

Flow control valve

FCV-N

- Low-cost with equivalent performance that "FCV / MCV-M" Series has.
- Built-in driver unit in Actuator.
- No cable is included, being able to choose whatever cable length you need.
- Valve position is manually changeable with wrench while no DC power is located.



Model number selection

Type	Base model	# of ports	Connection size	Orifice size	Temperature range	O-ring type	Fluid name	I/O type	Option	Specialized item(s)																																																																																																															
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※ Consult with us for using this product with negative pressure.

*1: Add fluid name at the end of model number

*2: Tool that is used to open / close the valve forcedly. Available on the Standard type only.

*3: The bracket is available for the high temperature type.



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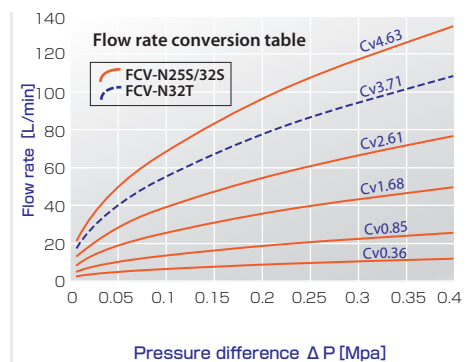
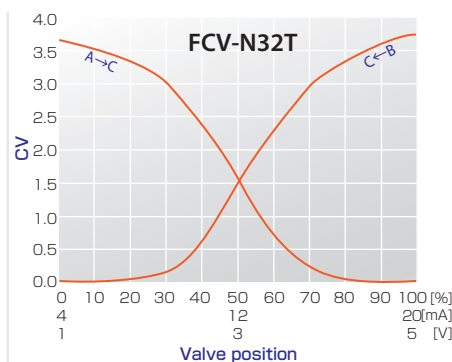
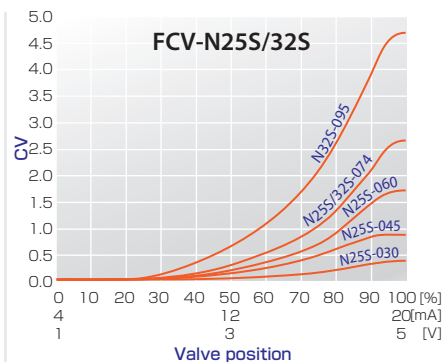
Web site : www.tofco.jp

Specifications

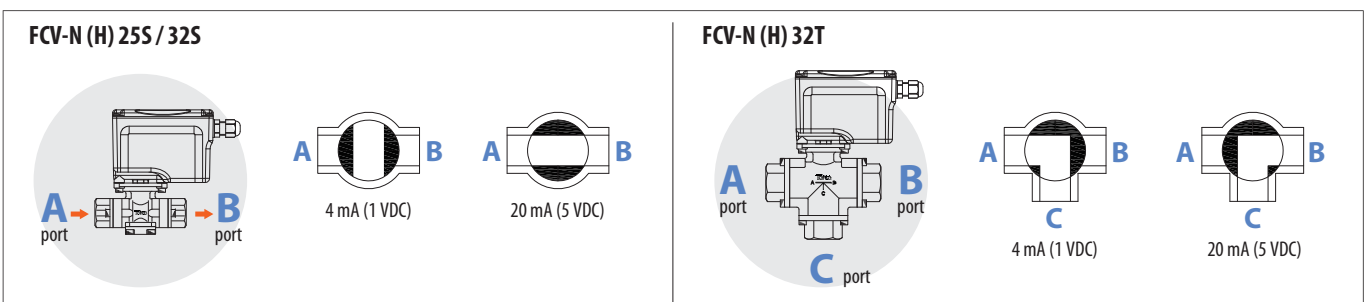
Item		Description						
Valve type		2-way ball valve				3-way ball valve		
Base model		FCV-N / NH25S			FCV-N / NH32S		FCV-N / NH32T	
Orifice size		φ3.0	φ4.5	φ6.0	φ7.4	φ7.4	φ9.5	
Cv Value (Max.)		0.36	0.85	1.68	2.61	4.63	3.71	
Connection size		Rc1/4, Rc3/8, Rc1/2			Rc1/2, Rc3/4		Rc3/4, Rc1	
Fluid name		WATER, etc.						
Fluid temperature		FCV-N		0 to +60°C				
		FCV-NH		0 to +130°C / -20 to +100°C / -40 to +130°C				
Operating environment		Temperatures		0 – 50°C				
		Humidity		35 – 85%RH (Non-condensing and freezing)				
Pressure limit		0.4MPa						
Withstand pressure		1.0MPa(G)						
Power source / Current consumption		24 VDC ± 10%, Max. 300 mA						
Analog I / O type		4 – 20 mA / 1 – 5 VDC / 1 – 10 VDC (Option)						
Input impedance		20 Ω (4 – 20 mA) / 1M Ω (1 – 5 VDC, 1 – 10 VDC)						
Output allowable load resistance		≤ 300 Ω for 4 – 20 mA / ≥ 1 kΩ for 1 – 5 VDC / 1 – 10 VDC						
Drive system		Stepper motor						
Valve resolution		Approx. 3200						
Response time (0→100%)		FCV-N		Approx. 8s				
		FCV-NH		Approx. 10s				
Valve hysteresis width		≤ 3 % ※						
IP rating		Equivalent to IP67 (when using compatible cable)						
Installation orientation		Vertical · Horizontal (Actuator always must be placed upward)						
Wetted materials (FCV-N)		SCS13, SS304, Filled PTFE, HNBR (standard)						
Grease used on wetted materials		FCV-N		Yes (Silicone grease)				
		FCV-NH		No (Grease-free)				
Option		Wrench to mechanically open and close valve (Option: available on FCV-N)						
Weight		FCV-N			Approx. 1200 g		Approx. 1450 g	Approx. 1950 g
		FCV-NH			Approx. 1350 g		Approx. 1600 g	Approx. 2100 g

