

A90XX-... Hydraulic Control Valve Series



**Hydraulic Control Valve
A90XX-...Series
Flanged Connection
PN10, PN16, PN25**

Performance & Features:

Hydraulic control valve is a valve series that controls the movement of the valve core by utilizing the pressure difference between the upper and lower chambers of the main valve, with different functions realized through pilot valves with varied functions and bypass pipelines connected in different modes.

- ◆ Nominal diameter: DN50...DN600; Temperature range: -15°C~130°C
- ◆ One single main valve, with multiple functions achieved by different pilot valves and varied copper tube connection methods.
- ◆ A full-bore and streamlined design adopted for valve body, featuring low fluid resistance and high flow capacity.
- ◆ Joints of the valve body, bonnet and piston cylinder double-sealed with gaskets and sealing rings for enhanced protection.
- ◆ Flow guide orifices designed on piston cylinder to moderately increase flow resistance, ensure stable valve authority, and enable smoother and more flexible piston movement.
- ◆ Combination of an all-stainless steel piston cylinder, an integral piston and high-strength rubber sealing rings, greatly prolonging service life.
- ◆ Both interior and exterior of the valve body and bonnet coated with epoxy resin to effectively prevent corrosion.
- ◆ A removable seat design, allowing for an ingenious structure and a convenient maintenance, with no need to disassemble the whole valve.
- ◆ Different installation methods: Vertical and horizontal installation for sizes DN200 and below (with horizontal installation recommended), and horizontal installation for sizes above DN200;

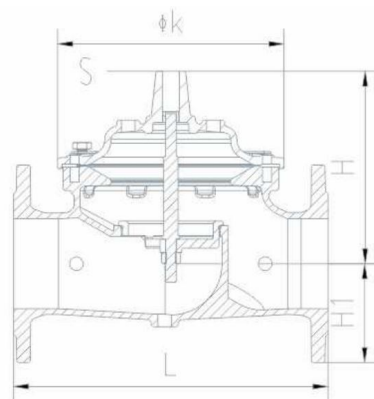
Applications:

Hydraulic control valves are mainly installed on water supply, cold and hot water, water treatment and other pipelines in general buildings, fire protection, water plants, municipal engineering, iron and steel, electric power, petroleum, chemical industry, commercial complexes, data centers, factories and other projects.

Model Designation:

For example: A900X-100-16Q

1. "A90": Hydraulic Control Valve;
2. "0": Flanged Connection;
3. "X" Valve Type: "3" Water Pump Control Valve; "4" Pressure Differential Bypass Valve; "5" Remote Control Float Valve; "6" Pressure Reducing Valve; "7" Slow Closing Check Valve; "8" Flow Control Valve; "9" Pressure Holding & Pressure Relief Valve; "0" Electric Control Valve;
4. "E": Electric Control;
5. "-100": Nominal Diameter DN100;
6. "-": separator;
7. "-25/16/10": Nominal Pressure, PN25/PN16/10;
8. "Q": Ductile Iron; "T": Brass;
"C": Cast steel; "P": Stainless steel; "B": Bronze;



Technical Specification



Plug Screw: Stainless Steel / Brass / Bronze

Bolt and Washer: Stainless Steel

Bonnet: Ductile Iron + Powder Coating / Stainless Steel / Bronze

Guide Sleeve: Stainless Steel / Bronze

Spring: Stainless steel

Lock Nut: Stainless Steel / Bronze

Diaphragm Plate: Ductile Iron + Powder Coating / Stainless Steel /
Bronze

Diaphragm: Nylon Reinforced NBR/EPDM/VITON

Support Bracket: Ductile Iron + Powder Coating / Stainless Steel /
Bronze

Seal: NBR/EPDM/VITON

Stem: Stainless Steel / Bronze

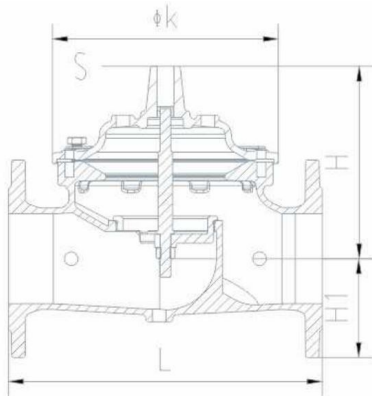
Guide Clamp Plate: Stainless Steel / Brass / Bronze

