



Pressure Independent Control Valve--FCU
Technical Data



Nominal size: DN15~DN32
 Control mode: modulating/on-off
 Force: 200N



Nominal size: DN15~DN32
 Control mode: on-off
 Force: 100N

Product Features

- **Max. Flow Setting**

Max. flow value can be freely set by turning the rotary dial to make sure each FCU could be assigned on demand to achieve efficient and energy-saving of the entire system.

- **Analogue Control and Feedback Function**

It's modulating actuator with analogue control and feedback function, and the control signal is voltage type.

- **Self-calibration Function**

The actuator with self-stoking function can automatically test max. stroke of each valve without debugging.

- **LED Display**

LED display can show the actuator status: running, stop, alarming and self-stroking.

- **Low Noise**

It adopts spring-and-diaphragm differential pressure balancing structure than spring-and-stainless steel valve liner flow balancing structure. Spring-and-diaphragm contributes to a lower noise, no water hammer and liner running noise.

- **Compact Size, Easy Installation**



The valve has compact structure and size. The connection with the pipeline adopts standard internal thread, which is convenient to install.



- **Fail safe**

The position of the valve can be configured in the event of a power failure.

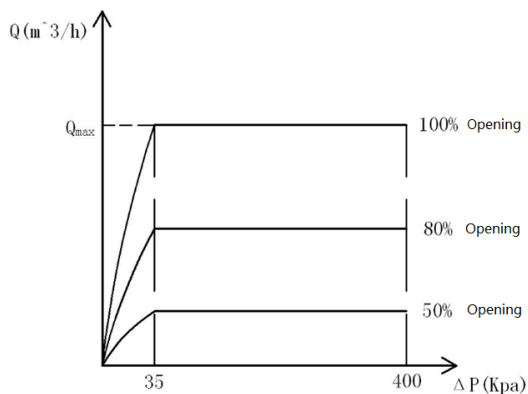


Type Overview

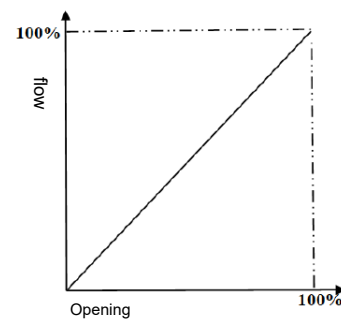
Actuator	Series		TD100...	TW200...			
	Rated Stroke		4mm	6mm			
	Nominal Output Force		100N	200N			
Modulating							
Modulating with fail safe				TW200-XV24-M30C			
On-off			TD100-D220	TW200-D220-M30			

Valve	Type PN16	Type PN25	Caliber	Stroke mm	Max. Flow m ³ /h	Test Plugs	ΔPs kPa
	TD2V-15	TD2VP-15	DN15	4	0.9	No	35-500kPa
	TD2V-20	TD2VP-20	DN20	4	1.3	No	35-500kPa
	TD2V-25	TD2VP-25	DN25	4	2.0	No	35-500kPa
	TD2V-32	TD2VP-32	DN32	4	3.5	No	40-500kPa
	TD2V-15.CY	TD2VP-15.CY	DN15	4	0.9	Yes	35-500kPa
	TD2V-20.CY	TD2VP-20.CY	DN20	4	1.3	Yes	35-500kPa
	TD2V-25.CY	TD2VP-25.CY	DN25	4	2.0	Yes	35-500kPa
	TD2V-32.CY	TD2VP-32.CY	DN32	4	3.5	Yes	40-500kPa

