2.19

3/2 and 4/2 directional poppet valve with solenoid actuation

Type M-.SED6...L1X

Size 6
Up to 350 bar
Up to 25 L/min

Contents

Features

- Direct operated directional poppet valve with solenoid actuation
- Mounting face as per DIN24 340 A ISO 4401 and CETOP-RP 121H
- Closed port is leak-free isolated
- Keep switch flexibility under high pressure
- Pressure-tight chamber does not need to be opened when changing of the coil
- Solenoid coil can be rotated through 90°
- With optional concealed manual override

Function and configuration

·M-3SED6 are directional poppet valves with solenoid actuation. They control the start, stop and direction of flow.

The directional valve mainly consist of housing (1), solenoid (2), valve seats (7) and (11) and closing element (4). With the help of manual override (6) the valves can be operated without energisation of the solenoid.

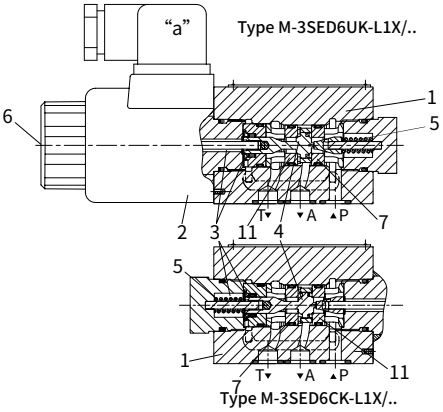
General principle (3/2 directional poppet valve):

The initial position of the valve (normally open "UK" or normally closed "CK") is determined by the arrangement of the spring (5).

Chamber (3) behind closing element (4) is connected to port P and closed towards port T. The valve is therefore pressurebalanced with regard to the actuating forces (solenoid and spring).

Due to the special closing element (4) ports P, A and T can be pressurized to the maximum operating pressure (350 bar), and the flow can be directed in both directions (see symbols)!

In the initial position, closing element (4) is pressed by the spring (5) onto seat (11), in the shifted position, it is pushed by the solenoid (2) onto seat (7). The flow is leak-free blocked.



·M-4SEW6 4/2 directional poppet valve

In conjunction with a sandwich plate, the Plus-1 plate, under the 3/2 directional poppet valve, the function of a 4/2 directional poppet valve can be realized.

1). Initial position:

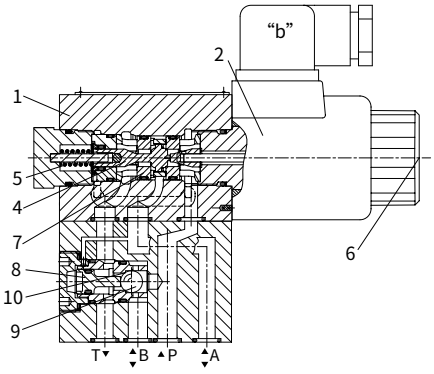
The main valve is not operated. Spring (5) holds closing element (4) on seat (11). Port P is blocked, and A is connected to T. A pilot line is provided from A to the large area of pilot spool (8), which is therefore unloaded to tank. The pressure applied via P now shifts ball (9) onto seat (10). This opens the connection from P to B and A to T.

2). Transition position:

When the main valve is operating, closing element (4) is shifted against spring (5) and pressed onto seat (10). This results in closing of port T, while P, A and B are briefly connected.

3). Switching position:

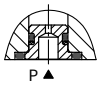
P is connected to A. Since the pump pressure acts via A on the large area of pilot spool (8), ball (9) is pressed onto seat (12). B is therefore connected to T, and P to A. Ball (9) in the Plus-1 plate has a "positive overlap".



·Cartridge type orifice plug(model M-.SED6.L1X/...)

For the work status of the valve during switching process, the flow may be over the value permitted by the valve performance limit curve; in this case, a cartridge orifice plug is necessary.

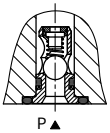
The orifice plug is installed in port P.



·Cartridge check valve (model M-.SED6.L1X/...)

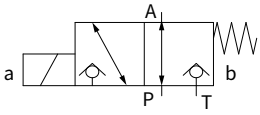
Cartridge check valve allows the oil flows from P to A freely with no leaks from A to P.

One-way valve is installed on port P.

