

IVA20 - Intelligence Valve



IVA20... Intelligence Valve
Threaded/Flange Connection
PN16

Performance & Features:

The IVA20 intelligence valve is applicable to hydraulic pipe networks in heating, refrigeration and other systems, realizing visualized data collection and hydraulic regulation of the pipe network. It solves the problems of systematic data acquisition and synchronous hydraulic balance control of the piping system, and realizes pressure-independent flow control. All data can be displayed locally via mobile terminals or remotely transmitted to the platform through RS485 communication, providing strong support for digital management and precise control of pipe networks.

- ◆ Nominal diameter: DN25 - DN200-DN450; Flow range 0.15m³/h- 250m³/h-1200m³/h; Nominal pressure: PN16;
- ◆ Material: DN25-DN50 (Brass "V" Ball Valve); DN50-DN200(Ductile Iron/ Stainless Steel "V" Ball Valve); DN200-DN450 (Butterfly Valve);
- ◆ Rated voltage: DC24V; Rated power: 14W; Standby power consumption: 2W; DN200-DN450: 102W-212W;
- ◆ Input / output signal: RS485/ Bluetooth / Analog (2-10V or 4-20mA)/Digital Signal (Dry Contact);
- ◆ Maximum differential pressure (ΔP_{max}): 450KPa ; Closing differential pressure: 600KPa (ΔP_{max} : Maximum differential pressure at full rated performance);
- ◆ Multiple balance control logic options: static balance, dynamic flow balance, dynamic differential pressure balance, temperature, temperature difference and energy control modes available for selection.
- ◆ Comprehensive control over valve position, flow rate, differential pressure, temperature, temperature difference and energy consumption based on collected system data.
- ◆ Remote parameter configuration supported to ultimately realize digital hydraulic balance control and regulation of the system.
- ◆ Selection in accordance with designed pipe diameter recommended to avoid accuracy interference of ultrasonic flow detection caused by local resistance disturbance from pipe reducers.

Model Designation:

For example: IVA20F1-100-16Q-YD

1. "IVA20" Intelligence Valve;
2. "F": F-Flange; T-Thread, C-Clamp;
3. "1" -Return Temperature Control, 2- Temperature Difference Control, 3- Bypass Control, 4- Differential Pressure Control, 5- Flow Control, 6- Energy Control;
4. "-100" Nominal Diameter, DN 100;
5. "-25/16/10" Nominal Pressure, PN25/PN16/PN10;
6. "Q"- Ductile Iron, T-Brass, B-Bronze, P- Stainless Steel, W- Cast steel;
7. "YD": DC24V; XA-AC220V, XD-DC220V, YA-AC24V, OT—others;

Technical Specification:

PN (Nominal Pressure)	PN16
Connection Standard	External Threaded /Flanged Connection
Leakage Rate	< 0.02% Kvs
Working Temperature:	Medium Temperature: 0°C~100°C ; Ambient Temperature: -20°C~70 °C
Measurement Accuracy:	Temperature: ClassAA Flow Rate: $\pm 2\%$ (4%~100%Qnom) Pressure: $\pm 0.5\%$ Maximum Range
Control Accuracy:	$\pm 5\%$ ($\geq 10\%Qnom$) $\sim \pm 10\%$ (4%~10%Qnom)
Sampling Frequency:	2s (or custom)
Core, Stem	DN25~DN50: Stainless steel/Brass; DN50~DN200: Stainless steel;
DN200-DN450:	Ductile Iron / Stainless Steel Valve Core, Stainless Steel Valve Stem
Meter Head & Cover Plate	PC+ABS
Seal	Temperature Sensor Base: EPDM/FKM Pressure Sensor Base: PTFE Transducer Base: EPDM/FKM Valve Shaft Base: EPDM/FKM Valve Core Base: PTFE
Sensor	Temperature Sensor: PT1000 ClassAA Core Temperature Sensor: Ultrasonic Piezoelectric Ceramic Core Pressure Sensor: Piezoresistive Diffused Silicon
Communication	Interface: RS485, Bluetooth; Protocol: MODBUS-RTU
Manual Operation	Manual operation permitted under power-off and manual mode; prohibited with power on.
IP Rating	IP54
Control Speed	Normal 60S (adjustable within 20s-90s.)

