A2006/A2007-... Dynamic Differential Pressure Balancing Valve Series

Dynamic Differential Pressure Balancing Valve
A2006/A2007-...Series
Threaded/Flanged Connection
PN16

Performance & Features:

- Nominal diameter: DN15...DN150;
- Differential pressure range: A2006 series: 5-30KPa or 30-70KPa;
  A2007 series: Standard product: 20-80Kpa
  (For other ranges, please contact the relevant person in charge at ZIGTOO.)
- Advanced technical diaphragm adopted, with zero theoretical error; operating differential pressure: $\triangle PV \leq 350$ KPa
- Self-contained high-precision spring design for more accurate control.
- Autonomous regulation within the controlled system supported, eliminating interference from external network differential pressure fluctuations.
- EPDM seal with a reliable sealing performance.

Application & Working Principle

The self-operated differential pressure valve is an automatic differential pressure constant valve used to maintain a constant differential pressure between supply and return water lines for control valves, terminal equipment or pipeline branches in air conditioning and heating systems, preventing dynamic interference from pressure fluctuations in the pipe network and achieving dynamic hydraulic balance.

Working principle:

When the available differential pressure of the system pipeline increases, the self-operated differential pressure valve relies on pressure changes in its own high and low pressure chambers to rebalance the forces acting on both sides of the diaphragm. It simultaneously drives the valve stem to reduce the valve opening, absorbing the increased available differential pressure and ensuring a constant differential pressure on the controlled side.

When used together with static balancing valves, self-operated differential pressure valves can resolve hydraulic imbalance in variable flow systems. This arrangement effectively maintains a constant differential pressure in the supply and return lines when pressure or flow changes occur in the network.

Model Designation

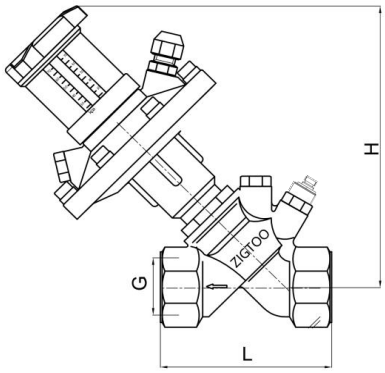
For example: A2007-65-16Q-X

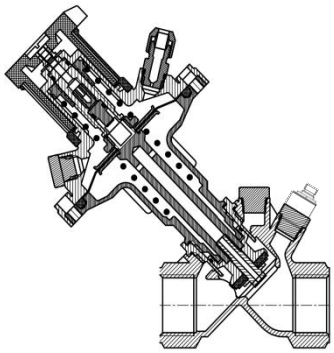
1. A2006 Self-operated Differential Pressure Valve, Threaded Connection;
2. A2007 Self-operated Differential Pressure Valve, Flanged Connection;
3. "-65" Nominal Diameter DN65;
4. "-" separator;
5. "-16/25" Nominal Pressure, PN16/PN 25;
6. "Q" Ductile iron body; "T" Brass body; "P" Stainless steels body;
7. "X" Controllable differential pressure range, Default maximum range;

Technical Specification

PN (Nominal Pressure)	PN16 PN25
Connection Standard	Threaded Connection ISO228, EN10226
	Flanged Connection EN1092-2, GB/T9113
Working Temperature	-15℃~130℃
Body	Brass HPb59-1(Stainless steels for option); Ductile Iron QT450-10
Core	Balancing Valve Core, Brass HPb59-1
Diaphragm	EPDM
Spring	Stainless Steel
Handwheel	ABS
Pressure tap	Brass HPb59-1

