

Flow control valve

FCV-N



NEW PRODUCTS

- Flow control valve for temperature control.
- Low-cost with equivalent performance to flow control valve "FCV / MCV-M" Series.
- Built-in driver unit in actuator part.
- Cable length is adjustable due to no connectors .
- Valve position is manually adjustable with tool. No need to locate DC power.

Model number selection

Type	Std.	# of ports	Connection size	Orifice	Temperature zone	O-ring	Fluids	I/O	Option	For specialized item	
FCV-N	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	
										W	Wrench * 2
										B	Bracket * 3
										A	4 – 20 mA
										V	1 – 5 V
										T	1 – 10 V
										1	Water
										9	For specialized fluid * 1
							Blank			HNBR	Std. type
							N			NBR	
							F			FKM	
							E			EPDM	
							S			Si	
							S			0 – +60°C	High spec type
							HA			0 – +130°C	
							CA			-20 – +100°C	
							CB			-40 – +130°C	
							030			φ3.0	
							045			φ4.5	
							060			φ6.0	
							074			φ7.4	
							095			φ9.5	
							100			φ10.0	
							01			Rc1/4"	
							02			Rc3/8"	
							03			Rc1/2"	
							04			Rc3/4"	
							05			Rc1"	
							S			2-port	2-way valve
							T			3-port	3-way valve
							Std.			Valve design	
							25			2-way ball valve	
							32			2-way ball valve	
								3-way ball valve			
							Type		Connection size		Orifice size
							Blank			Std. type	
							H			High spec type	
									Temperature zone		
									0 – +60°C		
									0 – +130°C / -20 – +100°C / -40 – +130°C		

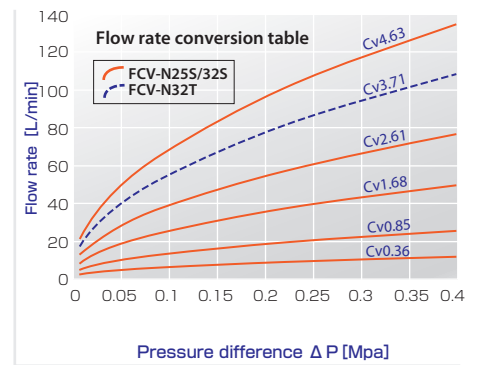
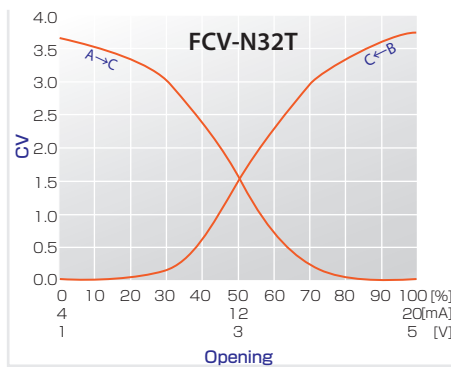
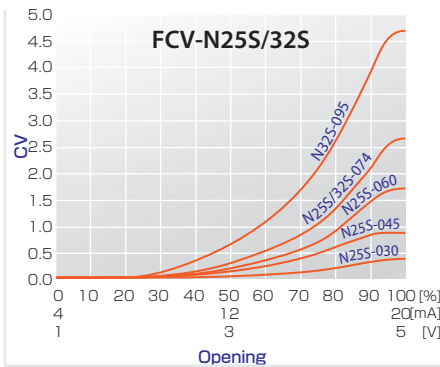
※ Consult with us for using this product with negative pressure.
 ※ 1: Add a fluid name at the end of model number(s)
 ※ 2: Wrench is the tool that is used to open / close the valve forcedly. Available on the standard type only.
 ※ 3: The bracket is available on the high-spec type.

