Hengli®

2.26

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

Type M-.SEW6...L3X

Size 6
Up to 420 bar
Up to 25 L/min

Contents

Features

- Direct-acting solenoid direction shut-off valve
- Mounting face as per DIN24 340 A ISO 4401 and CETOP-RP 121H
- Free of leakage
- Switching flexibility in high-pressure state
- Replace the coil, can take pressure operation
- Solenoid coil can rotate for 90 degrees
- Manual emergency operation available

Function and configuration

M-SEW6 direction valve is a solenoid shut-off directional poppet valve for control oil opening, stop and flow direction.
Two-position TEE solenoid directional poppet valve consists of valve body (1), Solenoid (2), and valve element (3). Connect a superposition plate below the two-position TEE solenoid directional poppet valve to connect valve body (4), it becomes into two-position four-way direction poppet valve. The manual emergency button (5) can be used to operate the valve when the Solenoid is not powered on.

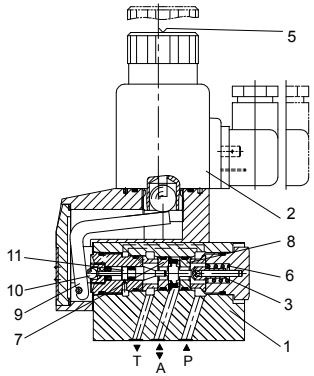
· M-3SEW6 two-position TEE solenoid directional poppet valve

1). Initial position:

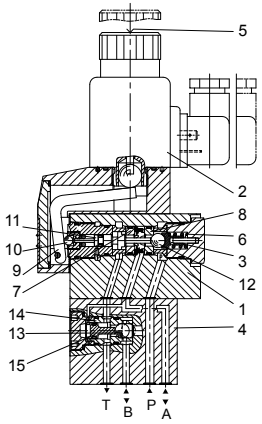
when the Solenoid is not energized, pretention of spring (6) keeps valve element (3) on valve seat (7) on the left, so that oil port P is connected to A and oil port T is closed.

2). Switching position:

after the Solenoid is energized, through angular lever (9) and ball (10), the force of Solenoid (2) acts on push rod (11) of the two-side seal, thus to push valve element (3) and maintain it on right valve seat (8), causing oil port P closed and oil port A connected to port T. Since push rod (11) and valve element (3), acted by the inlet pressure, is in a balance state of axial hydraulic pressure, the valve can be used when pressure is up to 420bar.



M-3SEW6 two-position TEE solenoid directional poppet valve



M-4SEW6 2-position 4-way solenoid directional poppet valve

· M-4SEW6 2-position 4-way solenoid directional poppet valve

1). Initial position:

when the Solenoid is not energized, pretention of spring (6) keeps valve element (12) on valve seat (8) on the right, oil port P is closed and port A connected to T; pressure oil supplied from oil port P push steel ball (13) to valve seat (14), upon which oil port P is connected to B and A connected to T; besides, a control oil line is connected from oil port A acts on the big area of control piston (15), which can be used for unloading to oil tank.

2). Switching position:

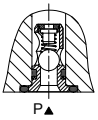
after the Solenoid is energized, oil port P is connected to A; pressure oil from the pump goes through the control oil line connected from port A and acts on the big area of control piston (15); steel ball (13) is pushed to the other side of valve seat (14), thus oil port P is connected to A and B connected to T.

· Cartridge restriction choke (model M-.SEW6.L3X/.../B...)

To restrict flow through the valve, a restriction choke can be installed.
Restriction choke is installed on port P.

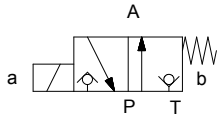
· Cartridge type one-way valve (model M-.SEW6.L3X/.../P)

Cartridge type one-way valve allows oil flow in from port P and it is closed for reverse flowing.
One-way valve installed on port P.