Seat: Stainless Steel / Brass / Bronze

Body: Ductile Iron + Powder Coating / Stainless Steel / Bronze

Dimension Chart

Main Valve



SIZE		L	H	H1	Ø K	S	Weight (Kg)
mm	in						
50	2"	230	139	85	173	3/8"	14
65	2.5"	290	159	95	198	3/8"	19
80	3"	310	179	102	226	3/8"	23
100	4"	350	214	112	265	1/2"	32
125	5"	350	214	127	265	1/2"	45
150	6"	480	333	145	351	1/2"	68
200	8"	600	407	172	436	3/4"	125
250	10"	730	476	205	524	1"	200
300	12"	850	526	232	606	1"	260
350	14"	850	526	262	606	1"	310
400	16"	1100	624	292	741	1-1/2"	560
450	18"	1100	624	325	741	1-1/2"	620
500	20"	1250	720	360	1002	2"	880
600	24"	1450	835	425	1308	2"	1300

A9004-... Pressure Differential Bypass Valve



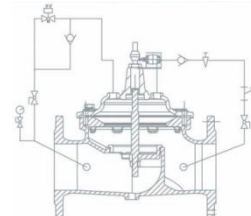
**Pressure Differential Bypass Valve
A9004-...Series
Flanged Connection
PN10, PN16, PN25**

Performance & Features:

When the pressure differential between the inlet and outlet of the main valve changes, the pressure differential across the pilot valve alters, resulting in a change in the pilot valve opening. An increased pressure differential increases the pilot valve opening, raises the water discharge flow from the control chamber, lowers the pressure inside the main valve control chamber, and further opens the main valve, thereby reducing the pressure differential between the main valve inlet and outlet. Conversely, a decreased pressure differential reduces the pilot valve opening, and raises the pressure in the main valve control chamber rises, pushing the main valve to reduce its opening and restore a higher pressure differential. This negative feedback effect steadily maintains the inlet-outlet pressure differential of the main valve at the preset value.

The pressure differential bypass valve adjusts the valve opening according to changes in pressure difference. It utilizes the pressure drop variation on both sides of the valve core to compensate for pipeline resistance changes, so as to keep the differential pressure of the controlled circuit basically stable under variable working conditions.

- ◆ Nominal diameter: DN50...DN600;
- ◆ Setting of pressure differential between inlet and outlet of main valve by adjusting the opening of the needle valve and the spring of the pilot valve.
- ◆ A precise and constant differential pressure maintained to improve system utilization efficiency.
- ◆ Minimizing system noise and preventing equipment damage caused by excessive differential pressure.



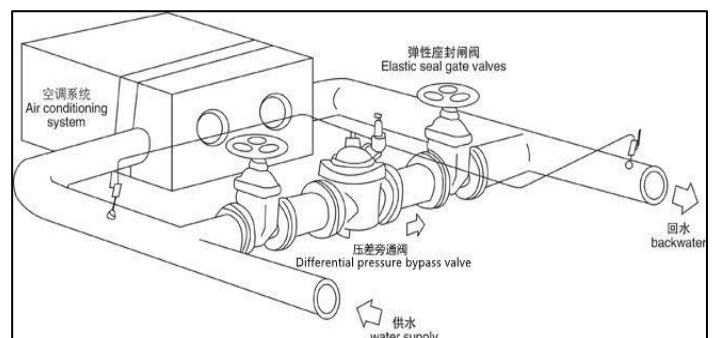
Applications:

Normally closed pressure differential bypass valve is installed on the supply and return pipelines of fuel and gas heat sources, as well as between the water separator and water collector in central air conditioning system to keep the differential pressure stable between the supply and return water circuits and protect the normal operation of system equipment.