Specifications

Item		Description					
Valve design		2-way ball valve				3-way ball valve	
Model number selection		FCV-N / NH25S			FCV-N / NH32S		FCV-N / NH32T
Orifice size		φ3.0	φ4.5	φ6.0	φ7.4	φ7.4	φ9.5
Cv Value (Max.)		0.36	0.85	1.68	2.61	2.61	4.63
Connection size		Rc1/4", Rc3/8", Rc1/2"			Rc1/2", Rc3/4"		Rc3/4", Rc1"
Fluid type		WATER, etc.					
Fluid temperature		0 - +60°C					
FCV-NH		0 - +130°C / -20 - +100°C / -40 - +130°C					
Operating temperatures, humidities		Temperature: 0 - 50°C					
Temp.		Humidity: 35 - 85%RH (Non condensing / freezing)					
Humid.							
Pressure limit		0.4MPa					
Withstand pressure		1.0MPa(G)					
Power source / Current consumption		DC24 V ± 10% Max. 300 mA					
Analog I / O		4 - 20 mA / 1 - 5 V / 1 - 10 V (Option)					
Input impedance		20 Ω (4 - 20 mA) / 1M Ω (1 - 5 V, 1 - 10 V)					
Output Allowable Load Resistance		Below 300 Ω in use for 4 - 20 mA and over 1 kΩ for 1 - 5 V / 1 - 10 V					
Drive system		Stepper motor					
Resolution of Valve Movement		pprox. 3200 steps					
Response Time (0 to 100% Open)		approx. 8s					
FCV-NH		approx. 10s					
Valve hysteresis width		3% or lesser ※					
IP grade		IP67 Equivalent (when using cable)					
Installation orientation		Vertical · Horizontal (Actuator should NOT be in upside down position)					
Wetted materials (In case of FCV-N)		SCS13, SUS304, PTFE(PTFE-filled), HNBR (standard)					
Grease used for wetted materials		Silicone grease					
FCV-NH		Grease-free					
Option		Tool to mechanically open and close valve (option: Available for FCV-N)					
Weight		FCV-N		FCV-NH			
		approx. 1200 g		approx. 1350 g		approx. 1450 g	
						approx. 1600 g	
						approx. 1950 g	
						approx. 2100 g	

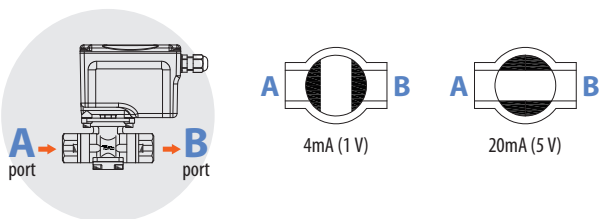
※ Guarantee for the valve hysteresis and our inspection before the shipment is based on the valve 60% open for FCV-N(H)25 / 32S series and the valve 50% open for FCV-N(H)32T series.

Flow characteristic

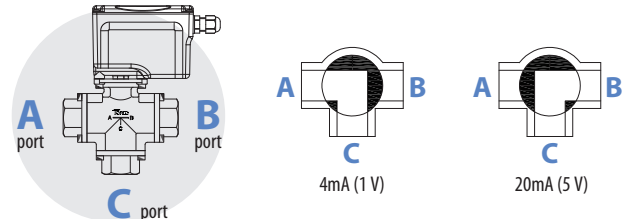


Switching form

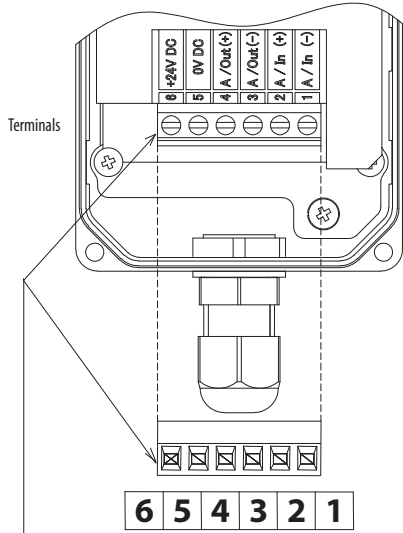
FCV-N (H) 25S / 32S



FCV-N (H) 32T



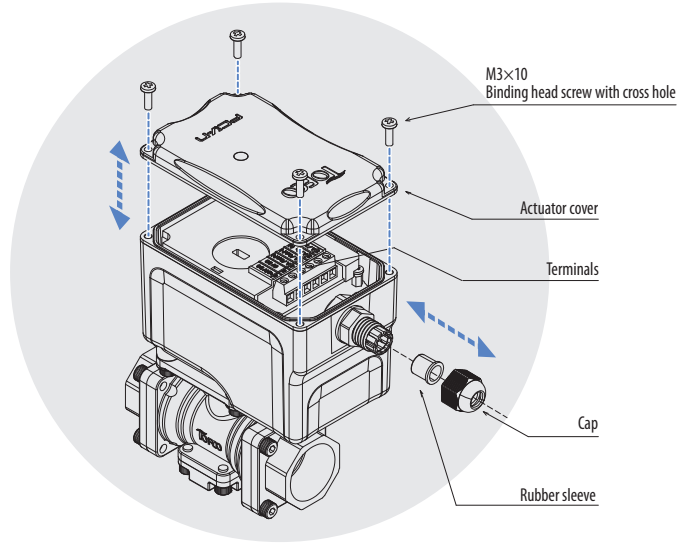
Wiring diagram



6 5 4 3 2 1

Pin No. for Terminals

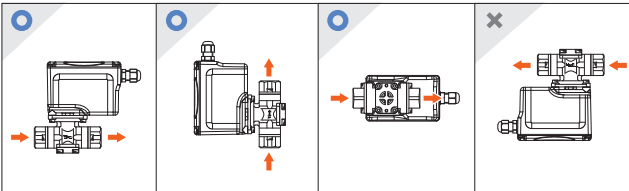
No.	Connection
1	Analog input (COM)
2	Analog input (4 – 20 mA / 1 – 5 V)
3	Analog output (COM)
4	Analog output (4 – 20 mA / 1 – 5 V)
5	Power source 0 V
6	Power source DC+24 V



