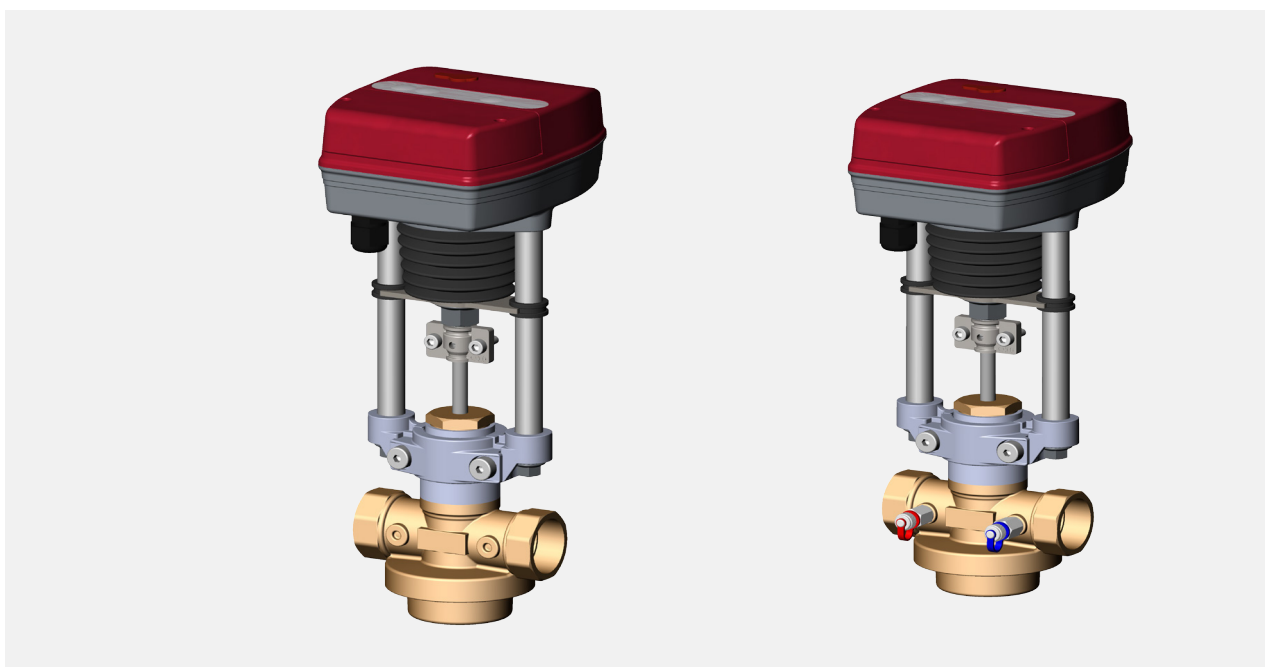


Pressure Independent Control Valve ---PICV V2FAP...L and V2FBP...L Series

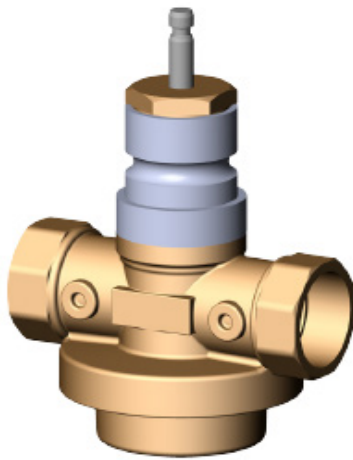


Description

V2FAPIC...L and V2FBPIC...L series are ideal pressure independent control valves for mid-size AHU applications in HVAC systems. The automatic balancing function of these valves maintains constant desired flow when system pressure is changing.

It is used to solve the problem of hydraulic imbalance in heating and air conditioning system. It has a strong antijamming ability and a high control accuracy, which makes it work well in the frequent fluctuating flow system.

Features Introduction



High Control Precision

Both the electric valve core and balancing valve core adopt straight travel design. Compared with rotary design, straight travel has higher control precision.

Low Leakage Rate

The leakage rate is no more than 0.02% of Kvs.

Build-in Diaphragm Capsule and Connecting Pipe

The valve adopts the build-in diaphragm capsule and connecting pipe. It can avoid damaging during installation compared with external connecting pipe.

Anti-blocking Design


The balance structure of spring diaphragm significantly reduces the probability of valve body blocking. Because of the lower requirement for water quality, it can also be used for water in heating pipeline.