※ This product is inspected and guaranteed when FCV-N(H)25 / 32S series has 60% of valve position, and FCV-N(H)32T series has 50% of valve position.

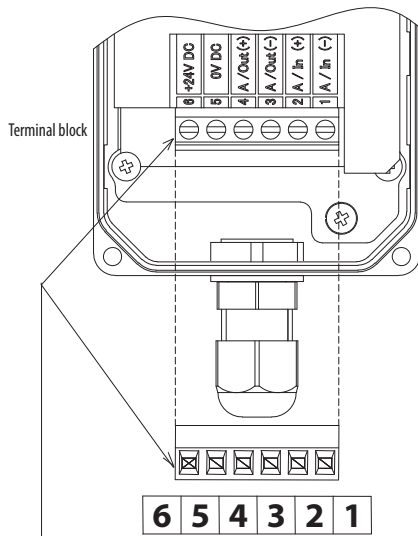
Flow characteristic



Valve behaviour

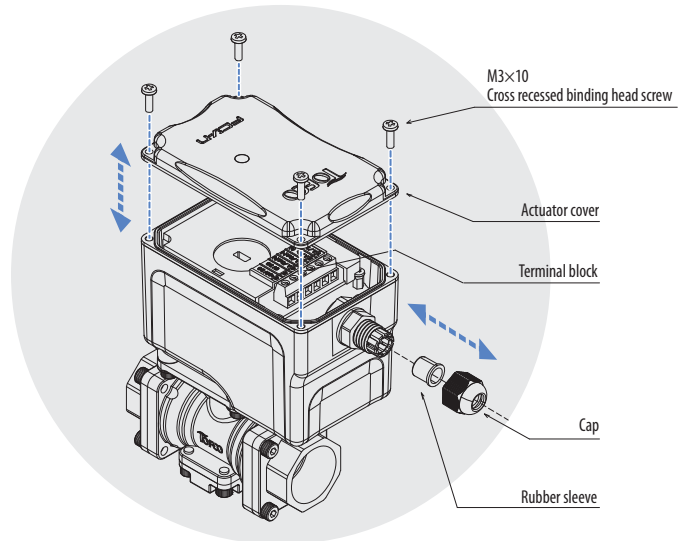


Electrical connections



Pin No. for Terminal block

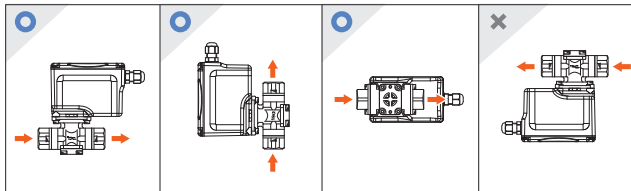
No.	Description
1	Analog input (COM)
2	Analog input (4 – 20 mA / 1 – 5 VDC)
3	Analog output (COM)
4	Analog output (4 – 20 mA / 1 – 5 VDC)
5	Power source 0 V
6	Power source +24 VDC