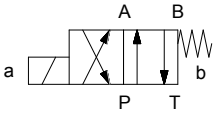


Spool symbols

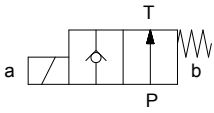
Type M-3SEW6U-L3X/..



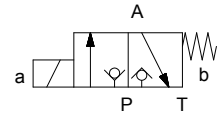
Type M-4SEW6D-L3X/..



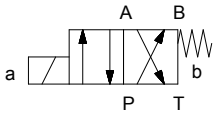
Type M-2SEW6P-L3X/..



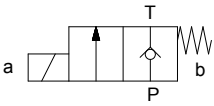
Type M-3SEW6C-L3X/..



Type M-4SEW6Y-L3X/..



Type M-2SEW6N-L3X/..



02

Ordering code

M – SEW 6 – L3X / 42 M N /

2 work ports = 2
3 work ports = 3
4 work ports = 4

Solenoid directional poppet valve

Diameter 6 =6

Spool symbols

L30 ～ L39series =L3X

Work pressure to 420bar =42

Coil replaceable (air gap type) Solenoid =M

12VDC = G12
24VDC = G24
110VDC = G110
205VDC = G205
220VDC = G220
110VAC (Need to take rectifying plug Z5) =W110R
220VAC (Need to take rectifying plug Z5) =W220R

With manual emergency button =N

Further details in clear text

No code = NBR seals
V = FKM seals

No code = Without cartridge one-way 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			°C	-30 to +50 (NBR seal)
				-20 to +50 (FKM seal)
Weight	Two two-way Solenoidic directional valve		Kg	1.5
	Two three-way Solenoidic directional valve		Kg	1.5
	Two four-way Solenoidic directional valve		Kg	2.3
Max operation pressure		Port P, A, B	bar	420
		Port T		100
Max flow			L/min	25
Fluid				Mineral oil suitable for NBR and FKM seal
				Phosphate ester for FKM seal
Fluid temperature range			°C	-30 to +50 (NBR seal)
				-20 to +50 (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

Electrical data

Voltage type		DC	AC
Available voltage	V	12, 24, 110, 205, 220	110, 220 (Only by Z5 rectifier plug)
Allowed voltage (deviation)	%	+10 ～ -15	
Required power	W	30	
Continuous power-on time	%	100	

Switching time in compliance with ISO 6403

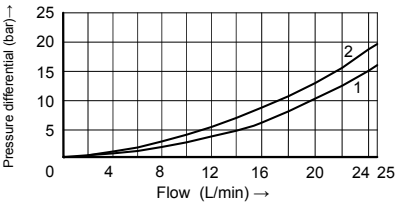
Pressure bar	Flow L/min	DC						AC50HZ					
		on/ms (without oil tank pressure)				off/ms		on/ms (without oil tank pressure)				off/ms	
		U	C	D	Y	U, C	D, Y	U	C	D	Y	U, C	D, Y
140	25	25	30	25	30	10	10	30	40	30	40	35	35
280	25	25	30	25	30	10	10	35	45	35	45	40	40
320	25	25	35	25	35	10	10	35	50	35	50	40	40
420	25	25	35	25	35	10	10	40	50	40	50	50	50

Switching frequency	Time/h	Up to 15000
IP rating as per DIN 40050		IP65
Max coil temperature	°C	+150

Note: for electrical connection, protective wire (PE ⏚) shall be earthed as required.