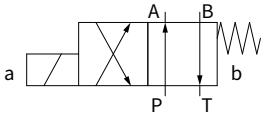


Spool symbols

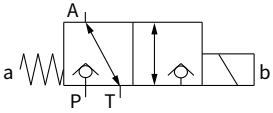
Type M-3SED6UK-L1X/..



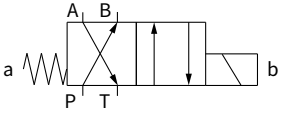
Type M-4SED6D-L1X/..



Type M-3SED6CK-L1X/..



Type M-4SED6Y-L1X/..



Ordering code

M –	SED	6	– L1X /	35	C		N	/		*

3 work ports = 3
4 work ports = 4

Poppet valve

Size 6 =6

Spool symbols

L10 ~ L19series =L1X

Work pressure to 350bar =35

Wet-pin solenoid with detachable coil =C

12VDC = G12
24VDC = G24
110VDC = G110
205VDC = G205
220VDC = G220
110VAC =W110R
220VAC =W220R

With manual emergency button =N

Further details in clear text

No code = NBR seals
V = FKM seals

No code = Without cartridge check valve, without cartridge restriction choke
P=Without Cartridge check valve
B12 = Orifice Φ1.2 mm
B15 = Orifice Φ1.5 mm
B18 = Orifice Φ1.8 mm
B20 = Orifice Φ2.0 mm
B22 = Orifice Φ2.2 mm

K4 = Without plug
Z4 = With square plug
Z5L = Square plug with light
Z5 = With rectifier plug (just for W110R and W220R)
Note: K4, Z4, Z5L is not suitable for W110R and W220R

Technical data

Installation position			Optional
Environment temperature		℃	-30 to +50 (NBR seal)
			-20 to +50 (FKM seal)
Weight	2/2,3/2 directional poppet valve	Kg	1.5
	4/2 directional poppet valve	Kg	2.3
Max operation pressure		bar	350
Max flow		L/min	25
Hydraulic fluid			Mineral oil suitable for NBR and FKM seal
			Phosphate ester for FKM seal
Hydraulic fluid temperature range		℃	-30 to +80 (NBR seal)
			-20 to +80 (FKM seal)
Viscosity range		mm^2/s	2.8 to 500
Degree of contamination			Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15, ISO4406

02

Electrical data

Voltage type	DC	AC
Available voltage V	12, 24, 110, 205, 220	110, 220 (Only by Z5 rectifier plug)
Voltage tolerance (nominal voltage) %	+10 ～ -15	
Power consumption W	30	
Duty cycle	100%	

Switching time to ISO 6403
(installation position: Solenoid installed horizontally)

Pressure bar	Flow L/min	DC						AC + rectifier					
		On/ms (without oil tank pressure)				Off/ms		On/ms (without oil tank pressure)				Off/ms	
		UK	CK	D	Y	UK, CK	D, Y	U	C	D	Y	U, C	D, Y
70	25	45	40	50	50	10	15	45	40	45	40	40	40
140	25	60	40	50	50	10	15	55	40	55	40	40	40
210	25	60	45	60	50	10	15	60	45	60	45	40	40
280	25	60	45	60	50	10	15	65	45	65	45	40	40
315	25	65	45	65	50	10	15	65	45	65	45	40	40
350	25	65	45	65	50	10	15	65	45	65	45	40	40

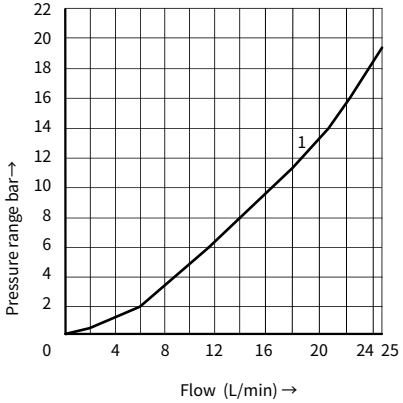
Note: switching time is related to flow direction (P to A / A to T);
there may be deviation for reverse flow

Switching frequency	times/h	Up to 15000
Type of protection to DIN 40050		IP65
Max coil temperature	℃	+150

Note: When making the electrical connection, properly connect the protective conductor(PE ⏚).