Model Designation:

For example: A9004-100-16Q

1. "A9004" Pressure Differential Bypass Valve;
2. "-100" Nominal Diameter DN100;
3. "-" separator;
4. "-25/16/10" Nominal Pressure, PN25/PN16/10;
5. "Q": Ductile Iron; "T": Brass;
"C": Cast steel; "P": Stainless steel;



A9005/A9005E-... Remote Control Float Valve /Two-position Control Float Valve



Float Valve
A9005/A9005E-...Series
Flanged Connection
PN10, PN16, PN25

Performance & Features:

When water is supplied from the pipeline inlet, the needle valve, ball valve and float valve remain normally open. Water flows through the micro filter, needle valve, control chamber, ball valve and float valve into the water tank. Since no pressure builds up in the control chamber at this time, the main valve stays open to supply water to the water tower (tank). When the water level in the water tower (tank) rises to the preset height, the float rises to close the float valve. The water pressure inside the control chamber increases and pushes the main valve closed, cutting off the water supply. When the water level drops, the float valve opens again, the pressure in the control chamber decreases, and the main valve reopens to resume water supply, so as to maintain the water level at the set height.

- ◆ Nominal diameter: DN50...DN600;
- ◆ Control of water flow within the preset range;
- ◆ When the water level drops below the required value, the main valve opens for water supply; when the water level reaches the upper limit, the main valve closes automatically.
- ◆ Joints of the valve body, valve bonnet and piston cylinder double-sealed by gasket and sealing ring.
- ◆ For electric and mechanical two-position control float valves, the mechanical float mechanism can prevent excessive water flow in the event of a failure of the electric water level control system.
- ◆ Installation in accordance with the flow direction arrow marked on the valve body.
- ◆ Installation of float device strictly in accordance with the installation instructions to avoid reverse mounting; otherwise, the float will fail to control valve start and stop.

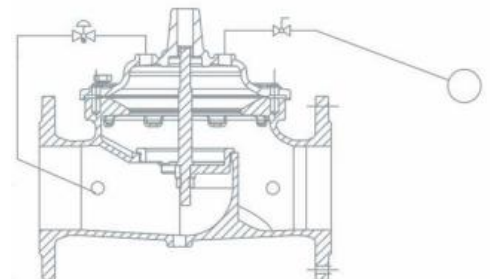
Applications:

The float valve is mainly installed on pipelines of water tanks and reservoirs for water supply, hot and cold water systems, and water treatment systems in general buildings, fire protection, water plants, municipal engineering, iron and steel, electric power, petroleum, chemical industry, commercial complexes, data centers and industrial factories.

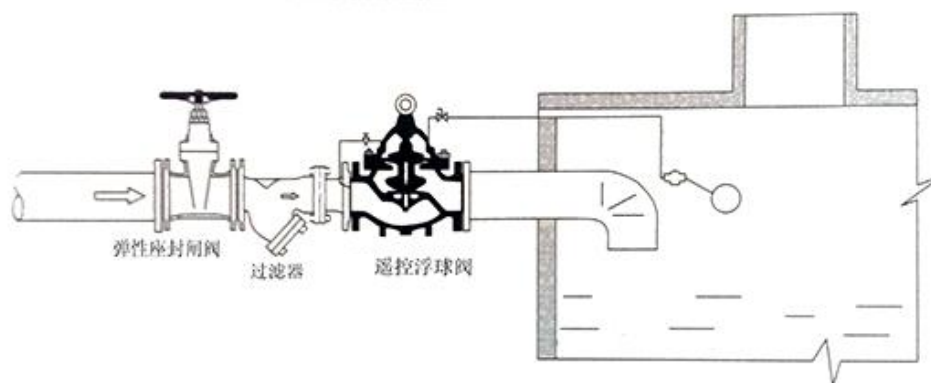
Model Designation:

For example: A9005-100-16Q

1. "A9005" Remote Control Float Valve, Self-operated Mechanical Type;
2. "A9005E" Electric And Mechanical Two- Position Control Float Valve;
3. "-100" Nominal Diameter DN100;
4. "-" separator;
5. "-25/16/10" Nominal Pressure, PN25/PN16/10;
6. "Q": Ductile Iron; "T": Brass;
"C": Cast Steel; "P": Stainless Steel;



Installation Diagram

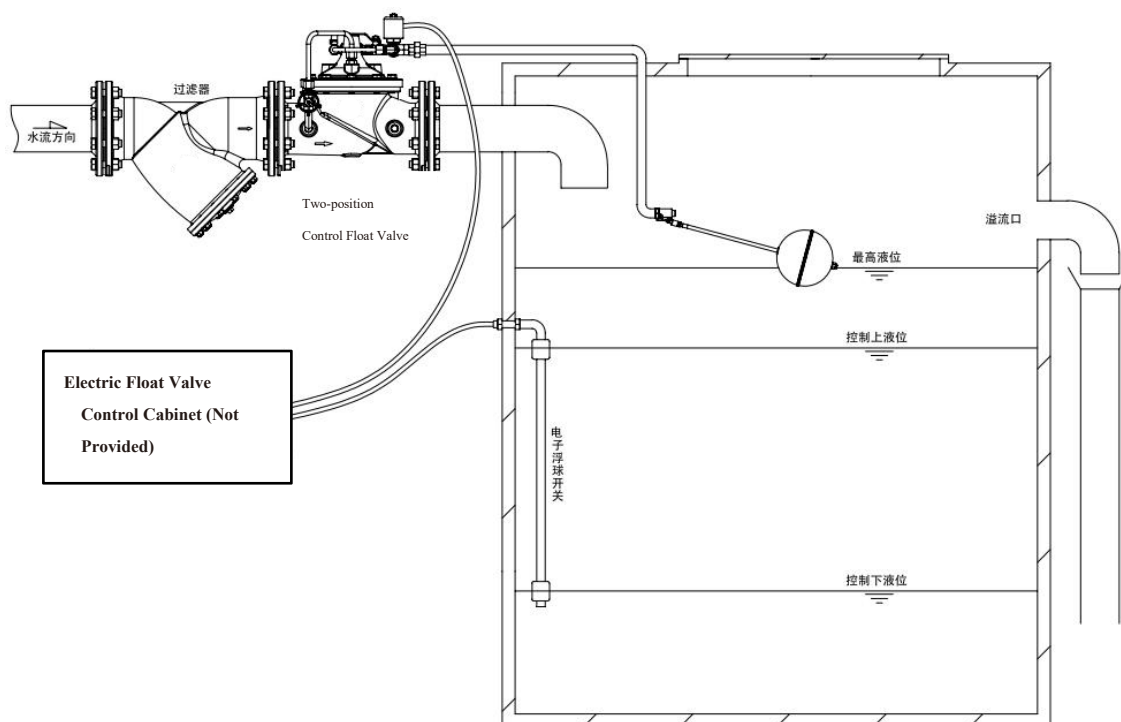


A9005E-...series

The A9005E-... series two-position control float valve is a self-operated mechanical plus electric control float valve. It consists of a main valve, angle needle valve, ball valve, connecting pipe, solenoid valve and float controller. Based on a remote-controlled float valve, it is equipped with a normally open/closed solenoid electric control device, providing the float valve with a dual safety protection function.

- ◆ Electronic float switch: Under normal conditions, it opens and closes the solenoid valve via electronic liquid level signals to regulate water replenishment. The solenoid valve is of normally closed type. When the water level in the tank reaches the high limit, the solenoid valve de-energizes and closes to stop water replenishment; when the water level drops to the low limit, the solenoid valve energizes and opens to start water replenishment.
- ◆ Mechanical float switch: When the solenoid valve malfunctions and the water level continues to rise, the mechanical float switch is triggered to close and cut off water replenishment.