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

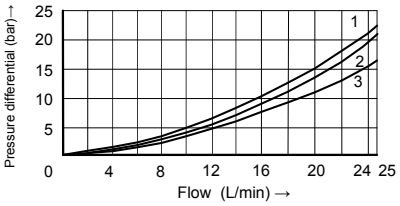
Δp-qv characteristic curves
2-position 2-way solenoid directional poppet valve



1 M-2SEW6N ..., P to T

2 M-2SEW6P ..., P to T

Δp-qv characteristic curves
2-position 3-way solenoid directional poppet valve

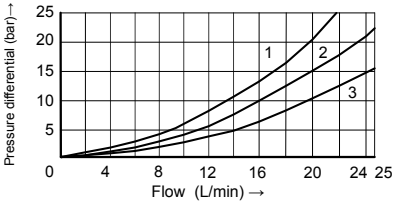


1 M-3SEW6 $^{U}_{C}$ ..., A to T

2 M-3SED6U ..., P to A

3 M-3SED6C ..., P to A

Δp-qv characteristic curves
2-position 4-way solenoid directional poppet valve

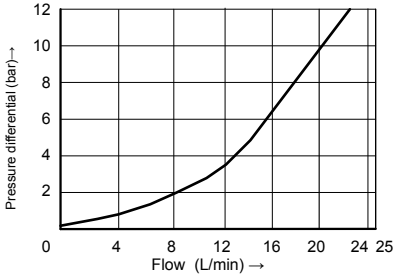


1 M-4SEW6 $^{D}_{Y}$ ..., A to T

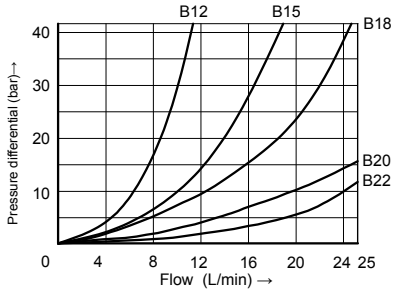
2 M-4SEW6 $^{D}_{Y}$ ..., P to A

3 M-4SEW6 $^{D}_{Y}$ ..., P to B, B to T

Δp-qv characteristic curves
