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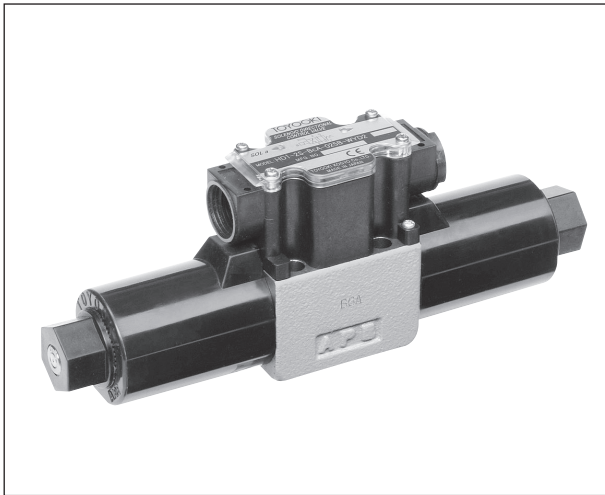
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SOLENOID VALVE (HD*-WY*)

SOLENOID VALVE(HD*-WY*) SIZE 025



■ Features

- HD3 Series (for 25 MPa)
 1. Compact
 2. High pressure and large capacity
 3. Increased rated flow rate
 4. Increased permissible back pressure
 5. Dust- and water-proof to IEC IP65 (IP 67 for M12-4 pin type)
 6. Lamp and grounding terminal are standard equipment.
 7. Surge killer is standard equipment.
- HD1 Series (for 10 MPa)
 1. Directly controllable by a programmable controller since the valve operates at low power. (Refer to the solenoid characteristics).

⚠ **Cautions on use** Please read the Operating Manual carefully to ensure correct usage.

- The piping must be arranged so that the R port is always filled with fluid to make the most of the features of the oil-immersed type valve.
- When installing a no-spring type valve, install it so as to set the spool horizontally.
- Finish the mounting faces to the same quality as the valve faces (3.2 μmRz).
- Using a valve with the R port plugged can cause operation failure.
- For valves with detent, to hold the spool position without supplying power to the solenoid the back pressure must be 5 MPa or lower for the HD3 series or 2 MPa or lower for the HD1 series.
- Where a PLC is connected directly, select a type with the diode or M12 -4 pin connector type to protect the PLC output card.

■ Description of the model designation

HD3-3W-BCA-025B-WYR1 (H)

Max operating pressure (NOTE 1)

- 1: 10 MPa
- 3: 25 MPa
- 5: 35 MPa

Switching function

- 3W : Spring center type
- 2WD: No spring detent type
- 2S : Spring offset type

Spool type

Refer to the SPOOL TYPES table.

Nominal size

- 025: Conforming to ISO4401-03-02-0-94

Model code

- B: Terminal box type
- C: M12-4 pin type (HD1-WYD2 only)

Option functions

- ① M12-4 pin connector type (only for HD1-*-025C-WYD2 type)
 - A: Load side -COMMON right side
 - B: Load side -COMMON left side
 - C: Load side +COMMON right side
 - D: Load side +COMMON left side
- ② Quick return function (NOTE 2) (only for HD*-*-025B-WYR*)
 - H: Quick return
- ③ With diode (only for HD*-*-025B-WYD2)
 - S: Load side -COMMON
 - T: Load side +COMMON

Voltage indication

- D2: DC 24 V
- R1: AC 100 V
- R2: AC 200 V

Wiring method

- WY: Cable connection to the side of the terminal box

NOTE 1: A solenoid valve of 35 (MPa) operating pressure is available only for the 025B series.

NOTE 2: The valve with quick return function provides faster response for switching to OFF.

NOTE 3: Mounting bolt is M5 bolt.

■ Series selection table



Valve specifications

Series	HD1	HD3	HD5
Max. operating pressure (MPa)	10	25	35
Max. flow (NOTE 5) (L/min)	40	80	80
Permissible back pressure at T port (NOTE 6) (MPa)	10 (2)	16 (5)	16 (5)
Switching frequency (CYCLE/s)	2 or lower		
Permissible voltage variation range	Rated voltage $\pm 10\%$ V		
Protection structure class	IEC529 IP65 (IP67) (NOTE 7)		
Hydraulic fluid cleanliness	Complying with ISO11218-Class 12 (NAS1638-Class 12)		
Operating fluid (recommendation)	ISO VG22, 32, 46		
Viscosity (mm ² /s)	15 to 400		
Fluid temperature (°C)	0 to 65		
Ambient temperature (°C)	-10 to 50		
Tightening torque (N·m)	6 to 8	8 to 9	
Mass (kg)	3W, 2WD: 2.5 2S: 1.8		

NOTE 5: For details, refer to the operation limit.

