coil complete KJ35/16-...
12	154.2600	Knurled nut M16x1x9
13	154.2601	Knurled nut M16x1x18
15	239.2033	Plug HB0 (incl. seal)
20	219.2002	Plug
30	160.2252	O-ring ID 25,12x1,78
40	160.2298	O-ring ID 29,82x2,62
50	160.6156	O-ring viton ID 15,60x1,78
60	049.3296	Back-up ring RD 26,1x29x1,4

ACCESSORIES

Cartridge built-in flange- or sandwich body:

Flange valve

register 1.11

Sandwich valve

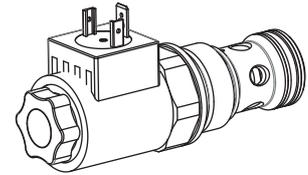
register 1.11

Technical explanation see data sheet

1.0-100E

Solenoid poppet valve cartridge
2/2-way versions

- Pilot operated
- $Q_{max} = 150 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M33x2
 ISO 7789

DESCRIPTION

Pilot operated 2/2-way poppet valve in screw-in cartridge design with thread M33x2 for cavity acc. to ISO 7789. The valve functions „normally open“ and „normally closed“ are available. There are two versions of the slip-on coil. The coils may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

FUNCTION

In case of the version CB, the valve is closed in the flowing condition, in case of the BC in the non-flowing condition. In this, the differential spool is pressed against the seat by means of a spring and the applied pressure, and it closes free of leakage oil from 2 to 1. In the opposite direction of flow, the valve opens after reaching the opening pressure. In case of the version AB, the valve is closed in the flowing condition, in case of the BA in the non-flowing condition. In this, the differential spool is pressed against the seat by means of a spring and the applied pressure, and it closes free of leakage oil in both directions of flow.

APPLICATION

Wandfluh solenoid operated poppet valves are applied where a leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks and in size NG10 flange and sandwich bodies. To machine the cavities in steel or aluminium blocks cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13

TYPE CODE

				S V S PM33 -		<input type="text"/>	-	<input type="text"/>	/	<input type="text"/>	<input type="text"/>	-	<input type="text"/>	#	<input type="text"/>
Poppet valve															
Pilot operated															
Super															
Screw-in cartridge M33x2															
Designation see symbols															
Standard-nominal voltage U_N	12 VDC	<input type="text" value="G12"/>	115 VAC	<input type="text" value="R115"/>											
	24 VDC	<input type="text" value="G24"/>	230 VAC	<input type="text" value="R230"/>											
	without solenoid coil	<input type="text" value="X5"/>													
Slip-on coil:	Metal housing round	<input type="text" value="W"/>													
	Metal housing square	<input type="text" value="M*"/>													
Connector socket: EN 175301-803/ISO 4400		<input type="text" value="D"/>													
	AMP Junior-Timer	<input type="text" value="J"/>													
	Deutsch DT04-2P	<input type="text" value="G"/>													
Sealing material:	NBR	<input type="text"/>													
	FKM (Viton)	<input type="text" value="D1"/>													
Design-Index (Subject to change)															

* Only available in conjunction with other nominal voltages and connection versions. (See data sheet 1.1-171)

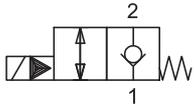
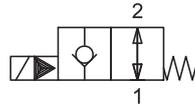
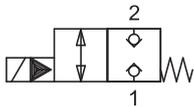
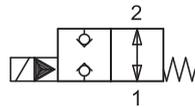
GENERAL SPECIFICATIONS

Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread M33x2
Ambient temperature	-20...+50 °C
Mounting position	any
Fastening torque:	$M_D = 80 \text{ Nm}$ for cartridge $M_{D,max} = 5 \text{ Nm}$ for knurled nut
Weight:	$m = 0,7 \text{ kg}$
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) (see data sheet 1.0-50/2)
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	$p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 150 \text{ l/min}$
Pressure drop	$\Delta p_{max} < 10 \text{ bar}$ with 100 l/min
Opening pressure:	
Version CB/BC	2 → 1 = 2 bar / 1 → 2 = 1,5 bar
Version AB/BA	2 → 1 = 3 bar / 1 → 2 = 3 bar

SYMBOLS

 SVSPM33 - **BC**...

 SVSPM33 - **CB**...

 SVSPM33 - **BA**...

 SVSPM33 - **AB**...

ELECTRICAL CONTROL

Construction Switching solenoid, wet pin pull- or push

type, pressure tight

 Standard nominal voltage: $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $\text{AC} = 50 \text{ bis } 60 \text{ Hz}$

– * Rectifier integrated in connector socket

– Other nominal voltages and wattages on request

 Voltage tolerance $\pm 10\%$ of nominal voltage

Protection class Connection version

acc. EN 60529

D: IP 65

J: IP 66

G: IP 67 and 69K

Relative duty cycle 100% DF (see data sheet 1.1-430)

Switching cycles 5'000/h

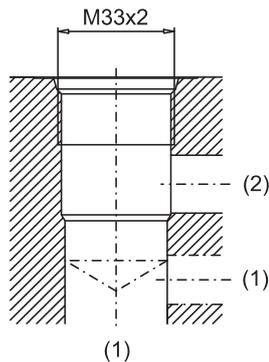
 Operating life 10^7 (number of switching cycles, theoretically)

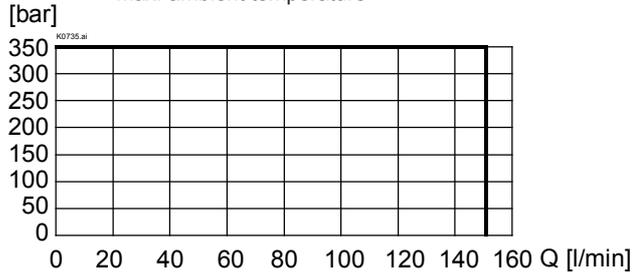
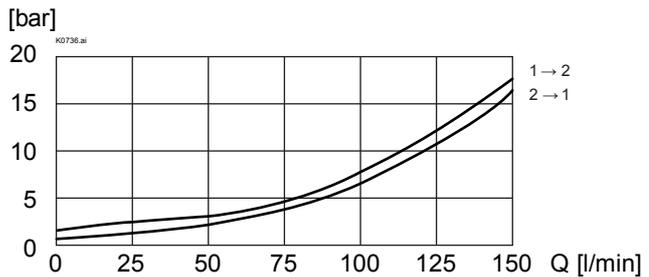
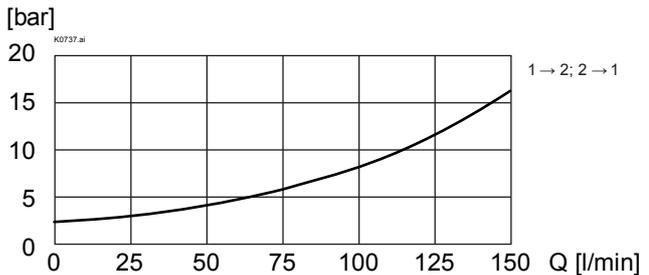
Connections/Power supply Versions see type code

For further electrical specifications see data sheet 1.1-169 (W)

1.1-171 (M)

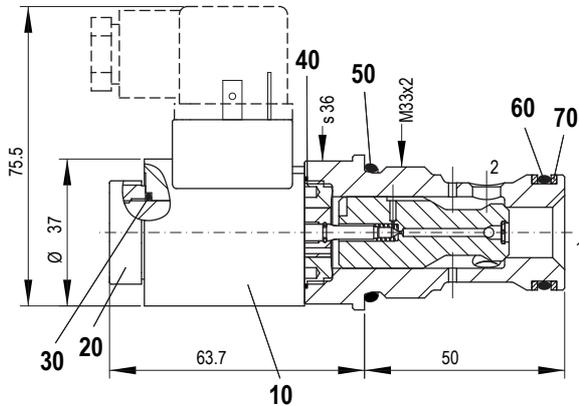
CAVITY

 Cavity drawing to
 ISO 7789-33-01-0-98

 For detailed cavity drawing and
 cavity tools see data sheet 2.13-1005

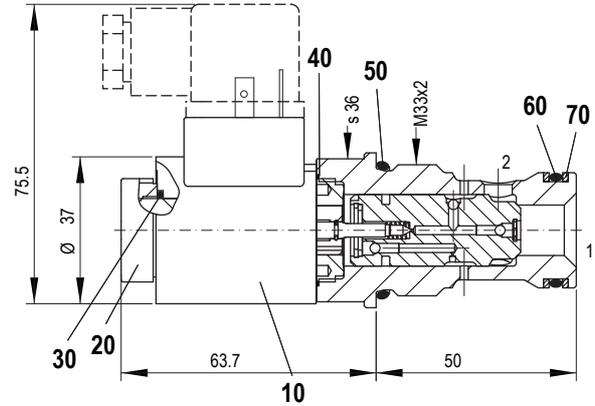
CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits at 10% under voltage and
 max. ambient temperature

 $\Delta p = f(Q)$ Pressure volume flow characteristics [BC / CB]

 $\Delta p = f(Q)$ Pressure volume flow characteristics [BA / AB]


DIMENSIONS / SECTIONAL DRAWING

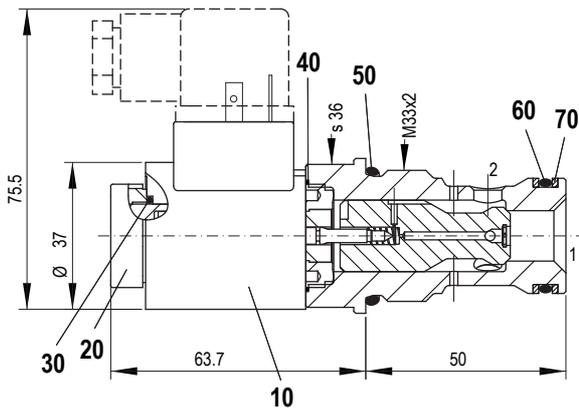
2/2-way version, «normally closed» [BC]



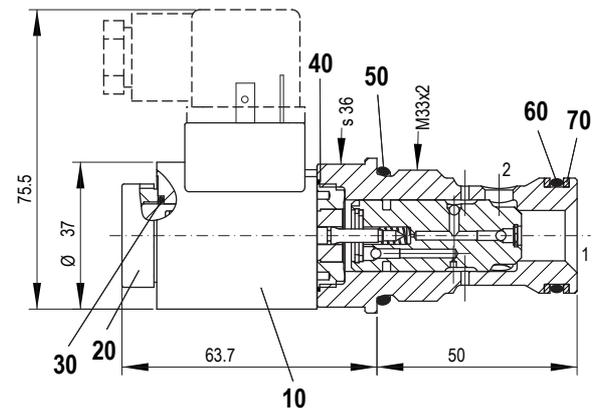
2/2-way version, «normally closed» [BA]



2/2-way version, «normally open» [CB]



2/2-way version, «normally open» [AB]



Dimensions of the other connection versions see data sheet 1.1-169 and 1.1-171

PARTS LIST

Position	Article	Description
10		EN 175301
	206.2213	Solenoid coil WDE37/16x40-G24
	206.2212	Solenoid coil WDE37/16x40-G12
		Junior-Timer
	206.2218	Solenoid coil WJE 37/16x40-G24
	206.2217	Solenoid coil WJE 37/16x40-G12
	Deutsch	
	206.2220	Solenoid coil WGE37/16x40-G24
	206.2219	Solenoid coil WGE37/16x40-G12
20	154.2600	Knurled nut
30	160.2156	O-ring ID 15,60x1,78 (NBR)
40	160.1260	O-ring ID 26,00x1,00 (NBR)
50	160.2298	O-ring ID 29,82x2,62 (NBR)
	160.6296	O-ring ID 29,82x2,62 (FMK)
60	160.2238	O-ring ID 23,81x2,6 (NBR)
	160.6238	O-ring ID 23,81x2,62 (FMK)
70	049.3297	Backup ring RD 24,5x29x1,4

ACCESSORIES

Mating connector EN 175301-803

Article no. 219.2002

Technical explanation see data sheet

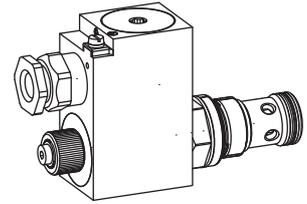
1.0-100

Poppet valve cartridges
2/2-way versions

- Pilot operated
- $Q_{max} = 120 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M33x2
 ISO 7789

-  II 2 G Ex d IIC
-  II 2 D Ex tD A21 IP65
-  I M2 Ex d I Mb


DESCRIPTION
For explosion-hazard zones
ATEX, IECEx and GOST Ex certified

Pilot operated 2/2-way solenoid poppet valve in screw-in cartridge design with thread M33x2 for cavity acc. to ISO 7789.

Activated with Wandfluh explosion proof solenoid.

Solenoid coil in acc. with directive 94/9/EC (ATEX) for explosion-hazard zones.

The flameproof enclosures (acc. to EN/IEC 60079-1/31 and EN/IEC 61241-1) prevents an explosion in the interior from getting outside.

The design prevents a surface temperature capable of igniting.

Type test certifications:

PTB 07 ATEX 1023

IECEX 010.0020

POCC CH.HO06.B00365

IECEX BVS 11.0018

BVS 11 ATEX E 037

The steel housing is zinc-/nickel-coated.

The zinc-/nickel coating serves as an excellent corrosion protection.

Details of the solenoid coil: refer to data sheet 1.1-183.

INSTALLATION

For stack assembly please observe the remarks in the operating instructions.

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.

FUNCTION

For the function «normally closed» with deenergised pull-type solenoid, and «normally open» with energised push-type solenoid, the differential area poppet piston is held in closed position by a spring and seals leak free from port 2 to 1. If pull-type solenoid is energised respectively push-type solenoid deenergised, the poppet piston will open flow passage from 2 to 1 after having reached the opening pressure. In the «normally closed» valve with deenergised solenoid respectively the «normally open» valve with energised solenoid flow passage from 1 to 2 is open when the opening pressure has been reached.

APPLICATION

These valves are suitable for applications in explosion-hazard zones, open cast and also in mines. Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding-, clamping- or gripping functions. The screw-in cartridges are mainly used in mobile or stationary integrated blocks and in size NG10 flange and sandwich bodies. Cavity tools are available for machining cartridge cavities (hire or purchase). Please refer to the data sheets in register 2.13.

TYPE CODE

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Poppet valve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pilot operated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Explosion proof solenoid EEx d	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Screw-in cartridge M33x2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Designation see symbols	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard-nominal voltage U_N :	12 VDC <input type="checkbox"/>	24 VDC <input type="checkbox"/>	115 VAC <input type="checkbox"/>
			230 VAC <input type="checkbox"/>
Nominal power P_N :	15 W <input type="checkbox"/>	9 W <input type="checkbox"/>	Ambient temp by: 70 °C
			40 °C or 90 °C (only for CD+AB)
Design-Index (Subject to change)			

GENERAL SPECIFICATIONS

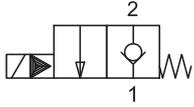
Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid
Mounting	Screw-in thread M33x2
Admissible ambient temperature	Execution L15: -20...+70 °C (operation as T1...T4/T130 °C) Execution L9: -20...+40 °C (operation as T1...T6/T80 °C) -20...+90 °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	$M_D = 80 \text{ Nm}$ for fixing screw $M_D = 5 \text{ Nm}$ for knurled nut
Weight	$m = 2,45 \text{ kg}$
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

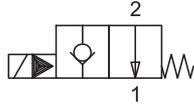
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 Required filtration grade $\beta_{6...10} \geq 75$ (see data sheet 1.0-50/2)
Viscosity range	12 mm ² /s...320 mm ² /s
Admissible fluid temperature	Execution L15: -20...+70 °C (operation as T1...T4/T130 °C) Execution L9: -20...+40 °C (operation as T1...T6/T80 °C) -20...+70 °C (operation as T1...T4/T130 °C)
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal volume flow	$Q_N = 100 \text{ l/min}$
Max. volume flow	$Q_{max} = 120 \text{ l/min}$
Pressure drop	$\Delta p_{max} < 10 \text{ bar}$ with 100 l/min
Opening pressure:	
Version CD/DC	2 → 1 = 2 bar / 1 → 2 = 1 bar
Version AB/BA	2 → 1 = 6 bar / 1 → 2 = 4 bar

SYMBOLS

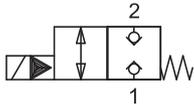
SVYPM33 - DC...



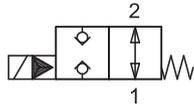
SVYPM33 - CD...



SVYPM33 - BA...

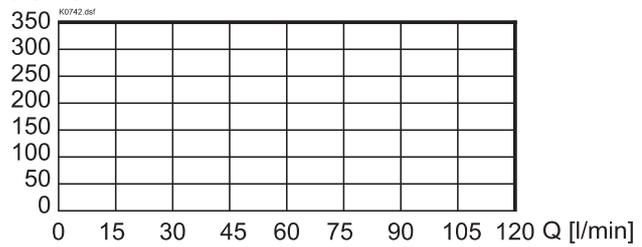
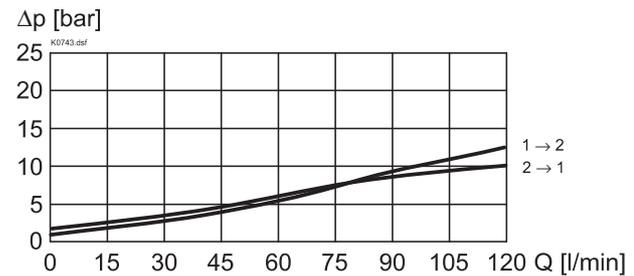
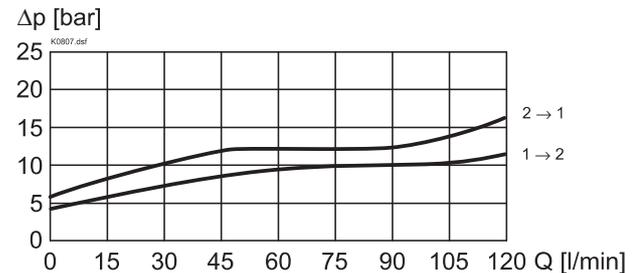


SVYPM33 - AB...

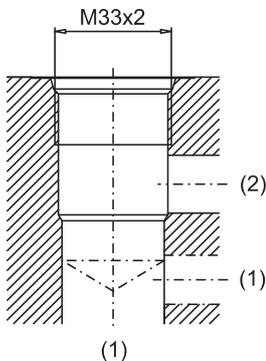

ELECTRICAL CONTROL

Construction	Switching solenoid, wet pin pull- or push type, pressure tight
Standard-nominal voltage	$U_N = 12 \text{ VDC}$, $U_N = 24 \text{ VDC}$ $U_N = 115 \text{ VAC}$, $U_N = 230 \text{ VAC}$ AC = 50 to 60 Hz $\pm 2\%$; with integrated two way rectifier and recovery diode
Voltage tolerance	$\pm 10\%$ of nominal voltage
Protection class	IP 67 acc. to EN 60529
Relative duty cycle	100% DF
Switching cycles	5000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Through cable entry for cable diameter $\varnothing 6,5 \dots 14 \text{ mm}$ (acc. to EN 60079-0)
Temperature class	
Execution L15:	T1...T4
Execution L9:	T1...T6
Nominal power	
Execution L15:	15W
Execution L9:	9W

For further electrical characteristics, refer to the data sheet of the solenoid coil: 1.1-183

CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits with standard voltage -10% (measured at 50 °C)

 $\Delta p = f(Q)$ Pressure drop volume flow characteristics [DC/CD]

 $\Delta p = f(Q)$ Pressure volume flow characteristics [BA/AB]

CAVITY

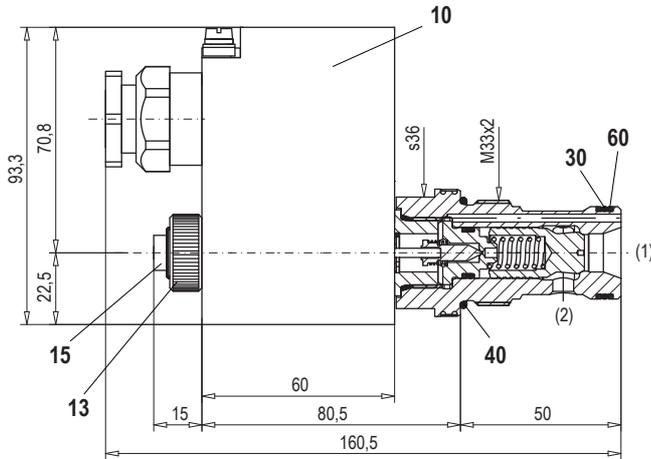
Cavity drawing to ISO 7789-33-01-0-98



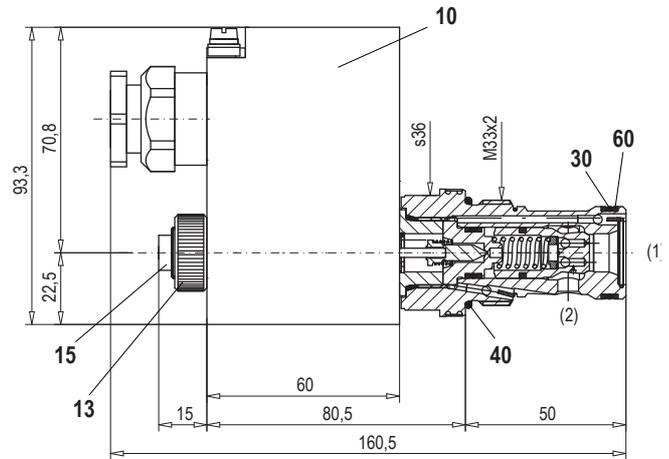
For detailed cavity drawing and cavity tools see data sheet 2.13-1005

DIMENSIONS/SECTIONAL DRAWING

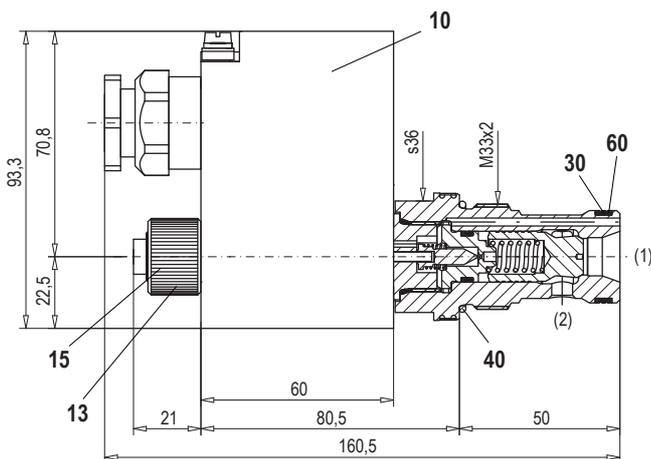
2/2-way version, «normally closed» [DC]



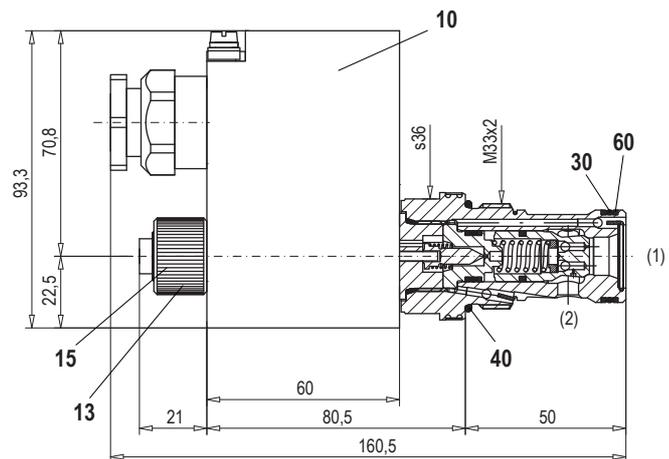
2/2-way version, «normally closed» [BA]



2/2-way version, «normally open» [CD]



2/2-way version, «normally open» [AB]



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

PARTS LIST

Position	Article	Description
10	263.6...	Coil type MKY 45/ 18x60...
12	154.2600	Knurled nut M16x1x9
13	154.2601	Knurled nut M16x1x18
15	239.2033	Plug HB0 (incl. seal)
30	160.2252	O-ring ID 25,12x1,78
40	160.2298	O-ring ID 29,82x2,62
60	049.3296	Back-up ring RD 26,1x29x1,4

ACCESSORIES

Cartridge built-in in flange- or sandwich body:

Flange valve

register 1.11

Sandwich valve

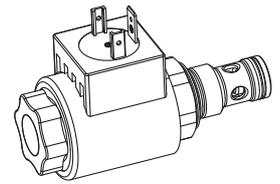
register 1.11

Technical explanation see data sheet

1.0-100

Solenoid poppet valve cartridge
2/2-way version

- Pilot operated
- $Q_{max} = 50 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M18x1,5
 ISO 7789

DESCRIPTION

Pilot operated 2/2-way poppet valve in screw-in cartridge design with thread M18x1,5 for cavity according to ISO 7789. The valve functions «normally open-CB» and «normally closed-BC» are available. There are two versions of the slip-on coil. The coils may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

FUNCTION

• «Current-free open -CB»
 In case of a current-free solenoid, it is possible for the flow to pass through the valve in both directions. In case of a solenoid under current, the valve is blocked from connection 2 to 1. If, however, the pressure in connection 1 rises above the solenoid power, the valve opens.