Cartridge check valve

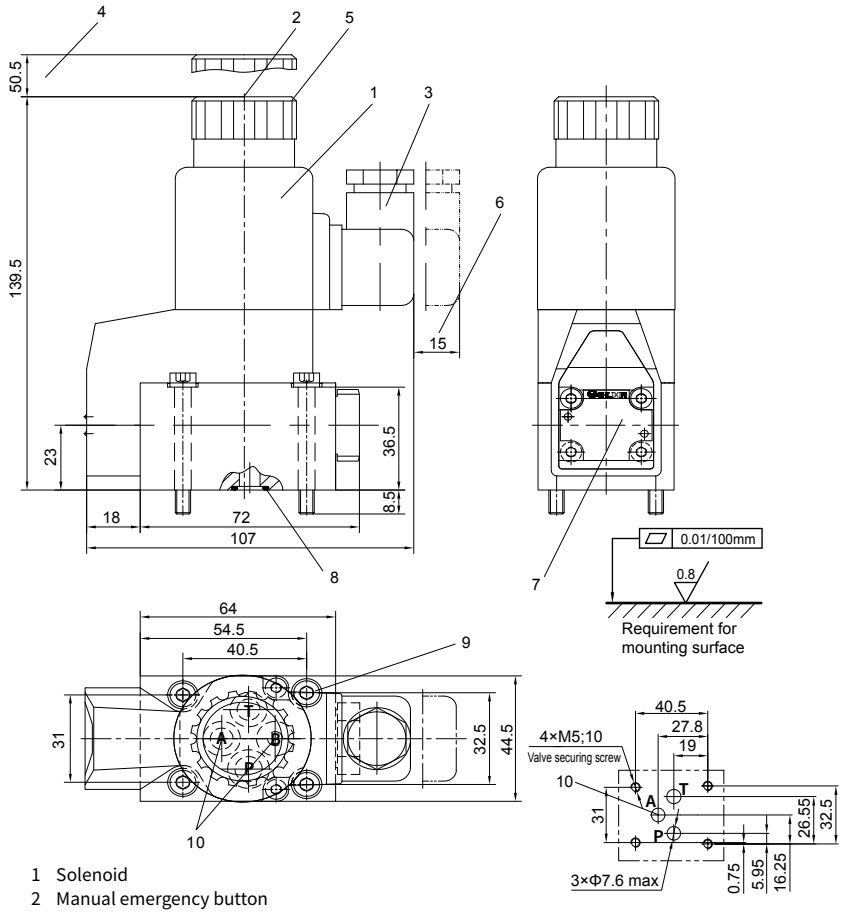


Δp-qv characteristic curves
Cartridge type restriction choke



Unit dimensions

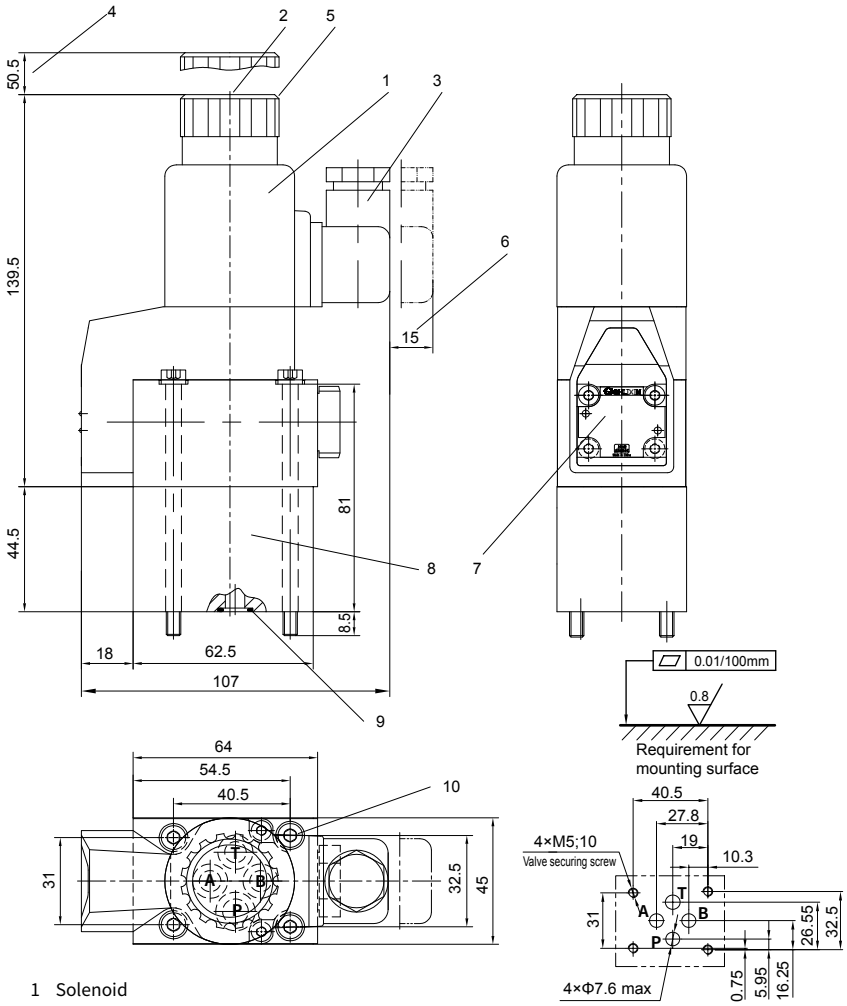
·2-position 2-way, 2-position 3-way solenoid directional poppet valve



1 Solenoid
2 Manual emergency button
3 Plug as per DIN43650 (can rotate for 90 degrees)
4 Remove space needed for Solenoid coil.
5 Lock nut, tightening torque M_A=4Nm
6 Remove space
7 Name plate.
8. Oil port A and B use O ring 9.25×1.78, P uses O-ring 10×2
9. Valve securing screw: M5×45 GB/T70.1- class 10.9, Tightening torque M_A=8.9Nm
10 2-position 2-way directional valve has oil port A and B which are blind holes;
3/2 directional poppet valve has oil port A and B which are blind holes.