NOTE 6: Values in parentheses are for the detent type.

NOTE 7: Protective structure class (IP67) is applicable to M12-4 pin type connector.

Solenoid specifications

● HD1 Series

Solenoid model	SLH1-025B-D2	SLH1-025B-R1	SLH1-025B-R2
Rated voltage	DC24V	AC100V	AC200V
Frequency	-	50/60Hz	50/60Hz
Holding current	0.2A	0.07A	0.04A
Power consumption	4.8W	6.5W	7.1W
Voltage variation range	$\pm 10\%$ V		

● HD3 / HD5 Series

Solenoid model	SLH5-025B-D2	SLH5-025B-R1	SLH5-025B-R2
Rated voltage	DC24V	AC100V	AC200V
Frequency	-	50/60Hz	50/60Hz
Holding current	1.2A	0.35A	0.19A
Power consumption	29W	31W	33W
Voltage variation range	$\pm 10\%$ V		

Terminal box

● Size 025B AC type

Solenoid	Rated Voltage	Terminal Box	
		Double Solenoid Type	Single Solenoid Type
HD $\frac{1}{3}$ $\frac{5}{5}$ -***-025B-WY R1 R2	AC100V AC200V	TBH3-025B-R1W	TBH3-025B-R1S
HD $\frac{1}{3}$ $\frac{5}{5}$ -***-025B-WY R1 R2 H	AC100V AC200V	TBH3-025B-R1W-HA	TBH3-025B-R1S-HA

● Size 025B DC type

Solenoid	Rated Voltage	Terminal Box	
		Double Solenoid Type	Single Solenoid Type
HD $\frac{1}{3}$ $\frac{5}{5}$ -***-025B-WY D2	DC24V	TBH3-025B-D1W	TBH3-025B-D1S
HD $\frac{1}{3}$ $\frac{5}{5}$ -***-025B-WY D2 S	DC24V	TBH3-025B-D1W-S	TBH3-025B-D1S-S
HD $\frac{1}{3}$ $\frac{5}{5}$ -***-025B-WY D2 T	DC24V	TBH3-025B-D1W-T	TBH3-025B-D1S-T

● Size 025C type

Solenoid	Rated Voltage	Terminal Box	
		Double Solenoid Type	Single Solenoid Type
HD1 -***-025C-WY D2 A	DC24V	TBH3-025C-D1W-MA	TBH3-025C-D1S-MA
HD1 -***-025C-WY D2 B	DC24V	TBH3-025C-D1W-MB	TBH3-025C-D1S-MB
HD1 -***-025C-WY D2 C	DC24V	TBH3-025C-D1W-MC	TBH3-025C-D1S-MC
HD1 -***-025C-WY D2 D	DC24V	TBH3-025C-D1W-MD	TBH3-025C-D1S-MD

Spool types

Type	Spring Center	No Spring Detent	Spring Offset
Model	HD*-3W-* ^a _C -WY*	HD*-2WD-* ^a _C -WY*	HD*-2S-* ^a _C -WY*
Spool Type (NOTE 9)	3W-BCA	2WD-BcA	2S-BcA
	3W-BDA		2S-KcP
	3W-BGA		
	3W-AEB (NOTE 8)		

NOTE 8: Spool type 3W-AEB is available only for the HD3 and HD5 series.

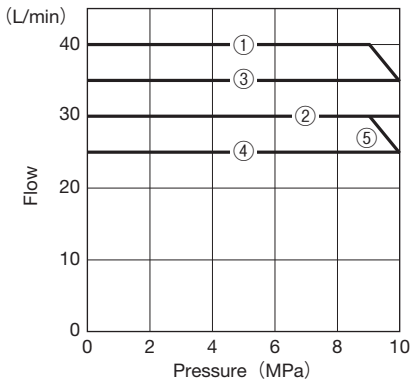
NOTE 9: For spool types not shown above, please consult us.