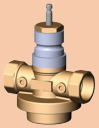
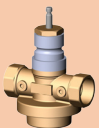
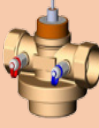
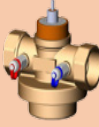
High-quality Material

The valve body is made of high-quality brass Hpb 59-1, valve stem and valve core are made of high-quality stainless steel.

Type Summary

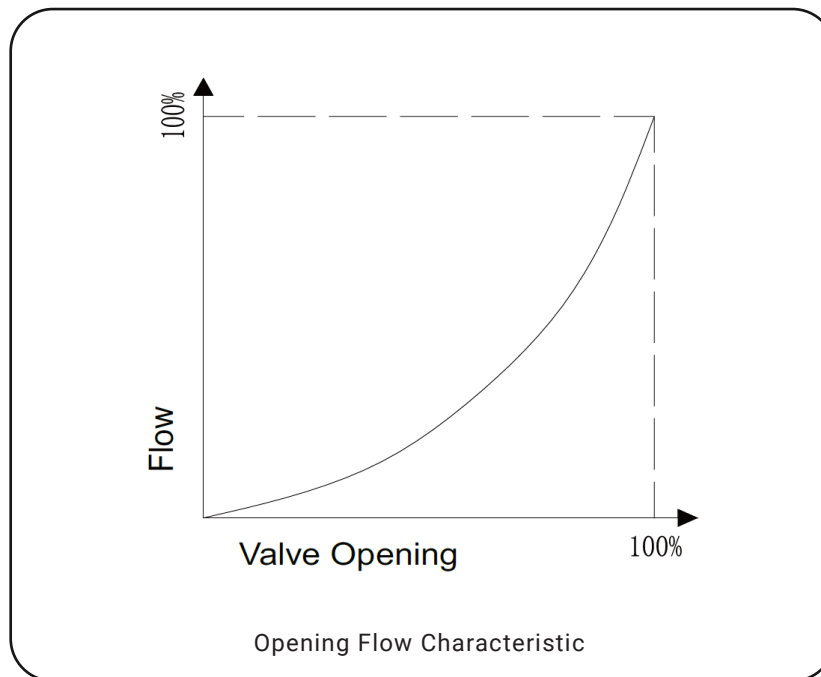
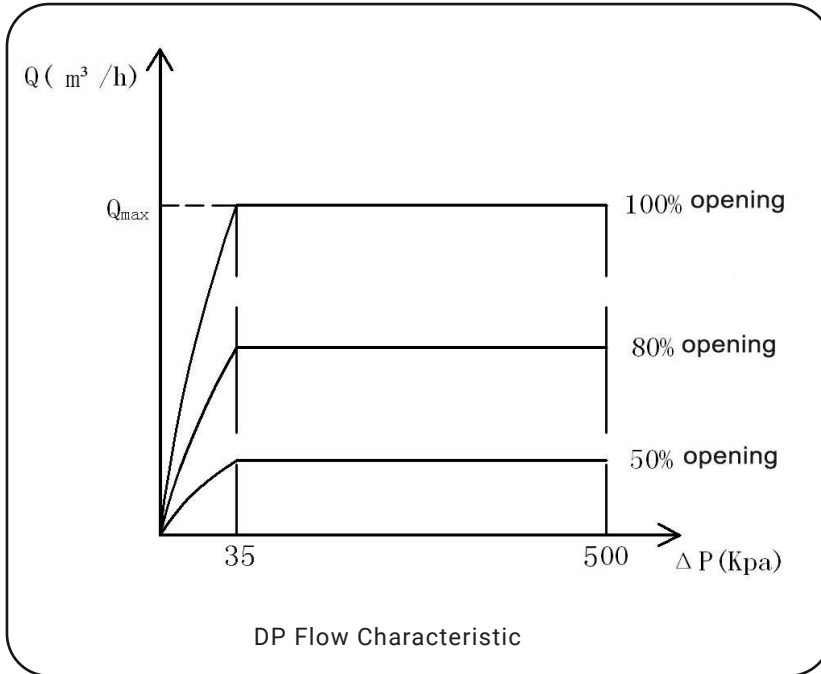
PICV for AHU

Series	160 or 160°C
Actuator Rated Stroke	26 mm
Nominal Output Force	500 N
Icon	
Proportional type0(2)~10 VDC,0(4)~20 mA	150C-024-060
3-position type(on/off)	150-024-060