Unit dimensions

·2-position 4-way solenoid directional poppet valve



1 Solenoid
2 Manual emergency button
3 Plug as per DIN43650 (can rotate for 90 degrees)
4 Remove space needed for Solenoid coil.
5 Lock nut, tightening torque M_A=4Nm
6 Remove space
7 Name plate.
8 Connecting valve body
9 Oil port A and B use O ring 9.25×1.78, P uses O-ring 10×2
10 Valve securing screw hole, M5×90 GB/T70.1-10.9, Tightening torque M_A=8.9Nm

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Hengli®

2.27

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

Type M-.SEW10...L1X

Size 10
Up to 420 bar
Up to 40 L/min

Contents

Features

- Direct-acting solenoid direction shut-off valve
- Mounting face as per DIN24 340 A ISO 4401 and CETOP-RP 121H
- Free of leakage
- Keeping switching flexibility in high-pressure state
- DC Solenoid of removable coil
- Solenoid coil can rotate for 90 degrees
- Optional manual emergency operation

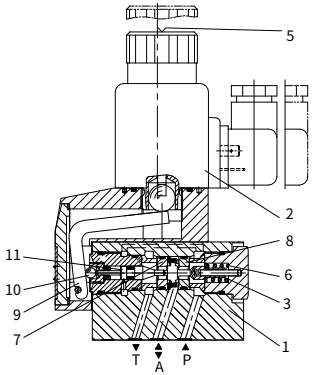
Function and configuration

M-SEW10 directional valve is a solenoid shut-off directional poppet valve for control oil opening, stop and flow direction. Two-position three-way solenoid directional poppet valve main consists of valve body (1), Solenoid (2), and valve element (3). Connect a superposition plate below the two-position three-way solenoid directional poppet valve to connect valve body (4), it becomes into two-position four-way direction poppet valve. Manual emergency button (5) can be used to operate the valve when the solenoid is not powered on.

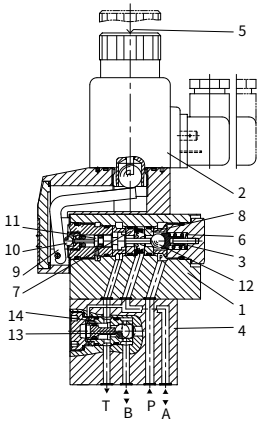
· M-3SEW10 two-position TEE solenoid directional poppet valve

1). Initial position: when the solenoid is not energized, pretention of spring (6) keeps valve element (3) on valve seat (7) on the left, so that oil port P is connected to A and oil port T is closed.

2). Switching position: after the solenoid is energized, through angular lever (9) and ball (10), the force of Solenoid (2) acts on push rod (11) of the two-side seal, thus to push valve element (3) and maintain it on right valve seat (8), causing oil port P closed and oil port A connected to port T. Since push rod (11) and valve element (3), acted by the inlet pressure, is in a balance state of axial hydraulic pressure, therefore, the valve can be used when pressure is up to 420bar.



M-3SEW10 two-position TEE solenoid directional poppet valve



M-4SEW10 2-position 4-way solenoid directional poppet valve

· M-4SEW10 2-position 4-way solenoid directional poppet valve

1). Initial position:

when the Solenoid is not energized, pretention of spring (6) keeps valve element (12) on valve seat (8) on the right, oil port P is closed and port A connected to T; pressure oil supplied from oil port P push steel ball (13) to valve seat (14), upon which oil port P is connected to B and A connected to T; control oil line is connected from oil port A acts on the larger area of control piston (12), which can be used for unloading to oil tank.

2). Switching position:

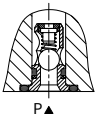
after the Solenoid is energized, oil port P is connected to A; pressure oil from the pump goes through the control oil line connected from port A and acts on the larger area of control piston (12); steel ball (13) is pushed to the other side of valve seat (14), thus oil port P is connected to A and B connected to T.