• «Current-free closed -BC»
 In case of a current-free solenoid, the valve is blocked from connection 2 to 1. If, however, the pressure in connection 1 is higher than in connection 2, the valve opens. In case of a solenoid under current, it is possible for the flow to pass through the valve in both directions.

APPLICATION

Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks. To machine the cavities, cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13.

TYPE CODE

				S V S PM18 -		<input type="text"/>	-	<input type="text"/>	/	<input type="text"/>	<input type="text"/>	-	<input type="text"/>	#	<input type="text"/>
Poppet valve															
Pilot operated															
Super															
Screw-in cartridge M18x1,5															
2/2-way, «normally closed»		<input type="text" value="BC"/>													
2/2-way, «normally open»		<input type="text" value="CB"/>													
Standard-nominal voltage U_N	12 VDC	<input type="text" value="G12"/>	115 VAC	<input type="text" value="R115"/>											
	24 VDC	<input type="text" value="G24"/>	230 VAC	<input type="text" value="R230"/>											
	without solenoid coil	<input type="text" value="X5"/>													
Slip-on coil:	Metal housing, round	<input type="text" value="W"/>													
	Metal housing, square	<input type="text" value="M*"/>													
Connector socket:	EN 175301-803/ISO 4400	<input type="text" value="D"/>													
	AMP Junior-Timer	<input type="text" value="J"/>													
	Deutsch DT04-2P	<input type="text" value="G"/>													
Sealing material:	NBR	<input type="text"/>													
	FKM (Viton)	<input type="text" value="D1"/>													
Design-Index (Subject to change)															

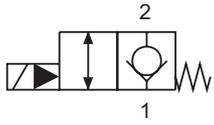
* Only available in conjunction with other nominal voltages and connection versions. (See data sheet 1.1-171)

GENERAL SPECIFICATIONS

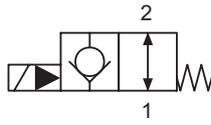
Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread M18x1,5
Ambient temperature	-20...+50 °C 100% DF -20...+70 °C 40% DF/5 min (see characteristics)
Mounting position	any
Fastening torque	$M_D = 30 \text{ Nm}$ for cartridge $M_{D,max} = 5 \text{ Nm}$ for knurled nut
Weight	$m = 0,42 \text{ kg}$
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination	ISO 4406:1999, classe 20/18/14
Efficiency	(Required filtration grade $\beta_{10...16} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal flow	$Q_N = 50 \text{ l/min}$
Pressure drop	see characteristics

SYMBOLS


SVSPM18-BC...



SVSPM18-CB...

ELECTRICAL CONTROL

Construction Solenoid, wet pin, pull or push type, pressure tight with exchangeable slip-on coil

 Standard nominal voltage: $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $\text{AC} = 50 \text{ up to } 60 \text{ Hz}$

- * Rectifier integrated in connector socket

- Other nominal voltages and wattages on request

 Voltage tolerance $\pm 10\%$ of nominal voltage

Protection class Connection version

acc. EN 60529 D: IP 65

J: IP 66

G: IP 67 and 69K

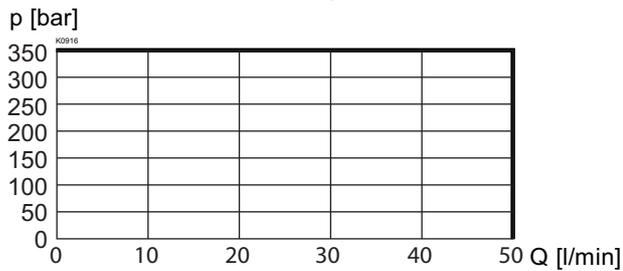
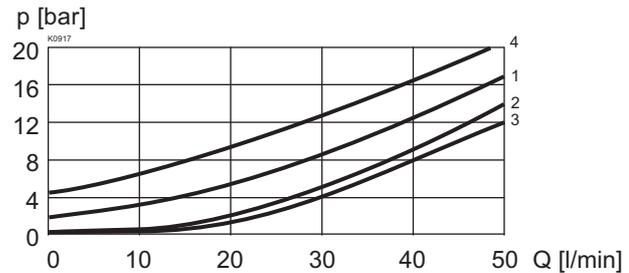
 Relative duty cycle (DF) 100% DF ambient temperature to 50 °C
 40% DF ambient temperature to 70 °C
 (see characteristics)

 Operating life 10^7 (number of switching cycles, theoretically)

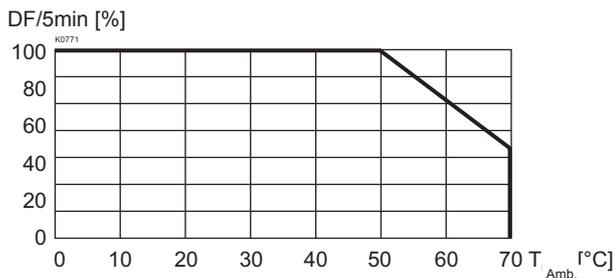
Connections/Power supply Versions see type code

For further electrical specifications see data sheet 1.1-169 (W)

1.1-171 (M)

CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature

 $\Delta p = f(Q)$ Pressure volume flow characteristics


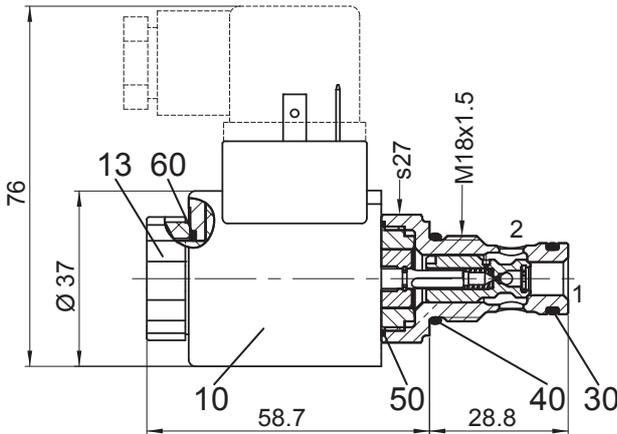
Relative duty factor = f (Ambient temperature)



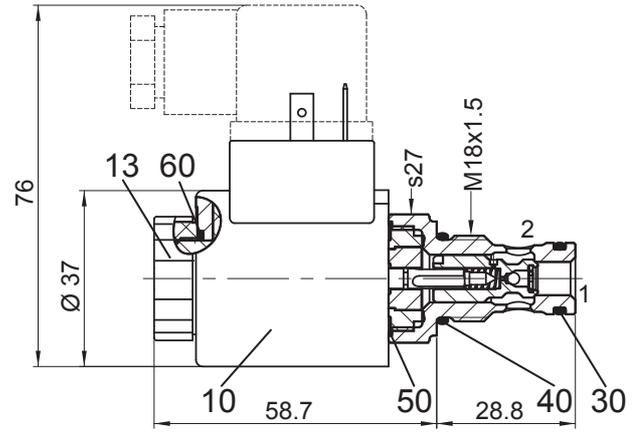
		BC	CB
Current-free	1 → 2	1	2
Current-free	2 → 1	–	3
under current	1 → 2	2	4
under current	2 → 1	3	–

DIMENSIONS/SECTIONAL DRAWING

SVSPM18-BC

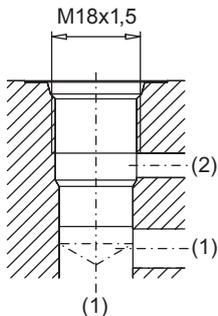


SVSPM18-CB



Dimensions of the other connection versions see data sheet 1.1-169 and 1.1-171

CAVITY

 Cavity drawing acc. to
 ISO 7789-18-01-0-98

 For detailed cavity drawing and cavity tools
 see data sheet 2.13-1002

PARTS LIST

Position	Article	Description
10	206.2213	EN 175301 Solenoid coil WDE37/16x40-G24
	206.2212	Solenoid coil WDE37/16x40-G12
	206.2218	Junior-Timer Solenoid coil WJE 37/16x40-G24
	206.2217	Solenoid coil WJE 37/16x40-G12
	206.2220	Deutsch Solenoid coil WGE37/16x40-G24
	206.2219	Solenoid coil WGE37/16x40-G12
13	154.2600	Knurled nut M16x1x9
30	160.0108	O-ring polyurethane ID 10,82x1,78
40	160.2156	O-ring ID 15,60x1,78 (NBR)
	160.8156	O-ring ID 15,60x1,78 (FKM)
50	160.1220	O-ring ID 22,00x1,00
60	160.2156	O-ring ID 15,60x1,78

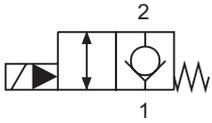
ACCESSORIES

Mating connector EN 175301-803

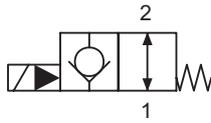
Article no. 219.2002

Technical explanation see data sheet 1.0-100

SYMBOLS



SVSPM20-BC...



SVSPM20-CB...

ELECTRICAL CONTROL

Construction Solenoid, wet pin, pull or push type, pressure tight with exchangeable slip-on coil

Standard nominal voltage: $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $\text{AC} = 50 \text{ up to } 60 \text{ Hz}$

- * Rectifier integrated in connector socket
 - Other nominal voltages and wattages on request

Voltage tolerance $\pm 10\%$ of nominal voltage

Protection class Connection version
 acc. EN 60529 D: IP 65
 J: IP 66
 G: IP 67 and 69K

Relative duty cycle (DF) 100% DF ambient temperature to 50 °C
 40% DF ambient temperature to 70 °C
 (see characteristics)

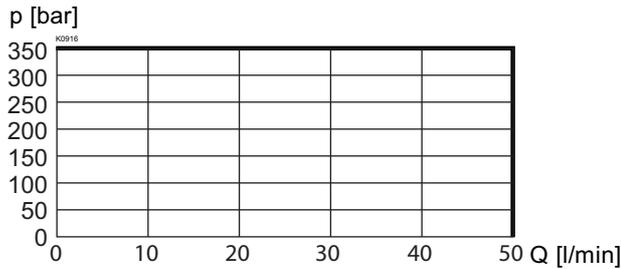
Operating life 10^7 (number of switching cycles, theoretically)

Connections/Power supply Versions see type code

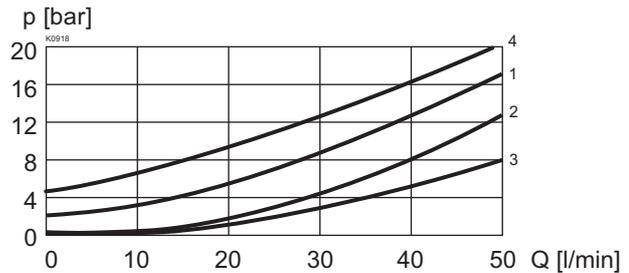
For further electrical specifications see data sheet 1.1-169 (W)
 1.1-171 (M)

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

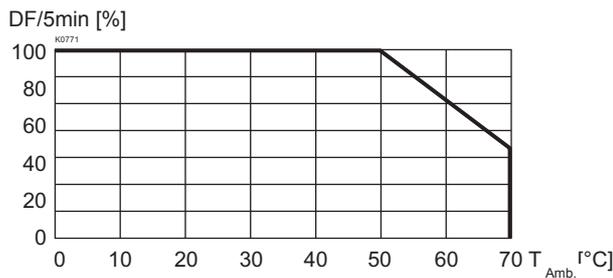
$p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature



$\Delta p = f(Q)$ Pressure volume flow characteristics



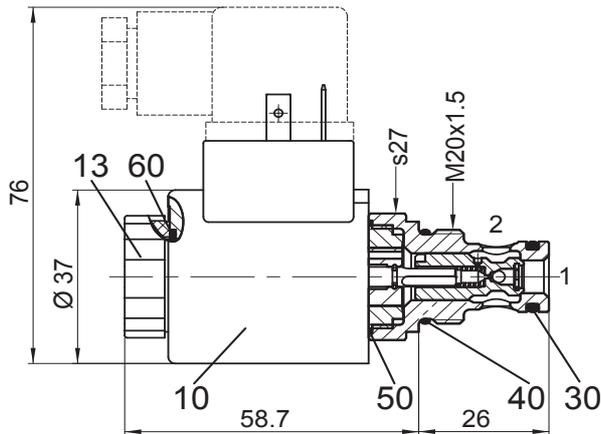
Relative duty factor = f (Ambient temperature)



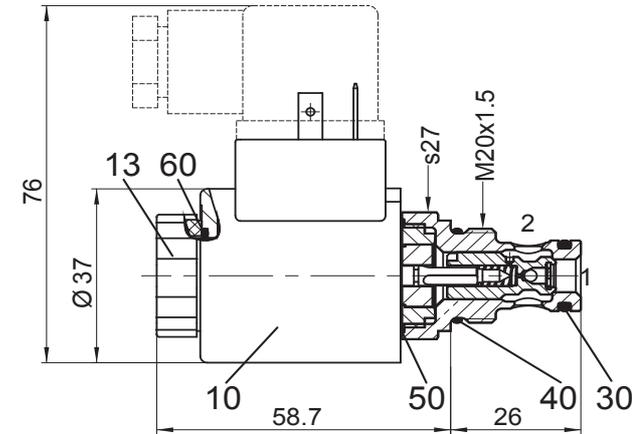
		BC	CB
Current-free	1 → 2	1	2
Current-free	2 → 1	–	3
under current	1 → 2	2	4
under current	2 → 1	3	–

DIMENSIONS/SECTIONAL DRAWING

SVSPM20-BC



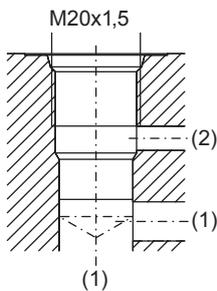
SVSPM20-CB



Dimensions of the other connection versions see data sheet 1.1-169 and 1.1-171

CAVITY

Cavity drawing acc. to Wandfluh standard



For detailed cavity drawing and cavity tools see data sheet 2.13-1042

PARTS LIST

Position	Article	Description
10	206.2213	EN 175301 Solenoid coil WDE37/16x40-G24
	206.2212	Solenoid coil WDE37/16x40-G12
	206.2218	Junior-Timer Solenoid coil WJE 37/16x40-G24
	206.2217	Solenoid coil WJE 37/16x40-G12
	206.2220	Deutsch Solenoid coil WGE37/16x40-G24
	206.2219	Solenoid coil WGE37/16x40-G12
13	154.2600	Knurled nut M16x1x9
30	160.0108	O-ring polyurethane ID 10,82x1,78
40	160.2170	O-ring ID 17,17x1,78 (NBR)
	160.8172	O-ring ID 17,17x1,78 (FKM)
50	160.1220	O-ring ID 22,00x1,00
60	160.2156	O-ring ID 15,60x1,78

ACCESSORIES

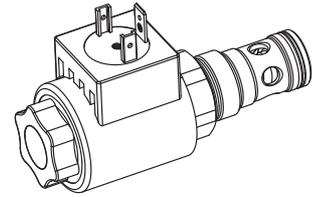
Mating connector EN 175301-803

Article no. 219.2002

Technical explanation see data sheet 1.0-100

Solenoid poppet valve cartridge
2/2-way version

- Pilot operated
- $Q_{max} = 80 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

M22x1,5
 ISO 7789

DESCRIPTION

Pilot operated 2/2-way poppet valve in screw-in cartridge design with thread M22x1,5 for cavity according to ISO 7789. The valve functions «normally open-CB» and «normally closed-BC» are available. There are two versions of the slip-on coil. The coils may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

FUNCTION

• «Current-free open -CB»
 In case of a current-free solenoid, it is possible for the flow to pass through the valve in both directions. In case of a solenoid under current, the valve is blocked from connection 2 to 1. If, however, the pressure in connection 1 rises above the solenoid power, the valve opens.

• «Current-free closed -BC»
 In case of a current-free solenoid, the valve is blocked from connection 2 to 1. If, however, the pressure in connection 1 is higher than in connection 2, the valve opens. In case of a solenoid under current, it is possible for the flow to pass through the valve in both directions.

APPLICATION

Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks. To machine the cavities, cavity tools may be supplied (hire or purchase). Please refer to the data sheets in register 2.13.

TYPE CODE

		S	V	S	PM22	-		-		/			-		#
Poppet valve															
Pilot operated															
Super															
Screw-in cartridge M22x1,5															
2/2-way, «normally closed»	<input type="checkbox"/> BC														
2/2-way, «normally open»	<input type="checkbox"/> CB														
Standard-nominal voltage U_N	12 VDC <input type="checkbox"/> G12	115 VAC <input type="checkbox"/> R115													
	24 VDC <input type="checkbox"/> G24	230 VAC <input type="checkbox"/> R230													
	without solenoid coil <input type="checkbox"/> X5														
Slip-on coil:	Metal housing, round <input type="checkbox"/> W														
	Metal housing, square <input type="checkbox"/> M*														
Connector socket:	EN 175301-803/ISO 4400 <input type="checkbox"/> D														
	AMP Junior-Timer <input type="checkbox"/> J														
	Deutsch DT04-2P <input type="checkbox"/> G														
Sealing material:	NBR <input type="checkbox"/>														
	FKM (Viton) <input type="checkbox"/> D1														
Design-Index (Subject to change)															

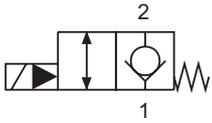
* Only available in conjunction with other nominal voltages and connection versions. (See data sheet 1.1-171)

GENERAL SPECIFICATIONS

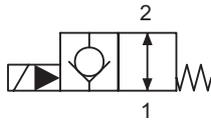
Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to ISO 7789
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread M22x1,5
Ambient temperature	-20...+50 °C 100% DF -20...+70 °C 40% DF/5 min (see characteristics)
Mounting position	any
Fastening torque	$M_D = 50 \text{ Nm}$ for cartridge $M_{D,max} = 5 \text{ Nm}$ for knurled nut
Weight	$m = 0,45 \text{ kg}$
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination	ISO 4406:1999, classe 20/18/14
Efficiency	(Required filtration grade $\beta_{10...16} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal flow	$Q_N = 80 \text{ l/min}$
Pressure drop	see characteristics

SYMBOLS


SVSPM22-BC...



SVSPM22-CB...

ELECTRICAL CONTROL

Construction Solenoid, wet pin, pull or push type, pressure tight with exchangeable slip-on coil

Standard nominal voltage: $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $\text{AC} = 50 \text{ up to } 60 \text{ Hz}$

- * Rectifier integrated in connector socket
 - Other nominal voltages and wattages on request

Voltage tolerance $\pm 10\%$ of nominal voltage

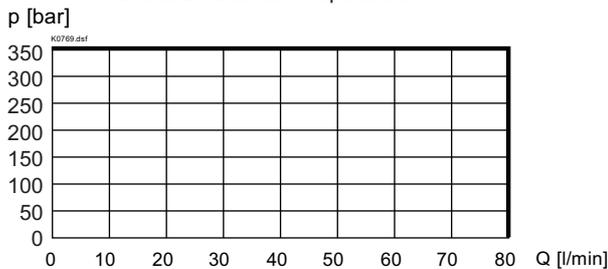
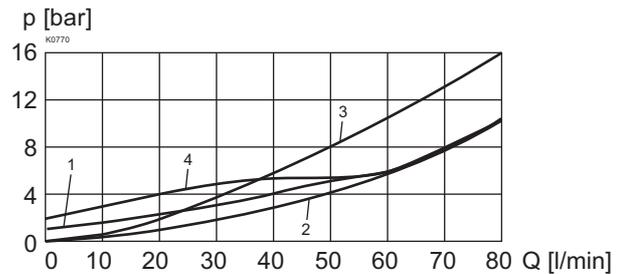
Protection class Connection version
 acc. EN 60529 D: IP 65
 J: IP 66
 G: IP 67 and 69K

Relative duty cycle (DF) 100% DF ambient temperature to 50 °C
 40% DF ambient temperature to 70 °C
 (see characteristics)

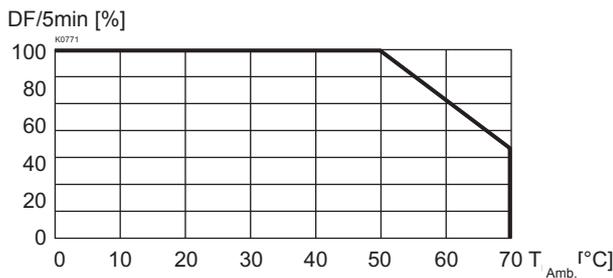
Operating life 10^7 (number of switching cycles, theoretically)

Connections/Power supply Versions see type code

For further electrical specifications see data sheet 1.1-169 (W)
 1.1-171 (M)

CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature

 $\Delta p = f(Q)$ Pressure volume flow characteristics


Relative duty factor = f (Ambient temperature)

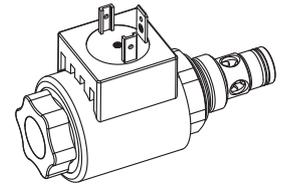


		BC	CB
Current-free	1 → 2	1	2
Current-free	2 → 1	—	3
under current	1 → 2	2	4
under current	2 → 1	3	—

Solenoid poppet valve cartridge
2/2-way version

- Pilot operated
- $Q_{max} = 50 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

3/4"-16 UNF
 Wandfluh-Norm


DESCRIPTION

Pilot operated 2/2-way poppet valve in screw-in cartridge design with thread 3/4"-16 UNF for cavity according to Wandfluh standard. The valve functions «normally open-CB» and «normally closed-BC» are available. There are two versions of the slip-on coil. The coils may be exchanged without opening the hydraulic circuit. The outside of the armature tube and the valve body are zinc coated for surface protection.

FUNCTION

• «Current-free open -CB»
 In case of a current-free solenoid, it is possible for the flow to pass through the valve in both directions. In case of a solenoid under current, the valve is blocked from connection 2 to 1. If, however, the pressure in connection 1 rises above the solenoid power, the valve opens.

• «Current-free closed -BC»
 In case of a current-free solenoid, the valve is blocked from connection 2 to 1. If, however, the pressure in connection 1 is higher than in connection 2, the valve opens. In case of a solenoid under current, it is possible for the flow to pass through the valve in both directions.

APPLICATION

Wandfluh solenoid operated poppet valves are applied where an absolutely leak free closing of the valve is essential like in load holding, clamping or gripping functions. The solenoid operated screw-in cartridges are mainly used in mobile or stationary integrated blocks.

TYPE CODE

	S V S PU08 - <input type="checkbox"/> - <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>
Poppet valve	<input type="checkbox"/>
Pilot operated	<input type="checkbox"/>
Super	<input type="checkbox"/>
Screw-in cartridge 3/4"-16 UNF	<input type="checkbox"/>
2/2-way, «normally closed»	<input type="checkbox"/> BC
2/2-way, «normally open»	<input type="checkbox"/> CB
Standard-nominal voltage U_N 12 VDC	<input type="checkbox"/> G12 115 VAC <input type="checkbox"/> R115
24 VDC	<input type="checkbox"/> G24 230 VAC <input type="checkbox"/> R230
without solenoid coil	<input type="checkbox"/> X5
Slip-on coil: Metal housing, round	<input type="checkbox"/> W
Metal housing, square	<input type="checkbox"/> M*
Connector socket: EN 175301-803/ISO 4400	<input type="checkbox"/> D
AMP Junior-Timer	<input type="checkbox"/> J
Deutsch DT04-2P	<input type="checkbox"/> G
Sealing material: NBR	<input type="checkbox"/>
FKM (Viton)	<input type="checkbox"/> D1
Design-Index (Subject to change)	

* Only available in conjunction with other nominal voltages and connection versions. (See data sheet 1.1-171)

GENERAL SPECIFICATIONS

Description	Pilot operated 2/2-way solenoid poppet valve
Construction	Screw-in cartridge for cavity acc. to Wandfluh standard
Operation	Solenoid with exchangeable slip-on coil
Mounting	Screw-in thread 3/4"-16 UNF
Ambient temperature	-20...+50 °C 100% DF -20...+70 °C 40% DF/5 min (see characteristics)
Mounting position	any
Fastening torque	$M_D = 30 \text{ Nm}$ for cartridge $M_{D,max} = 5 \text{ Nm}$ for knurled nut
Weight	$m = 0,42 \text{ kg}$
Volume flow	see symbols

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination	ISO 4406:1999, classe 20/18/14
Efficiency	(Required filtration grade $\beta_{10...16} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Working pressure	$p_{max} = 350 \text{ bar}$
Nominal flow	$Q_N = 50 \text{ l/min}$
Pressure drop	see characteristics

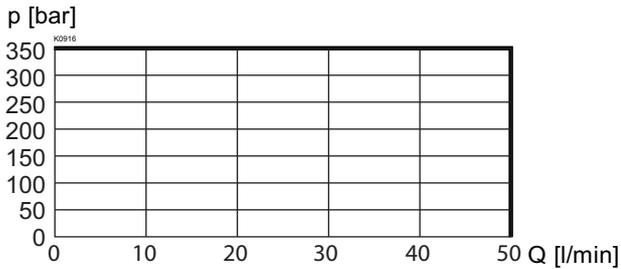
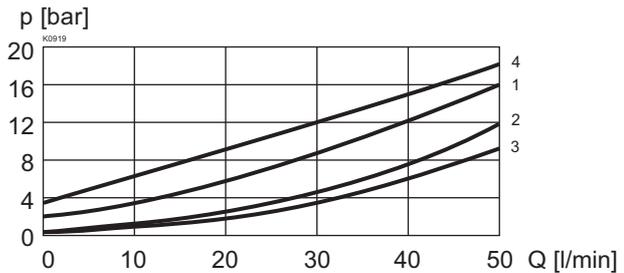
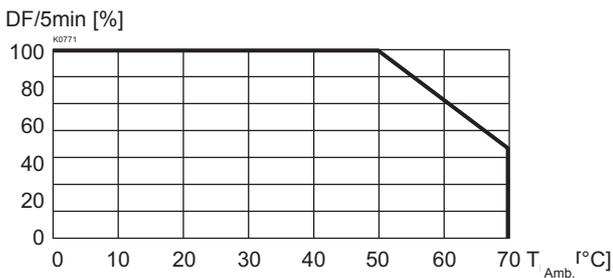
SYMBOLS


SVSPU08-BC...