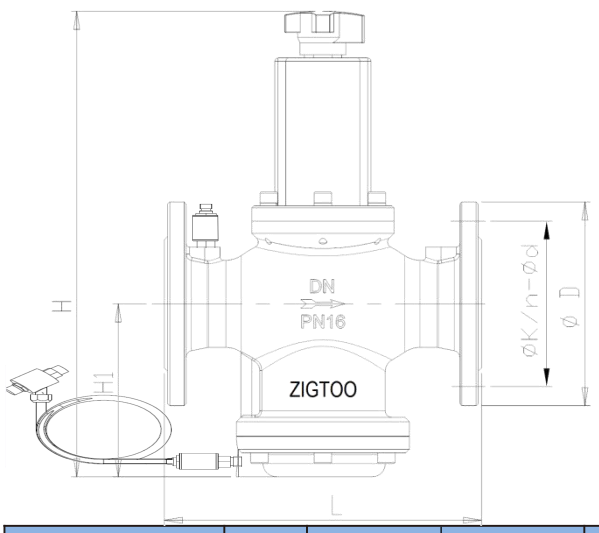
Dimension Chart

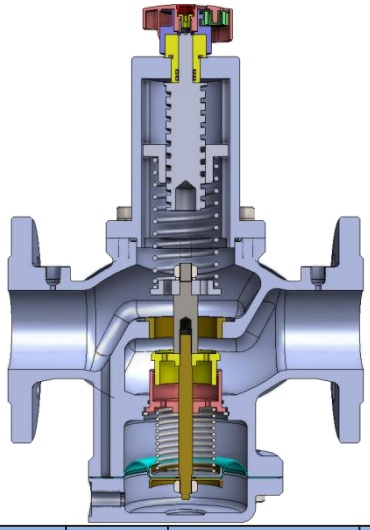




Model	DN	PN16		L mm	H mm	Kvs m³/h
		Bolt hole diameter	G/mm			
A2006-15-16T	15	—	1/2"	80	160	2.5
A2006-20-16T	20	—	3/4"	85	160	4.0
A2006-25-16T	25	—	1"	100	165	6.5
A2006-32-16T	32	—	1-1/4"	110	180	11.5
A2006-40-16T	40	—	1-1/2"	120	185	15.5
A2006-50-16T	50	—	2"	150	200	23.3

* Parameters in this document are for reference only due to product upgrades or updates. For accurate specifications, please contact ZIGTOO representatives.





Model	DN	N-Φd	ΦD	L mm	H1 mm	H mm	Kvs m³/h
A2007-40-16Q	40	4-19	150	200	127	354	18
A2007-50-16Q	50	4-19	165	230	142	381	28
A2007-65-16Q	65	4-19	185	290	157	423	45
A2007-80-16Q	80	8-19	200	310	170	497	72
A2007-100-16Q	100	8-19	220	350	198	580	112
A2007-125-16Q	125	8-19	250	400	235	680	144
A2007-150-16Q	150	8-23	285	480	268	784	252

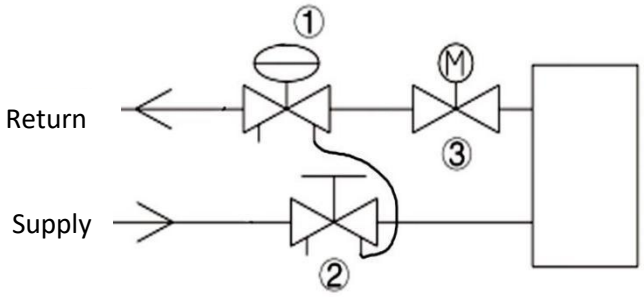
Installation & Operation Instructions

Self-operated differential pressure balancing valves can be used independently or in combination with static balancing valves (recommended). The water flow direction must be consistent with the arrow on the valve body. The pipeline shall be flushed before installation, and a filter is recommended to be installed at the upstream side. Copper tubes shall be installed at the upper or horizontal part of the water supply pipeline; installation at the lower part is not recommended to avoid blockage by particulate contaminants.

Prior to hydrostatic testing of the water system, the copper tube must be properly installed and connected, and the isolation valve must be opened to ensure that both upper and lower chambers of the differential pressure valve are charged with water pressure. The differential pressure shall not exceed 3 bar; otherwise, excessive pressure may damage the diaphragm of the valve.

The self-operated differential pressure balancing valve is installed on the return water line. When used together with a static balancing valve, the static balancing valve shall be installed on the supply water line, as shown in the right figure.

①- Self-operated differential pressure balancing valve
②- Static balancing valve
③- Electric control valve