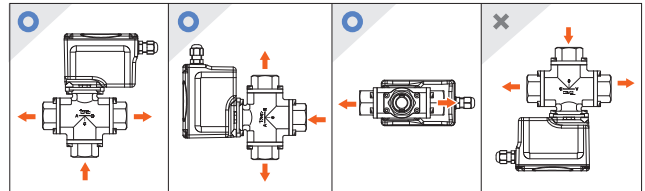
※ A cable is not included for this product. The cable that is prepared by you: $\phi 4.0 - 6.8$ mm of outer diameter of sheath with 6-pole (4-pole can be used when output is not required). The recommended cable core is AWG 24 – 26.

Installation attitude

FCV-N (H) 25S / 32S



FCV-N (H) 32T



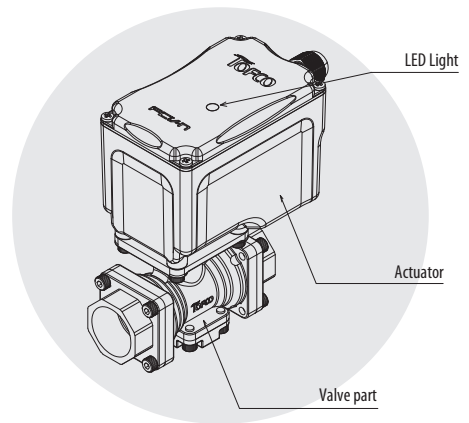
LED light

LED (Red): Power and error

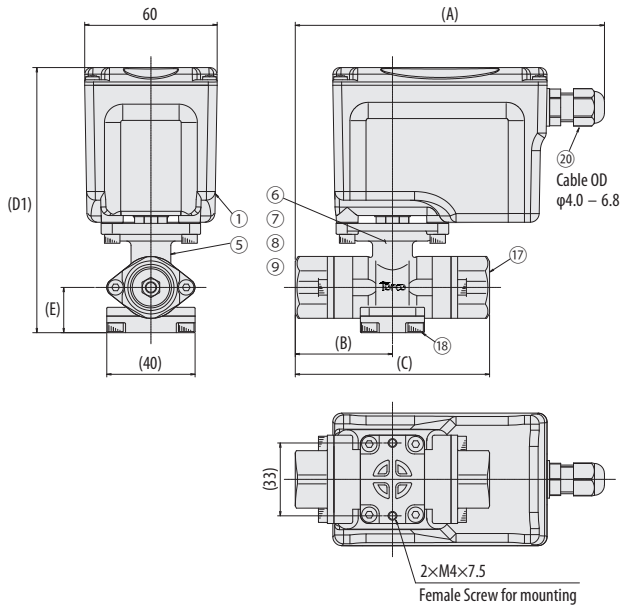
LED	Description
Turned off	Power OFF
Turned on	Power ON
Fast blinking	Memory error
Slow blinking	Over current error on motor

LED (Green): Valve position

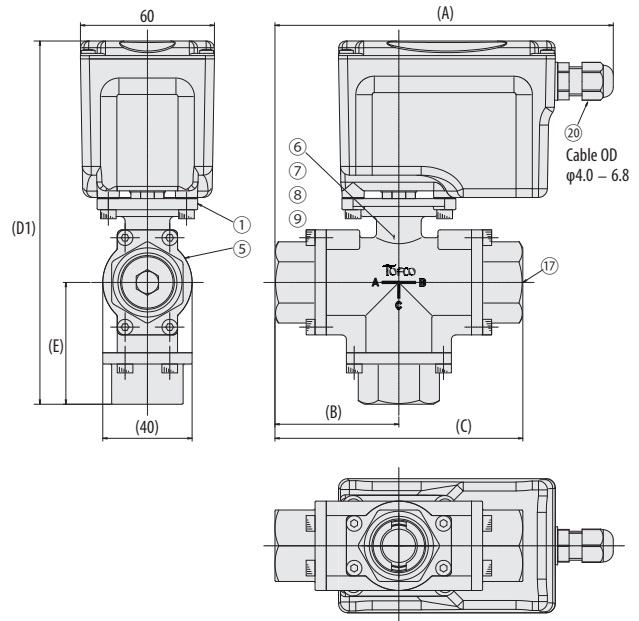
LED	Valve position
Turned off	0%
Slow blinking	Narrow
Fast blinking	Wide
Turned on	100%