SVSPU08-CB...

ELECTRICAL CONTROL

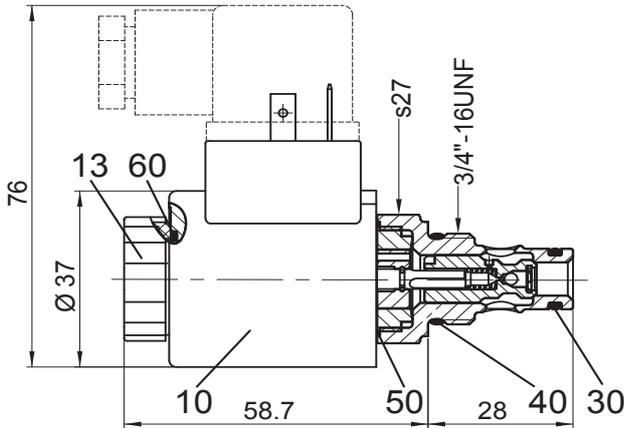
Construction	Solenoid, wet pin, pull or push type, pressure tight with exchangeable slip-on coil
Standard nominal voltage:	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 115 \text{ VAC}^*, 230 \text{ VAC}^*$ $\text{AC} = 50 \text{ up to } 60 \text{ Hz}$
- * Rectifier integrated in connector socket	
- Other nominal voltages and wattages on request	
Voltage tolerance	$\pm 10\%$ of nominal voltage
Protection class	Connection version
acc. EN 60529	D: IP 65
	J: IP 66
	G: IP 67 and 69K
Relative duty cycle (DF)	$100\% \text{ DF ambient temperature to } 50^\circ\text{C}$ $40\% \text{ DF ambient temperature to } 70^\circ\text{C}$ (see characteristics)
Operating life	10^7 (number of switching cycles, theoretically)
Connections/Power supply	Versions see type code
For further electrical specifications see data sheet 1.1-169 (W)	
1.1-171 (M)	

CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits at 10% under voltage and max. ambient temperature

 $\Delta p = f(Q)$ Pressure volume flow characteristics

 Relative duty factor = f (Ambient temperature)


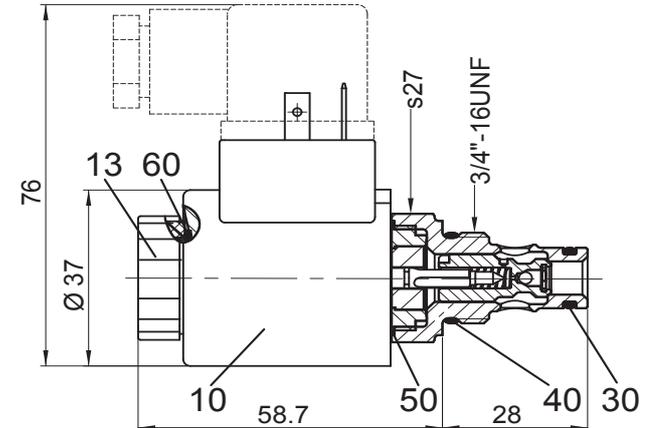
		BC	CB
Current-free	1 → 2	1	2
Current-free	2 → 1	–	3
under current	1 → 2	2	4
under current	2 → 1	3	–

DIMENSIONS/SECTIONAL DRAWING

SVSPU08-BC



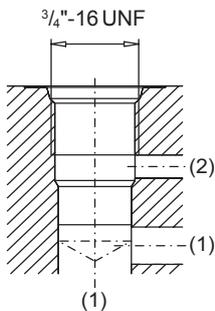
SVSPU08-CB



Dimensions of the other connection versions see data sheet 1.1-169 and 1.1-171

CAVITY

Cavity drawing acc. to Wandfluh standard



For detailed cavity drawing and cavity tools see data sheet 2.13-1043

PARTS LIST

Position	Article	Description
10	206.2213	EN 175301 Solenoid coil WDE37/16x40-G24
	206.2212	Solenoid coil WDE37/16x40-G12
	206.2218	Junior-Timer Solenoid coil WJE 37/16x40-G24
	206.2217	Solenoid coil WJE 37/16x40-G12
	206.2220	Deutsch Solenoid coil WGE37/16x40-G24
	206.2219	Solenoid coil WGE37/16x40-G12
13	154.2600	Knurled nut M16x1x9
30	160.0091	O-ring polyurethane ID 9,25x1,78
40	160.2156	O-ring ID 15,60x1,78 (NBR)
	160.8156	O-ring ID 15,60x1,78 (NBR)
50	160.1220	O-ring ID 22,00x1,00
60	160.2156	O-ring ID 15,60x1,78

ACCESSORIES

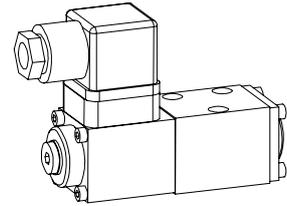
Mating connector EN 175301-803

Article no. 219.2002

Technical explanation see data sheet 1.0-100

Solenoid poppet valve

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 6 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG3-Mini[®]

DESCRIPTION

Poppet valve, flanged design NG3-Mini, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG3-Mini series is the poppet valve cartridge NG3. See data sheet 1.11-2010. The solenoids correspond to VDE standard 0580.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time. NG3-mini valves are used where a light, compact unit is needed.

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
ELECTRICAL CONTROL	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	B	<input type="checkbox"/>	<input type="checkbox"/>	2	03	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	B	<input type="checkbox"/>	3	4	03	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Mounting interface										
Medium-solenoid			<input type="checkbox"/>							
Super-solenoid			<input type="checkbox"/>							
2-way (connections)			<input type="checkbox"/>							
3-way (connections)			<input type="checkbox"/>							
2 position										
4 position										
Nominal size 3-Mini										
Normally closed, solenoid on A-side										<input type="checkbox"/>
Normally open, solenoid on B-side										<input type="checkbox"/>
Standard nominal voltage U_N : 12VDC						<input type="checkbox"/>				<input type="checkbox"/>
24VDC						<input type="checkbox"/>				<input type="checkbox"/>
										<input type="checkbox"/>
										<input type="checkbox"/>

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

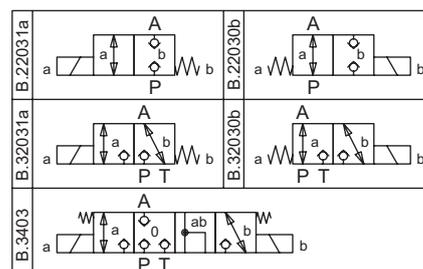
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG3-Mini acc. to Wandfluh standard
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange, 3 holes for socket cap screws M4x30
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 2,8 \text{ Nm}$ (quality 8.8)
Weight 2/2-, 3/2-way	$m = 0,46 \text{ kg}$
3/4-way	$m = 0,72 \text{ kg}$
Volume flow direction	any, (see characteristics)

ELECTRICAL CONTROL

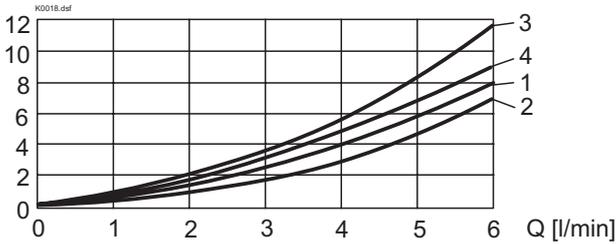
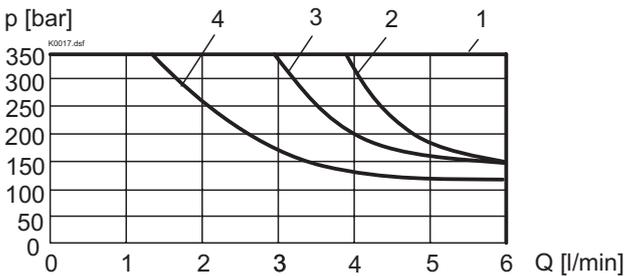
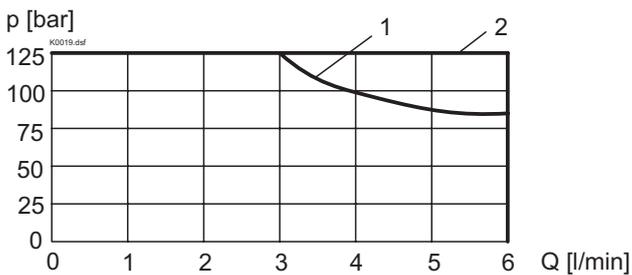
Construction	Solenoid, wet pin push, pressure tight
Standard-nominal voltage $U_N = 12 \text{ VDC}, 24 \text{ VDC}$	
$U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$	
AC = 50 to 60 Hz	
	* Rectifier integrated in the plug
	Other nominal voltages and nominal performances on request.
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Overdevice plug connection to ISO 4400/ DIN 43650, (2P+E), other connections on request
Solenoid:	- Medium SIN29V (data sheet 1.1-80) - Super SIS29V (data sheet 1.1-85)

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 125 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 6 \text{ l/min}$ see characteristics

SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $\Delta p = f(Q)$ Pressure loss/flow characteristics

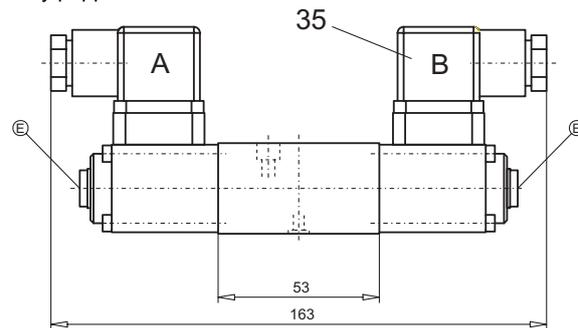
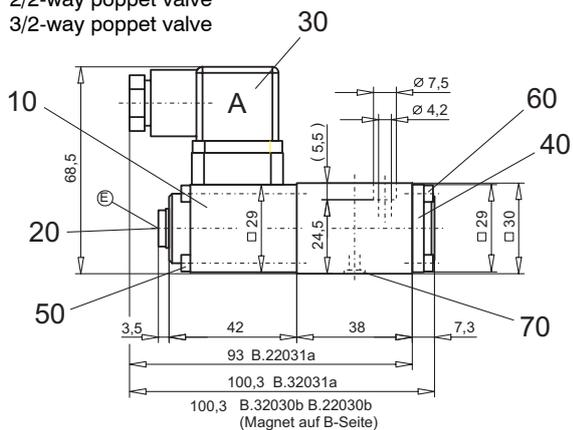
 Δp [bar]

 $p = f(Q)$ Performance limit at -10%
 Super

 $p = f(Q)$ Performance limit at -10%
 Medium

 1: 3/2 way valve flow direction from A --> P
 2: all other valves and flow directions

Type	Flow direction			
	P - A	A - T	A - P	T - A
B.2203..	1	-	2	-
B.3203..	3	4	4	3
B.3403	1	1	2	2

Type	Flow direction			
	P - A	A - T	A - P	T - A
BS22031a	1	-	2	-
BS22030b	1	-	3	-
BS32031a	1	2	4	1
BS32030b	1	2	4	1
BS3403	1	1	2	4

DIMENSIONS

3/4-way poppet valve


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


E = air bleed screw

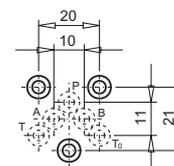
PARTS LIST

Position	Article	Description
10	260.2... 260.3...	Medium-solenoid SIN29V Super-solenoid SIS29V
20	239.2033	Plug (incl. seal ring) HBO
30	219.2001	Plug A (grey)
35	219.2002	Plug A (grey)
40	056.4203	Cover
50	246.0141	Socket head cap screw M3x40 DIN 912
60	246.0109	Socket head cap screw M3x8 DIN 912
70	160.2045	O-ring ID 4,50x1,50

ACCESSORIES

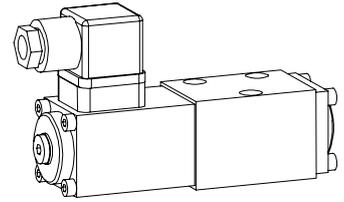
 Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E



Solenoid poppet valve

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 15 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG4-Mini[®]

DESCRIPTION

Poppet valve, flanged design NG4-Mini according to Wandfluh standard, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG4-Mini series is the poppet valve cartridge NG4. See data sheet 1.11-2020. The solenoids correspond to VDE standard 0580.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time. NG4-mini valves are used where a light, compact unit is needed.

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
ELECTRICAL CONTROL	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	B	<input type="checkbox"/>	<input type="checkbox"/>	2	04	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	B	<input type="checkbox"/>	3	4	04		-	<input type="checkbox"/>	#	<input type="checkbox"/>
Mounting interface										
Medium-solenoid		<input type="checkbox"/>	<input type="checkbox"/>							
Super-solenoid		<input type="checkbox"/>	<input type="checkbox"/>							
2-way (connections)		<input type="checkbox"/>	<input type="checkbox"/>							
3-way (connections)		<input type="checkbox"/>	<input type="checkbox"/>							
2 position										
4 position										
Nominal size 4-Mini										
Normally closed, solenoid on A-side										<input type="checkbox"/>
Normally open, solenoid on B-side										<input type="checkbox"/>
Standard nominal voltage U_N :										
12 VDC						<input type="checkbox"/>				<input type="checkbox"/>
24 VDC						<input type="checkbox"/>				<input type="checkbox"/>
110 VAC								<input type="checkbox"/>		<input type="checkbox"/>
115 VAC								<input type="checkbox"/>		<input type="checkbox"/>
230 VAC								<input type="checkbox"/>		<input type="checkbox"/>

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

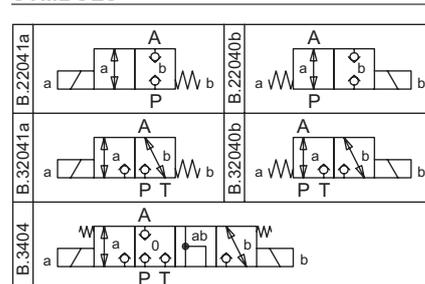
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG4-Mini acc. to Wandfluh standard
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange, 3 holes for socket cap screws M5x40
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 5,5 \text{ Nm}$ (quality 8.8)
Weight 2/2-, 3/2-way	$m = 0,95 \text{ kg}$
3/4-way	$m = 1,45 \text{ kg}$
Volume flow direction	any (see characteristics)

ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure high
Standard-nominal voltage U_N :	12 VDC, 24 VDC $U_N = 110 \text{ VAC}^*$, 115 VAC^* , 230 VAC^* AC = 50 bis 60 Hz
	*Rectifier integrated in the plug
	Other nominal voltages and nominal performances on request
Voltage tolerance	$\pm 10\%$ of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Over device plug connection to ISO 4400/ DIN 43 650, (2P+E), other connections on request
Solenoid:	- Medium SIN35V (data sheet 1.1-105) - Super SIS35V (data sheet 1.1-110)

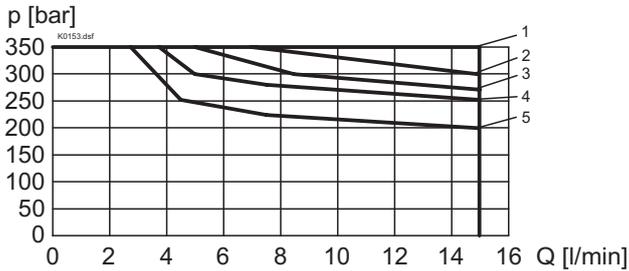
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 15 \text{ l/min}$ see characteristics

SYMBOLS


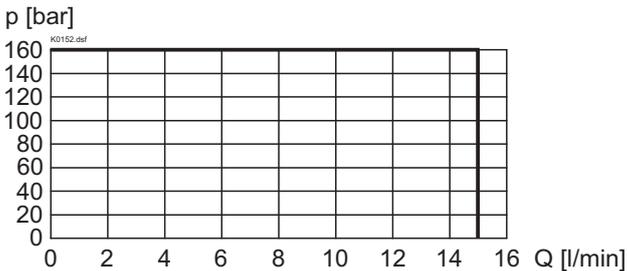
CHARACTERISTICS Oilviscosity $\nu = 30 \text{ mm}^2/\text{s}$

$p = f(Q)$ Performance limit by standard voltage at -10 %
 Super

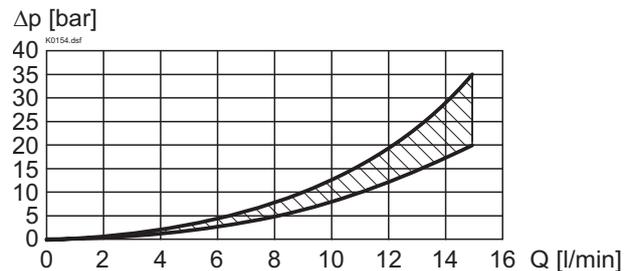


Type	Flow direction			
	P - A	A - T	A - P	T - A
BS22041a	1	-	2	-
BS22040b	1	-	4	-
BS32041a	1	3	5	1
BS32040b	1	4	5	1
BS3404	1	1	2	2

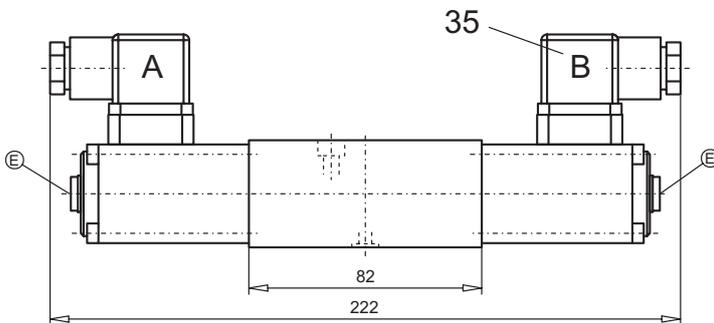
$p = f(Q)$ Performance limit by standard voltage at -10 %
 Medium



$\Delta p = f(Q)$ Pressure loss/flow characteristics

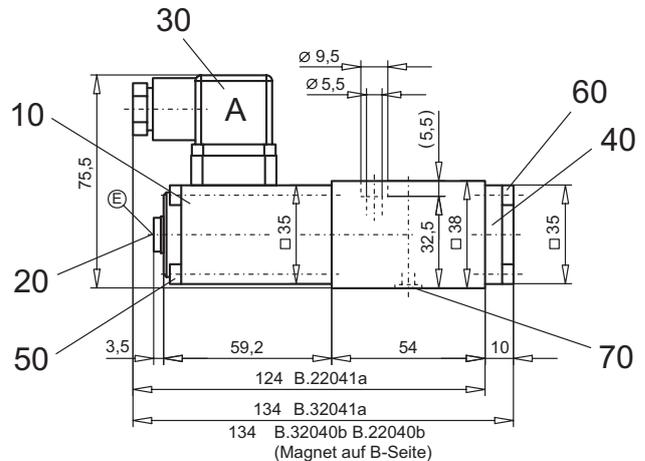

DIMENSIONS

3/4-way poppet valve

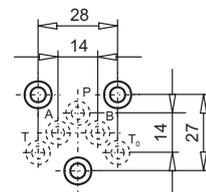


E = air bleed screw

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


PARTS LIST

Position	Article	Description
10	260.4... 260.5...	Medium-solenoid SIN35V Super-solenoid SIS35V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	057.4201	Cover
50	246.1161	Socket head cap screw M4x60 DIN 912
60	246.1113	Socket head cap screw M4x12 DIN 912
70	160.2052	O-ring ID 5,28x1,78


ACCESSORIES

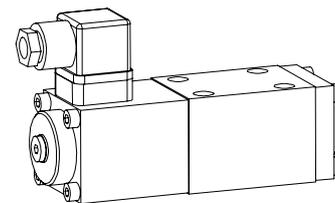
Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

Solenoid poppet valve

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG6
ISO 4401-03


DESCRIPTION

Poppet valve, flanged design NG6, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG6 series is the poppet valve cartridge NG6. See data sheet 1.11-2030. The solenoids correspond to VDE standard 0580.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

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TYPE CODE

2/2- or 3/2-way construction	A	<input type="checkbox"/>	<input type="checkbox"/>	2	06	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	A	<input type="checkbox"/>	3	4	06	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
International mounting interface ISO										
Medium	M	<input type="checkbox"/>								
Super	S	<input type="checkbox"/>								
2-way (connections)	2	<input type="checkbox"/>								
3-way (connections)	3	<input type="checkbox"/>								
2 position										
4 position										
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	<input type="checkbox"/>				110 VAC	R110			
24 VDC	G24	<input type="checkbox"/>				115 VAC	R115			
						230 VAC	R230			

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

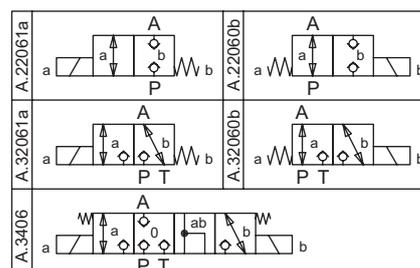
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG6 acc. to ISO 4401-03
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange, 4 holes for socket cap screws M5x45
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 5,5 \text{ Nm}$ (quality 8.8)
Weight 2/2-, 3/2-way	$m = 1,8 \text{ kg}$
3/4-way	$m = 2,8 \text{ kg}$
Volume flow direction	any (see characteristics)

ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure high
Standard-nominal voltage	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ AC = 50 to 60 Hz
	* Rectifier integrated in the plug
	Other nominal voltages and nominal performances on request
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Over device plug connection to ISO 4400/ DIN 43 650, (2P+E), other connections on request
Solenoid:	- Medium SIN45V (1.1-120) - Super SIS45V (1.1-125)

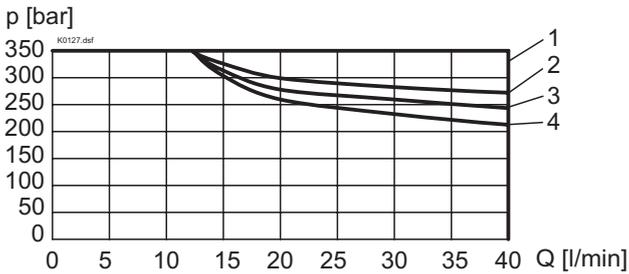
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 40 \text{ l/min}$ see characteristics

SYMBOLS


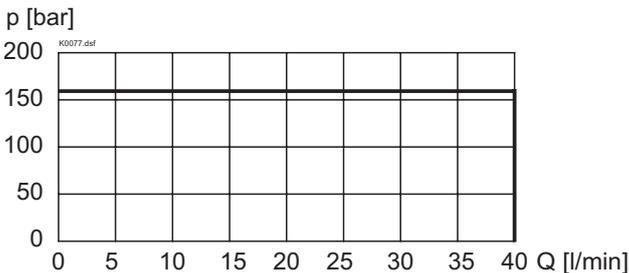
CHARACTERISTICS Oilviscosity $\nu = 30 \text{ mm}^2/\text{s}$

$p = f(Q)$ Performance limit by standard voltage at -10 %
 Super

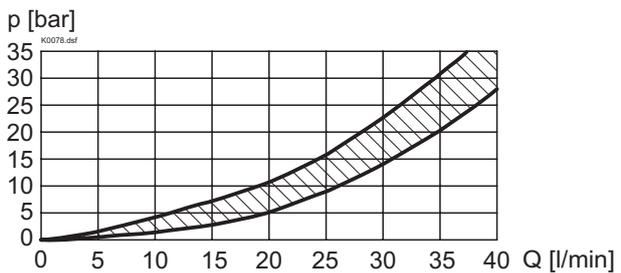


Type	Flow direction			
	P - A	A - T	A - P	T - A
AS22061a	1	-	2	-
AS22060b	1	-	4	-
AS32061a	1	2	3	1
AS32060b	1	2	3	1
AS3406	1	1	2	2