Valve Body		Type	DN [mm]	Stroke [mm]	Qmax [m ³ /h]	ΔPs [Bar]	
PN16, -10 °C - 120°C		Female threaded	V2FAPIC.32_4L	DN32	20	4	0.35-5
			V2FAPIC.40_6L	DN40	20	6	0.35-5
			V2FAPIC.50_8L	DN50	20	8	0.35-5
PN25, -10 °C - 120°C		Female threaded	V2FBPIC.32_4L	DN32	20	4	0.35-5
			V2FBPIC.40_6L	DN40	20	6	0.35-5
			V2FBPIC.50_8L	DN50	20	8	0.35-5
PN16, -10 °C - 120°C		Female threaded (with test plug)	V2FAPPIC.32_4L	DN32	20	4	0.35-5
			V2FAPPIC.40_6L	DN40	20	6	0.35-5
			V2FAPPIC.50_8L	DN50	20	8	0.35-5
PN25, -10 °C - 120°C		Female threaded (with test plug)	V2FBPPIC.32_4L	DN32	20	4	0.35-5
			V2FBPPIC.40_6L	DN40	20	6	0.35-5
			V2FBPPIC.50_8L	DN50	20	8	0.35-5

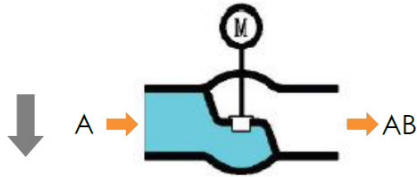
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Flow Characteristic

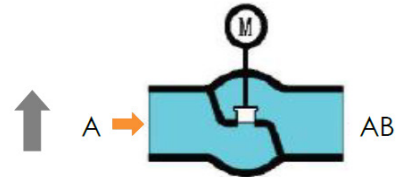


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Structure Characteristic



While the valve stem reach lower limit position, the valve is closed.



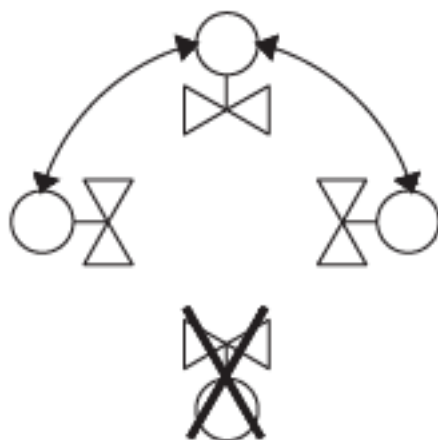
While the valve stem reach upper limit position, the valve is open.

Installation Instruction

1. Valve can be installed on the water supply pipe or return water pipe (installed on the return water pipe can control the water flow more smoothly, mean-while the return water temperature is lower which can extends the service time of valve).
2. Filter and check valve are recommended to be installed before the valve.
3. Please note that the medium flow direction in valve should be consistent with the medium of pipeline!



4. Please pay attention to the valve mounting orientation!



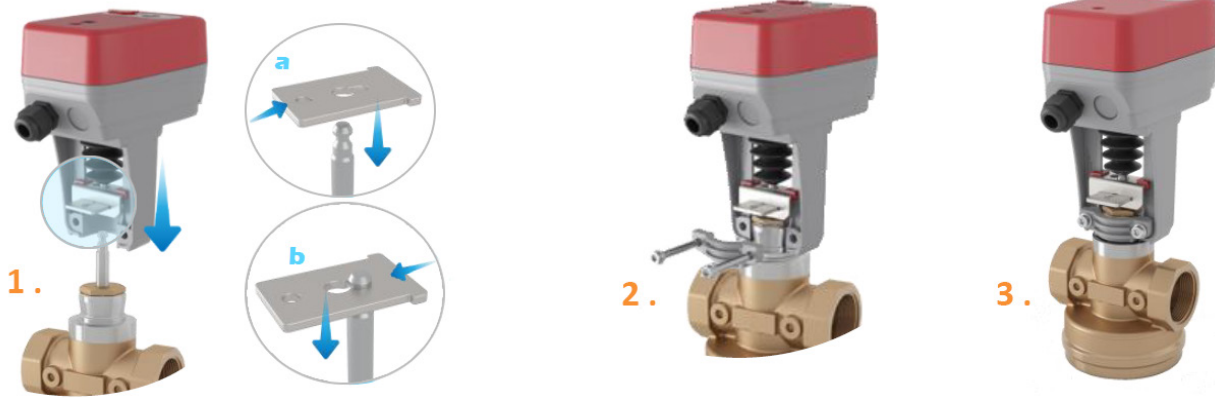
Medium is chilled/hot water
Downward installation is forbidden

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Assembling Instruction

Valve and actuator can be assembled without any special tools, the attached Allen wrench will be enough. There is no need to do any manual adjustment after assembled. The actuator has the self-stroking function.