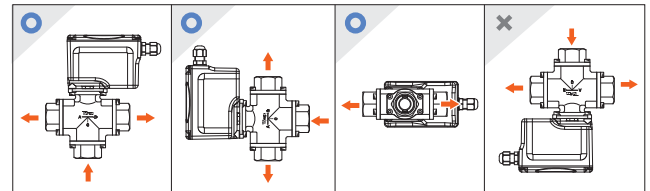
※ Cable is not included with this product.
 $\phi 4.0 - 6.8$ mm of outer diameter of sheath with 6-pole (4-pole can be used when analog output is not required).
 The recommended cable core: AWG 24 – 26.

Installation orientation

FCV-N (H) 25S / 32S



FCV-N (H) 32T



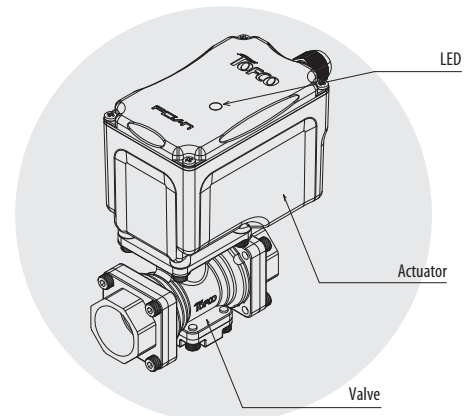
LED light

Red LED: Power and error

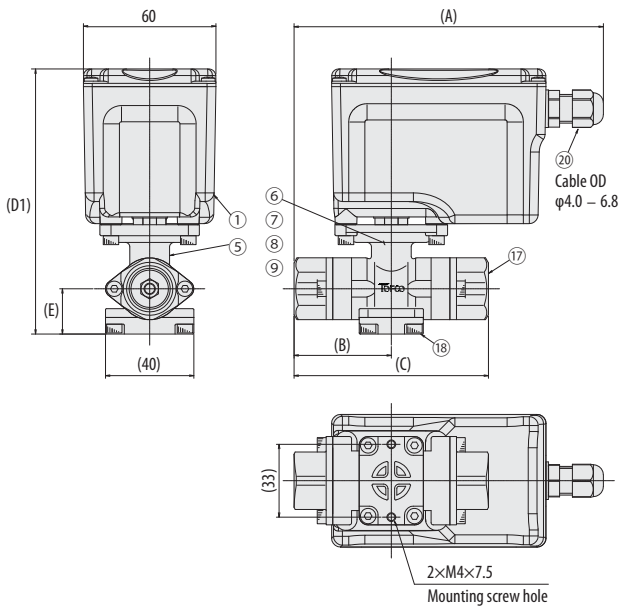
	LED	Description
Turned off		Power OFF
Turned on		Power ON
Fast blinking		Memory error
Slow blinking		Over current error on motor

Green LED: Valve position

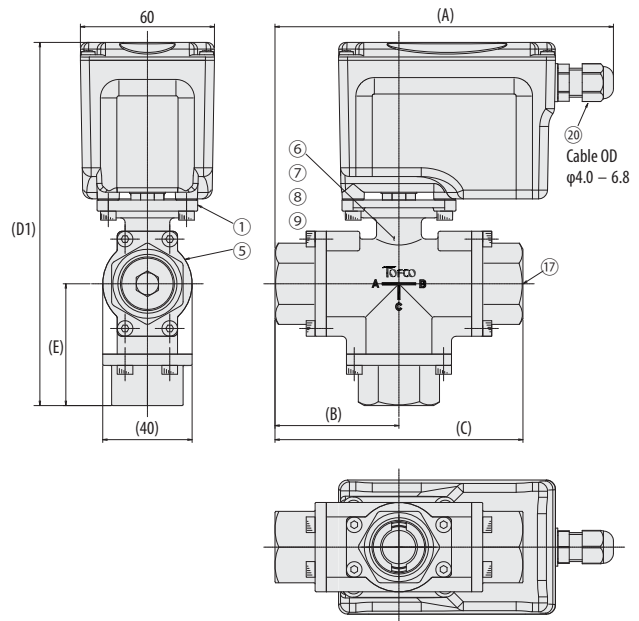
	LED	Valve position
Turned off		0%
Slow blinking		Narrow
↕		↕
Fast blinking		Wide
Turned on		100%



