

ML-TS, FS Type Motor Valve

Single seat two-way valve

ML-TS Type (screwed) and ML-FS Type (flanged) motor valves are designed for flow control of cold/hot water, oil, steam and gases.

The ON-OFF characteristic is for two-position control, while the linear characteristic is for proportion control. Since the valve has single seat, the leakage is small. Nonetheless, it is not suitable for applications where high pressure differential is required.



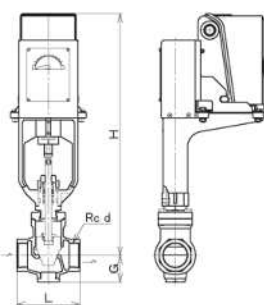
ML-TS Type



ML-FS Type

CONSTRUCTION

ML-TS Type



FEATURES

- Single seat valve with small leakage.
- Less water hammer when opening/closing valve.

SPECIFICATIONS

Model name	ML-TS	ML-FS
Code name	MLTS-FD	MLFS-BD
Applicable fluid	Water, hot water, oils* ¹ , & gases* ² .	
Rated pressure	1.0MPa	
Fluid temperature	Max. 100°C* ²	
Ambient temperature	-10~60°C	
Plug characteristics	ON-OFF and Linear	
Leakage allowance	Less than 0.01% of rated flow	
Protection	Splash-proof, for indoor installation* ³ . (Equivalent to IP54 when waterproof cable ground is used.)	
End connection	Screwed JIS Rc	Flanged JIS 10KFF
Materials	Body(Cast bronze), Trim(Cast bronze)* ⁴	Body(Cast iron), Trim(Cast bronze)* ⁴
Valve body pressure test	Hydraulic 1.5MPa	

*1. If there is any local regulation for fuel oils or diesel oil, confirm the body materials according to the regulation.

*2. Applicable temperature Max. 180°C for steam is available upon your request.

*3. Rain cover for outdoor installation is available upon your request.

*4. Disc with Teflon is available upon your request.

*5. Refer to Pages 264 and 265 for specifications and circuit, etc.

DIMENSIONS (ML-TS Type)

(mm)

Size	d	L	G	H	Mass(kg)
15(1/2")	1/2"	63	26	402	8.4
20(3/4")	3/4"	80	32	410	8.6
25(1")	1"	90	36	415	9
32(1 1/4")	1 1/4"	106	44	440	10
40(1 1/2")	1 1/2"	118	50	452	10.7
50(2")	2"	140	60	471	13

DIMENSIONS (ML-FS Type)

(mm)

Size	L	G	H	Mass(kg)
15(1/2")	112	51	425	11.1
20(3/4")	125	56	429	11.6
25(1")	140	61	434	13.4
32(1 1/4")	160	67	437	14.7
40(1 1/2")	180	72	456	16.3
50(2")	200	82	465	19.9
65(2 1/2")	270	120	482	35.5
80(3")	290	141	502	40.5
100(4")	350	160	522	61.5

Flange code JIS 10KFF

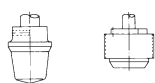
TABLE OF Cv VALUE AND APPLICABLE DIFFERENTIAL PRESSURE LIMIT

Size	Cv value	Differential pressure limit (MPa)
15(1/2")	3.6	1.0
20(3/4")	6.4	1.0
25(1")	10	1.0
32(1 1/4")	16	0.75
40(1 1/2")	25	0.45
50(2")	40	0.3
65(2 1/2")	67	0.18
80(3")	102	0.12
100(4")	160	0.06

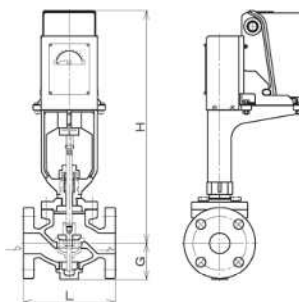
* Size 65mm or bigger are only ML-FS Type.

Valve shape

Linear plug ON-OFF plug

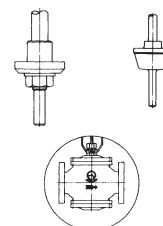


ML-FS Type



Valve shape

ON-OFF plug Linear plug



Size 65~100mm

Note: Depending on size, the structure may vary.