Valve performance

Operation Limit (Dynamic Viscosity: 33 mm²/sec)

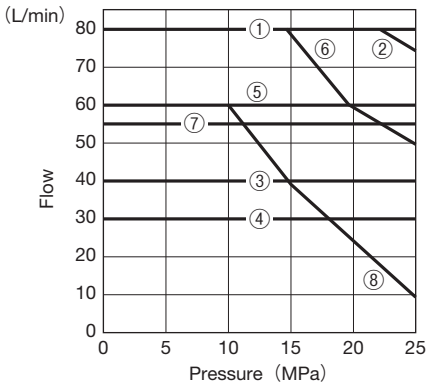
The performance will vary slightly depending on the circuit conditions and the operation conditions (voltage, pressure, flow, viscosity, etc.). The flow rate value in the performance graphs includes surge flow.

● HD1-025^BC Series



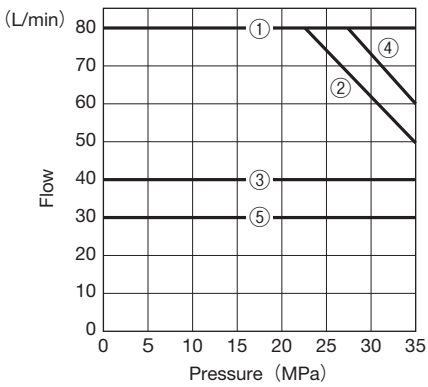
Circuit	Cylinder circuit	A port blocked	B port blocked
Spool Type			
3W-BCA	①	②	②
3W-BDA	②	②	②
3W-BGA	①	②	②
2WD-BcA	②	①	①
2S-BcA	③	③	④
2S-KcP		⑤	①

● HD3-025B Series

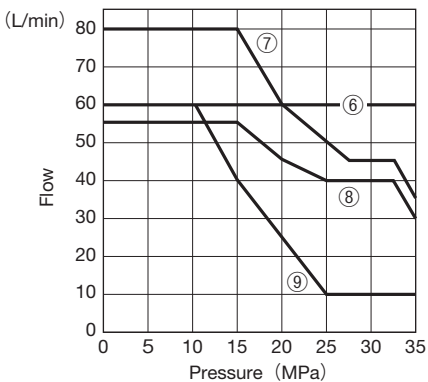


Circuit	Cylinder circuit	A port blocked	B port blocked
Spool Type			
3W-BCA	①	②	②
3W-BDA	③	③	③
3W-BGA	①	②	②
3W-AEB	④	④	④
2WD-BcA	⑤	③	③
2S-BcA	⑤	⑥	⑦
2S-KcP		⑥	⑧

● HD5-025B Series



Circuit	Cylinder circuit	A port blocked	B port blocked
Spool Type			
3W-BCA	①	②	②
3W-BDA	③	③	③
3W-BGA	④	②	②
3W-AEB	⑤	⑤	⑤
2WD-BcA	⑥	③	③
2S-BcA	⑥	⑦	⑧
2S-KcP		⑦	⑨

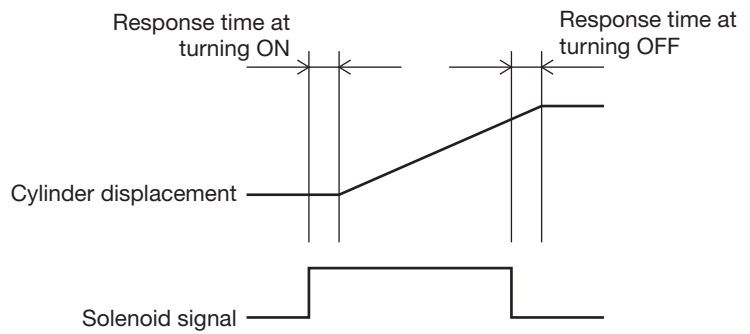


Switching Response Time (Dynamic Viscosity: 33 mm²/sec)

The switching response time will vary slightly depending on the circuit conditions and the operation conditions (voltage, pressure, flow, viscosity, etc.).

●025 Series

Spool Type	Solenoid Signal	HD1		HD3·HD5	
		WYD* WYR*H	WYD*(A·B·C·D) WYD*(S·T) WYR*	WYD* WYR*H	WYD*(A·B·C·D) WYD*(S·T) WYR*
3W-BCA	ON	0.05(sec)	0.05(sec)	0.015(sec)	0.015(sec)
	OFF	0.02(sec)	0.11(sec)	0.02(sec)	0.11(sec)
3W-BDA	ON	0.03(sec)	0.03(sec)	0.03(sec)	0.03(sec)
	OFF	0.03(sec)	0.13(sec)	0.03(sec)	0.13(sec)
3W-BGA	ON	0.07(sec)	0.07(sec)	0.04(sec)	0.04(sec)
	OFF	0.03(sec)	0.13(sec)	0.04(sec)	0.13(sec)
3W-AEB	ON			0.025(sec)	0.025(sec)
	OFF			0.02(sec)	0.08(sec)
2WD-BcA	ON	0.09(sec)	0.09(sec)	0.04(sec)	0.04(sec)
	OFF				
2S-BcA	ON	0.11(sec)	0.11(sec)	0.02(sec)	0.02(sec)
	OFF	0.03(sec)	0.11(sec)	0.02(sec)	0.08(sec)
2S-KcP	ON				
	OFF				

