

5.0 MPa Pilot Operated 3 Port Solenoid Valve

Series VCH400

For Air

Stable responsiveness

Response time dispersion within ± 2 ms

Service life: 10 million cycles

Non-collision construction between the iron cores keeps equipment abrasion free.



Improved responsiveness when switching off.
Reduced dispersion construction

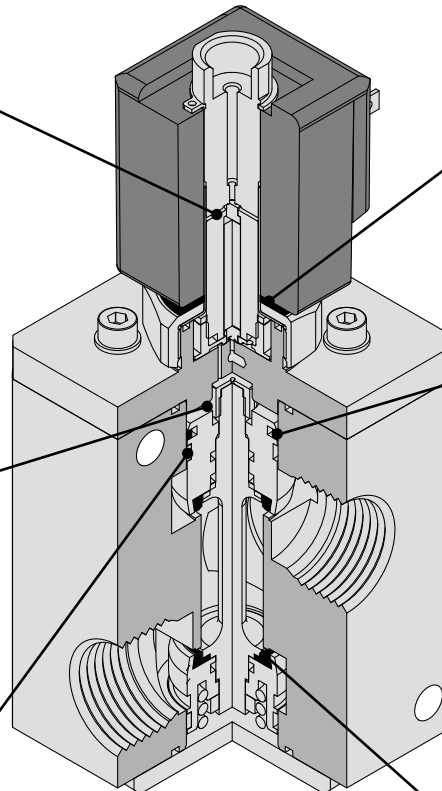
Improved durability by applying a **special surface treatment** to the sliding parts.

Unnecessary volume inside the pilot chamber is reduced.



High speed response
Reduced dispersion

Using NSF-H1-certified grease on the guide ring (sliding part).
Special treatment containing **fluororesin** is applied to the body side sliding face.



Use of **shock absorbing rubber**, resulting in protection of the pilot valve and electric parts.

Special fluororesin sealant is adopted for the sliding part.



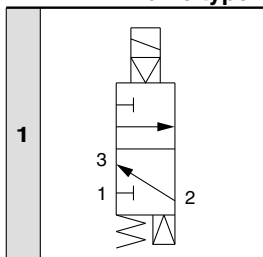
Stable responsiveness after extended disuse.
No likely to subject to a pressure.

Improved durability under a high pressure environment with a **polyurethane elastomer** poppet

How to Order

VCH410-1D-06G

Valve type



Voltage

1	100 VAC
2	200 VAC
3	110 VAC
4	220 VAC
5	24 VDC
6	12 VDC

* Consult with SMC for other voltages. CE marking compliant products are only available with 50 VDC or less.

Thread type
(Conforming to ISO1179-1 on the pneumatic/hydraulic G thread)

Port size

04	1/2
06	3/4
10	1

Electrical entry

D	DIN connector
DL	DIN connector with light

* A surge voltage suppressor is integrated inside the coil as a standard feature.