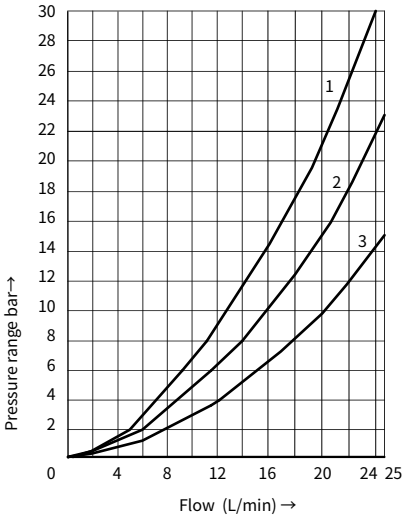
Characteristic curves (Measured at ϑ_{oil}=40°C ±5°C , using HLP46)

Δp-qv characteristic curves
3/2 directional poppet valve



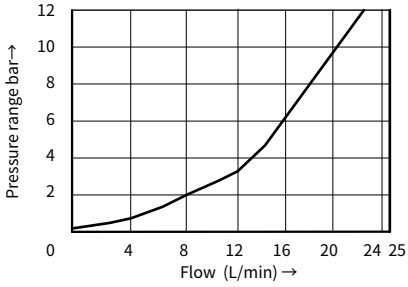
1 M-3SED6 $^{CK}_{UK}$..., P to A and A to T