Flow Control Range (Qmin~Qnom)

Threaded Connection

DN25: 0.14~ 3.5m³/h
DN32: 0.19~ 4.8m³/h
DN40: 0.32~ 8.0m³/h
DN50: 0.48~ 12.0m³/h

Flanged Connection: Ball Valve

DN50: 0.6~15m³/h
DN65: 1.0~ 25m³/h
DN80: 1.6~ 40m³/h
DN100: 2.4~ 60m³/h
DN125: 4.0~ 100m³/h
DN150: 6.0~ 150m³/h

Flanged Connection: Butterfly Valve

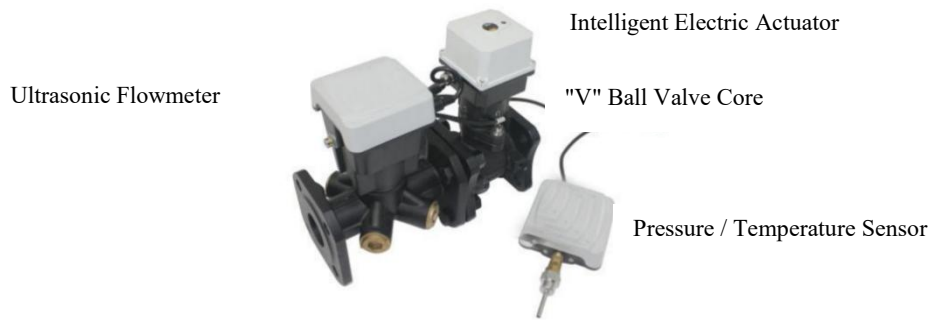
DN200: 10.0~ 250m³/h
DN250: 16.0~ 400m³/h
DN300: 24.0~ 600m³/h
DN350: 30.0~ 750m³/h
DN400: 36.0~ 900m³/h
DN450: 48.0~ 1200m³/h

Common Functions

The IVA20 intelligence valve is applied to hydraulic pipe networks in heating, cooling and other systems to achieve pressure-independent flow control, with the following functions:

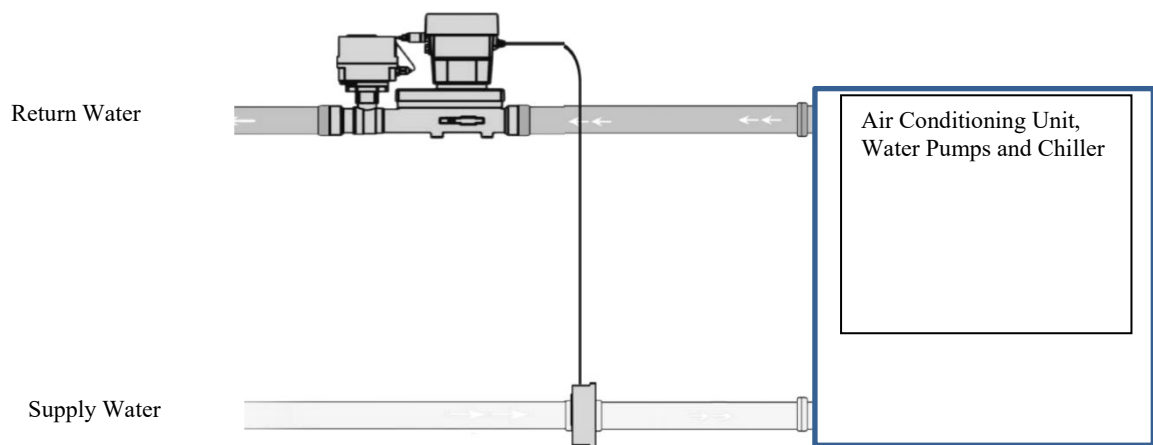
1. Static balancing: Through analog control of two-way control valves and valve position adjustment, it solves the static hydraulic imbalance of the system.
 2. Dynamic flow balancing: The flow rate can be adjusted in real time according to changes in terminal load. Parameters such as maximum/minimum flow and temperature difference are configurable.
 3. Dynamic differential pressure balancing: The differential pressure of the controlled system can be set at any time; parameters including maximum and minimum flow rate, and temperature difference are configurable.
 4. Temperature & temperature difference control:
 - ① Temperature difference control: The temperature difference can be set at any time through supply and return water regulation.
 - ② Temperature control: The water temperature can be adjusted in real time by regulating the temperature of supply water or return water.Maximum and minimum flow rates are available for setting in both control modes.
 5. Energy control: The required energy value can be set at any time; parameters including maximum and minimum flow rate, and temperature difference are configurable.
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Application Scenarios