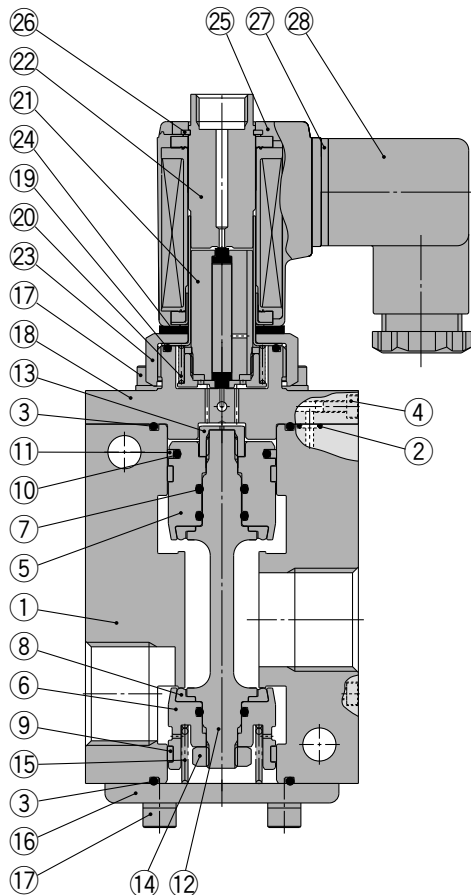


Specifications

Model		VCH410			
Valve construction		Pilot operated, poppet			
Fluid		Air, Inert gas			
Orifice		ø18			
Flow characteristics	C value (Effective area)	G1/2 1→2:20 dm³/(s·bar) (100mm²) 2→3:22 dm³/(s·bar) (110mm²)		G3/4, 1 1→2:22 dm³/(s·bar) (110mm²) 2→3:24 dm³/(s·bar) (120mm²)	
	b	G1/2 0.26		G3/4, 1 0.36	
	Cv	G1/2 1→2 5.3 2→3 5.8		G3/4, 1 1→2 5.8 2→3 6.3	
	Max. operating pressure		5.0 MPa		
Operating pressure ^{Note 1)}		0.5 to 5.0 MPa			
Fluid temperature		-5 to 80°C			
Ambient temperature		-5 to 80°C			
Body material		Aluminum + Hard anodized			
Main seal material		Polyurethane elastomer			
Enclosure		Drip proof (Equivalent to IP65)			
Port size		G1/2, 3/4, 1 (Conforming to ISO1179-1 on the pneumatic/hydraulic G thread)			
Impact/Vibration resistance ^{Note 2)}		300/100 m/s² ^{Note 3)}			
Mounting orientation		Unrestricted			
Mass		G1/2, 3/4: 1.83 kg, G1: 2.11 kg			
Coil specification	Rated voltage	12 VDC, 24 VDC, 100 VAC, 200 VAC (50/60 Hz)			
	Allowable voltage fluctuation	±10% of rated voltage			
	Electrical entry	DIN connector			
	Coil insulation type	Class B			
	Power consumption ^{Note 4)}	5 W (DC), 13 VA (AC)			

Note 1) When used as a selector valve (pressurizing 1, 3 port), the pressure in the port should be within the range of the port 1 pressure ≥ port 3 pressure x 2 (2 times).
 Note 2) Impact resistance: No malfunction resulted in an impact test using a drop impact tester. The test was performed one time each in the axial and right angle directions of the main valve and armature, for both energized and de-energized states. (Value in the initial stage)
 Vibration resistance: No malfunction resulted in 8.3 to 2000 Hz, a one-sweep test performed in the axial and right angle directions of the main valve and armature for both energized and de-energized states. (Value in the initial stage)
 Note 3) Vibration resistance is 50 m/s² when a light/surge voltage suppressor is attached.
 Note 4) No inrush voltages are generated in the AC solenoid because a full-wave rectifier is used.

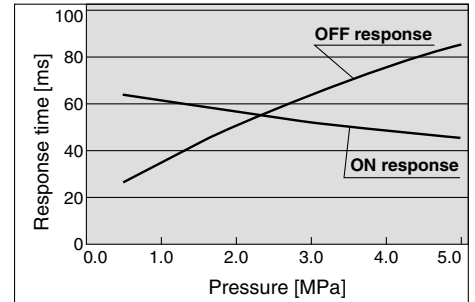
Construction



Component Parts

No.	Description	Material
1	Body	Aluminum + Hard anodized
2	O-ring	NBR
3	O-ring	NBR
4	Hexagon socket head cap screw	Stainless steel
5	Piston A	Aluminum + Hard anodized
6	Piston B	Aluminum + Hard anodized
7	O-ring	NBR
8	Poppet	Polyurethane elastomer
9	Guide ring	Resin
10	O-ring	NBR
11	Ring	Resin
12	Rod	Stainless steel
13	Hexagon nut	Brass
14	Hexagon nut class 3	Stainless steel
15	Poppet spring	Stainless steel
16	Plate	Steel + Electroless nickel plated
17	Hexagon socket head cap screw (with SW)	Carbon steel
18	Bonnet	Aluminum + Hard anodized
19	O-ring	NBR
20	Return spring	Stainless steel
21	Armature assembly	—
22	Tube assembly	Stainless steel
23	Nut	Brass
24	Rubber mount	NBR
25	DIN connector type solenoid coil	—
26	Round Type S retaining ring	Carbon steel
27	DIN terminal gasket	CR
28	DIN connector	—

Response Time



Note 1) DC solenoid without a light/surge voltage suppressor
 Note 2) AC or DC solenoid with an indicator light: It will cause delays around 20 to 30 msec in the OFF response time.

VX2

VXD

VXZ

VXE

VXP

VXR

VXH

VXF

VX3

VXA

VCH□

VDW

VQ

LVM

VCA

VCB

VCL

VCS

VCW