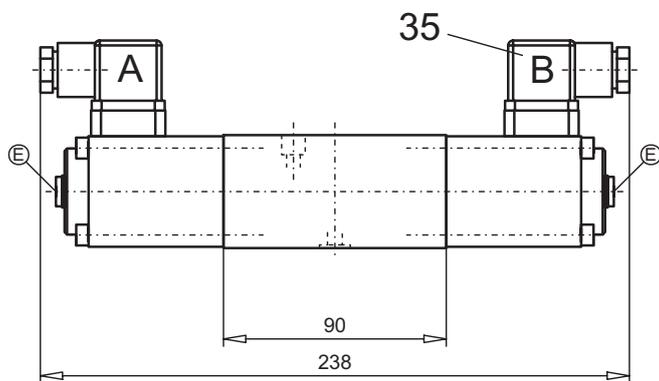
$p = f(Q)$ Performance limit by standard voltage at -10 %
 Medium



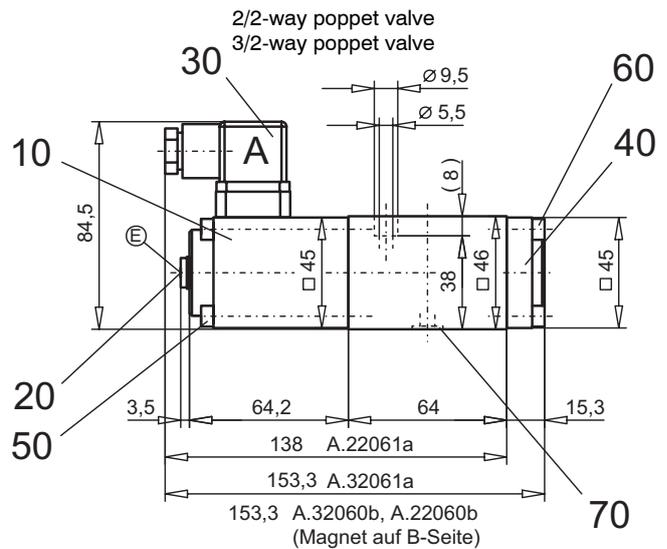
$\Delta p = f(Q)$ Pressure loss/flow characteristics


DIMENSIONS

3/4-way poppet valve



E = air bleed screw


PARTS LIST

Position	Article	Description
10	260.6... 260.7...	Medium-solenoid SIN45V Super-solenoid SIS45V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	058.4215	Cover
50	246.2160	Socket head cap screw M5x60 DIN 912
60	246.2117	Socket head cap screw M5x16 DIN 912
70	160.2093	O-ring ID 9,25x1,78

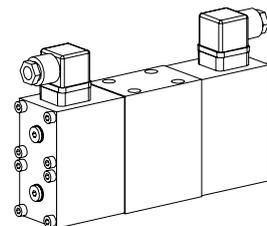
ACCESSORIES

Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

Solenoid poppet valve

- 4/3-way construction
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG6
 ISO 4401-03

DESCRIPTION

Poppet valve, flanged design NG6 to ISO 4401-03. The central functioning element of all directly controlled poppet valves in the NG6 series is the poppet valve cartridge NG6. See data sheet 1.11-2030. The solenoids correspond to VDE standard 0580.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The poppet valve is opened by wet pin push type solenoids and closed by springs. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

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TYPE CODE

4/3-way construction	A	<input type="checkbox"/>	4	3	06	-	<input type="checkbox"/>	#	<input type="checkbox"/>
International mounting interface ISO									
Medium		<input type="checkbox"/>	M						
Super		<input type="checkbox"/>	S						
4-way (connections)									
3 position									
Nominal size 6									
Standard nominal voltage U_N :	12 VDC	<input type="checkbox"/>	G12	110 VAC	<input type="checkbox"/>	R110			
	24 VDC	<input type="checkbox"/>	G24	115 VAC	<input type="checkbox"/>	R115			
				230 VAC	<input type="checkbox"/>	R230			
Design-Index (Subject to change)									

GENERAL SPECIFICATIONS

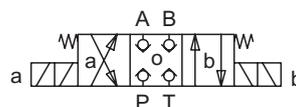
Description	4/3-way poppet valve
Nominal size	NG6 acc. to ISO 4401-03
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange, 4 holes for socket cap screws M5x90
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 9,7 \text{ Nm}$ (quality 12.9)
Weight	$m = 5,4 \text{ kg}$

ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure tight
Standard-nominal voltage	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ AC = 50 to 60 Hz
	* Rectifier integrated in the plug
	Other nominal voltages and nominal performances on request
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Over device plug connection to ISO 4400 / DIN 43 650, (2P+E), other connections on request
Solenoid:	- Medium SIN45DV (1.1-122) - Super SIS45DV (1.1-127)

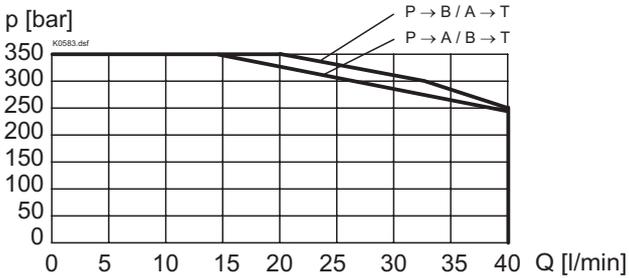
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 40 \text{ l/min}$ see characteristics

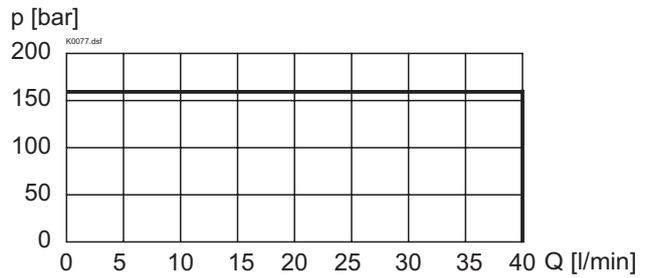
SYMBOLS


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

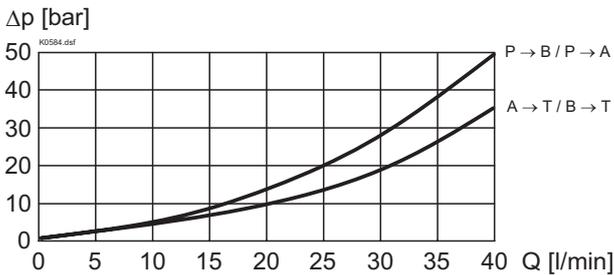
$p = f(Q)$ Performance limit by standard voltage at -10 %
Super



$p = f(Q)$ Performance limit by standard voltage at -10 %
Medium

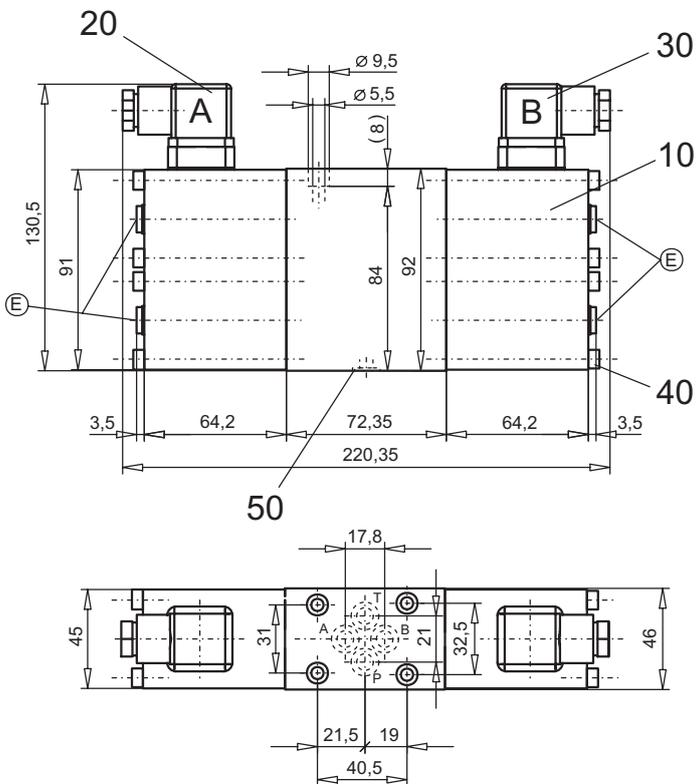


$\Delta p = f(Q)$ Pressure loss/flow characteristics



DIMENSIONS

4/3-way poppet valve



PARTS LIST

Position	Article	Description
10	260.6... 260.7...	Medium solenoid SIN45DV-...-M40-HB0 Super solenoid SIS45DV-...-M40-HB0
20	219.2001	Plug A (grey)
30	219.2002	Plug B (black)
40	246.2171	Cyl. screw M5x70 DIN 912
50	160.2093	O-ring ID 9,25x1,78

E = air bleed screw

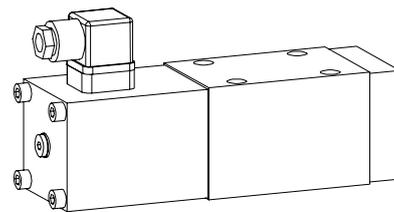
ACCESSORIES

Threaded connection plates, Multi-flange subplates and
Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

Solenoid poppet valve

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 80 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG10
 ISO 4401-05

DESCRIPTION

Poppet valve, flanged design NG10, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG10 series is the poppet valve cartridge NG10. See data sheet 1.11-2040. The solenoids correspond to VDE standard 0580.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time. NG10 valves are used where a light, compact unit is needed.

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ELECTRICAL CONTROL	1
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CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	A	<input type="checkbox"/>	<input type="checkbox"/>	2	10	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	A	<input type="checkbox"/>	3	4	10	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
International mounting interface ISO										
Medium-solenoid	M									
Super-solenoid	S									
2-way (connections)	2									
3-way (connections)	3									
2 position										
4 position										
Nominal size 10										
Normally closed, solenoid on A-side										1a
Normally open, solenoid on B-side										0b
Standard nominal voltage U_N : 12 VDC	G12	110 VAC	R110							
24 VDC	G24	115 VAC	R115							
		230 VAC	R230							
Design-Index (Subject to change)										

GENERAL SPECIFICATIONS

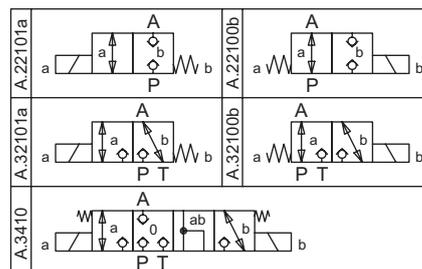
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG10 acc. to ISO 4401-05
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange, 4 holes for socket cap screws M6x65
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 9,5 \text{ Nm}$ (quality 8.8)
Weight 2/2-, 3/2-way	$m = 4,6 \text{ kg}$
3/4-way	$m = 6,4 \text{ kg}$
Volume flow direction	any (see characteristics)

ELECTRICAL CONTROL

Construction	Solenoid, wet pin push type, pressure tight
Standard-nominal voltage	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ AC = 50 to 60 Hz * Rectifier integrated in the plug Other nominal voltages and nominal performances on request
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% FD (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Over device plug connection to ISO 4400/ DIN 43 650, (2P+E), other connections on request
Solenoid:	- Medium SIN60V (data sheet 1.1-145) - Super SIS60V (data sheet 1.1-150)

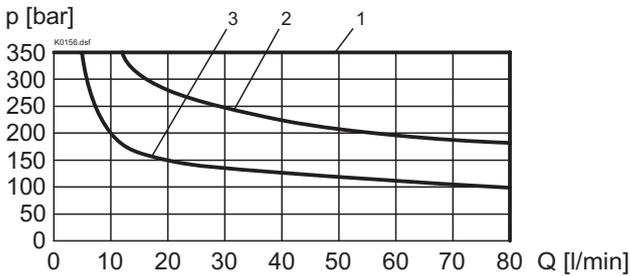
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 80 \text{ l/min}$ see characteristics

SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%

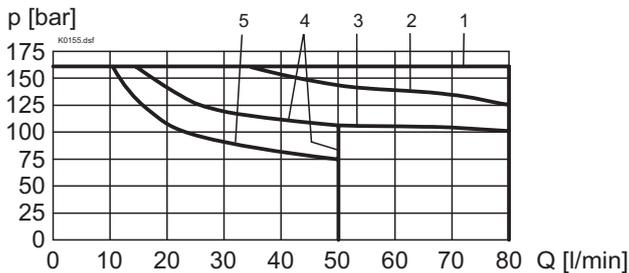
Super



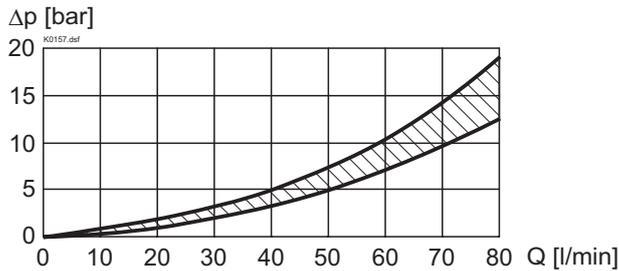
Type	Flow direction			
	P - A	A - T	A - P	T - A
AS22101a	1	-	2	-
AS22100b	1	-	2	-
AS32101a	1	2	3	1
AS32100b	1	2	3	1
AS3410	1	1	2	2

 $p = f(Q)$ Performance limit at -10%

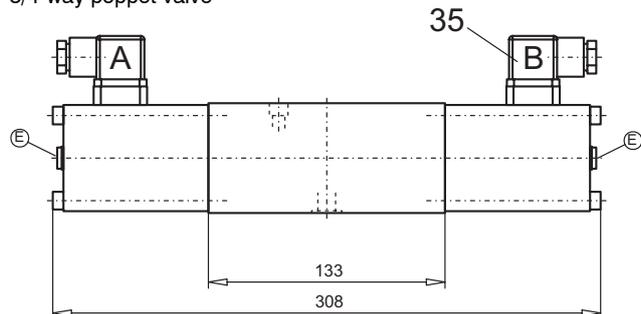
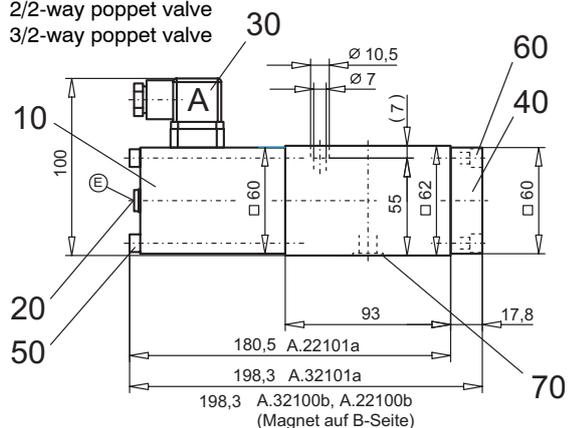
Medium



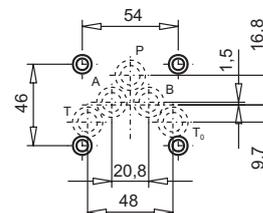
Type	Flow direction			
	P - A	A - T	A - P	T - A
AM22101a	1	-	4	-
AM22100b	1	-	2	-
AM32101a	1	3	5	1
AM32100b	1	3	3	1
AM3410	1	1	4	4

 $\Delta p = f(Q)$ Pressure loss/flow characteristics

DIMENSIONS

3/4-way poppet valve


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


E = air bleed screw


PARTS LIST

Position	Article	Description
10	260.8... 260.9...	Medium-solenoid SIN60V Super-solenoid SIS60V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	059.2200	Cover
50	246.3190	Socket head cap screw M6x90 DIN 912
60	246.3121	Socket head cap screw M6x20 DIN 912
70	160.2140	O-ring ID 14,00x1,78

ACCESSORIES

 Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

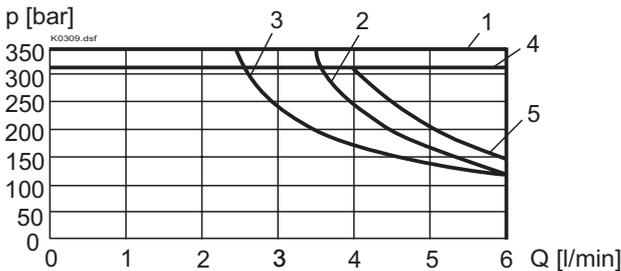
ELECTRICAL CONTROL

Construction Solenoid, wet pin push type, pressure tight
 Standard-nominal voltage $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $AC = 50 \text{ to } 60 \text{ Hz}$
 * Rectifier integrated in the plug
 Other nominal voltages and nominal performances on request
 Voltage tolerance $\pm 10\%$ of nominal voltage
 Protection class IP 65 to EN 60 529
 Relative duty factor 100% DF (see data sheet 1.1-430)

Switching cycles 15'000/h
 Operating life 10^7 (number of switching cycles, theoretically)
 Connection/Power supply Over device plug connection to ISO 4400/
 DIN 43650, (2P+E), other connections on request
 Solenoid:
 - Medium SIN29V (1.1-80)
 - Super SIS29V (1.1-85)

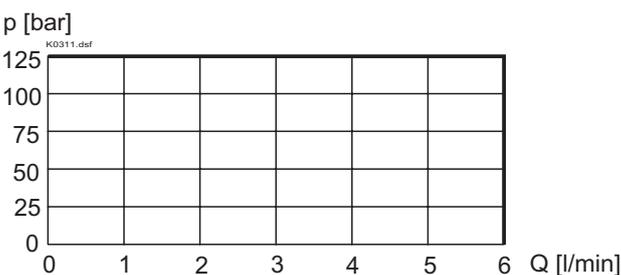
CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$

$p = f(Q)$ Performance limit by standard voltage at -10 %
 Super

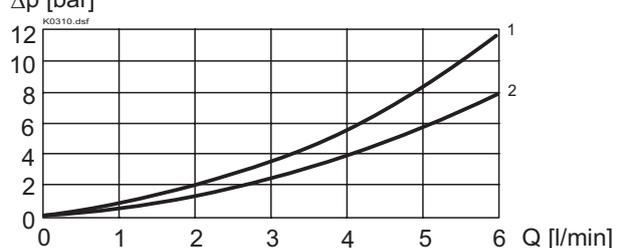


Type	Flow direction	
	1 → 2	2 → 1
ZS22031P	1	2
ZS22031T	1	2
ZS22031A	1	2
ZS22031B	1	2
ZS22031AB	1	2
ZS22030P	1	3
ZS22030T	1	3
ZS22030A	1	3
ZS22030B	1	3
ZS22030AB	4	5

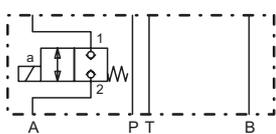
$p = f(Q)$ Performance limit by standard voltage at -10 %
 Medium



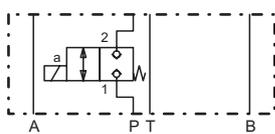
$\Delta p = f(Q)$ Pressure loss/flow characteristics
 1: characteristics from Z.22030AB
 2: characteristics from all valves


TYPE CHARTS

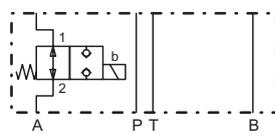
Z.22031A



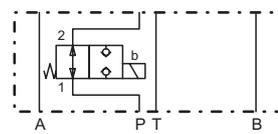
Z.22031P



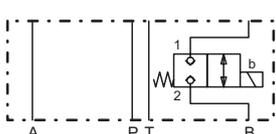
Z.22030A



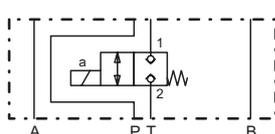
Z.22030P



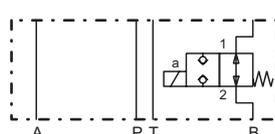
Z.22031B



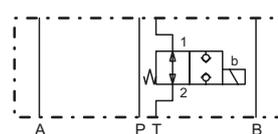
Z.22031T



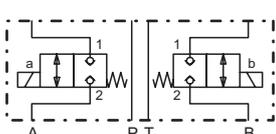
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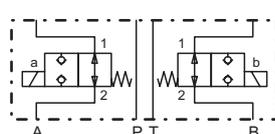
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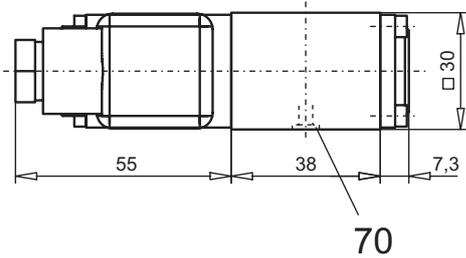
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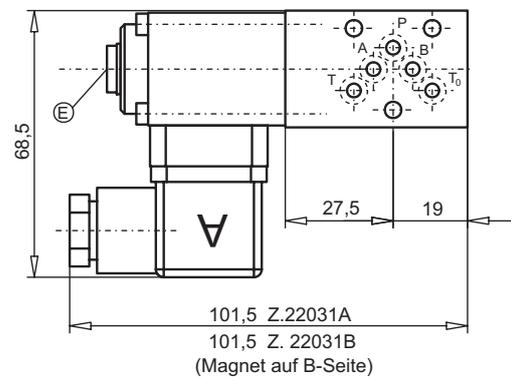
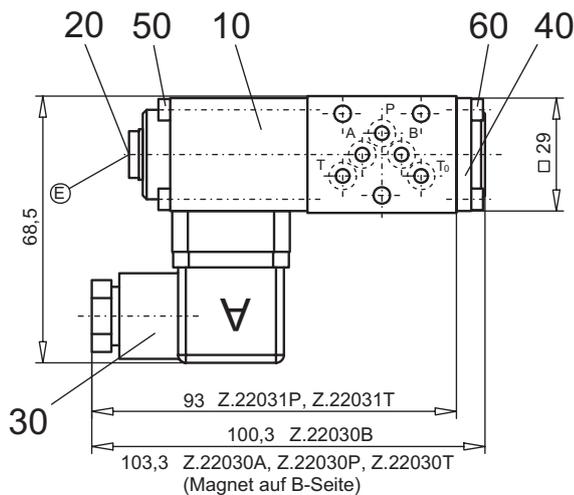
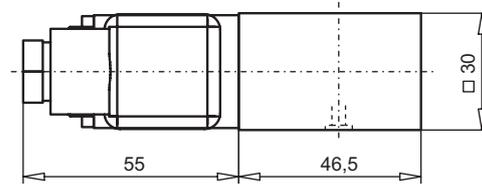
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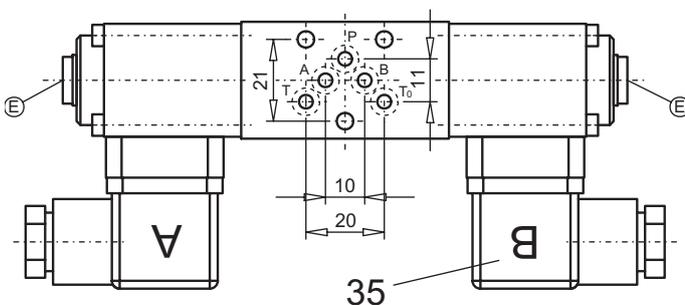
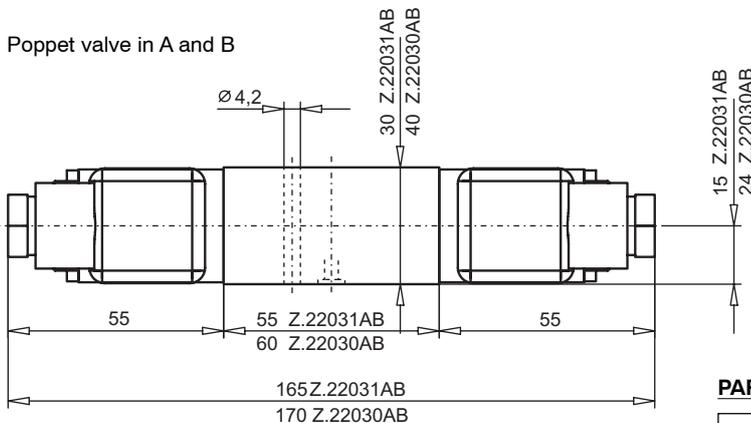
DIMENSIONS

 Poppet valve in A, B, P or T normally open
 Poppet valve in P or T normally closed


Poppet valve in A or B normally closed



Poppet valve in A and B



E = air bleed screw

PARTS LIST

Position	Article	Description
10	260.2... 260.3...	Medium-solenoid SIN29V Super-solenoid SIS29V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug A (grey)
40	056.4203	Cover
50	246.0141	Socket head cap screw M3x40 DIN 912
60	246.0109	Socket head cap screw M3x8 DIN 912
70	160.2045	O-ring ID 4,50x1,50

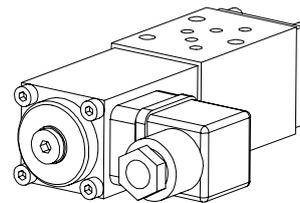
ACCESSORIES

 Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

Solenoid poppet valve

- 2/2-way sandwich construction
- $Q_{max} = 15 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG4-Mini[®]

DESCRIPTION

Poppet valve, sandwich design NG4-Mini according to Wandfluh standard, available as a 2/2-way valve normally open or closed. The central functioning element of all directly controlled poppet valves in the NG4 series is the poppet valve cartridge NG4. See data sheet 1.11-2020. The solenoids correspond to VDE standard 0580.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. NG4-Mini valves are used where a light, compact unit is needed.