·Cartridge restriction choke (model M-.SEW10.L1X/../B...)

To restrict flow through the valve, a restriction choke can be installed.
Restriction choke is installed on port P.

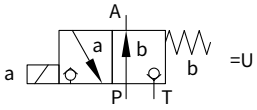
·Cartridge type one-way valve (model M-.SEW10.L1X/../P)

Cartridge type one-way valve allows oil flow in from port P and it is closed for reverse flowing.
One-way valve installed on port P.

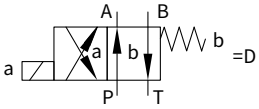


Spool symbols

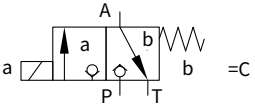
Type M-3SEW10U-L1X/..



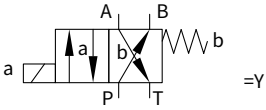
Type M-4SEW10D-L1X/..



Type M-3SEW10C-L1X/..



Type M-4SEW10Y-L1X/..



02

Ordering code

M	–	SEW	10	–	L1X	/	42	M		N	/		*

3 work ports = 3
4 work ports = 4

Solenoid directional poppet valve

Nominal size 10 =10

Spool symbols

L10 ～ L19series =L1X
(L10 to L19: unchanged installation
and connection dimensions)

Work pressure to 420bar =42

Replaceable coil (air gap type) Solenoid =M

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

With manual override =N

Further details
in clear text

No code = NBR seals
V = FKM seals

No code = Without cartridge
one-way 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
(for W110R and W220R only)
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	Two tee Solenoidic directional valve			2.0
	Two four-way Solenoidic directional valve		Kg	3.5
Max operation pressure		Port P, A, B	bar	420
		Port T		100
Max flow			L/min	40
Fluid				Mineral oil suitable for NBR and FKM seal
				Phosphate ester for FKM seal
Fluid temperature range			℃	-30 to +50 (NBR seal)
				-20 to +50 (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

Electrical data

Voltage type			DC	AC
Available voltage		V	12, 24, 110, 205, 220	110, 220 (Only by Z5 rectifier plug)
Allowed voltage (deviation)		%	+10 ～ -15	
Required power		W	30	
Continuous power-on time		%	100	

Switching time in compliance with ISO 6403

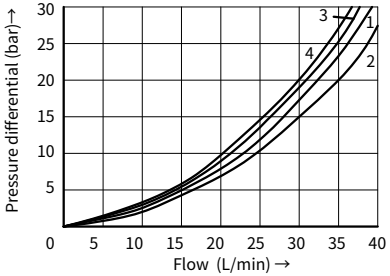
Pressure bar	Flow L/min	DC						AC50HZ							
		On/ms (without oil tank pressure)				Off/ms		On/ms (without oil tank pressure)				Off/ms			
		U	C	D	Y	U, C	D, Y	U	C	D	Y	U	C	D	Y
140	40	20	40	20	40	12	17	20	40	20	40	60	45	40	50
280	40	25	45	20	45	12	17	20	45	25	45	60	45	45	55
320	40	25	45	20	45	12	17	25	45	25	45	60	45	45	55
420	40	30	45	20	50	12	17	25	45	25	50	60	45	45	55

Switching frequency	Time/h	Up to 15000
IP rating as per DIN 40050		IP65
Max coil temperature	℃	+150

Note: for electrical connection, protective wire (PE ⏚) shall be earthed as required.