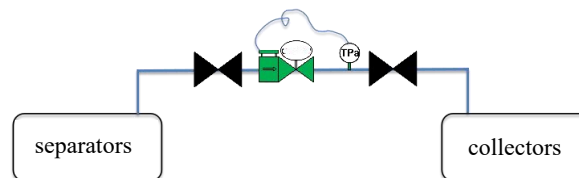
1. Applications in air conditioning units, water pumps and chiller outlets:

The electric control valve accepts standard control signals from DDC or PLC to realize flow regulation and energy regulation with balancing functions. It enables large-temperature-difference heat exchange with terminal demands met, so as to reduce energy consumption.

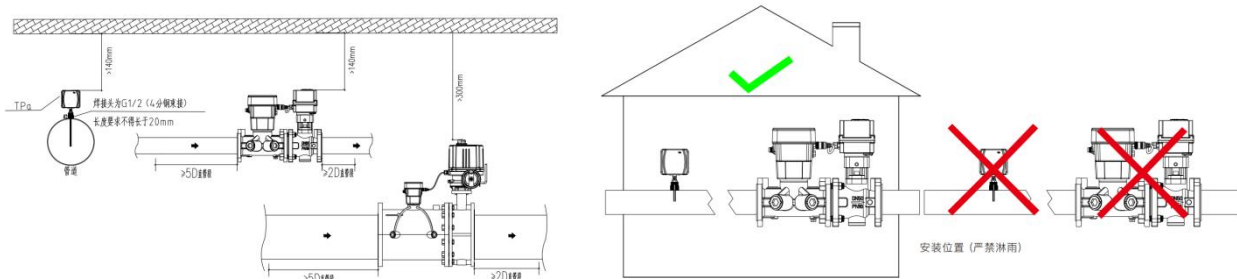


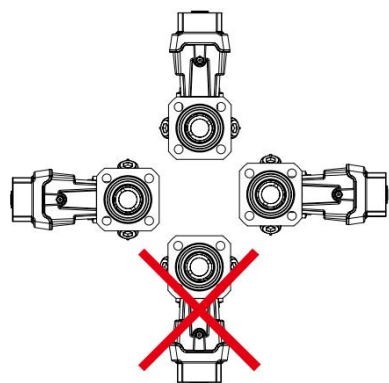
2. Application as a differential pressure bypass valve between water separators and collectors:

The target differential pressure for bypass control can be set on-site or via remote communication, and then compared with the measured differential pressure, so that the valve opening is adjusted to keep the pressure difference between the separator and collector stable around the set target, ensuring stable system operation.

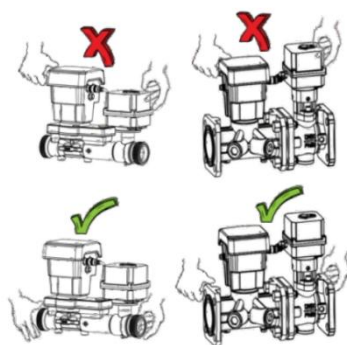


Installation Instructions

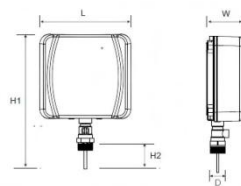




安装方向 (请勿倒置)