Flow Characteristics



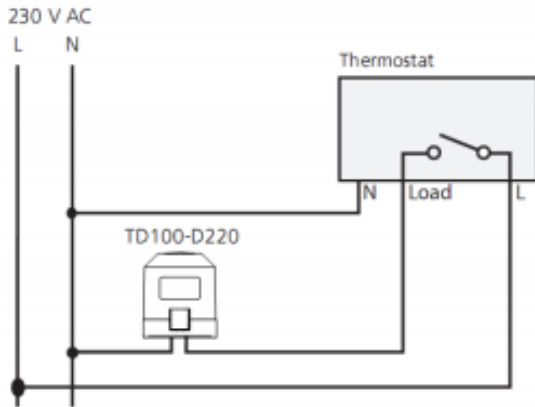
DP flow characteristics



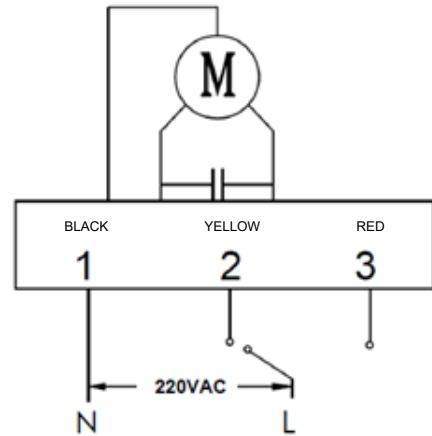
Opening flow characteristics

Wiring Instruction

TD100-D220



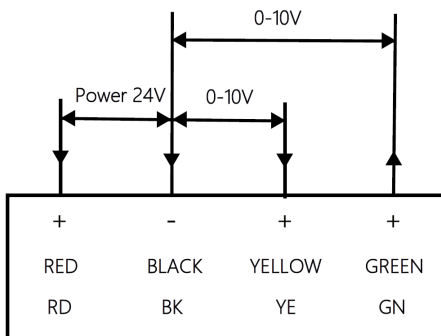
TW200-D220-M30



1, 2 power, actuator spindle is extended, valve stem with it is indented, then valve tends to close;
1, 3 power, actuator spindle indented, with the extension of the valve stem, then valve tends to open;

TW200-XV24-M30 / TW200-XV24-M30C

Control/feedback signal: 0-10V



TW... Proportional control type, when combined with TD2V series, as shown in the figure above, the red terminal is the power input, through the yellow terminal access control signal to control:

The control signal increases: the actuator spindle is indented, and the valve stem with it is extended, valve tends to open;

The control signal is reduced: the actuator spindle is extended, and the valve stem with it is indented, valve tends to close;

The control signal is unchanged: the actuator spindle and the valve stem with it remain in the current position;

When the voltage signal is disconnected, equivalent to the minimum input control signal, the actuator spindle is extended and the valve is closed.

Indicating Light



LED display	Status	Description
Green	Always	Running
Red	Always	Stop
Orange	Flashing	Stroke test
Red	Flashing	Alarming

Debugging Instruction

TW200-XV24-M30

A. Connect actuator and valve body, wiring according to wiring diagram.

B. Automatic self-stroking (factory default setting): actuator will repeat automatic self-stroking when power on each time, the process is as follows:

- (1) Orange indicating light will keep flashing, actuator shaft extends to lower limit position firstly and then it retracts to upper limit position, actuator will not be controlled by signal by this time.
- (2) Orange light stops flashing, self-stroking is done. By then, actuator running direction can be controlled by control signal.
- (3) If red light is quick flashing during self-stroking, it means the self-stroking status is not correct and the actuator will start alarming. The actuator can not match with the valve's max. stroke.

C. If self-stroking is needed in a power-on state, press down the Reset button over 5 seconds, and then the actuator starts self-stroking. The phenomenon is the same as step B.

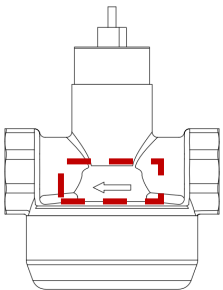
D. After self-stroking, the actuator will be controlled by control signal:

- (1) when control signal increases, valve will be opened;
- (2) When control signal decreases, valve will be closed;
- (3) When control signal stays the same, valve will keep the current position;

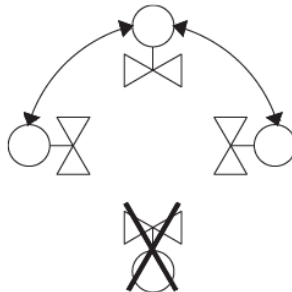
E. When voltage signal is disconnected, it is equivalent to input a minimum control signal, actuator shaft extends, valve will be closed.