CONTENT

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TYPE CODE

	Z	□	2	2	04	□	□	-	□	#	□
Poppet valve construction sandwich											
Medium		M									
Super		S									
2-way (connections)											
2 positions											
Nominal size 4											
Normally closed,		1									
Normally open,		0									
Poppet valve in:	P	P	T	T							
	A and B	AB	A	A	B	B					
Standard nominal voltage U_N :	12 VDC	G12	110 VAC	R110							
	24 VDC	G24	115 VAC	R115							
			230 VAC	R230							
Design-Index (Subject to change)											

GENERAL SPECIFICATIONS

Description	2/2-way poppet valve
Nominal size	NG4-Mini to Wandfluh standard
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Sandwich Constr., 3 mounting holes for socket head screws or locking screws M5
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 5,5 \text{ Nm}$ (quality 8.8)
Masse poppet valve in:	
A, B, P or T	$m = 0,95 \text{ kg}$
A and B normally closed	$m = 1,45 \text{ kg}$
A and B normally open	$m = 1,85 \text{ kg}$
Volume flow direction	any (see characteristics)

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $B_{10...16} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$ to ZS220404AB $p_{max} = 250 \text{ bar}$
Max. volume flow	$Q_{max} = 15 \text{ l/min}$ see characteristics

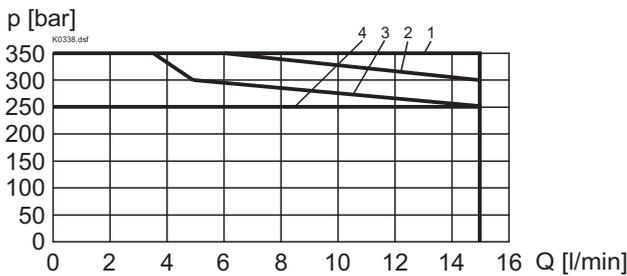
ELECTRICAL CONTROL

Construction Solenoid, wet pin push type, pressure tight
 Standard-nominal voltage $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $AC = 50 \text{ to } 60 \text{ Hz}$
 * Rectifier integrated in the plug
 Other nominal voltages and nominal performances on request
 Voltage tolerance $\pm 10\%$ of nominal voltage
 Protection class IP 65 to EN 60 529
 Relative duty factor 100% DF (see data sheet 1.1-430)

Switching cycles 15'000/h
 Operating life 10^7 (number of switching cycles, theoretically)
 Connection/Power supply Over device plug connection to ISO 4400/
 DIN 43 650, (2P+E), other connections on request
 Solenoid:
 - Medium SIN35V (1.1-105)
 - Super SIS35V (1.1-110)

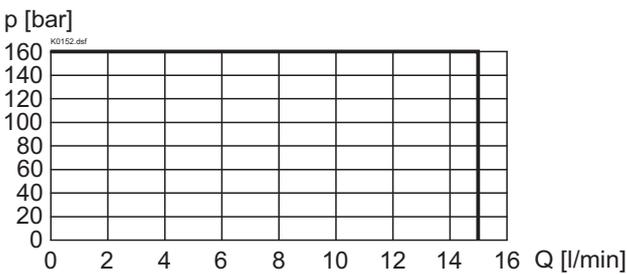
CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$

$p = f(Q)$ Performance limit by standard voltage at -10 %
 Super

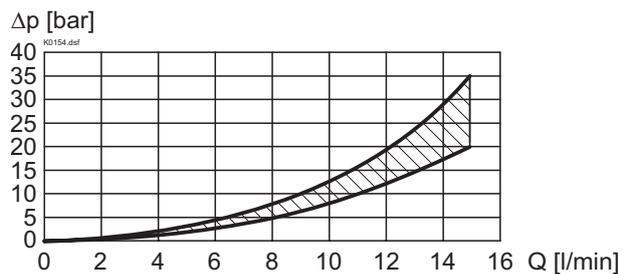


Type	Flow direction	
	1 → 2	2 → 1
ZS22041P	1	2
ZS22041T	1	2
ZS22041A	1	2
ZS22041B	1	2
ZS22041AB	1	2
ZS22040P	1	3
ZS22040T	1	3
ZS22040A	1	3
ZS22040B	1	3
ZS22040AB	4	4

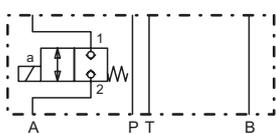
$p = f(Q)$ Performance limit by standard voltage at -10 %
 Medium



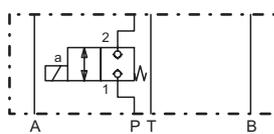
$\Delta p = f(Q)$ Pressure loss/flow characteristics


TYPE CHARTS

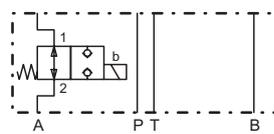
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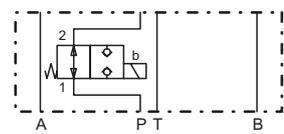
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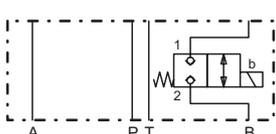
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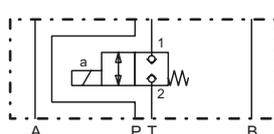
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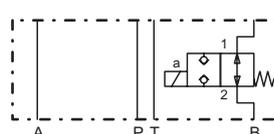
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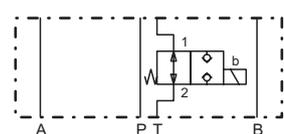
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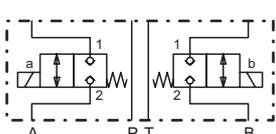
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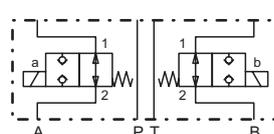
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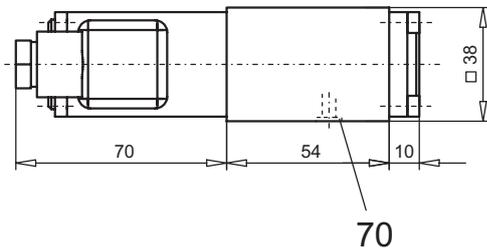
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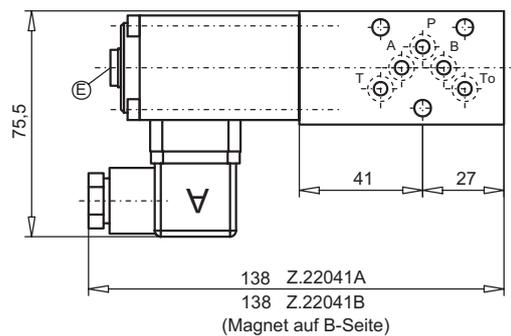
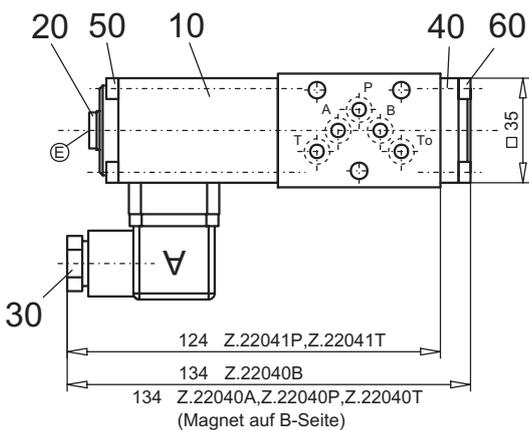
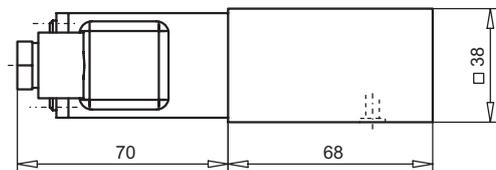
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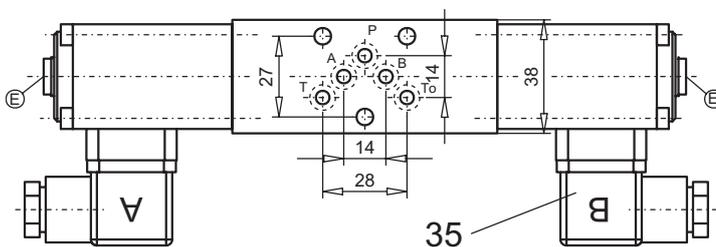
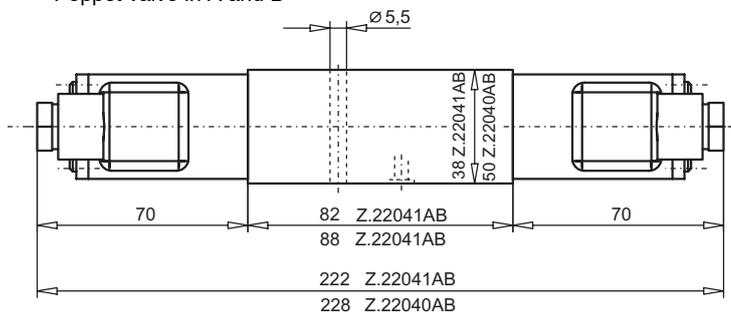
DIMENSIONS

 Poppet valve in A, B, P or T normally open
 Poppet valve in P or T normally closed


Poppet valve in A or B normally closed



Poppet valve in A and B



E = air bleed screw

PARTS LIST

Position	Article	Description
10	260.4... 260.5...	Medium-solenoid SIN35V Super-solenoid SIS35V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	057.4201	Cover
50	246.1161	Socket head cap screw M4x60 DIN 912
60	246.1113	Socket head cap screw M4x12 DIN 912
70	160.2052	O-ring ID 5,28x1,78

ACCESSORIES

 Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

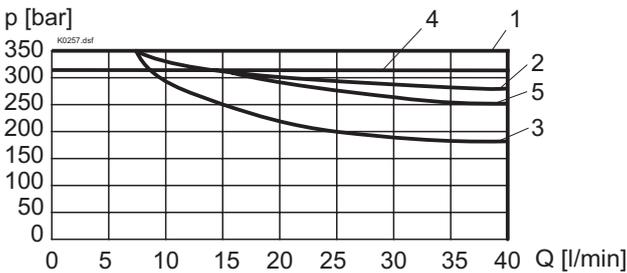
ELECTRICAL CONTROL

Construction Solenoid, wet pin push type, pressure tight
 Standard-nominal voltage $U_N = 12\text{ VDC}, 24\text{ VDC}$
 $U_N = 110\text{ VAC}^*, 115\text{ VAC}^*, 230\text{ VAC}^*$
 $AC = 50\text{ to }60\text{ Hz}$
 * Rectifier integrated in the plug
 Other nominal voltages and nominal performances on request
 Voltage tolerance $\pm 10\%$ of nominal voltage
 Protection class IP 65 to EN 60 529
 Relative duty factor 100% DF (see data sheet 1.1-430)

Switching cycles 15'000/h
 Operating life 10^7 (number of switching cycles, theoretically)
 Connection/Power supply Over device plug connection to ISO 4400/
 DIN 43 650, (2P+E), other connections on request
 Solenoid:
 - Medium SIN45V (1.1-120)
 - Super SIS45V (1.1-125)

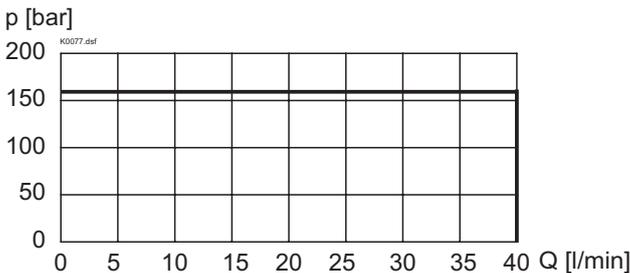
CHARACTERISTICS Oil viscosity $\nu = 30\text{ mm}^2/\text{s}$

$p = f(Q)$ Performance limit by standard voltage at -10 % Super

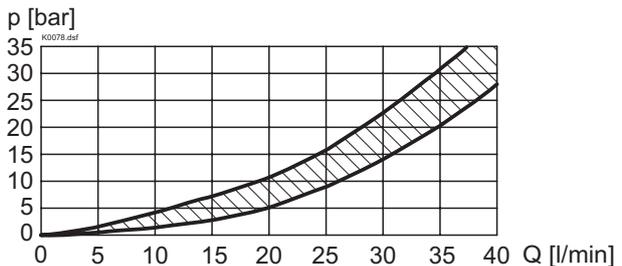


Type	Flow direction	
	1 → 2	2 → 1
ZS22061P	1	2
ZS22061T	1	2
ZS22061A	1	2
ZS22061B	1	2
ZS22061AB	1	2
ZS22060P	1	3
ZS22060T	1	3
ZS22060A	1	3
ZS22060B	1	3
ZS22060AB	4	5

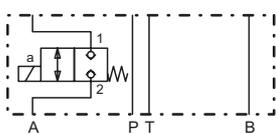
$p = f(Q)$ Performance limit by standard voltage at -10 % Medium



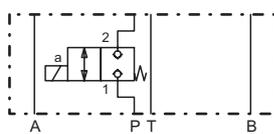
$\Delta p = f(Q)$ Pressure loss/flow characteristics


TYPE CHARTS

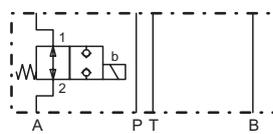
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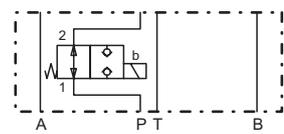
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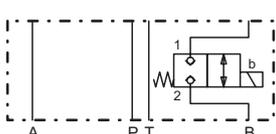
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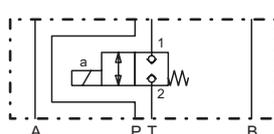
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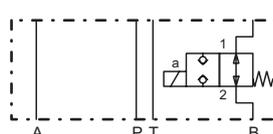
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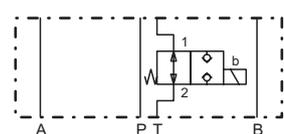
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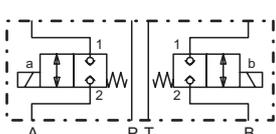
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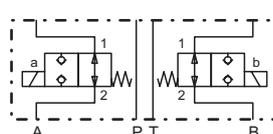
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Z.22061AB

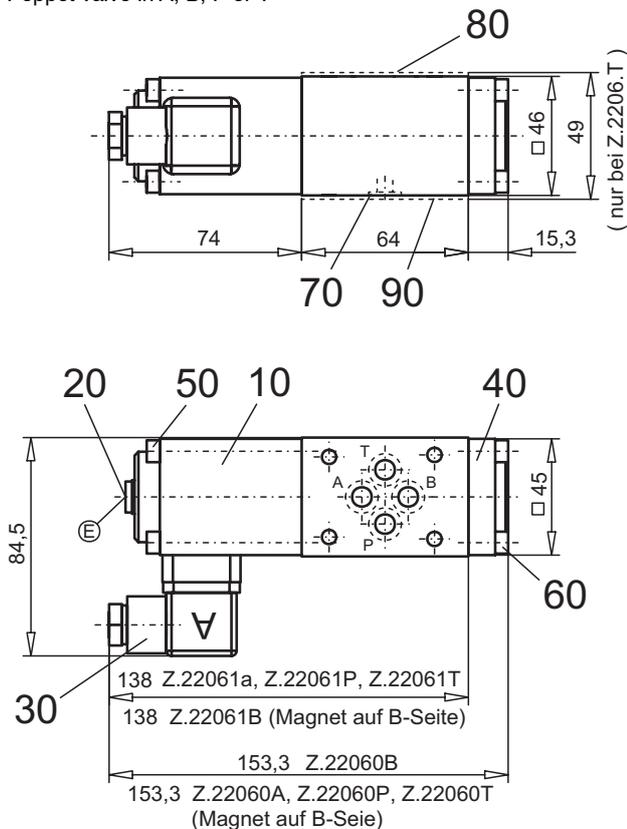


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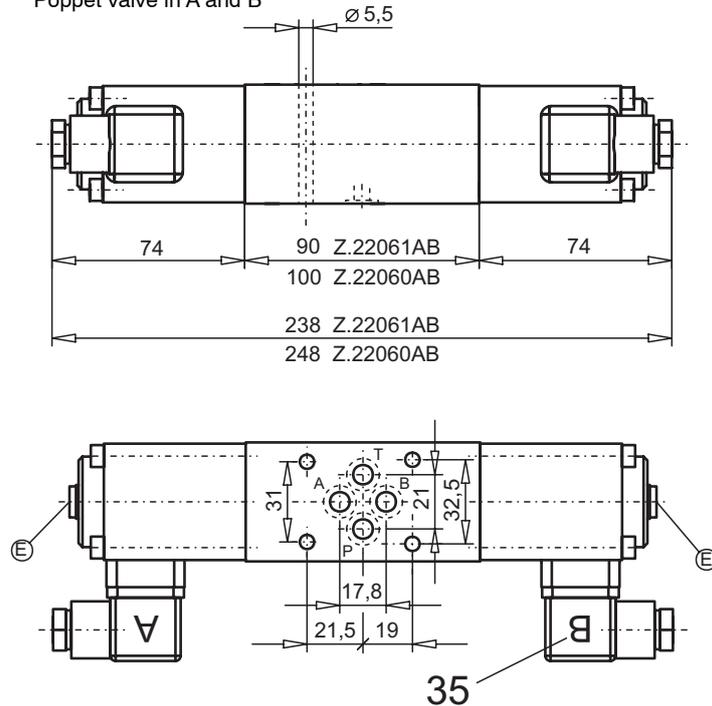


DIMENSIONS

Poppet valve in A, B, P or T



Poppet valve in A and B



E = air bleed screw

PARTS LIST

Position	Article	Description
10	260.6... 260.7...	Medium-solenoid SIN45V Super-solenoid SIS45V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	058.4215	Cover
50	246.2160	Socket head cap screw M5x60 DIN 912
60	246.2117	Socket head cap screw M5x16 DIN 912
70	160.2093	O-ring ID 9,25x1,78
80	173.3700	Intermediate plate AZB6 only for Z.2206.T
90	173.3650	Sealing plate ADB6 only for Z.2206.T

ACCESSORIES

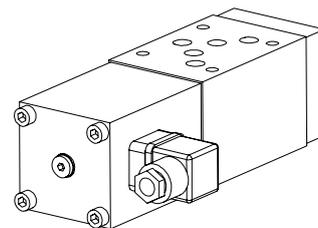
 Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

Solenoid poppet valve

- 2/2-way sandwich construction
- $Q_{max} = 80 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG10
 ISO 4401-05


DESCRIPTION

Poppet valve, sandwich design NG10 according to ISO 4401-05, available as a 2/2-way valve normally open or closed. The central functioning element of all directly controlled poppet valves in the NG10 series is the poppet valve cartridge NG10. See data sheet 1.11-2040. The solenoids correspond to VDE standard 0580.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform.

CONTENT

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TYPE CHARTS	2
DIMENSIONS	3
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ACCESSORIES	3

TYPE CODE

	Z	□	2	2	10	□	□	-	□	#	□
Poppet valve construction sandwich											
Medium		M									
Super		S									
2-way (connections)											
2 positions											
Nominal size 10											
Normally closed,		1									
Normally open,		0									
Poppet valve in:	P	P	T	T							
	A and B	AB	A	A	B	B					
Standard nominal voltage U_N :	12 VDC	G12	110 VAC	R110							
	24 VDC	G24	115 VAC	R115							
			230 VAC	R230							
Design-Index (Subject to change)											

GENERAL SPECIFICATIONS

Description	2/2-way poppet valve
Nominal size	NG10 acc. to ISO 4401-05
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Sandwich constr., 4 mounting holes for socket head screws or locking screws M6
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 9,5 \text{ Nm}$ (Quality 8.8)
Masse poppet valve in:	
A, B, P or T	$m = 4,6 \text{ kg}$
A and B normally closed.	$m = 6,4 \text{ kg}$
A and B normally open	$m = 10,8 \text{ kg}$
Volume flow direction	any (see characteristics)

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $B_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 80 \text{ l/min}$ see characteristics

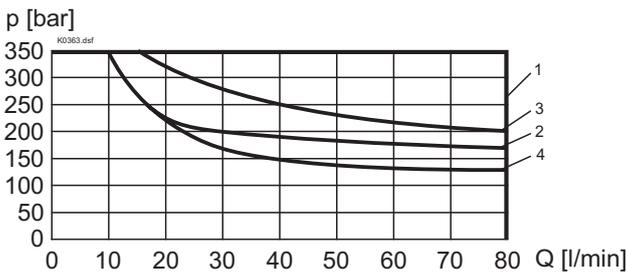
ELECTRICAL CONTROL

Construction Solenoid, wet pin push type, pressure tight
 Standard-nominal voltage $U_N = 12 \text{ VDC}, 24 \text{ VDC}$
 $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$
 $AC = 50 \text{ to } 60 \text{ Hz}$
 * Rectifier integrated in the plug
 Other nominal voltages and nominal performances on request
 Voltage tolerance $\pm 10\%$ of nominal voltage
 Protection class IP 65 to EN 60 529
 Relative duty factor 100% DF (see data sheet 1.1-430)

Switching cycles 15'000/h
 Operating life 10^7 (number of switching cycles, theoretically)
 Connection/Power supply Over device plug connection to ISO 4400/
 DIN 43 650, (2P+E), other connections on request
 Solenoid:
 - Medium SIN60V (1.1-145)
 - Super SIS60V (1.1-150)

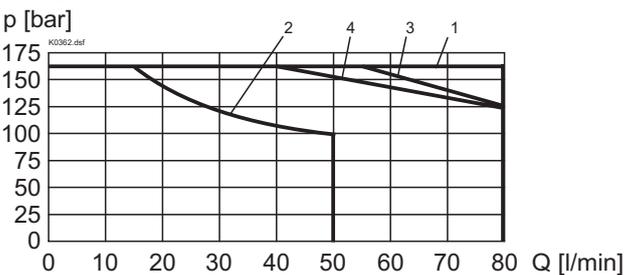
CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$

$p = f(Q)$ Performance limit by standard voltage at -10 %
 Super

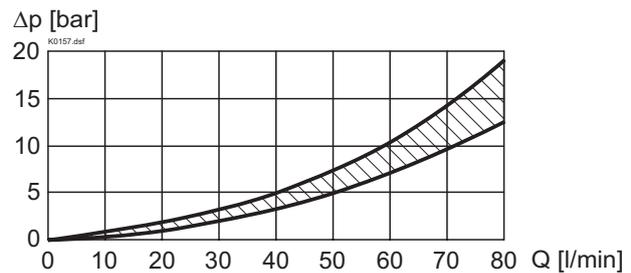


Type	Flow direction	
	1 → 2	2 → 1
Z.22101P	1	2
Z.22101T	1	2
Z.22101A	1	2
Z.22101B	1	2
Z.22101AB	1	2
Z.22100P	1	3
Z.22100T	1	3
Z.22100A	1	3
Z.22100B	1	3
Z.22100AB	1	4

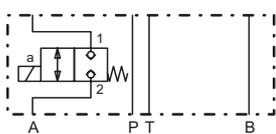
$p = f(Q)$ Performance limit by standard voltage at -10 %
 Medium



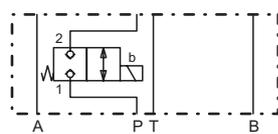
$\Delta p = f(Q)$ Pressure loss/flow characteristics