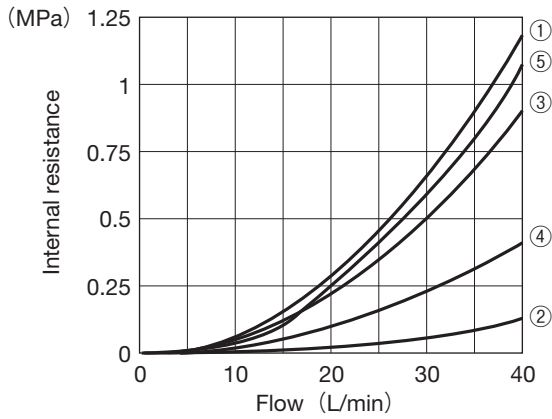


Series		Power Source		Low Voltage	Surge Absorber	M12 4-pin Connector	Quick Return	Compatibility to DeviceNet
		DC	AC					
Low-pressure Type	HD1-WYD*	○		○	CR + Varistor			
	HD1-WYD*(A~D)	○		○	Diode	○		○
	HD1-WYD*(SorT)	○		○	Diode			○
	HD1-WYR*		○	○	Rectifier			
	HD1-WYR*H		○	○	Rectifier		○	
High-pressure Type	HD3·5-WYD*	○			CR + Varistor			
	HD3·5-WYD*(SorT)	○			Diode			○ (NOTE 4)
	HD3·5-WYR*		○		Rectifier			
	HD3·5-WYR*H		○		Rectifier		○	

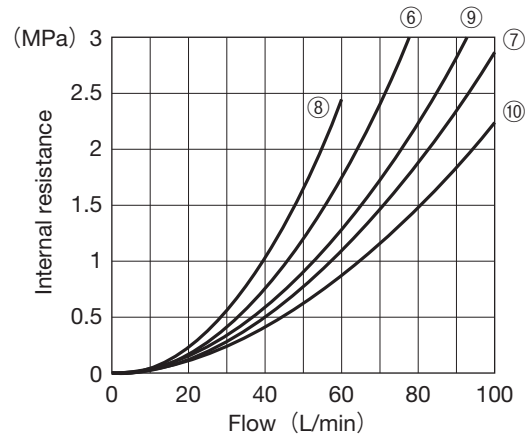
NOTE4: Select the slave unit carefully since the solenoid current value is high.

Internal Resistance (Dynamic Viscosity: 33 mm²/sec)

●HD1-025^B_C Series



●HD3/5-025B Series



●HD1-025^B_C Series

Direction Of Flow	Spool Type	3W			2WD	2S	
		BCA	BDA	BGA	BcA	BcA	KcP
P→A or B		①	②	①	①	①	①
A or B→T		③	②	④	③	⑤	
P→T			②				

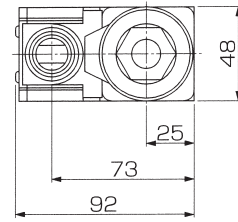
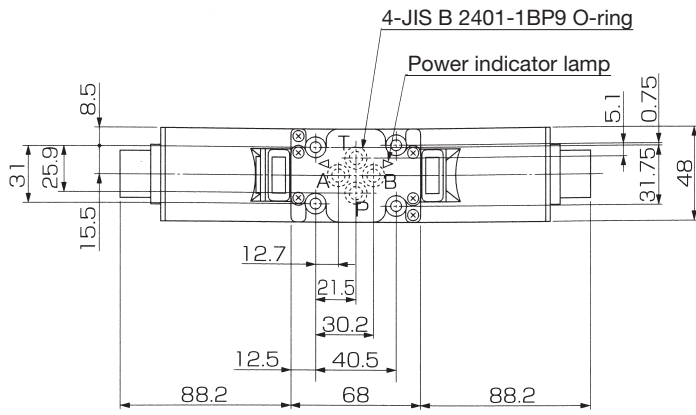
●HD3/5-025B Series