Installation Instruction

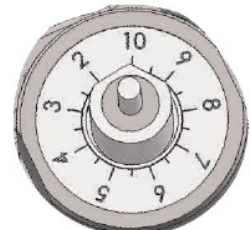
1. Connect actuator and valve body, the mounting direction is as shown below.



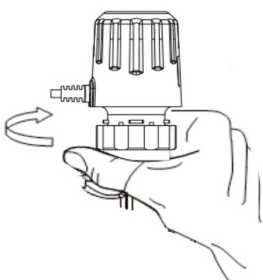
2. While the fluid is cold or warm water, downward installation is forbidden.



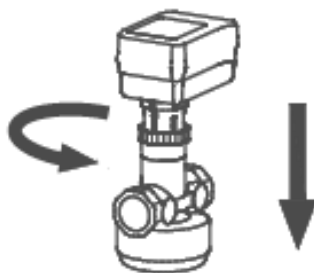
3. The max. opening is adjusted by using a 10mm spanner. As shown below, the scale pointed 10 (default setting) by the arrow is the max. opening 100%.



3. After pressure testing, tighten the nut by hand to connect with the actuator. (If on-off actuator has been installed while pressure testing, please power on it to open the valve!)



On-off actuator



Modulating/on-off actuator



Tools are forbidden.

Installation Note

• Installation note

1. The direction of valve installation shall be complied with that of fluid flow, otherwise it may cause the valve balance function to fail, and in severe cases, it may cause the valve to close and cannot be opened.
2. When the valve is connected with the pipeline, the external thread of the pipeline must comply with the national standard, and the size must meet the standard tolerance requirements. If the external thread size of the pipeline is too large (because the die used on the site is worn after a long term of use, the external thread of the pipeline will exceed the standard size), the installation workers will screw in violently, which will lead to irreparable cracking and leakage of the valve body.
3. The concentricity of the pipes before and after the valve should meet the requirements. If they are not concentric, torque will be generated and the valve will be damaged.
4. Due to the installation of the valve in a dirty medium with excessive water alkali or other impurities such as rust, problems such as inflexible operation of the valve core and blockage of the membrane chamber are not covered by the warranty.
5. Before installation, please confirm the maximum flow rate. If the maximum flow rate cannot be determined, set the maximum valve opening to 100%, that is, set the rotary dial to 10. If the maximum opening does not match the actual flow rate, it may result in the system being unable to reach the designed flow rate.

• Precautions for use:

1. The valve body is in a fully open state when no actuator is installed, so only the valve body is installed during the pressure test water flushing pipeline stage, and there is no need to install the actuator.
2. Because the valve is fully closed when on-off electric actuator is installed and it is in a power off state. Therefore, only when the on-site conditions for valve and automatic control equipment to be powered on are available can the actuator be installed, otherwise the valve being closed will affect the system trial operation.

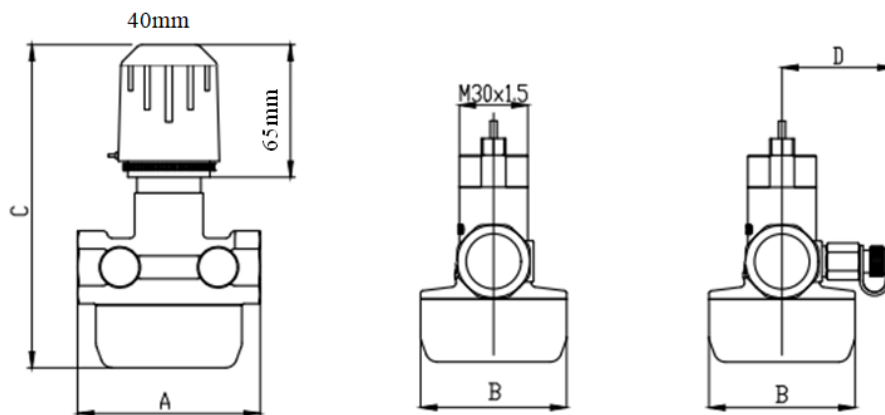


! Serious warning:

The valve must be in a fully open state during pressure testing, or the pressure difference changes before and after the valve will cause damage to the inner lining of the valve body, loss of balance function of the valve, and inability to close will increase the valve leakage rate, which will have a serious impact on the use of the valve.