Notes: Prohibit installing outdoors to avoid PCB damage due to the condensation and water. Rain cover (TRAIN-1) and heating belt (THOT-3) are necessary in case of outdoor installation.

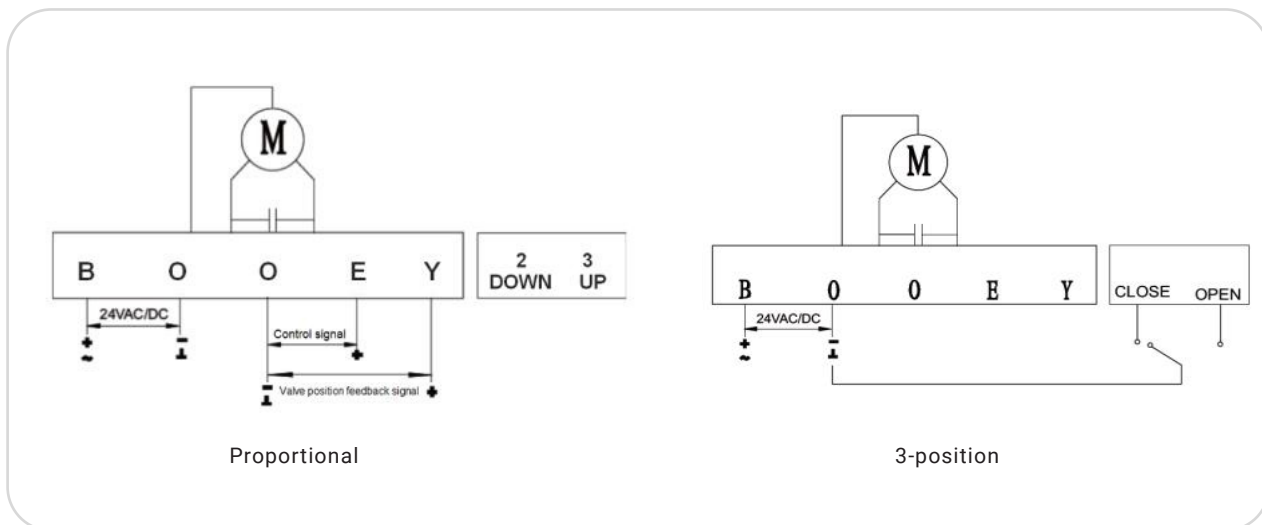


Loosen the bottom slider with Allen wrench, then press the clip plate in direction as shown in Figure a and let the valve stem pass through the hole of the plate. While the interface of valve and actuator are kept coinciding, loosen the plate as shown in Figure b to fix the stem.

Install the slider on the actuator, then tighten the screws with A2n wrench.

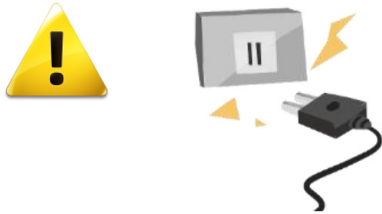
Complete the assembly of valve and actuator.

Wiring Diagram



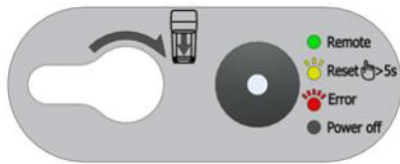
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Wiring Instruction



1. Please cut off power supply during wiring in order to ensure personal safety!
2. Carefully check the power voltage when wiring, wire according to the product parameter, if not, it may cause fire and endanger personal safety in severe case!
3. Open the cover when wiring, prohibit disassembling other spare parts!
4. After wiring, please install the cover to the original position to avoid electric shock!

Indicating Light



Reset	Status	Description
Green	Always	Normal mode
Orange	Flashing	Self-stroking
Red	Quick flashing	Alarming

Debugging Instruction

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) The Reset yellow 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) Reset yellow light stop flashing, self-stroking stops. By then, actuator running direction can be controlled by control signal.
- 3) If the Reset red light is quick flashing during the 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.

Remarks: If you don't need automatic self-stroking function, you can set the 7th switch to OFF, it will change into manual self-stroking.