DATA/ML Type Motor Valve



Motor

【MOTOR】

■ FEATURES

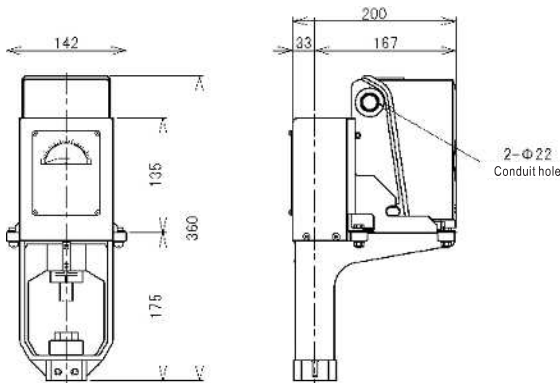
- Four types of motor available for meeting requirements of different input methods.
- Low power consumption, energy saving.
- Buffer in drive unit protect motor and disc from excessive stress.
- Needle and scale plate allow easy reading of valve opening degree.

■ SPECIFICATIONS

Control type	ON-OFF type	Proportional control type		
		A motor	B motor * ¹	C motor
Input signal	Relay contact	Potentiometer(135Ω/0.5W)	Relay contact	DC 4~20mA
Rated voltage	AC24V 50/60Hz* ³			AC24V 50/60Hz* ⁴
Rated capacity	9VA			
Timing (at non-load)	50Hz:69sec, 60Hz:58sec			
Withstanding voltage test	AC 500V/min			
Insulation resistance	5MΩ or more			
Ambient temperature	-10~60℃			
Protection	Splash-proof, for indoor installation* ⁵ . (Equivalent to IP54 when waterproof cable ground is used.)			

- * 1. The proportional B motor is equipped with feedback potential meter (135Ω/0.5W).
 * 2. Motor that is equipped with one of the following components are available:
 ①Auxiliary limit switch unit (with 4 switches, non-voltage/C contacts); or
 ②Auxiliary potential meter for opening display (1kΩ, max. DC5V)
 * 3. AC 100V or 200V for ON-OFF or B motor are available upon your request.
 * 4. Proportional C motor with rated voltage AC85~264V free power supply is also available.
 * 5. Rain cover for outdoor installation is available upon your request.

■ FIGURATION

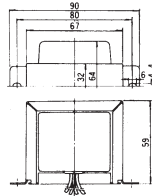


Transformer

【TRANSFORMER】 (accessory, not embedded)

The rated voltage of motor of ML motor valve is AC24V.
 Use the accessoril transformer to reduce general commercial voltage to rated voltage.

■ FIGURATION

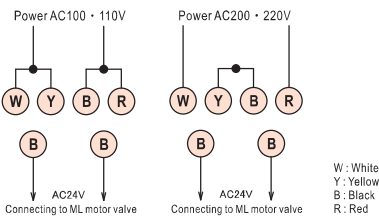


■ SPECIFICATIONS

Primary side voltage	AC100/200V 50/60Hz, AC110/220V 60Hz* Common use by method for wire connection
Secondary side voltage	25V(at non-load)
Apparent power	25VA
Withstanding voltage test	1500V/min
Insulation resistance	100MΩ or more
Coil connection	Coil connection Lead wires at both sides
Mounting	Mount on a panel board, etc. with M4 size screws or nuts.
Mass	0.95kg