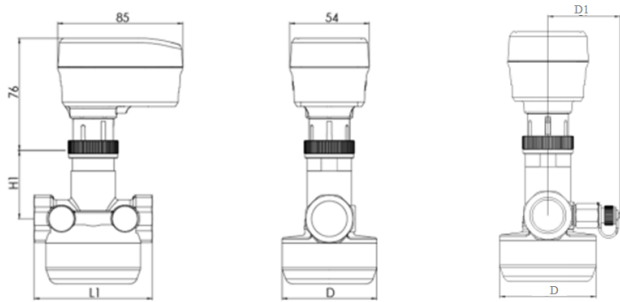
Dimension

TD100-D220+Valve

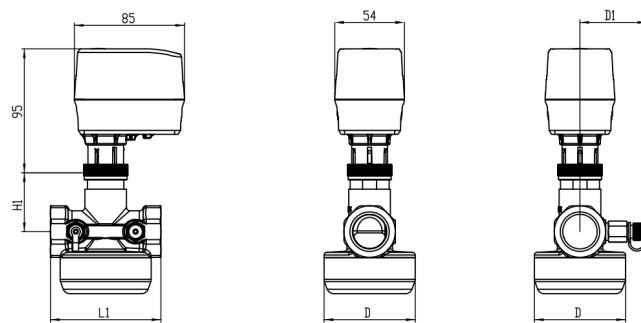


DN	A(mm)	B(mm)	C(mm)	D(mm)
15	74	58	151.5	46
20	80	64	155.5	49
25	85	70	159	51
32	100	81	165	56

TW200-XV24-M30



TW200-XV24-M30C



DN	H1(mm)	L1(mm)	D(mm)	D1(mm)
15	46.5	74	58	46
20	46.5	80	64	49
25	46.5	85	70	51
32	46.5	100	81	56

Technical Parameters

Valve Functional Data

Nominal size	DN15-DN32
Nominal pressure	PN16/PN25
Leakage rate	<0.02% of Qmax
Connection standard	Female thread ISO7-1
Medium temperature	-10~120°C
Medium	Cold and warm water, glycol under 50%
Connection Thread	M30*1.5
Lifetime	100 000 times full open and close

TD100-D220 Actuator Functional Data

Nominal voltage	220VAC
Nominal voltage frequency	50/60Hz
Power consumption	≤2W
Working temperature	-10~+60°C
Degree of protection	IP54
Cable	2*0.75mm ²

TW200...Actuator Functional Data

Nominal voltage	24VAC±15%, 24VDC±15% 220VAC
Nominal voltage frequency	50/60Hz
Power consumption	TW200-XV24-M30 / TW200-XV24-M30C Max. AC Power: 9VA, Recommended AC transformer power: 30VA Max. DC Power: 4VA, Recommended DC power supply: 15VA
	TW200-D220-M30
	9VA
Sensitivity (only for modulating type)	1%
Signal blind zone (only for modulating type)	Signal blind zone of upper and lower limit position ≤2%
Voltage input impedance (only for modulating type)	>100K
Voltage output load requirement (only for modulating type)	>2K
Control /position feedback signal (only for modulating type)	0- 10V
Velocity	3.5s/mm
Degree of protection	IP54
Connection supply	Cable 1m (4*0.5mm ²)
Ambient temperature	-25°C~+65°C, ≤95% RH
	-25°C~+50°C, ≤95% RH (TW200-XV24-M30C)
Ambient humidity	≤95% RH, non-condensing
Storage temperature	-40°C~65°C
	-25°C~50°C (TW200-XV24-M30C)

TW200-XV24-M30 / TW200-D220-M30 Actuator Materials

Cover	PC
Shell	PC
Spindle	Stainless steel

Valve Materials

Valve Body	Brass Hpb59-1
Valve Core	Brass
Valve Stem	Stainless steel
Sealing Ring	PTFE
Diaphragm	EPDM



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