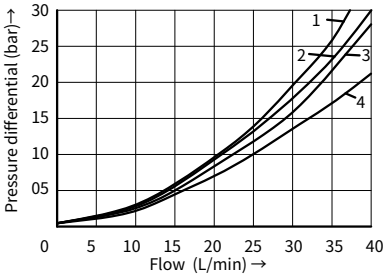
Characteristic curves (Measured at ϑ_{oil}=40°C ±5°C , using HLP46)

Δp-qv characteristic curves
3/2 directional poppet valve



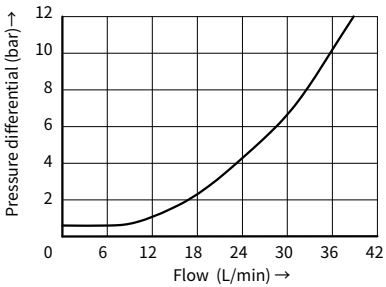
1 M-3SEW 10 C ..., P to A
2 M-3SEW 10 C ..., A to T
3 M-3SEW 10 U ..., P to A
4 M-3SEW 10 U ..., A to T

Δp-qv characteristic curves
2-position 4-way solenoid directional poppet valve

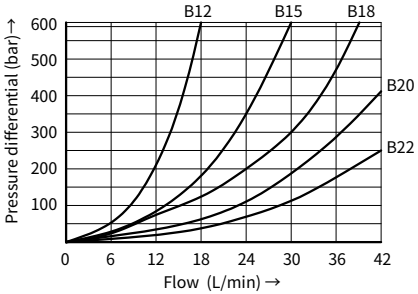


1 M-3SEW 10 $^{D}_{Y}$ ..., A to T
2 M-3SEW 10 $^{D}_{Y}$ ..., P to A
3 M-3SEW 10 $^{D}_{Y}$ ..., P to B
4 M-3SEW 10 $^{D}_{Y}$ ..., B to T