Solenoid valves are available in AC 220V or DC 24V options. They are widely applied to automatic water level control of various water storage devices in industrial and mining, construction, fire protection and other fields. ZIGTOO does not provide the control cabinet and internal components for electric float valves, which shall be purchased separately by the project party.



A9006-...Adjustable Pressure Reducing Valve



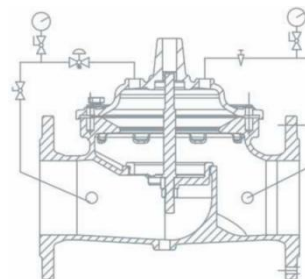
Pressure Reducing Valve
A9006-...Series
Flanged Connection
PN10, PN16, PN25

Performance & Features:

When water enters from the valve inlet, it passes through the needle valve into the main valve control chamber, and the outlet pressure acts on the pilot valve through the connecting pipe. When the outlet pressure exceeds the set value of the pilot valve spring, the pilot valve closes. The control chamber stops discharging water, the internal pressure rises, and the main valve closes to prevent further increase of outlet pressure. When the outlet pressure drops to the spring preset pressure of the pilot valve, the pilot valve opens and the control chamber discharges water downstream. As the water outlet flow of the pilot valve system is greater than the inlet flow through the needle valve, the pressure in the main valve control chamber decreases, and the inlet pressure pushes the main valve open. Under stable operating conditions, the water inflow and outflow of the control chamber reach a balance, the opening of the main valve remains unchanged, and the outlet pressure is kept stable continuously.

Adjustable pressure reducing valves are used for pressure reduction in building water supply systems, fire protection systems and other fluid piping systems. They maintain the downstream outlet pressure at the required set value, preventing pressure fluctuations caused by changes in upstream inlet pressure or downstream water consumption.

- ◆ Nominal diameter: DN50...DN600;
- ◆ Reducing static pressure;
- ◆ Setting of outlet pressure within a certain range by adjusting the pilot valve spring;
- ◆ Regulation of the downstream water pressure at the single demand point;
- ◆ Stable pressure control, independent of fluctuations in upstream pressure or flow rate;
- ◆ Friction-free opening and closing with reliable tightness;
- ◆ Real-time monitoring via the visible pressure gauge;



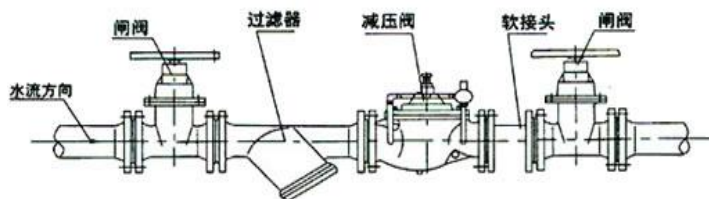
Applications:

The pressure reducing valve is mainly installed on pipelines for water supply, hot and cold water, water treatment systems that require constant downstream pressure in general buildings, fire protection, water plants, municipal engineering, iron and steel, electric power, petroleum, chemical industry, commercial complexes, data centers, industrial plants and other projects.

Model Designation:

For example: A9006-100-16Q

1. "A9006" Adjustable Pressure Reducing Valve;
2. "-100" Nominal Diameter DN100;
3. "-" separator;
4. "-25/16/10" Nominal Pressure, PN25/PN16/10;
5. "Q": Ductile Iron; "T": Brass;
 "C": Cast Steel; "P": Stainless Steel;



A9007-...Slow Closing Check Valve



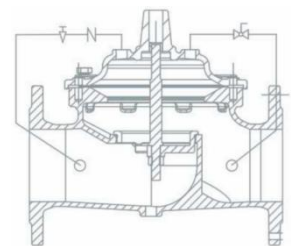
Slow Closing Check Valve
A9007-...Series
Flanged Connection
PN10, PN16, PN25

Performance & Features:

When water is supplied from the valve inlet, it flows through the micro filter, needle valve and check valve into the control chamber of the main valve, and is then discharged downstream via the ball valve. As the opening degree of the needle valve is smaller than that of the ball valve, the outflow rate of the main valve control chamber exceeds its water inflow. This reduces the pressure inside the control chamber, and the inlet pressure acting on the lower end of the main valve disc opens the main valve to supply water downstream.