Direction Of Flow	Spool Type	3W			2WD	2S	
		BCA	BDA	BGA	AEB	BcA	KcP
P→A or B		⑥	⑦	⑥	⑦	⑧	⑥
A or B→T		⑨	⑦	⑩	⑦	⑧	⑥
P→T			⑨		⑥		

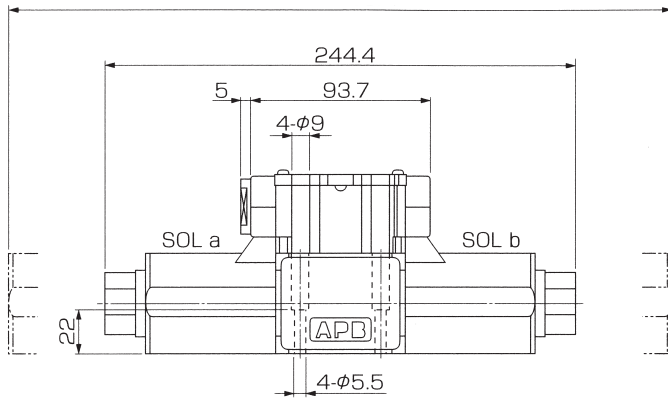


Outside dimensions

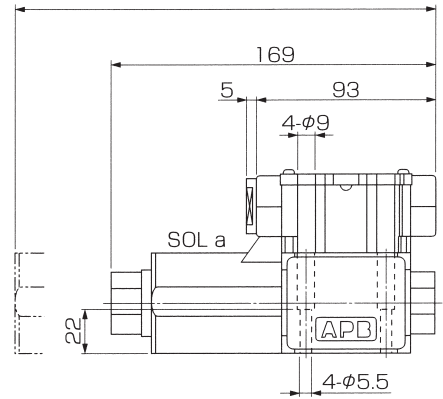
Type 025B (Terminal box type)



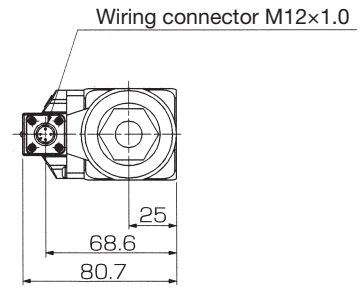
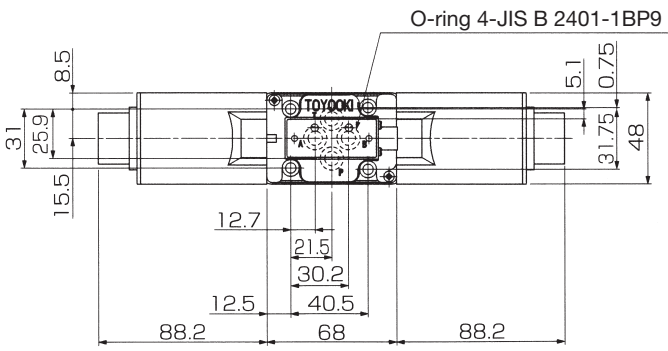
Solenoid installation/removal dimension 381



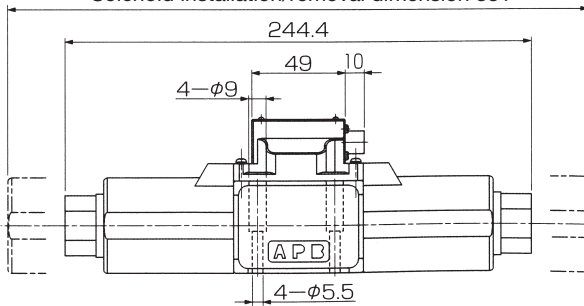
Solenoid installation/removal dimension 237



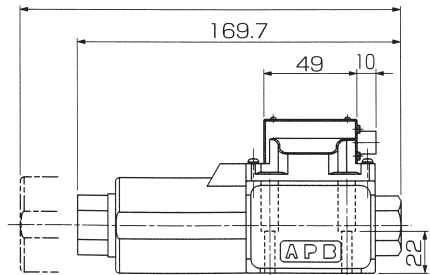
Type 025C (M12-4 pin connector type)



Solenoid installation/removal dimension 381



Solenoid installation/removal dimension 237.7



●For the sub-plate SHD025-**T1A, refer to page L-2.
SHD025-**T3A, refer to page L-6.

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