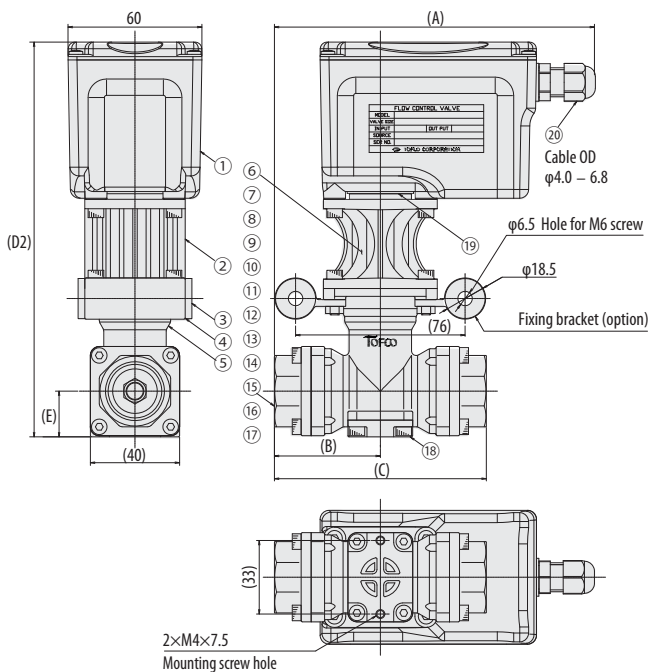
FCV-N□S 2-way



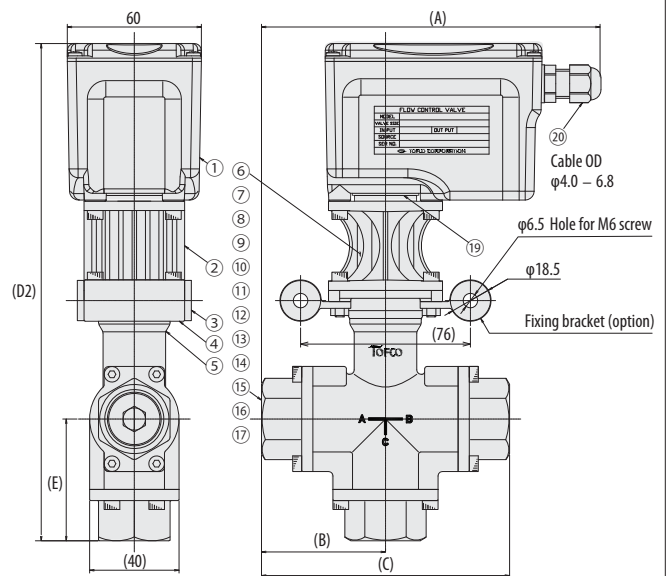
FCV-N32T 3-way



FCV-NH□S 2-way



FCV-NH32T 3-way



Dimensions

Base model	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	141.5	44	88	126	177	20.5
	Rc3/4						
FCV-N32T FCV-NH32T	Rc3/4	153	55.5	111	162.5	222.5	54.5
	Rc1						

Materials

No.	Part name	Material	No.	Part name	Material
1	Actuator	AL, etc.	11	Shaft gasket gland A	SS304
2	Heat shielded extended bracket	PPS	12	Shaft gasket gland B	SS304
3	Bushing	Bakelite	13	Ball retainer	SCS13
4	Mounting adapter	SCS13	14	Ball gasket	PTFE
5	Valve body	SCS13	15	Collar	PPS
6	O-ring	FKM, etc.	16	Heat shielded extended bracket	Zirconia
7	Ball shaft	SS304	17	Fitting	SCS13
8	Shaft retainer	SS304	18	Plug	SCS13
9	Spring	SS304	19	Attachment	SS304
10	Shaft gasket	PTFE	20	Cable gland	PA, etc.