When the pipeline water supply is cut off and downstream water begins to backflow, part of the backwater enters the main control chamber through the ball valve. Restricted by the check valve, the backwater cannot flow out of the control chamber, causing the internal pressure to rise gradually and slowly close the main valve.

Slow-closing check valve is a check valve with adjustable closing control performance. When the water pump stops running or power failure occurs accidentally, high-pressure backflow (water hammer) will be generated. At this moment, the valve closes slowly in stages, so as to eliminate damage and noise caused by water hammer.



- ◆ Nominal diameter: DN50...DN600;
- ◆ Adjustment of valve opening and closing speed to prevent water backflow;
- ◆ When water hammer occurs at the downstream outlet, the main valve closes rapidly, preventing water hammer from damaging upstream pipe networks and equipment;
- ◆ When the water pump starts up and operates, the inside of the connecting pipe remains in a pressureless state; the main valve opens slowly to supply water downstream and reduce impact on equipment.;
- ◆ Simple structure and reliable performance, easy installation and maintenance;

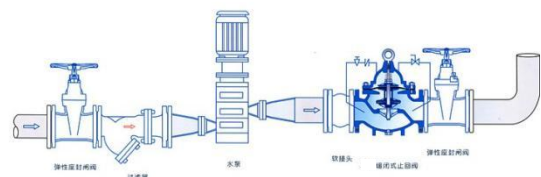
Applications:

The slow closing check valve is mainly installed in pipelines for water supply, hot and cold water, and water treatment systems that require constant downstream pressure in general buildings, fire protection, water plants, municipal engineering, iron and steel, electric power, petroleum, chemical industry, commercial complexes, data centers, industrial plants and other projects.

Model Designation:

For example: A9007-100-16Q

1. "A9007" Slow Closing Check Valve;
2. "-100" Nominal Diameter DN100;
3. "-" separator;
4. "-25/16/10" Nominal Pressure, PN25/PN16/10;
5. "Q": Ductile Iron; "T": Brass;
"C": Cast Steel; "P": Stainless Steel;



A9009-...Pressure Holding & Pressure Relief Valve



Pressure Holding & Pressure Relief Valve
A9009-...series
Flanged Connection
PN10, PN16, PN25

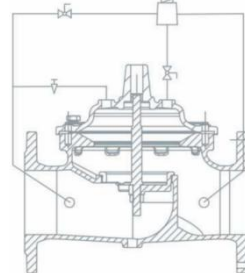
Performance & Features:

When the pressure holding & pressure relief valve is adjusted to the pressure relief mode, water flows through the needle valve, main valve control chamber, ball valve, pressure relief & pressure holding pilot valve and ball valve to the outlet, and the main valve remains open at this time. Once the inlet pressure exceeds the safe threshold set by the pressure relief & pressure holding pilot valve, the pilot valve will open automatically and discharge part of the water through the ball valve to relieve pipeline pressure. The relief valve will close automatically when the pressure returns to the safe range. All ball valves shall be kept fully open when the valve serves as a pressure relief valve.

Function as Pressure Holding Valve:

When the pressure relief & pressure holding pilot valve is set to the pressure holding mode, the pilot valve will close as long as the inlet water pressure of the main valve is lower than the preset value. The pressure inside the main control chamber rises to close the main valve. Only when the upstream water supply pressure exceeds the setting pressure of the pilot valve will the pressure holding pilot valve open. The water in the control chamber is discharged to the outlet through the ball valve, which reduces the chamber pressure and opens the main valve for water supply, thereby maintaining stable upstream water pressure. The ball valve shall be normally closed or replaced with a pipe plug when the valve serves as a pressure holding valve.