TYPE CHARTS

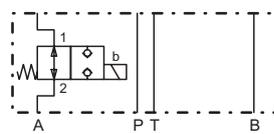
Z.22101A



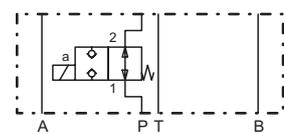
Z.22101P



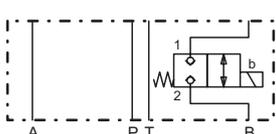
Z.22100A



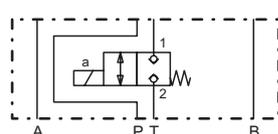
Z.22100P



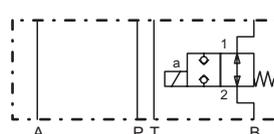
Z.22101B



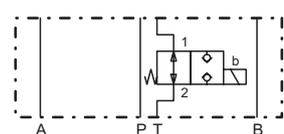
Z.22101T



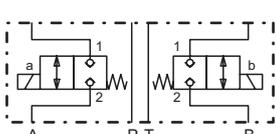
Z.22100B



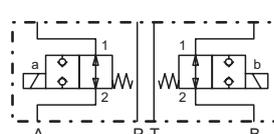
Z.22100T



Z.22101AB



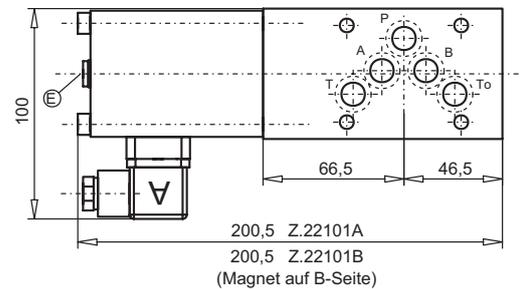
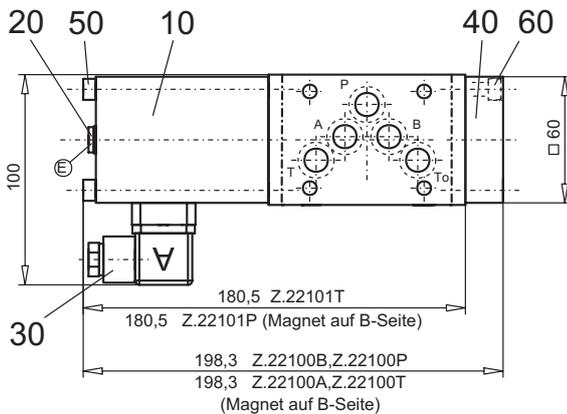
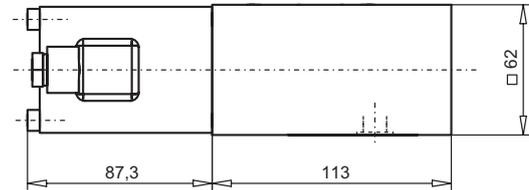
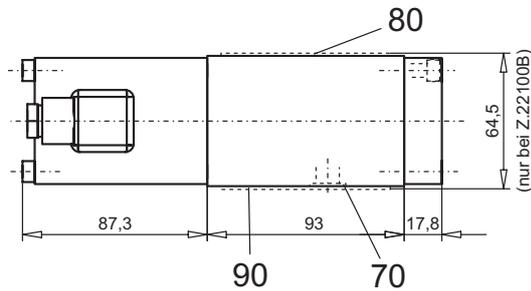
Z.22100AB



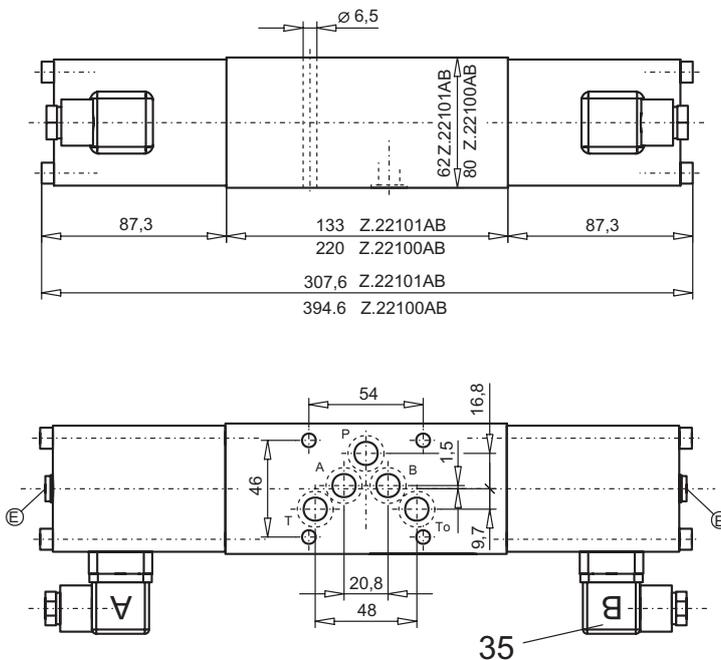
DIMENSIONS

 Poppet valve in A, B, P or T normally open
 Poppet valve in P or T normally closed

Poppet valve in A or B normally closed



Poppet valve in A and B



E = air bleed screw

PARTS LIST

Position	Article	Description
10	260.8... 260.9...	Medium-solenoid SIN60V Super-solenoid SIS60V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	059.2200	Cover
50	246.3190	Socket head cap screw M6x90 DIN 912
60	246.3121	Socket head cap screw M6x20 DIN 912
70	160.2140	O-ring ID 14,00x1,78
80	173.4700	Intermediate plate AZB10 only to Z.22100B
90	173.4650	Sealing plate ADB10 only to Z.22100B

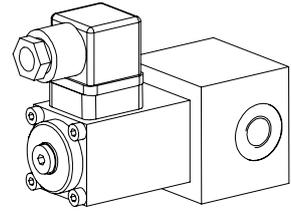
ACCESSORIES

 Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

**Solenoid poppet valve
for installation in pipes**

- 2/2-way construction
- $Q_{max} = 15 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG4

DESCRIPTION

Poppet valve, for installation in pipes, as 2/2-way valve normally open or closed. The central functioning element of poppet valves is the poppet valve cartridge NG4. See data sheet 1.11-2020. The solenoids correspond to VDE standard 0580. The threaded body with connections G1/4" is painted.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
ELECTRICAL CONTROL	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2

TYPE CODE

	G	2	2	04	-	#
Threaded connection						
Medium-solenoid	M					
Super-solenoid	S					
2-way (connection)						
2 position						
Nominal size 4						
Normally closed,	1					
Normally open,	0					
Standard nominal voltage U_N :	12 VDC	G12	110 VAC	R110		
	24 VDC	G24	115 VAC	R115		
			230 VAC	R230		

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

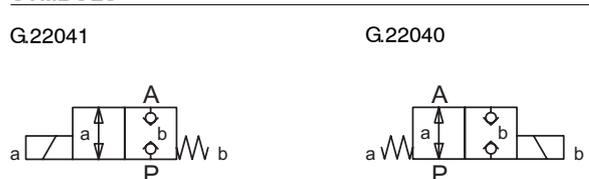
Description	2/2-way poppet valve
Nominal size	NG4
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Installation in pipes (see dimensions)
Connection	Threaded connection G1/4"
Ambient temperature	-20...+50°C
Mounting position	any
Weight	m = 1,2 kg
Volume flow direction	any (see characteristics)

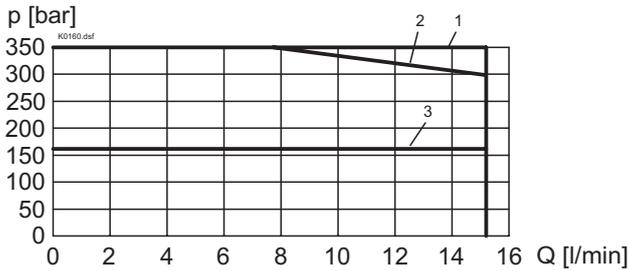
ELECTRICAL CONTROL

Construction	Solenoid, wet pin push, pressure tight
Standard-nominal voltage	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ $AC = 50 \text{ at } 60 \text{ Hz}$ * Rectifier integrated in the plug Other nominal voltages and nominal performances on request.
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Overdevice plug connection to ISO 4400 / DIN 43650, (2P+E), other connections on request
Solenoid:	- Medium SIN35V (data sheet 1.1-105) - Super SIS35V (data sheet 1.1-110)

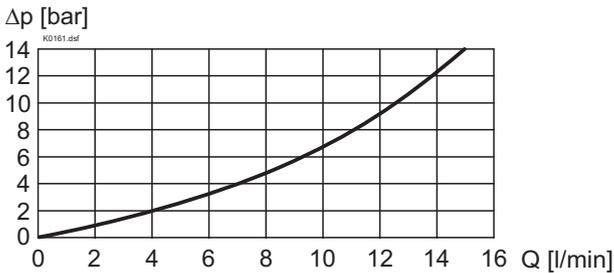
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 15 \text{ l/min}$ (see characteristics)

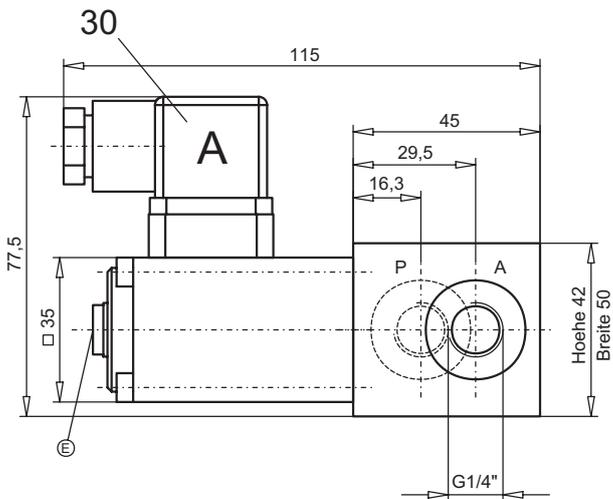
SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%


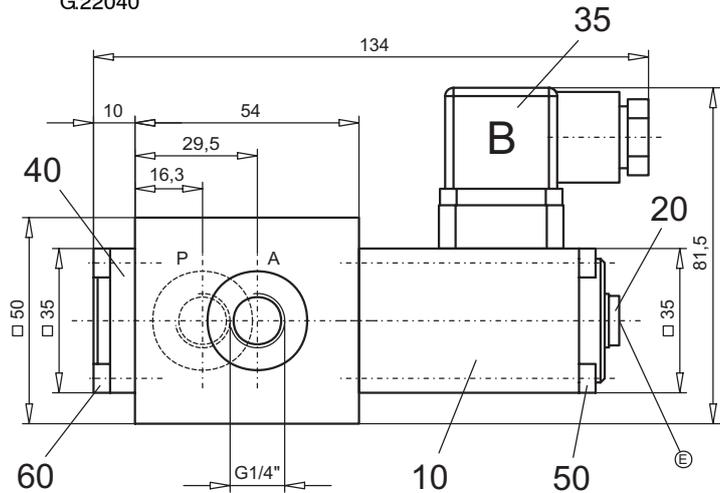
Type	Flow direction	
	P → A	A → P
GM2204.	3	3
GS2204.	1	2

 $\Delta p = f(Q)$ Pressure loss/flow characteristics

DIMENSIONS

G.22041



G.22040



E = air bleed screw

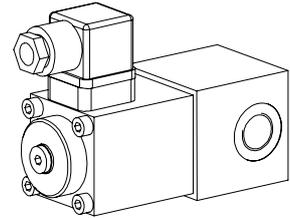
PARTS LIST

Position	Article	Description
10	260.4... 260.5...	Medium-solenoid SIN35V Super-solenoid SIS35V
20	239.2033	Locking screw (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	057.4201	Cover
50	246.1161	Socket head cap screw M4x60 DIN 912
60	246.1113	Socket head cap screw M4x12 DIN 912

Technical explanation see data sheet 1.0-100E

**Solenoid poppet valve
for installation in pipes**

- 2/2-way construction
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG6

DESCRIPTION

Poppet valve, for installation in pipes, as 2/2-way valve normally open or closed. The central functioning element of poppet valves is the poppet valve cartridge NG6. See data sheet 1.11-2030. The solenoids correspond to VDE standard 0580. The threaded body with connections G3/8" is painted.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
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SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2

TYPE CODE

	G	□	2	2	06	□	-	□	#	□
Threaded connection										
Medium-solenoid						M				
Super-solenoid						S				
2-way (connection)										
2 position										
Nominal size 6										
Normally closed,						1				
Normally open,						0				
Standard nominal voltage U_N :	12 VDC	G12	110 VAC	R110						
	24 VDC	G24	115 VAC	R115						
			230 VAC	R230						
Design-Index (Subject to change)										

GENERAL SPECIFICATIONS

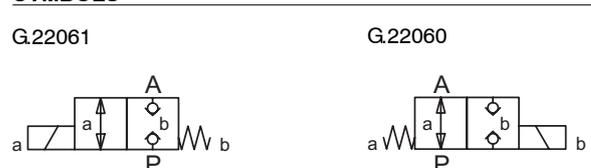
Description	2/2-way poppet valve
Nominal size	NG6
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Installation in pipes (see dimensions)
Connection	Threaded connection G3/8"
Ambient temperature	-20...+50°C
Mounting position	any
Weight	m = 1,7 kg
Volume flow direction	any (see characteristics)

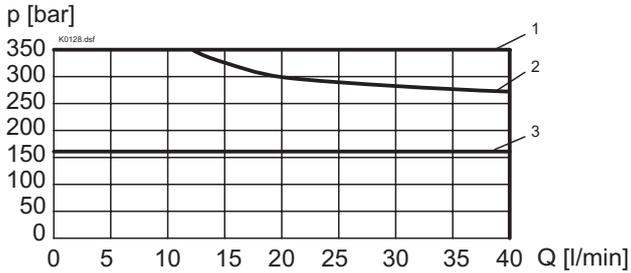
ELECTRICAL CONTROL

Construction	Solenoid, wet pin push, pressure tight
Standard-nominal voltage	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ AC = 50 at 60 Hz
	* Rectifier integrated in the plug
	Other nominal voltages and nominal performances on request.
Voltage tolerance	±10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Overdevice plug connection to ISO 4400 / DIN 43 650, (2P+E), other connections on request
Solenoid:	- Medium SIN45V (1.1-120) - Super SIS45V (1.1-125)

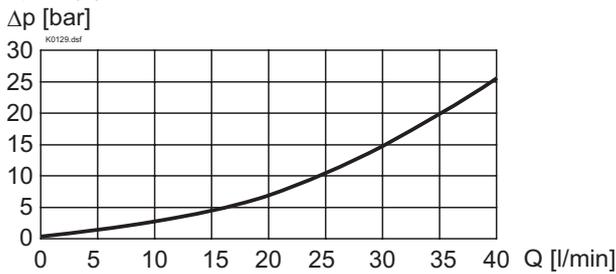
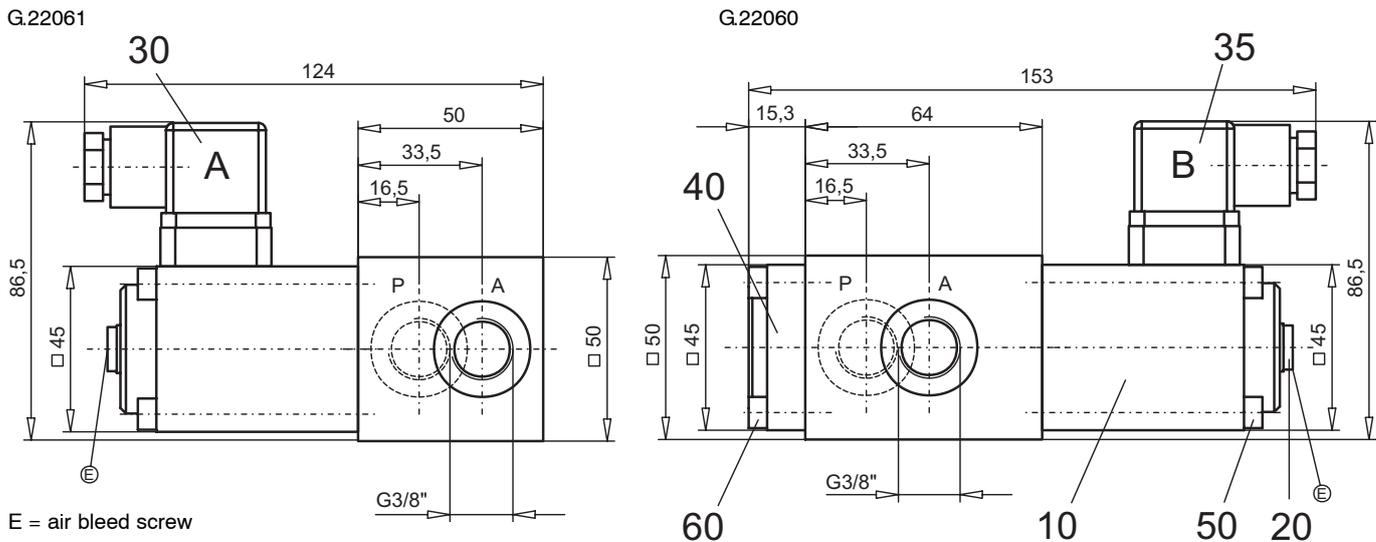
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 40 \text{ l/min}$ (see characteristics)

SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%


Type	Flow direction	
	P → A	A → P
GM2206.	3	3
GS2206.	1	2

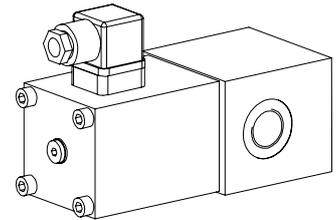
 $\Delta p = f(Q)$ Pressure loss/flow characteristics

DIMENSIONS

PARTS LIST

Position	Article	Description
10	260.6... 260.7...	Medium-solenoid SIN45V Super-solenoid SIS45V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	058.4215	Cover
50	246.2160	Socket head cap screw M5x60 DIN 912
60	246.2117	Socket head cap screw M5x16 DIN 912

Technical explanation see data sheet 1.0-100E

**Solenoid poppet valve
for installation in pipes**

- 2/2-way construction
- $Q_{max} = 80 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG10

DESCRIPTION

Poppet valve, for installation in pipes, as 2/2-way valve normally open or closed. The central functioning element of poppet valves is the poppet valve cartridge NG10. See data sheet 1.11-2040. The solenoids correspond to VDE standard 0580. The threaded body with connections G1/2" is painted.

Important: When commissioning, the valve must be vented under pressure (max. 2 revolutions of screw E).

FUNCTION

The valve is direct operated by a wet pin push type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

CONTENT

GENERAL SPECIFICATION	1
HYDRAULIC SPECIFICATION	1
ELECTRICAL CONTROL	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2

TYPE CODE

	G	□	2	2	10	□	-	□	#	□
Threaded connection										
Medium-solenoid		M								
Super-solenoid		S								
2-way (connection)										
2 position										
Nominal size 10										
Normally closed,				1						
Normally open,				0						
Standard nominal voltage U_N :	12 VDC	G12			110 VAC	R110				
	24 VDC	G24			115 VAC	R115				
					230 VAC	R230				
Design-Index (Subject to change)										

GENERAL SPECIFICATIONS

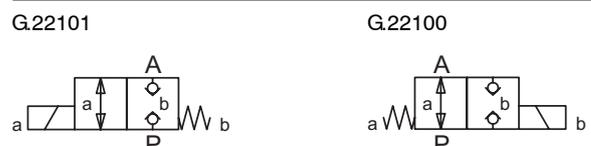
Description	2/2-way poppet valve
Nominal size	NG10
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Installation in pipes (see dimensions)
Connection	Threaded connection G1/2"
Ambient temperature	-20...+50°C
Mounting position	any
Weight	m = 4,0 kg
Volume flow direction	any (see characteristics)

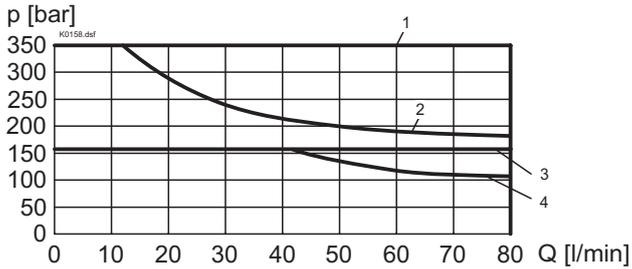
ELECTRICAL CONTROL

Construction	Solenoid, wet pin push, pressure tight
Standard-nominal voltage	$U_N = 12 \text{ VDC}, 24 \text{ VDC}$ $U_N = 110 \text{ VAC}^*, 115 \text{ VAC}^*, 230 \text{ VAC}^*$ AC = 50 at 60 Hz * Rectifier integrated in the plug
Voltage tolerance	± 10% of nominal voltage
Protection class	IP 65 to EN 60 529
Relative duty factor	100% DF (see data sheet 1.1-430)
Switching cycles	15'000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Overdevice plug connection to ISO 4400 / DIN 43 650, (2P+E), other connections on request
Solenoid:	- Medium SIN60V (data sheet 1.1-145) - Super SIS60V (data sheet 1.1-150)

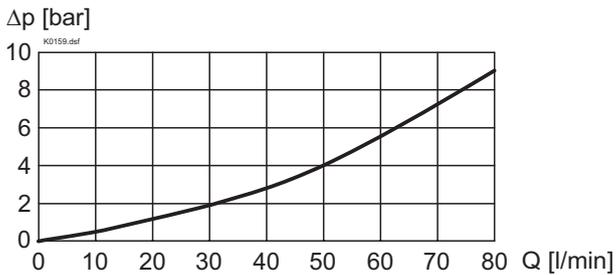
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	Medium: $p_{max} = 160 \text{ bar}$ Super: $p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 80 \text{ l/min}$ (see characteristics)

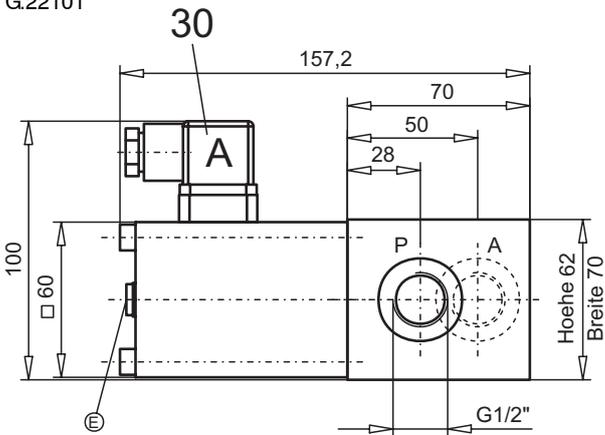
SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit at -10%


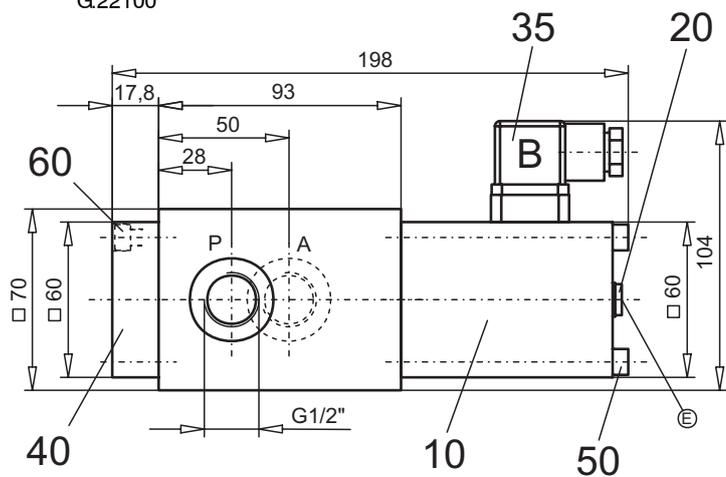
Type	Flow direction	
	P → A	A → P
GM2210.	3	4
GS2210.	1	2

 $\Delta p = f(Q)$ Pressure loss/flow characteristics

DIMENSIONS

G.22101



G.22100



E = air bleed screw

PARTS LIST

Position	Article	Description
10	260.8... 260.9...	Medium-solenoid SIN60V Super-solenoid SIS60V
20	239.2033	Plug (incl. seal) HB0
30	219.2001	Plug A (grey)
35	219.2002	Plug B (black)
40	059.2200	Cover
50	246.3190	Socket head cap screw M6x90 DIN 912
60	246.3121	Socket head cap screw M6x20 DIN 912

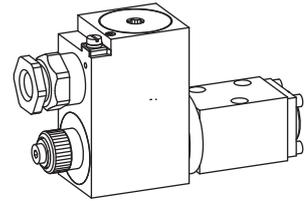
Technical explanation see data sheet 1.0-100E

Solenoid poppet valve

- 2/2-, 3/2- and 3/4-way type
- $Q_{max} = 15 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG4-Mini[®]

-  II 2 G Ex d IIC
-  II 2 D Ex tD A21 IP65
-  I M2 Ex d I Mb


DESCRIPTION
For explosion-hazard zones
ATEX, IECEx and GOST Ex certified

Direct operated poppet valve flange type NG4-Mini. Activated with Wandfluh explosion proof solenoid.

Solenoid coil in acc. with directive 94/9/EC (ATEX) for explosion-hazard zones.

The flameproof enclosures (acc. to EN/IEC 60079-1/31 and EN/IEC 61241-1) prevents an explosion in the interior from getting outside.

The design prevents a surface temperature capable of igniting.

Type test certifications:

PTB 07 ATEX 1023

IECEX 010.0020

POCC CH.HO06.B00365

IECEX BVS 11.0018

BVS 11 ATEX E 037

The steel housing is zinc-/nickel-coated.

The zinc-/nickel coating serves as an excellent corrosion protection.

Details of the solenoid coil: refer to data sheet 1.1-183.