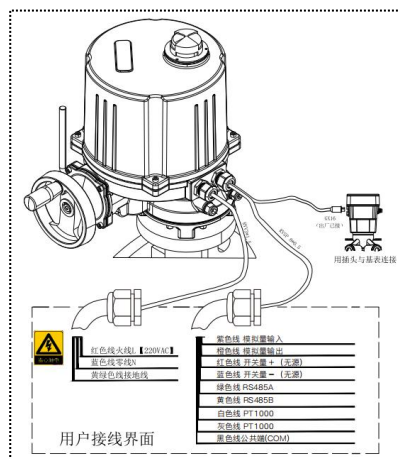
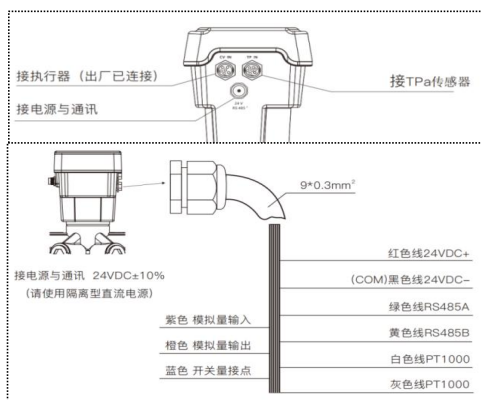
搬运方式 (请勿提头)



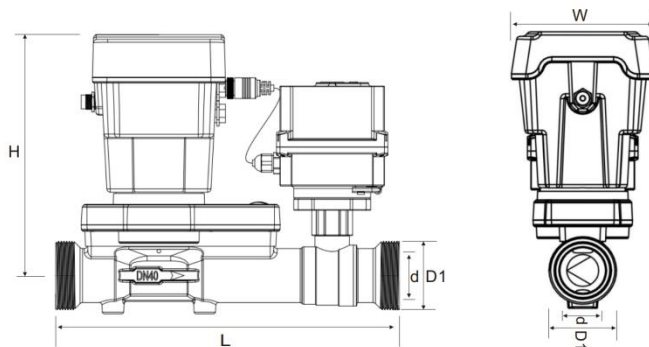
公称压力: PN16
压力量程: (0~16)Bar
连接方式: 螺纹连接符合 ISO7005-2,1092-2标准

规格	L (mm)	W (mm)	H1 (mm)	H2 (mm)	D (mm)
DN15-DN50	125	54	225	55	G 1/2
DN65-DN125	125	54	234	66	G 1/2
DN150-DN450	125	54	275	102	G 1/2

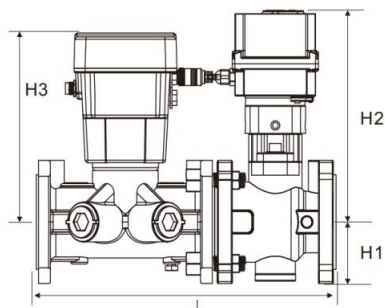
Wiring Instructions



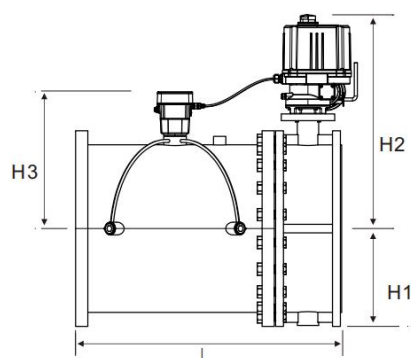
Dimension Chart



Nominal Diameter	L	H	W	D1	d	Kvs
	mm	mm	mm	mm	mm	m³/h
DN25	300	204	125	G1 1/4	25	10.5
DN32	300	213	125	G1 1/2	32	12.5
DN40	300	213	125	G2	40	23
DN50	300	213	125	G2 1/2	50	34



Nominal Diameter	L	H1	H2	H3	Kvs
	mm	mm	mm	mm	m ³ /h
DN50	340	65	235	190	45
DN65	340	75	240	205	52
DN80	402	92	252	208	79
DN100	440	101	268	224	137
DN125	471	115	282	250	195
DN150	553	135	294	265	276
DN200	653	159	314	311	465



Nominal Diameter	L	H1	H2	H3	Kvs
	mm	mm	mm	mm	m ³ /h
DN200	515	170	576	306	2850
DN250	615	203	606	334	4640
DN300	678	230	634	359	6880
DN350	740	260	670	389	10400
DN400	816	316	702	414	13600
DN450	870	345	702	448	17200

The data in this catalog is for reference only, and may be subject to updated without notice.