- ◆ Nominal diameter: DN50...DN600;
- ◆ Pressure relief for water supply pipe networks and building water supply systems, in order to keep the system pressure below the valve set pressure.
- ◆ Ensuring safety of system pipelines and maintaining the minimum water supply pressure upstream of the valve.
- ◆ When the upstream pressure exceeds the set value, the main valve opens to release excess pressure
- ◆ When the upstream pressure drops below the set value, the main valve closes to maintain upstream pressure.



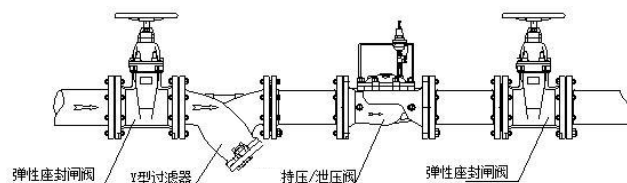
Applications:

The pressure holding & pressure relief valves are mainly installed in the water supply pipe networks of general buildings, fire protection systems, water plants, municipal projects, iron and steel, electric power, petroleum, chemical industry, commercial complexes, data centers, factories, as well as pipelines of urban water diversion and water supply projects.

Model Designation:

For example: A9009-100-16Q

1. "A9009" Pressure Holding & Pressure Relief Valve;
2. "-100" Nominal Diameter DN100;
3. "-" separator;
4. "-25/16/10" Nominal Pressure, PN25/PN16/10;
5. "Q": Ductile Iron; "T": Brass;
 "C": Cast steel; "P": Stainless steel;



A9000-...Electric Control Valve



**Electric Control Valve
A9000-...Series
Flanged Connection
PN10, PN16, PN25**

Performance & Features:

Electric control valve is a hydraulically operated valve with a solenoid valve serving as the pilot valve. It is widely used for automatic control in water supply, drainage and industrial systems, featuring accurate and rapid response. The valve can be remotely opened and closed via electric signals to realize remote operation. Its closing speed is adjustable, enabling smooth shutoff without pressure fluctuation. Both normally open and normally closed types are available for selection according to different working conditions.

When water enters from the valve inlet, it flows through the needle valve into the main valve control chamber. When the solenoid pilot valve opens, the water inside the control chamber discharges through the solenoid pilot valve and ball valve. Since the opening of the ball valve is larger than that of the needle valve, the pressure in the main valve control chamber remains low, keeping the main valve fully open. When the solenoid pilot valve closes, water in the control chamber can no longer flow out, and the chamber pressure rises, pushing the diaphragm to close the main valve.

- ◆ Nominal diameter: DN50...DN600.
- ◆ Hydraulically operated valve with solenoid valve as the pilot valve, featuring high-quality solenoid valve control.
- ◆ Remote opening and closing of pipeline system via electric signals to realize remote control.
- ◆ Adjustable valve closing speed, enabling smooth shutoff without pressure fluctuation.
- ◆ Solenoid valve available in AC 220V or DC 24V, and normally open and normally closed types available for selection to suit various application conditions.
- ◆ Normally Open Type - The control center closes the solenoid valve, the main valve closes, and water supply is cut off.
- ◆ Normally Closed Type - The control center opens the solenoid valve, the main valve opens, and water supply is recovered.

Applications:

Electric control valve are mainly installed in the water supply pipe networks of general buildings, fire protection systems, water plants, municipal projects, iron and steel, electric power, petroleum, chemical industry, commercial complexes, data centers, factories.

Model Designation:

For example: A9000-100-16Q

1. "A9000" Electric Control Valve;
2. "-100" Nominal Diameter DN100;
3. "-" separator;
4. "-25/16/10" Nominal Pressure, PN25/PN16/10;
5. "Q": Ductile Iron; "T": Brass;
"C": Cast Steel; "P": Stainless Steel;