C. Manual self-stroking function: If self-stroking is need 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.

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DIP Switch Instruction

Switch	Function	Description
S1-1	Starting of control/ feedback signal	ON 4~20mA or 2~10VDC OFF 0~20mA or 0~10VDC
S1-2	Type of control signal	ON Current signal OFF voltage signal
S1-3	Type of input impedance	ON voltage signal OFF Current signal
S1-4	Type of feedback signal	ON Current signal OFF voltage signal
S1-5	Operating mode	ON When the control signal increases, actuator shaft extends; When the control signal decreases, actuator shaft retracts. OFF When the control signal increases, actuator shaft retracts; When the control signal decreases, actuator shaft extends.
S1-6	Losing control signal mode	ON When lose control signal (voltage type or current type), actuator will provide a min. control signal internally. OFF 1) When lose control signal (voltage type),actuator will provide a max. control signal internally. 2) When lose control signal (current type),actuator will provide a min. control signal internally.
S1-7	Self-stroking mode	ON Power on each time, self-stroking starts automatically. OFF Self-stroking starts only when press the self-stroking button manually.
S1-8	Control type (when S1-9 is OFF)	ON 3-position type OFF Proportional type
S1-9	Control mode	ON - OFF Proportional type and 3-position type
S1-10	Speed	ON High speed OFF Low speed

Function Instruction

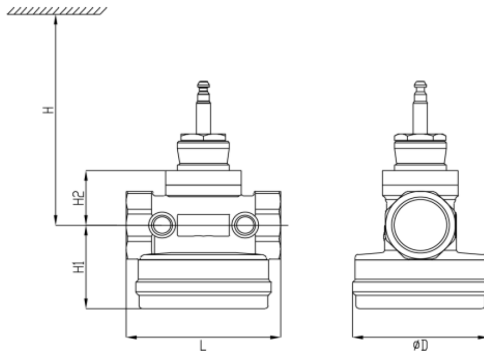
Proportional type
Control signal/feedback signal: 4~20 mA

Control signal/feedback signal: 0~10 VDC

When equipped with PICV, terminal B,0 is power input, actuator can be controlled by connecting terminal O,E, as shown above:
 Control signal at terminal O,E increasing: actuator shaft retracts, valve stem extends, valve tends to open.
 Control signal at terminal O,E decreasing: actuator shaft extends, valve stem retracts, valve tends to close.
 Control signal at terminal O,E has no changing, actuator shaft and valve stem stay in present position.
 When voltage (or current) signal is disconnected, this is equivalent to input a min. control signal, actuator shaft extends, valve closes.

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Dimension



Size		Lmm	Dmm	H1 mm	H2 mm	H mm
32	1-1/4"	104	92	59	33	225
40	1-1/2"	115	105	63	36	228
50	2"	130	120	70.5	40.5	232.5

Note: Please reserve enough space for actuator assembly and debugging. It is recommended that 60mm should be reserved above the actuator.

Technical Parameters

Operating Parameters - Valves

Caliber Range	DN32-DN50
Permissible Pressure	PN16, PN25 are optional
Flow Characteristic	Equal-percentage
Leakage Rate	≤0.02% of Qmax
Medium Temperature	-10~120°C
Permissible medium	Chilled/hot water, glycol under 50%
Connection Standard	Female threaded connection ISO7-1

Operating Parameters - Actuator

Rated Force	500N
Operating Voltage	24VAC±15%, 24VDC±15%,
Sensitivity	0.8%
Dead Zone	2%
Frequency	50Hz/60Hz
Impedance (only for proportional type)	
Voltage Input Impedance	>100K
Current Input Impedance	<0.15K
Load requirements (only for proportional type)	
Voltage input impedance	>2K
Current input impedance	<0.4K
Protection Level	IP54

Spare Parts Material - Valve

Valve body	Brass Hpb59-1
Valve core	Stainless Steel
Valve stem	Stainless Steel
Sealing ring	PTFE
Diaphragm	EPDM

Spare Parts Material - Actuator

Cover	PC
Shell	PC
Bracket	Aluminum die casting
Base	Aluminum die casting

Environment Parameters

Running

Ambient temperature:	-25~+65°C
Ambient humidity:	≤95% RH

Storage

Ambient temperature:	-40~+65°C
Ambient humidity:	≤95% RH

Certificate

CE Certificate

PED directive	2014/68/EU
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System Certification

QMS	GB/T19001-2016 / ISO9001:2015
EMS	GB/T24001-2016 / ISO14001:2015
OHSAS	GB/T45001-2020 / ISO45001:2018