Δp-qv characteristic curves
Cartridge check valve

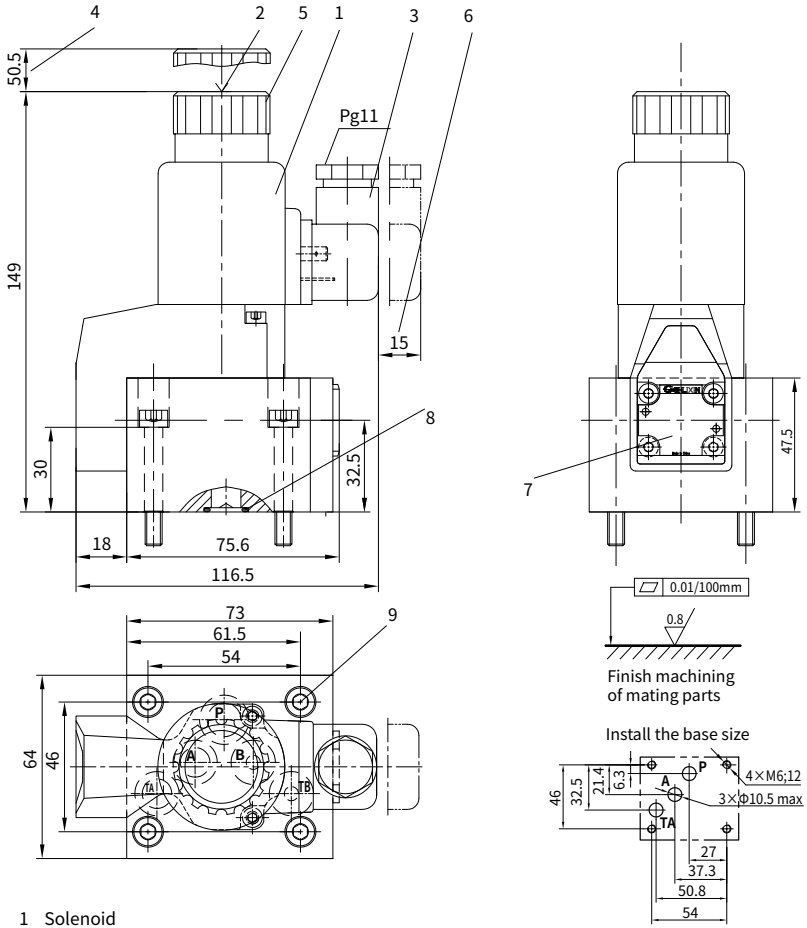


Δp-qv characteristic curves
Cartridge type restriction choke



Unit dimensions

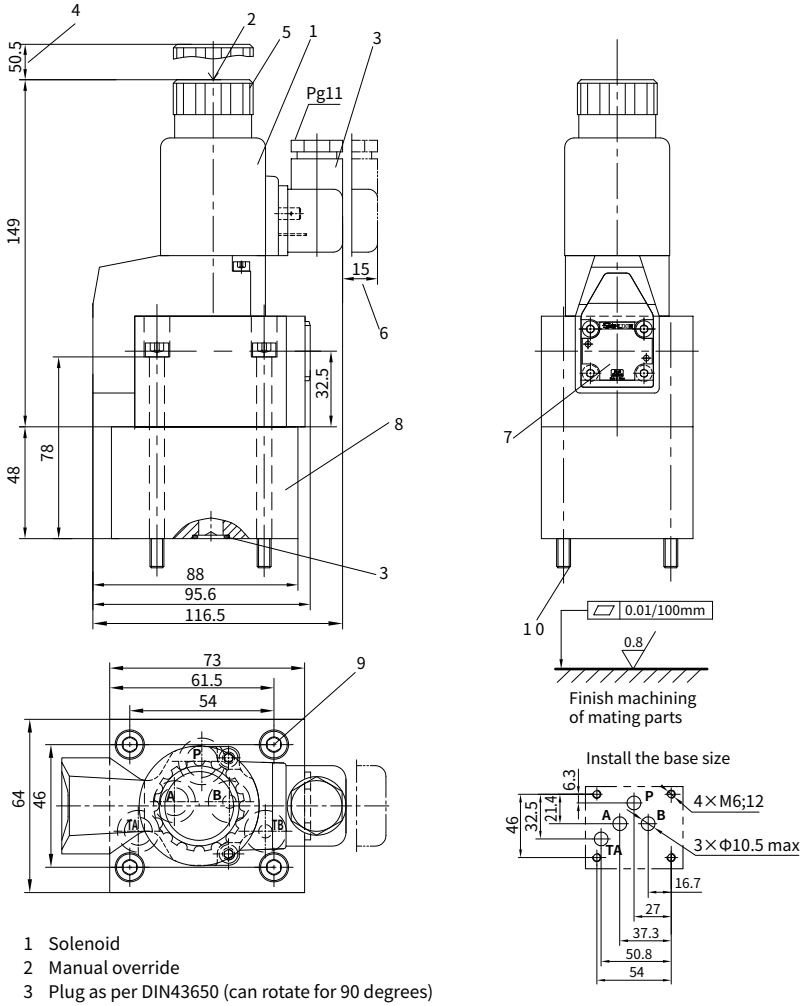
·2-position 3-way solenoid directional poppet valve



1 Solenoid
2 Manual override
3 Plug as per DIN43650 (can rotate for 90 degrees)
4 Remove space needed for Solenoid coil
5 Lock nut, tightening torque M_A=4Nm
6 Remove space
7 Name plate
8 Oil port A、B、TA use O-ring 12×2 , Oil port P uses O-ring 14×2
9 Valve securing screw, M6×40 GB/T70.1- class 10.9, Tightening torque M_A=15.5Nm

Unit dimensions

·2-position 4-way solenoid directional poppet valve



1 Solenoid
2 Manual override
3 Plug as per DIN43650 (can rotate for 90 degrees)
4 Remove space needed for Solenoid coil
5 Lock nut, tightening torque M_A=4Nm
6 Remove space
7 Name plate.
8 Connecting valve body
9 Oil port A,B,TA use O-ring12×2, Oil port P uses O-ring 14×2
10 Valve securing screw, M6×90 GB/T70.1- class 10.9, Tightening torque M_A=15.5Nm

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