Δp-qv characteristic curves
2-position 4 directional valve

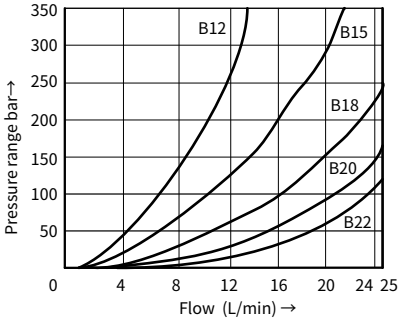


1 M-4SED6 $^{D}_{Y}$..., A to T
2 M-4SED6 $^{D}_{Y}$..., P to A
3 M-4SED6 $^{D}_{Y}$..., P to B, B to T

Δp-qv characteristic curves
Cartridge check valve

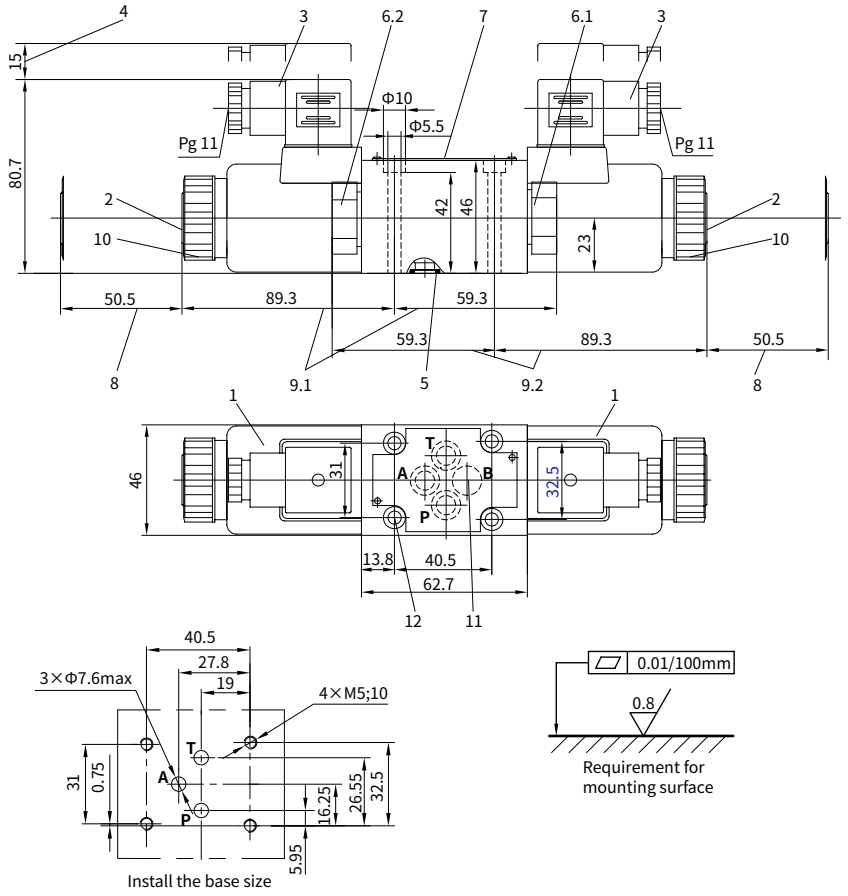


Δp-qv characteristic curves
Cartridge type restriction choke



Unit dimensions

·M-3SED6 $^{CK}_{UK}$ -L1X/...solenoid directional poppet valve

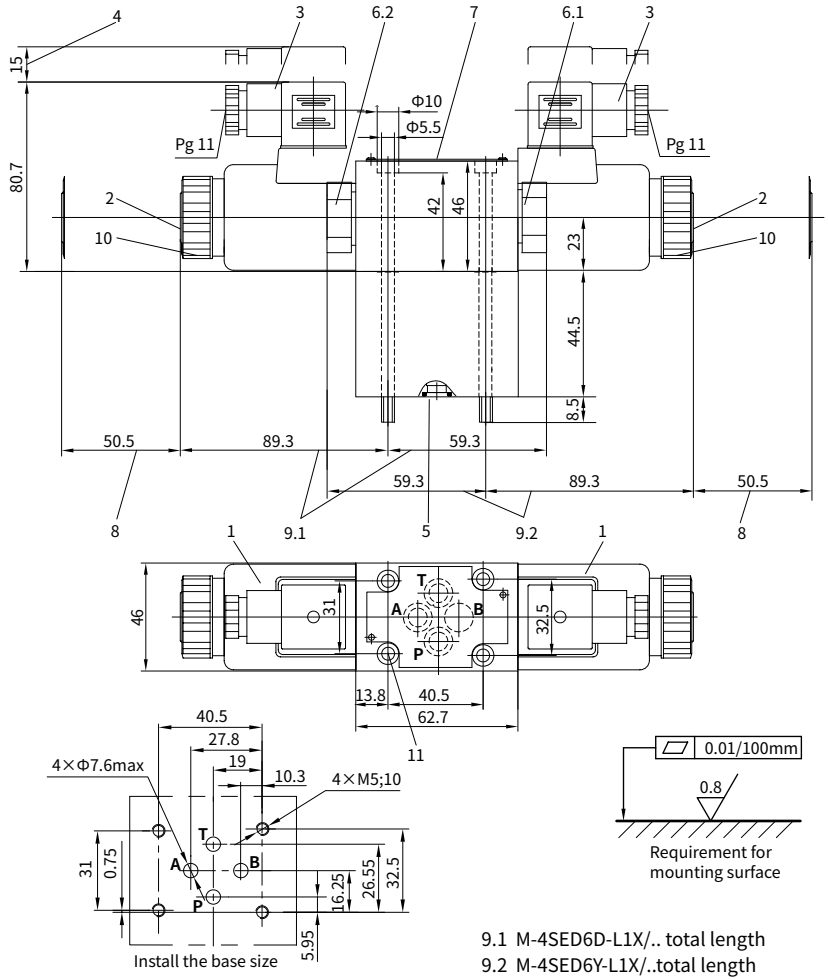


1 Solenoid
2 Manual emergency button
3 Plug as per DIN43650 (can rotate for 90 degrees)
4 Space required to remove cable socket
5 O-ring 9.25×1.78 for port P, T, A and B
6.1 Plug for M-3SED6UK-L1X/..
6.2 Plug for M-3SED6CK-L1X/..
7 Name plate.
8 Space required to remove coil
9.1 M-3SED6UK-L1X/.. total length
9.2 M-3SED6CK-L1X/.. total length
10 Fixing nut, Tightening torque M_A=4Nm
11 Oil port B of the valve is a blind bore.
12 Valve fixing screw:
M5×50 GB/T70.1-10.9
Tightening torque M_A=8.9Nm

It must be ordered separately,
if connection plate is needed. Type:
G341/01(G1/4), G341/02(M14×1.5)
G342/01(G3/8), G342/02(M18×1.5)
G502/01(G1/2), G502/02(M22×1.5)

Unit dimensions

·M-4SED6 $^{D}_{Y}$ -L1X/..solenoid directional poppet valve



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6.1 Plug for M-4SED6D-L1X/..
6.2 Plug for M-4SED6Y-L1X/..
7 Name plate.
8 Space required to remove coil
9.1 M-4SED6D-L1X/.. total length
9.2 M-4SED6Y-L1X/..total length
10 Fixing nut, Tightening torqueM_A=4Nm
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