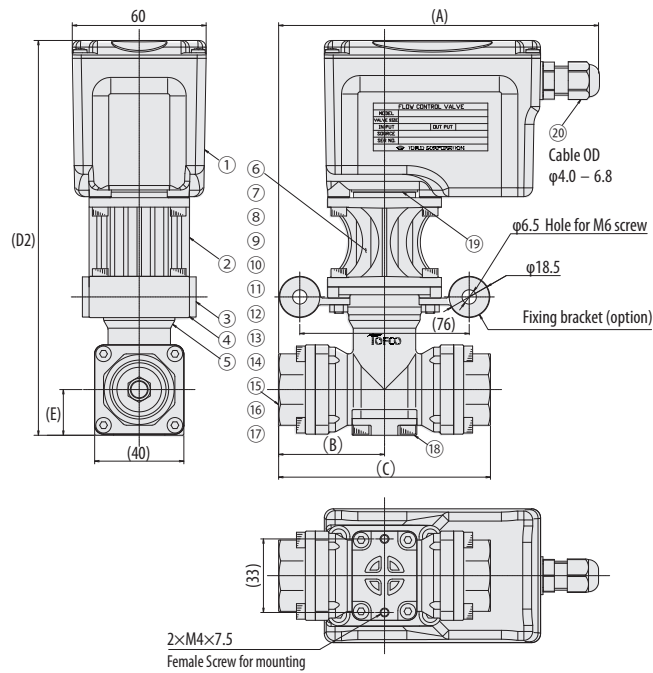
FCV-N □ S 2-way valve



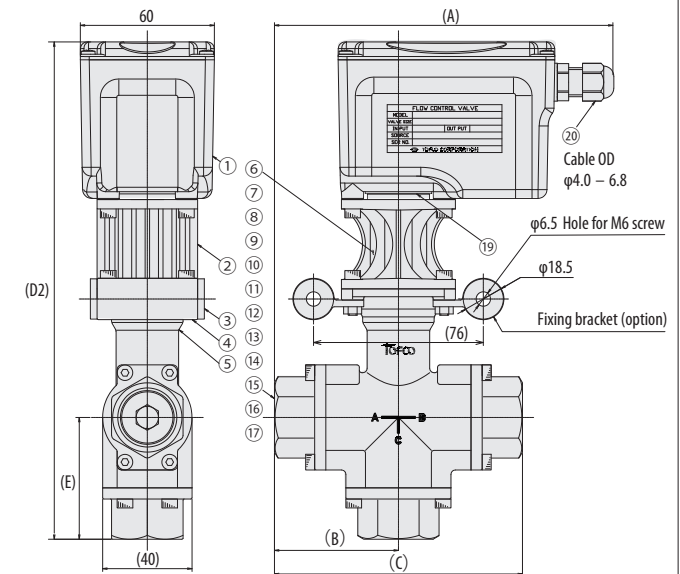
FCV-N32T 3-way valve



FCV-NH □ S 2-way valve



FCV-NH32T 3-way valve



Dimensions

Std.	Connection size	Dimensions (mm)					
		A	B	C	D1	D2	E
FCV-N25S FCV-NH25S	Rc1/4"	135.5	38	76	120	174.5	20.5
	Rc3/8"						
FCV-N32S FCV-NH32S	Rc1/2"	145	47.5	95	126	177	20.5
	Rc3/4"						
FCV-N32T	Rc3/4"	153	55.5	111	162.5	222.5	54.5
FCV-NH32T	Rc1"	165	67.5	135	174.5	234.5	66.5

Materials

No.	Names of parts	Material
1	Actuator	AL, etc.
2	Heat shield extension bracket	PPS
3	Bushing	Bakelite
4	Mounting adapter	SCS13
5	Valve body	SCS13
6	O-ring	FKM, etc.
7	Ball shaft	SUS304
8	shaft retainer	SUS304
9	Spring	SUS304
10	Shaft packing	PTFE

No.	Names of parts	Material
11	Shaft packing fixture A	SUS304
12	Shaft packing fixture B	SUS304
13	Ball retainer lockpacking	SCS13
14	Ball packing	PTFE
15	Collar	PPS
16	Heat shield extension shaft	Zirconia
17	Adapter	SCS13
18	Plug adapter	SCS13
19	Attachment	SUS304
20	Cable gland	PA, etc.



Address : 4-3-17 Minamidaira Hino-shi Tokyo Japan 191-0041

Phone : +81-(0)42-592-6111 FAX : +81-(0)42-592-6112 E-mail : sales@tofco.jp Web site : www.tofco.jp