FUNCTION

The central functioning element of all directly controlled poppet valves is the poppet valve cartridge NG4. The valve is operated by a explosion proof type solenoid which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

These valves are suitable for applications in explosion-hazard zones, open cast and also in mines. Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

TYPE CODE

2/2- or 3/2-way construction	B	EXd	<input type="checkbox"/>	2	04	<input type="checkbox"/>	-	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	B	EXd	<input type="checkbox"/>	3	4	04	-	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Mounting interface												
Explosion proof solenoid												
2-way (connections)			<input type="checkbox"/>	2								
3-way (connections)			<input type="checkbox"/>	3								
2 position												
4 position												
Nominal size 4-Mini												
Normally closed,	solenoid on A-Side		<input type="checkbox"/>	1a								
Normally open,	solenoid on B-Side		<input type="checkbox"/>	0b								
Standard nominal voltage U_N	12VDC	<input type="checkbox"/>	G12									
	24VDC	<input type="checkbox"/>	G24									
	115VAC	<input type="checkbox"/>	R115									
	230VAC	<input type="checkbox"/>	R230									
Nominal power P_N :	9W	<input type="checkbox"/>	L9	Ambient temp. by:								
	15W	<input type="checkbox"/>	L15	40 °C or 90 °C								
				70 °C								
Design-Index (Subject to change)												

GENERAL SPECIFICATIONS

Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG4-Mini acc. to Wandfluh standard
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange asdfasdfaf, 3 mounting holes for Cyl. screws M5x40 or M5x60 with distance plate BDP4/12
Connections	Threaded connection plates and 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	$M_D = 5,5 \text{ Nm}$ (quality 8.8) for fixing screw $M_D = 5 \text{ Nm}$ for knurled nut
Weight:	2/2-, 3/2-way $m = 3,2 \text{ kg}$ 3/4-way $m = 5,0 \text{ kg}$
Volume flow direction	any (see characteristics)

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) refer to data sheet Nr. 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /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	$p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 15 \text{ l/min}$, 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

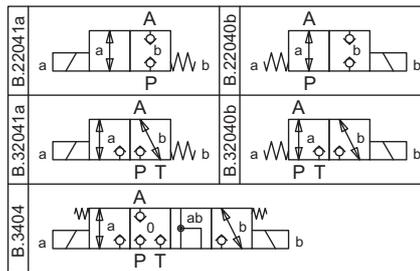
Construction Solenoid, wet pin push, pressure tight
 Standard-nominal voltage $U_N = 12 \text{ VDC}$, $U_N = 24 \text{ VDC}$
 $U_N = 115 \text{ VAC}$, $U_N = 230 \text{ VAC}$
 $AC = 50 \text{ to } 60 \text{ Hz} \pm 2\%$;
 with built-in two-way rectifier and recovery diode
 Voltage tolerance $\pm 10\%$ of nominal voltage
 Protection class IP67 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 gland for cable diameter $\varnothing 6,5 \dots 14 \text{ mm}$
 Temperature classe: (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 1.1-183

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.

INSTALLATION

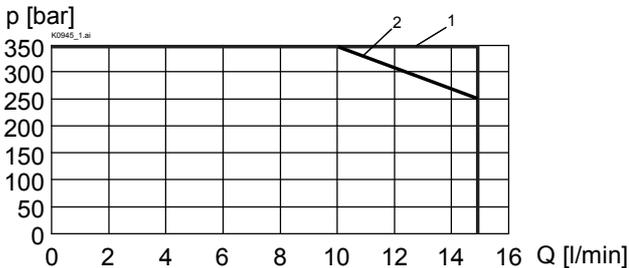
For stack assembly please observe the remarks in the operating instructions.

SYMBOLS

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

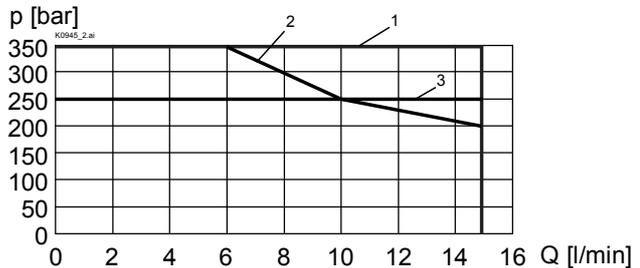
$p = f(Q)$ Performance limits with standard voltage -10%

Execution L15

(measured at 50 °C)

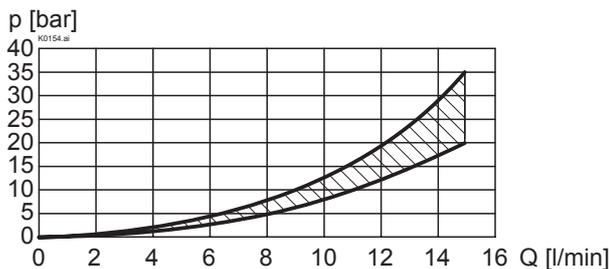

Execution L9/90 °C on request
Execution L9

(measured at 40 °C)



Type	Flow direction			
	P - A	A - T	A - P	T - A
BEXd22041a	1	-	1	-
BEXd22040b	1	-	1	-
BEXd32041a	1	1	2	1
BEXd32040b	1	1	1	1
BEXd3404	1	1	1	1

Type	Flow direction			
	P - A	A - T	A - P	T - A
BEXd22041a	1	-	1	-
BEXd22040b	1	-	2	-
BEXd32041a	1	2	1	1
BEXd32040b	1	1	3	1
BEXd3404	1	1	1	1

 $\Delta = f(Q)$ Pressure loss/flow characteristics


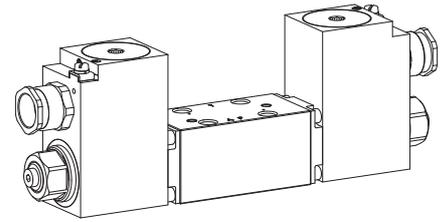
Solenoid poppet valve

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

NG6

ISO 4401-03

-  II 2 G Ex d IIC
-  II 2 D Ex tD A21 IP65
-  I M2 Ex d I Mb


DESCRIPTION
For explosion-hazard zones

Direct operated poppet valve flange type NG6. Activated with Wandfluh explosion proof solenoid.

Solenoid coil in acc. with directive 94/9/EC (ATEX) for explosion-hazard zones.

The flameproof enclosures (acc. to EN/IEC 60079-1/31 and EN/IEC 61241-1) prevents an explosion in the interior from getting outside.

The design prevents a surface temperature capable of igniting.

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

These valves are suitable for applications in explosion-hazard zones, open cast and also in mines. 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.

CERTIFICATES

in accordance with	Surface gas and dust	Mining
ATEX	x with option -60°C	x
IECEX	x with option -60°C	x
GOST Ex	x	
Australia	x	x

The certificates can be found on www.wandfluh.com / DOWNLOADS / Accompanying Ex-proof / **MKY45/18--L..**

TYPE CODE

2/2- or 3/2-way construction	A	EXd	<input type="checkbox"/>	2	06	<input type="checkbox"/>	-	<input type="checkbox"/>	/	<input type="checkbox"/>	/	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	A	EXd	<input type="checkbox"/>	3	06	<input type="checkbox"/>	-	<input type="checkbox"/>	/	<input type="checkbox"/>	/	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
International connection standard ISO																
Explosion protection version																
2-way (connections)			<input type="checkbox"/>													
3-way (connections)			<input type="checkbox"/>													
2 switching positions																
4 switching positions																
Nominal size 6																
Normally closed, solenoid on A-side			<input type="checkbox"/>													
Normally open, solenoid on B-side			<input type="checkbox"/>													
Standard nominal voltage U_N	12 VDC	<input type="checkbox"/>														
	24 VDC	<input type="checkbox"/>														
	115 VAC	<input type="checkbox"/>														
	230 VAC	<input type="checkbox"/>														
Nominal power P_N :	9 W	<input type="checkbox"/>														
	15 W	<input type="checkbox"/>														
			Ambient temp by 40 °C or 90 °C													
			70 °C													
Certification																
	ATEX, IECEX, GOST Ex	<input type="checkbox"/>														
	Australien	<input type="checkbox"/>														
Temperature range	-25°C to ...	<input type="checkbox"/>														
	-40°C to ...	<input type="checkbox"/>	only with 15W													
	-60°C to ...	<input type="checkbox"/>	only with 15W / ATEX and IECEX / Surface													
Design-Index (Subject to change)																

GENERAL SPECIFICATIONS

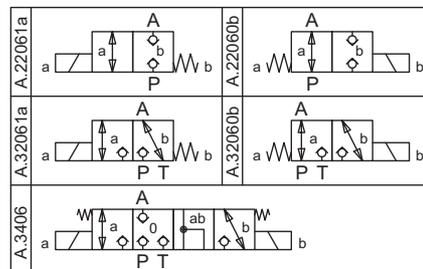
Description	2/2-, 3/2- und 3/4-way poppet valve
Nominal size	NG6 acc. to ISO 4401-03
Construction	Direct operated poppet valve
Operations	Solenoid
Mounting	Flange four mounting holes for cyl. screws, or M5x45 In case of valves for the temperature range „-60°C to ...“ (Z591) screws of the quality A4 have to be used.
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Admissible ambient temp:	Execution L9: -25...+40 °C (operation as T1...T6/T80 °C) -25...+90 °C (operation as T1...T4/T130 °C) Execution L15: Temperature range „-25° to ...“ -25...+70 °C (operation as T1...T4/T130 °C) Temperature range „-40° to ...“ -40...+70 °C (operation as T1...T4/T130 °C) Temperature range „-60° to ...“ -60...+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	$M_D = 5,5 \text{ Nm}$ (quality 8,8) for fixing screw $M_D = 5 \text{ Nm}$ for knurled nut
Weight: 2/2-, 3/2-way	$m = 3,3 \text{ kg}$
3/4-way	$m = 5,4 \text{ kg}$
Volume flow direction	any (see characteristics)

HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) refer to data sheet 1.0-50/2
Verschmutzungsgrad	12 mm ² /s...320 mm ² /s
Viscosity range	Execution L9: -25...+40 °C (operation as T1...T6/T80 °C) -25...+70 °C (operation as T1...T4/T130 °C) Execution L15: Temperature range „-25° to ...“ -25...+70 °C (operation as T1...T4/T130 °C) Temperature range „-40° to ...“ -40...+70 °C (operation as T1...T4/T130 °C) Temperature range „-60° to ...“ -60...+70 °C (operation as T1...T4/T130 °C)
Admissible fluid temp.	$p_{\max} = 350 \text{ bar}$ $Q_{\max} = 40 \text{ l/min}$, see characteristics
Working pressure	
Max. volume flow	

ELECTRICAL CONTROL

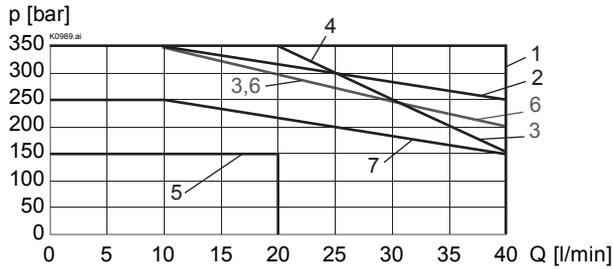
Construction	Solenoid, wet pin push, pressure tight
Standard-nominal voltage	$U_N = 12 \text{ VDC}, 24 \text{ VDC}, 115 \text{ VAC}, 230 \text{ VAC}$ AC = 50 to 60 Hz $\pm 2\%$ with built-in two way rectifier and recovery diode
Voltage tolerance	$\pm 10\%$ of nominal voltage
Protection class	IP67 acc. to EN 60 529
Relative duty factor	100% DF
Switching cycles	12000/h
Operating life	10^7 (number of switching cycles, theoretically)
Connection/Power supply	Through cable entry for cable diameter $\varnothing 6,5...14 \text{ mm}$ (acc. to EN 60079-0)
Temperature class:	
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: 1.1-183	

SYMBOLS


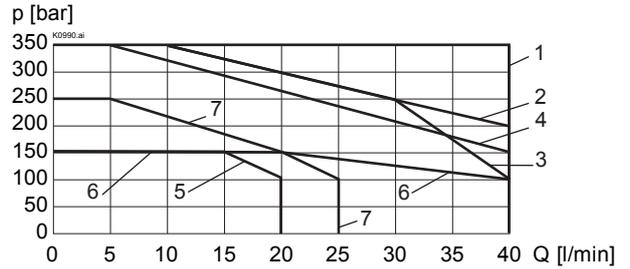
CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limits with standard voltage -10%

Execution L9/90°C on request

Execution L15 (measured at 50°C)



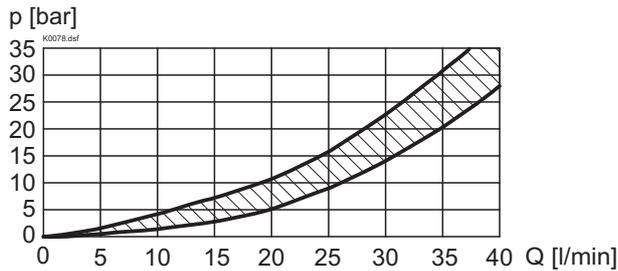
Execution L9 (measured at 40°C)



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

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

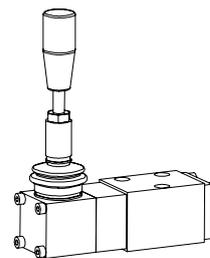
$\Delta p = f(Q)$ Pressure loss/flow characteristics



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.

Poppet valve manually operated

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 15 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG4-Mini[®]

DESCRIPTION

Poppet valve, flanged design NG4-Mini according to Wandfluh standard, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG4-Mini series is the poppet valve cartridge NG4. See data sheet 1.11-2020.

FUNCTION

The valve is manual lever which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time. NG4-mini valves are used where a light, compact unit is needed.

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
CONTROL MECHANICAL	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	B	H	<input type="checkbox"/>	2	04	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	B	H	<input type="checkbox"/>	3	4	04	#	<input type="checkbox"/>
Mounting interface								
Manual level								
2-way (connections)	<input type="checkbox"/>	<input type="checkbox"/>						
3-way (connections)	<input type="checkbox"/>	<input type="checkbox"/>						
2 position								
4 position								
Nominal size 4-Mini								
Normally closed, Manual level on A-side	<input type="checkbox"/>							
Normally open, Manual level on B-side	<input type="checkbox"/>							

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

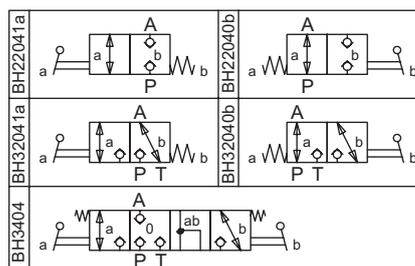
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG4-Mini acc. to Wandfluh standard
Construction	Direct operated poppet valve
Operations	manually operated
Mounting	Flange, 3 mounting holes for socket head screws M5x40
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 5,5 \text{ Nm}$ (quality 8,8)
Weight: 2/2-, 3/2-way	$m = 0,95 \text{ kg}$
3/4-way	$m = 1,45 \text{ kg}$
Volume flow direction	any (see characteristics)

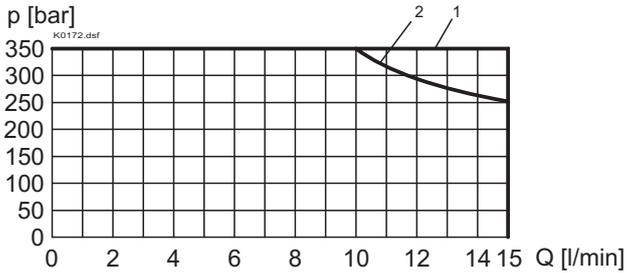
CONTROL MECHANICAL

Force	$F_{b, max.} = 20-120 \text{ N}$ (depending on flow direction and pressure)
Angle	$\alpha_b = 5^\circ$

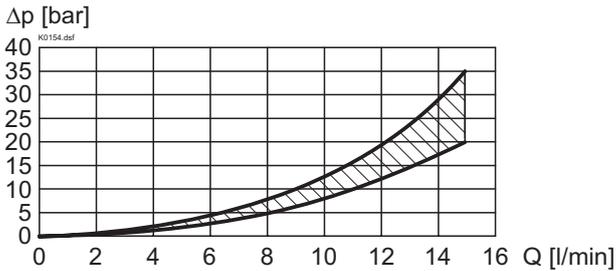
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	$p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max.} = 15 \text{ l/min}$ see characteristics

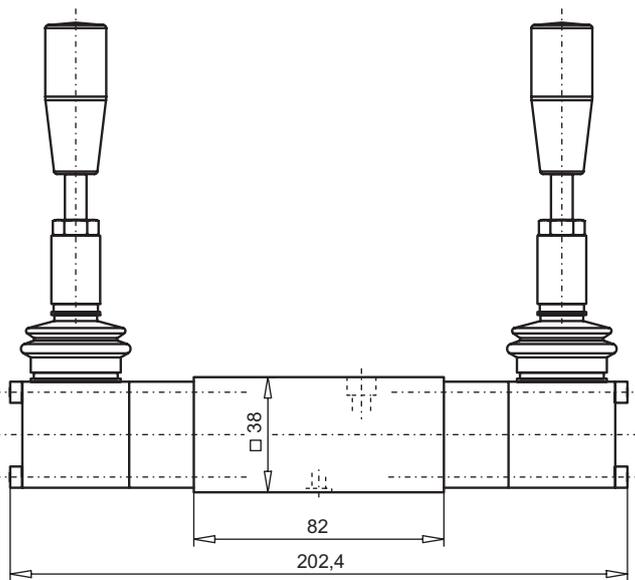
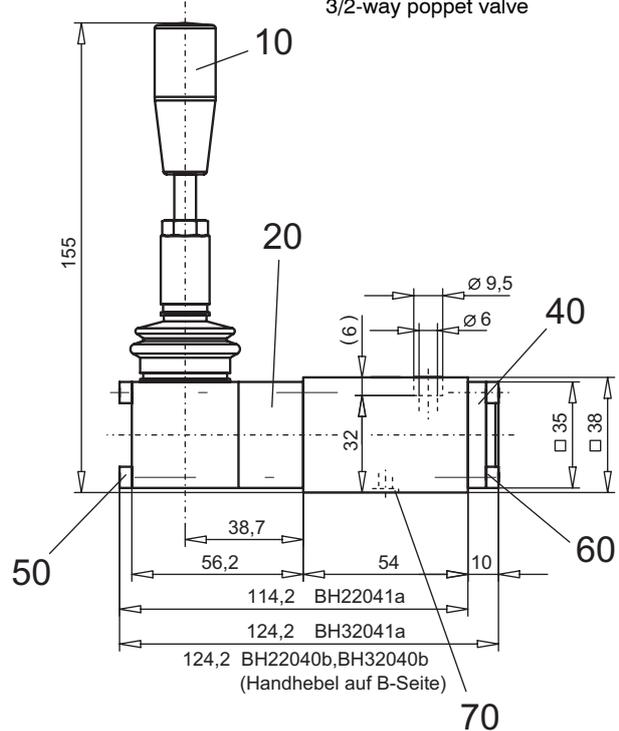
SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit


Type	Flow direction			
	P - A	A - T	A - P	T - A
BH22041a	1	-	1	-
BH22040b	1	-	2	-
BH32041a	1	2	1	1
BH32040b	1	1	2	1
BH3404	1	1	1	1

 $\Delta p = f(Q)$ Pressure loss/flow characteristics

DIMENSIONS

3/4-way poppet valve


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

PARTS LIST

Position	Article	Description
10	253.2000	Manual pilot head BH11
20	074.2703	Flange
40	057.4201	Cover
50	249.1000	Socket head cap screw M4x63 DIN 912
60	246.1113	Socket head cap screw M4x12 DIN 912
70	160.2052	O-ring ID 5,28x1,78

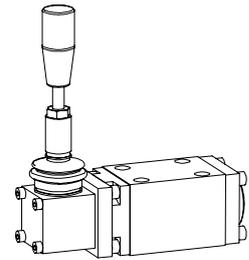
ACCESSORIES

 Threaded connection plates, Multi-flange subplates and
 Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

Poppet valve manually operated

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG6
 ISO 4401-03

DESCRIPTION

Poppet valve, flanged design NG6 according to ISO 4401-03, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG6 series is the poppet valve cartridge NG6. See data sheet 1.11-2030.

FUNCTION

The valve is manual lever which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions..

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge typ poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
CONTROL MECHANICAL	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	A	H	<input type="checkbox"/>	2	06	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	A	H	<input type="checkbox"/>	3	06	<input type="checkbox"/>	#	<input type="checkbox"/>
Mounting interface								
Manual lever								
2-way (connections)				<input type="checkbox"/>				
3-way (connections)				<input type="checkbox"/>				
2 position								
4 position								
Nominal size 6								
Normally closed,	Manual level on A-side			<input type="checkbox"/>				
Normally open,	Manual level on B-side			<input type="checkbox"/>				

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

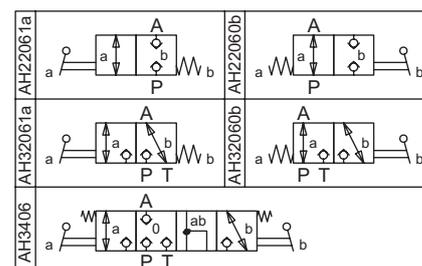
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG6 acc. to ISO 4401-03
Construction	Direct operated poppet valve
Operations	manually operated
Mounting	Flange, 4 mounting holes for socket head screws M5x45
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 5,5 \text{ Nm}$ (quality 8,8)
Weight: 2/2-, 3/2-way	$m = 1,7 \text{ kg}$
3/4-way	$m = 2,5 \text{ kg}$
Volume flow direction	any (see characteristics)

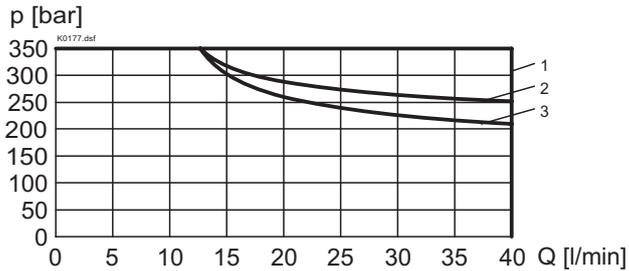
CONTROL MECHANICAL

Force	$F_{b \text{ max}} = 20-120 \text{ N}$ (depending on flow direction and pressure)
Angle	$\alpha_b = 6^\circ$

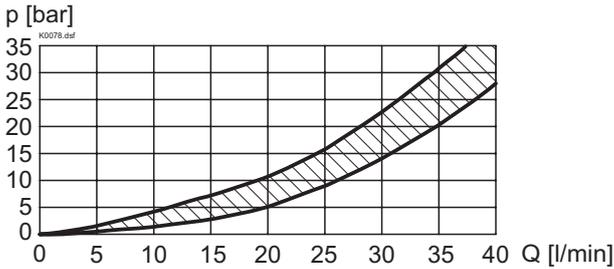
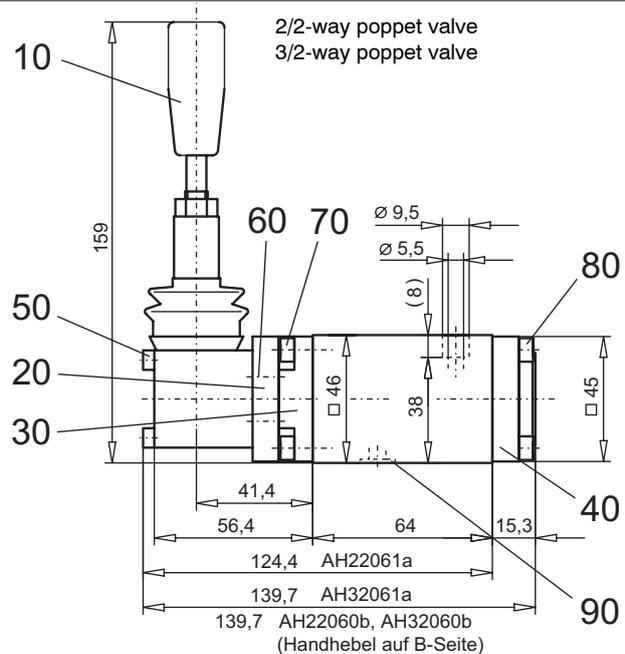
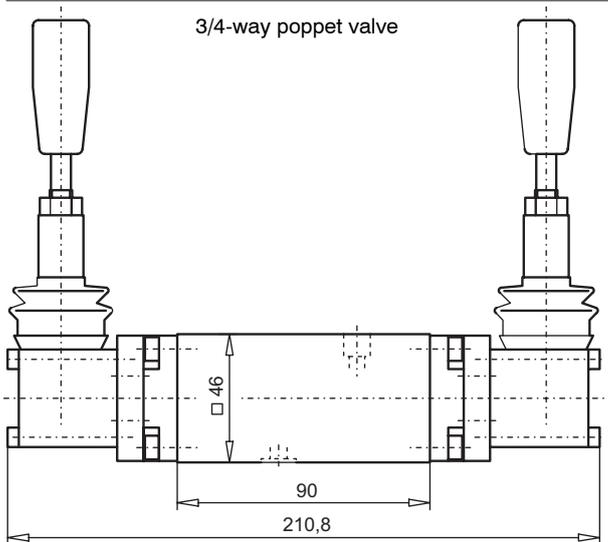
HYDRUALIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	$p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 40 \text{ l/min}$ see characteristics

SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit


Type	Flow direction			
	P - A	A - T	A - P	T - A
AH22061a	1	-	1	-
AH22060b	1	-	3	-
AH32061a	1	2	1	1
AH32060b	1	1	2	1
AH3406	1	1	1	1

 $\Delta p = f(Q)$ Pressure loss/flow characteristics

DIMENSIONS

PARTS LIST

Position	Article	Description
10	253.2000	Manual pilot head BH11
20	074.1802	Flange
30	074.2702	Flange
40	058.4215	Cover
50	246.1140	Socket head cap screw M4x40 DIN 912
60	246.1010	Socket head cap screw M4x10 DIN 912
70	246.2112	Socket head cap screw M5x12 DIN 912
80	246.2117	Socket head cap screw M5x16 DIN 912
90	160.2093	O-ring ID 9,25x1,78

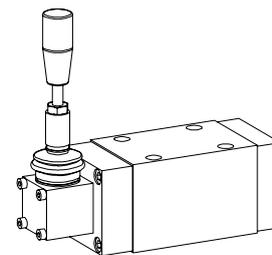
ACCESSORIES

Threaded connection plates, Multi-flange subplates and Longitudinal stacking system see Register 2.9

Technical explanation see data sheet 1.0-100E

Poppet valve manually operated

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 80$ l/min
- $p_{max} = 350$ bar

NG10
 ISO 4401-05

DESCRIPTION

Poppet valve, flanged design NG10 according to ISO 4401-05, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG10 series is the poppet valve cartridge NG10. See data sheet 1.11-2040.