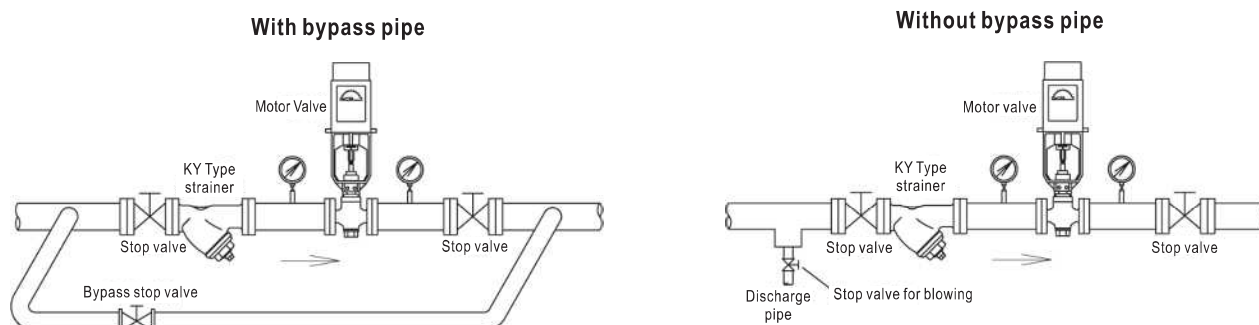
* Other voltages for primary side are available.

■ WIRING DIAGRAM



DATA/ML Type Motor Valve

Fig.1 Piping example



Selection and Installation

1. Install strainer on the primary side of motor valve (see Fig.1).
2. Install a bypass pipe (with stop valve) between the primary and secondary sides of motor valve if the operation of equipment cannot be stopped (see Fig.1).
If you do not intend to install bypass pipe, install blowing stop valve, which is branched from the main pipe, right before the stop valve on the primary side of motor valve, to allow flushing.
3. Install the valve upright to horizontal pipe or on vertical pipe (see Fig.2). For installation on vertical pipe and when the size is 80mm above, leave sufficient space for maintenance purpose.
4. As for application with 1 piece of operational switch, in the case 2 or more motor valves are connected through parallel connection, install external relay and the operation should be performed through the contact of relay.
5. The ambient temperature should be within the range of applicable temperature described in specifications.
In addition, avoid using motor valve in environment where there is excessive humidity, dust, corrosive gas or explosive gas.
6. Install steam trap on piping if the valve is used for steam.
7. When the fluid is liquid, the pressure in pipe may increase due to thermal expansion caused by ambient temperature when valve is closed. In such cases, it is recommended to install relief valve to protect machine (see Fig. 3).
8. Make sure the arrow mark on motor valve match with the direction of flow of fluid.
9. Leave some space for disassembling and maintenance.
10. Fix and support piping properly to prevent motor valve from being damaged due to weight of piping, excessively large stress, bending force or vibration.
11. Discharge drain or apply thermal insulation if there is risk of freezing.

Fig.2 Direction of installation of ML motor valve

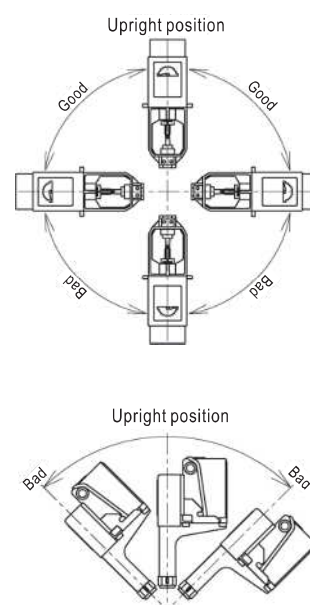
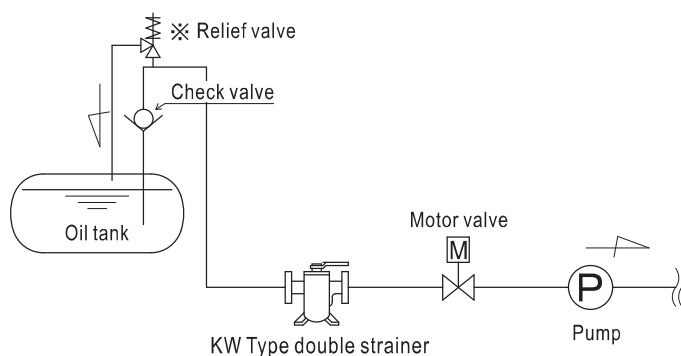


Fig.3 Relief valve installation



※Install relief valve if pressure rise due to thermal expansion or other factors is anticipated.