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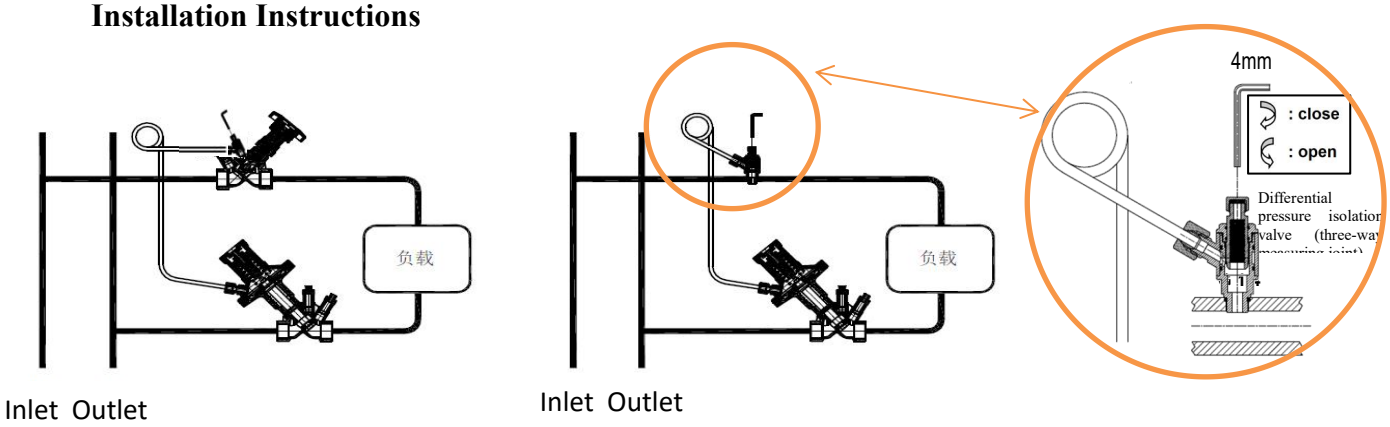
A2006 Series Installation & Operation Instructions

Installation Instructions



Two Arrangements:

I .Dynamic Differential Pressure Balancing Valve + Static Balancing Valve

When these two types of valves are used in combination, the copper tubes at the supply and return ends are open under normal operating conditions. Testing can be performed using a measuring instrument during system operation: Connect the high-pressure side to the three-way pressure tap on the static balancing valve, and the low-pressure side to the pressure tap on the differential pressure balancing valve to monitor the differential pressure. Adjust the differential pressure handwheel to the required pressure value. Alternatively, insert the high- and low-pressure ends of the instrument into the test ports of the static balancing valve. Adjust the differential pressure while observing the flow reading on the instrument until the desired flow value is reached, then stop adjustment. This pressure value is the optimal value required by the system.

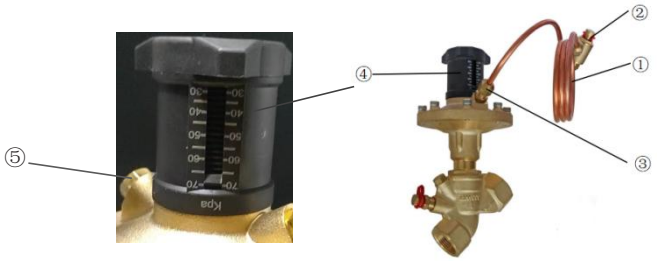
II. Standalone Use of Dynamic Differential Pressure Balancing Valve

The copper tubes at the supply and return ends are open under normal operating conditions. Testing can be carried out with a measuring instrument during system operation: Connect the high-pressure side to the three-way pressure tap and the low-pressure side to the pressure tap on the differential pressure balancing valve body to check the differential pressure, then adjust the differential pressure handwheel to the required pressure value.

Operation Method of Differential Pressure Isolation Valve

To open or close the valve, first unscrew the knurled cap on the isolation valve counterclockwise. Then insert a 4 mm hex key into the valve to open or close it (clockwise for opening, counterclockwise for closing).
During pressure testing, ensure the copper tube is open and water pressure is present in both upper and lower chambers.
The outlet of the differential pressure isolation valve can rotate 360° for convenient connection of the φ 6 copper tube.

Operation Instructions



Step 1: Connect the pressure guiding tube ①. As shown in the installation diagram, connect one end ③ of the pressure guiding tube to the dynamic differential pressure balancing valve, and the other end to the static balancing valve or the pipeline through the three-way measuring joint ②. At this time, the system should be in a low-pressure state.
Step 2: Open the three-way measuring joint ② to allow high-pressure supply water to flow into the upper chamber of the dynamic differential pressure balancing valve.
Step 3: Loosen the exhaust plug ⑤ (do not remove it completely). Close the plug once water starts to discharge.
Step 4: Rotate handwheel ④ and set the required differential pressure value according to the differential pressure indicator in the center of the handwheel.