FUNCTION

The valve is manual lever which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

CONTENT

GENERAL SPECIFICATIONS	1
HYDRAULIC SPECIFICATIONS	1
CONTROL MECHANICAL	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	A	H	<input type="checkbox"/>	2	10	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	A	H	3	4	10		#	<input type="checkbox"/>
Mounting interface								
Manual lever								
2-way (connections)				<u>2</u>				
3-way (connections)				<u>3</u>				
2 position								
4 position								
Nominal size 10								
Normally closed,		Manual level on A-side	<u>1a</u>					
Normally open,		Manual level on B-side	<u>0b</u>					
Design-Index (Subject to change)								

GENERAL SPECIFICATIONS

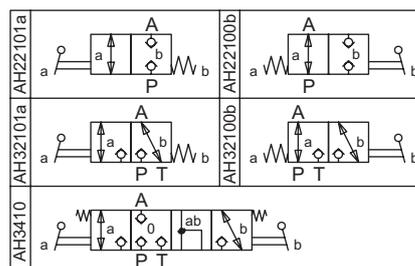
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG10 acc. to ISO 4401-05
Construction	Direct operated poppet valve
Operations	manually operated
Mounting	Flange, 4 mounting holes for socket head screws M6x65
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_b = 9,5$ Nm (quality 8,8)
Weight: 2/2-, 3/2-way	$m = 3,6$ kg
3/4-way	$m = 4,4$ kg
Volume flow direction	any (see characteristics)

CONTROL MECHANICAL

Force	$F_{b,max} = 20-120$ N (depending on flow direction and pressure)
Angle	$\alpha_o = 11^\circ$

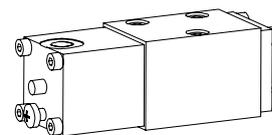
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) refer to data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20 ... +70°C
Working pressure	$p_{max} = 350$ bar
Max. volume flow	$Q_{max} = 80$ l/min see characteristics

SYMBOLS


Poppet valve pneumatically operated

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 15 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG4-Mini[®]

DESCRIPTION

Poppet valve, flanged design NG4-Mini according to Wandfluh standard, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG4-Mini series is the poppet valve cartridge NG4. See data sheet 1.11-2020.

FUNCTION

The valve is direct operated by a pneumatically operated which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time. Mini-4 valves are used where both, reduced dimensions and weight are important.

CONTENT

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HYDRAULIC SPECIFICATIONS	1
CONTROL PNEUMATIC	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	B	K	<input type="checkbox"/>	2	04	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	B	K	<input type="checkbox"/>	3	04	<input type="checkbox"/>	#	<input type="checkbox"/>
Mounting interface								
pneumatically operated								
2-way (connections)			<input type="checkbox"/>	2				
3-way (connections)			<input type="checkbox"/>	3				
2 position								
4 position								
Nominal size NG4-Mini								
Normally closed,			<input type="checkbox"/>	1a				
Normally open,			<input type="checkbox"/>	0b				

Design-Index (Subject to change)

GENERAL SPECIFICATIONS

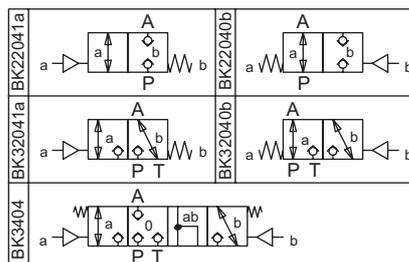
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG4-Mini acc. to Wandfluh standard
Construction	Direct operated poppet valve
Operations	pneumatically operated
Mounting	Flange, 4 mounting holes for socket head screws M5x40
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20 ... +50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 5,5 \text{ Nm}$ (Quality 8,8)
Weight: 2/2-, 3/2-way	$m = 0,9 \text{ kg}$
3/4-way	$m = 1,2 \text{ kg}$
Volume flow direction	any (see characteristics)

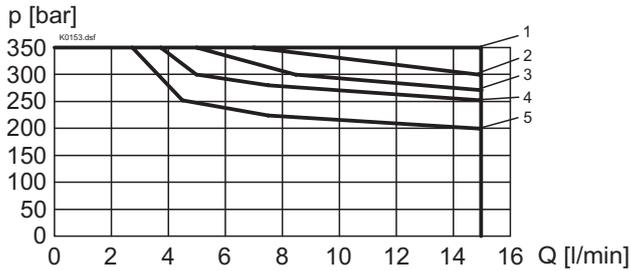
CONTROL PNEUMATIC

Min. pilot pressure	$P_{st \text{ min.}} =$ see characteristics
Max. pilot pressure	$P_{st \text{ max.}} = 8 \text{ bar}$
Control volume	$V_{st} = 2,5 \text{ cm}^3$

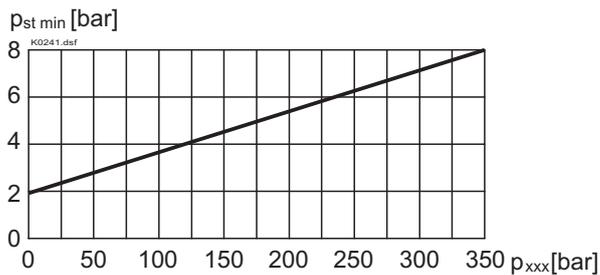
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10} \dots 16 \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	$p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max} = 15 \text{ l/min}$ see characteristics

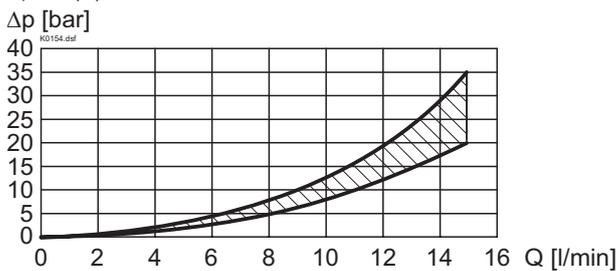
SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit


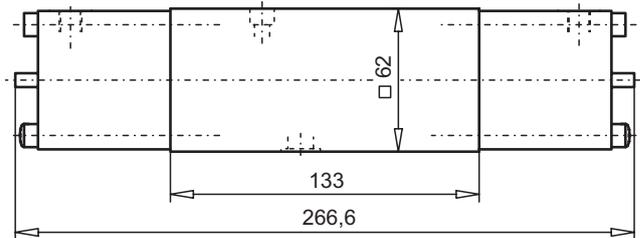
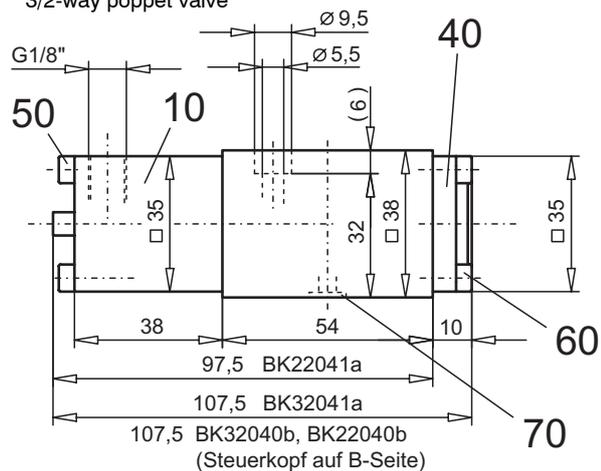
Type	Flow direction			
	P - A	A - T	A - P	T - A
BK22041a	1	-	2	-
BK22040b	1	-	4	-
BK32041a	1	3	5	1
BK32040b	1	4	5	1
BK3404	1	1	2	2

 $p_{st \text{ min}} = f(p_{xxx})$ Min. Pilot pressure characteristics at Q_{max}

 p_{xxx} = pressure in line xxx (see table)

Type	Flow direction			
	P - A	A - T	A - P	T - A
BK22041a	A	-	A	-
BK22040b	A	-	A	-
BK32041a	A	A	A	A
BK32040b	A	A	A	A
BK3404	A	T	A	T

 $\Delta p = f(Q)$ Pressure loss/flow characteristics

DIMENSIONS

3/4-way poppet valve

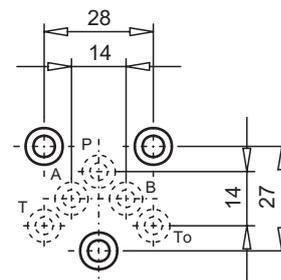

 2/2-way poppet valve
 3/2-way poppet valve

PARTS LIST

Position	Article	Description
10	254.2000	Pneumatic pilot head BKII
40	057.4201	Cover
50	246.1146	Socket head cap screw M4x45 DIN 912
60	246.1113	Socket head cap screw M4x12 DIN 912
70	160.2052	O-ring ID 5,28x1,78

ACCESSORIES

 Threaded connections plates, Multi-flange subplates and
 Longitudinal stacking system see register 2.9

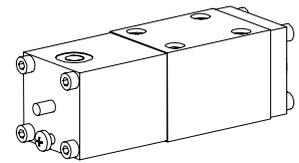
Technical explanation see data sheet 1.0-100E



Poppet valve pneumatically operated

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 40 \text{ l/min}$
- $p_{max} = 350 \text{ bar}$

NG6
ISO 4401-03


DESCRIPTION

Poppet valve, flanged design NG6 according to ISO 4401-03, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG6 series is the poppet valve cartridge NG6. See data sheet 1.11-2030.

FUNCTION

The valve is direct operated by a pneumatically operated which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

CONTENT

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HYDRAULIC SPECIFICATIONS	1
CONTROL PNEUMATIC	1
SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	A	K	<input type="checkbox"/>	2	06	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	A	K	3	4	06		#	<input type="checkbox"/>
International mounting interface ISO								
Pneumatically operated								
2-way (connections)			<input type="checkbox"/>					
3-way (connections)			<input type="checkbox"/>					
2 position								
4 position								
Nominal size 6								
Normally closed,	Pilot head on A-side		<input type="checkbox"/>					
Normally open,	Pilot head on B-side		<input type="checkbox"/>					
Design-Index (Subject to change)								

GENERAL SPECIFICATIONS

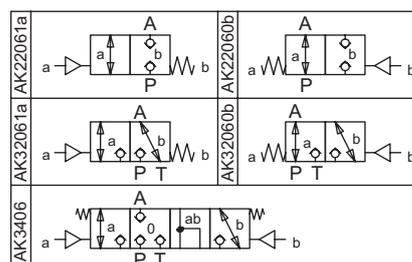
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG6 acc. to ISO 4401-03
Construction	Direct operated poppet valve
Operations	pneumatically operated
Mounting	Flange, 4 mounting holes for socket head screws M5x45
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 5,5 \text{ Nm}$ (quality 8,8)
Weight: 2/2-, 3/2-way	$m = 1,7 \text{ kg}$
3/4-way	$m = 2,5 \text{ kg}$
Volume flow direction	any (see characteristics)

CONTROL PNEUMATIC

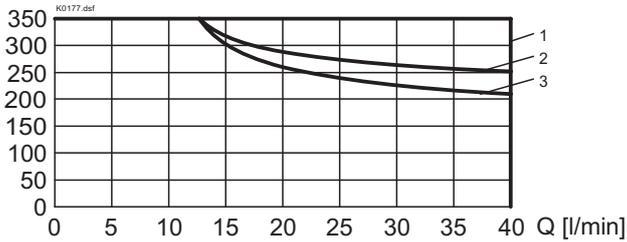
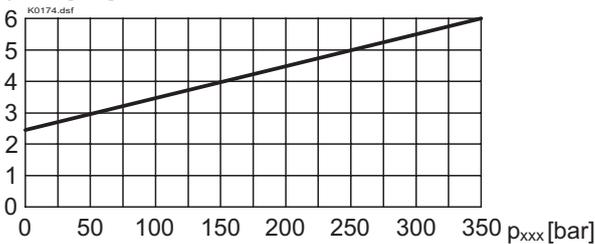
Min. pilot pressure	$p_{st \text{ min.}}$ = see characteristics
Max. pilot pressure	$p_{st \text{ max.}}$ = 8 bar
Control volume	V_{st} = 7 cm ³

HYDRAULIC SPECIFICATIONS

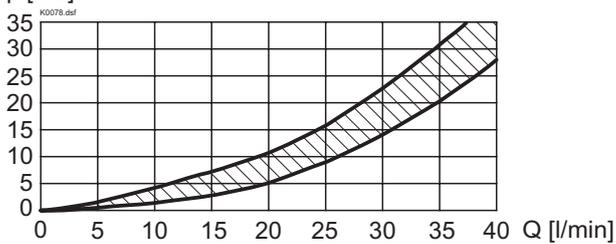
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20... +70°C
Working pressure	$p_{max} = 350 \text{ bar}$
Max. volume flow	$Q_{max.} = 40 \text{ l/min}$ see characteristics

SYMBOLS


CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit

 p [bar]

 $p_{st \min} = f(p_{xxx})$ Min. Pilot pressure characteristics at Q_{\max}
 $p_{st \min}$ [bar]

 p_{xxx} = pressure in line xxx (see table)

 $\Delta p = f(Q)$ Pressure loss/flow characteristics

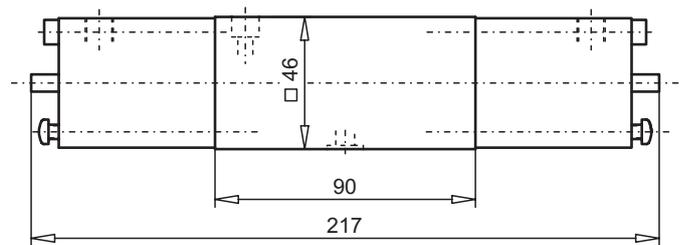
 p [bar]


Type	Flow direction			
	P - A	A - T	A - P	T - A
AK22061a	1	-	1	-
AK22060b	1	-	3	-
AK32061a	1	2	1	1
AK32060b	1	1	2	1
AK3406	1	1	1	1

Type	Flow direction			
	P - A	A - T	A - P	T - A
AK22061a	A	-	A	-
AK22060b	A	-	A	-
AK32061a	A	A	A	A
AK32060b	A	A	A	A
AK3406	A	T	A	T

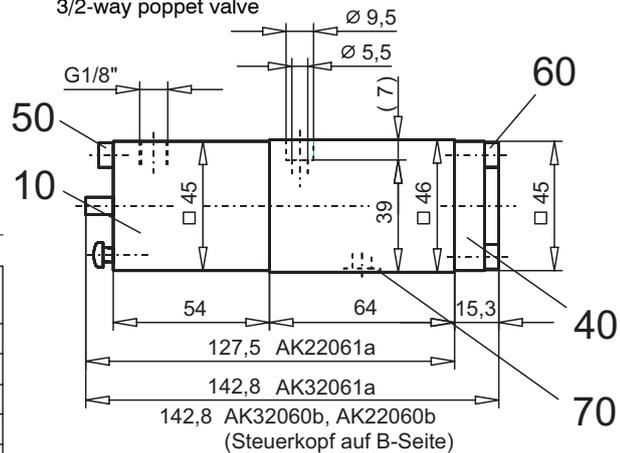
DIMENSIONS

3/4-way poppet valve



2/2-way poppet valve

3/2-way poppet valve

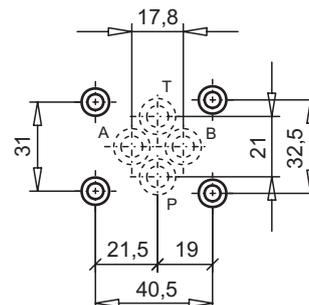

PARTS LIST

Position	Article	Description
10	254.4050	Pneumatic pilot head CKII
40	058.4215	Cover
50	246.2160	Socket head cap screw M5x60 DIN 912
60	246.2117	Socket head cap screw M5x16 DIN 912
70	160.2093	O-ring ID 9,25x1,78

ACCESSORIES

 Threaded connections plates, Multi-flange subplates and
 Longitudinal stacking system see register 2.9

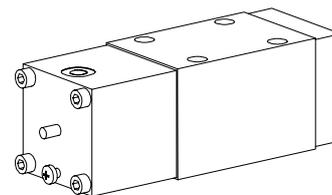
Technical explanation see data sheet 1.0-100E



Poppet valve pneumatically operated

- 2/2-, 3/2- and 3/4-way construction
- $Q_{max} = 80$ l/min
- $p_{max} = 350$ bar

NG10
ISO 4401-05


DESCRIPTION

Poppet valve, flanged design NG10 according to ISO 4401-05, available as a 2/2 or 3/2-way valve (normally open or closed) and as a 3/4-way valve (normally closed). The central functioning element of all directly controlled poppet valves in the NG10 series is the poppet valve cartridge NG10. See data sheet 1.11-2040.

FUNCTION

The valve is direct operated by a pneumatically operated which in turn either opens or closes the poppet. The design of the poppet spool, which is equal in surface area on both sides and thus pressure balanced, means there are no undue opening and closing hydraulic forces. Due to this the oil flow through the poppet valve is possible in both directions. The valve is tight in both flow directions.

APPLICATION

Wandfluh poppet valves can be used anywhere absolutely leak tight closing functions are important. Completely sealed loading, gripping and clamping operations are all important functions which Wandfluh poppet valves can perform. Cartridge type poppet valves can be neatly accommodated in valve blocks. From a mechanical and functional point of view, poppet valves can replace slide valves at any time.

CONTENT

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SYMBOLS	1
CHARACTERISTICS	2
DIMENSIONS	2
PARTS LIST	2
ACCESSORIES	2

TYPE CODE

2/2- or 3/2-way construction	A	K	<input type="checkbox"/>	2	10	<input type="checkbox"/>	#	<input type="checkbox"/>
3/4-way construction	A	K	3	4	10		#	<input type="checkbox"/>
International mounting interface ISO								
Pneumatically operated								
2-way (connections)			<input type="checkbox"/>	<input checked="" type="checkbox"/>				
3-way (connections)			<input checked="" type="checkbox"/>	<input type="checkbox"/>				
2 position								
4 position								
Nominal size 10								
Normally closed,	Pilot head on A-side		<input type="checkbox"/>	<input checked="" type="checkbox"/>				
Normally open,	Pilot head on B-side		<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Design-Index (Subject to change)								

GENERAL SPECIFICATIONS

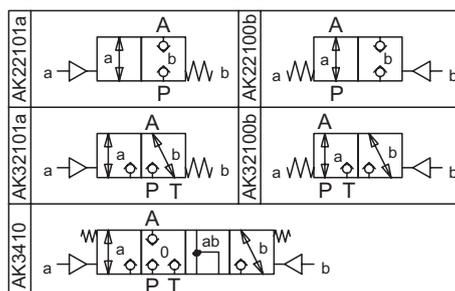
Description	2/2-, 3/2- and 3/4-way poppet valve
Nominal size	NG10 acc. to ISO 4401-05
Construction	Direct operated poppet valve
Operations	pneumatically operated
Mounting	Flange, 4 mounting holes for socket head screws M6x65
Connections	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...+50°C
Mounting position	any, preferable horizontal
Fastening torque	$M_D = 9,5$ Nm (quality 8,8)
Weight: 2/2-, 3/2-way	$m = 4,1$ kg
3/4-way	$m = 5,4$ kg
Volume flow direction	any (see characteristics)

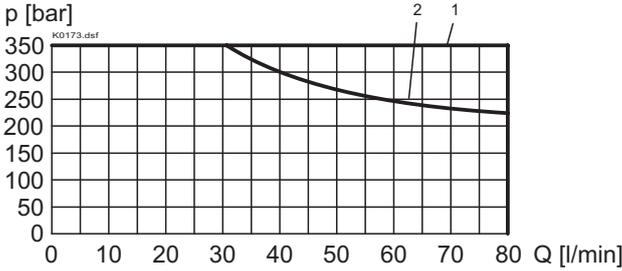
CONTROL PNEUMATIC

Min. pilot pressure	$p_{st\ min.} =$ see characteristics
Max. pilot pressure	$p_{st\ max.} = 8$ bar
Control volume	$V_{st} = 10$ cm ³

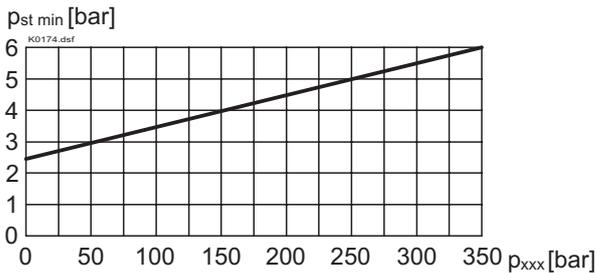
HYDRAULIC SPECIFICATIONS

Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 20/18/14 (Required filtration grade $\beta_{10...16} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70°C
Working pressure	$p_{max} = 350$ bar
Max. volume flow	$Q_{max.} = 80$ l/min see characteristics

SYMBOLS


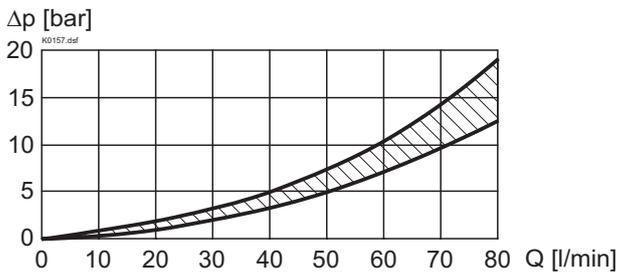
CHARACTERISTICS Oil viscosity $\nu = 30 \text{ mm}^2/\text{s}$
 $p = f(Q)$ Performance limit


Type	Flow direction			
	P - A	A - T	A - P	T - A
AK22101a	1	-	1	-
AK22100b	1	-	2	-
AK32101a	1	2	1	1
AK32100b	1	1	2	1
AK3410	1	1	1	1

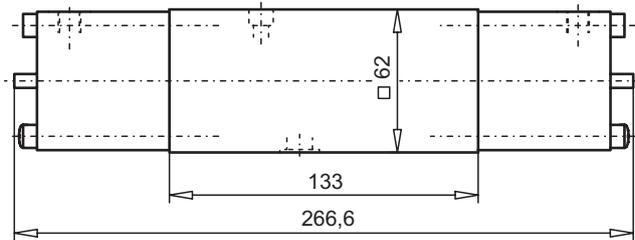
 $p_{st \text{ min}} = f(p_{xxx})$ Min. Pilot pressure characteristics at Q_{max}


Type	Flow direction			
	P - A	A - T	A - P	T - A
AK22101a	A	-	A	-
AK22100b	A	-	A	-
AK32101a	A	A	A	A
AK32100b	A	A	A	A
AK3410	A	T	A	T

 p_{xxx} = pressure in line xxx (see table)

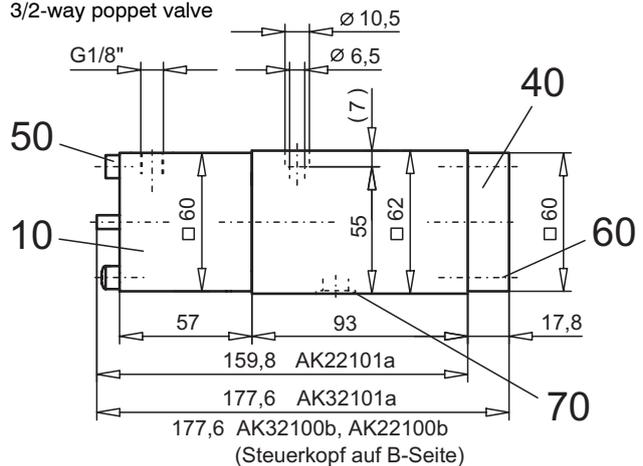
 $\Delta p = f(Q)$ Pressure loss/flow characteristics

DIMENSIONS

3/4-way poppet valve



2/2-way poppet valve

3/2-way poppet valve


PARTS LIST

Position	Article	Description
10	254.5000	Pneumatic pilot headf AKI
40	059.2200	Cover
50	246.3166	Socket head cap screw M6x65 DIN 912
60	246.3121	Socket head cap screw M6x20 DIN 912
70	160.2140	O-ring ID 14,00x1,78

ACCESSORIES

Threaded connections plates, Multi-flange subplates and Longitudinal stacking system see register 2.9

Technical explanation see data sheet 1.0-100E