Shut-off Function

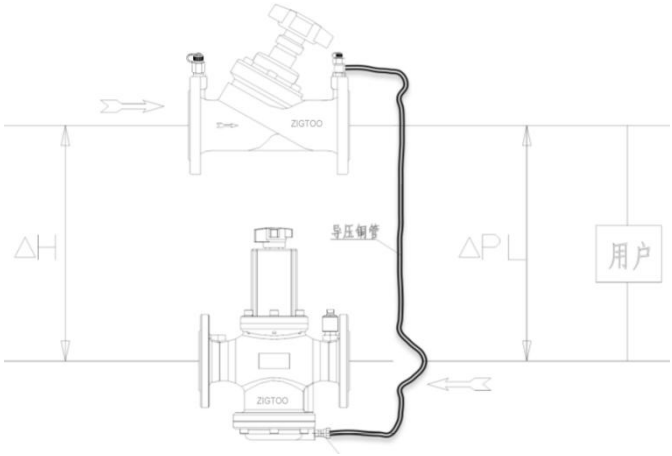
Shut off the valve using a hex key on top of handwheel ④:
First unscrew and remove the slotted screw on the top cover.
Then insert a 4 mm hex key into the control hole, position it properly, and turn clockwise to the bottom to close the valve.

Pressure Guiding Tube ①

If extension is required, an optional 2 m long pressure guiding tube is available.
- WARNING! Only use the supplied pressure guiding tube!

A2007 Series Installation & Operation Instructions
Installation Instructions

Note! Dynamic differential pressure balancing valves are typically installed on the return pipe and must be oriented in the correct flow direction.



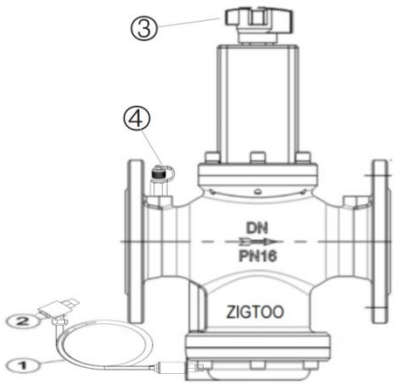
There are two arrangements, namely:

I Dynamic Differential Pressure Balancing Valve + Static Balancing Valve

II Standalone Use of Dynamic Differential Pressure Balancing Valve

The operation method of A2007 series differential pressure isolation valve is the same as that of A2006 series. Please refer to the operation method of A2006 series.

Operation Instructions



Step 1: Connect pressure guiding tube ①. As shown in the installation diagram, connect one end of the pressure guiding tube to the dynamic differential pressure balancing valve, and the other end to the static balancing valve or pipeline via three-way measuring joint ②. At this time, the system should be in a low-pressure state.

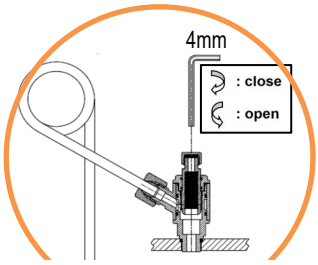
Step 2: Open the three-way measuring joint ② to allow water to flow through the copper tube. The water pressure at the high-pressure side will equalize with that in the lower chamber of the differential pressure valve. Observe for and avoid any water leakage.

Step 3: Set the differential pressure △P by turning handwheel ③.
Alternatively, use a testing instrument: connect the high-pressure side of the instrument to the supply-side three-way joint ②, and the low-pressure side to the measuring port ④ on the differential pressure valve body.
Insert the probe into the self-sealing measuring port, observe the reading on the gauge, and stop when the set value is reached.

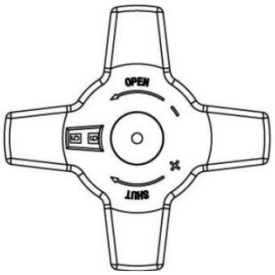
Pressure guiding tube ①:
If extension is required, an optional 2m long pressure guiding tube is available.

- WARNING! Only use the supplied pressure guiding tube!

Setting Method



Open and connect the three-way measuring joint



Adjust the number of turns of the handwheel to set the differential pressure to the corresponding value as shown in the table (e.g. 5.6 turns as indicated in the diagram).

Nominal Diameter	Differential pressure values corresponding to the number of turns (KPa)						
	0turn	2.6 turn	4.2 turn	5.7 turn	7 turn	8.3 turn	9.3 turn
DN40-150	20KPa	30KPa	40KPa	50KPa	60KPa	70KPa	80KPa