A1009T-S... Dynamic Balance Electric On-Off Valve Series

Dynamic Balance Electric On-Off Valve
A1009T-S...Series
Threaded Connection
PN16/25

Performance & Features:

This product is mainly used to solve hydraulic imbalance problems in HVAC systems. It maintains stable flow unaffected by system fluctuations even under large load variations, and is primarily applied in fan coil unit systems.

- Nominal diameter: DN15...DN25;
- Integrating dynamic flow control and electric actuation, greatly saving installation space.
- Customizable to the optimal specification according to the actual flow requirements of terminal equipment, enabling more precise control.
- Flow control only related to the adjustment of the electric actuator and not affected by fluctuations in system differential pressure.
- System resistance balancing through a dynamic valve core to maintain constant flow.
- On-off type electric thermal actuator adopted for on-off control, ensuring more stable water flow and longer service life.

Applications:

The series of valves can be used for terminal equipment in central air conditioning heating and cooling systems, such as fan coil units, and can be switched on and off by a room thermostat.

Model Designation:

For example: A1009T-S20-16T/ Actuator Model

1. A1009 Dynamic Balance Electric On-Off Valve;
2. "T": Threaded connection;
3. "-": separator;
4. "S": On-Off Type;
5. "-20": Nominal Diameter DN20;
6. "16": Nominal Pressure, PN25/PN16;
7. "T": Brass;

Technical Specification:

PN (Nominal Pressure)	PN16/25
Connection Standard	DN15-25: Threaded connection EN10226 (ISO228)
Working Temperature	DN15-25: -15℃~130℃
Body	DN15-25: Forged Brass HPb59-1
Stem	DN15-25: Stainless Steel SS410
Core	DN15-25: Stainless SteelSS410 Valve closes as the valve core moves downward. Valve opens as the valve core moves upward.
Leakage rate	≤ 0.05% Kvs
Seal	EPDM

Flow Rate Parameter Table:

Working Differential Pressure (KPa)	Flow Rate m³/h						
20-200	0.55	0.77	1.0	1.7*	2.0	2.7	3.4

*1.7 m³/h is the default flow rate for all specifications. Please inform the person in charge at ZIGTOO in advance if other flow rates are required.

Electric Thermal Actuator Parameters

Model	Type	Voltage	Power	Ambient temperatur	Waterproof rating	Cable length
VAJ1T02.CR01	Normally closed	220V	1.8W	0-60℃	IP40	~0.6m
VAJ1T02.OR01	Normally open		1.8W			
VAJ1T01.CR01	Normally closed	24V	1.8W			
VAJ1T01.CR01	Normally open		1.8W			

Working Principle of Dynamic Cartridge

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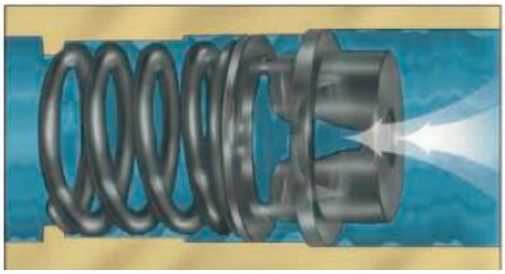
1. When the differential pressure is below the control range, the cartridge is fully open, allowing a full designed flow. As the flow rate increases, the cartridge gradually closes during fluctuation.

Figure1

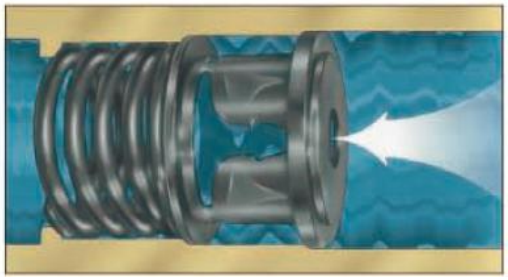
2. Within the differential pressure control range, the cartridge moves in response to pressure changes, altering the flow area while maintaining a constant flow rate.

Figure2



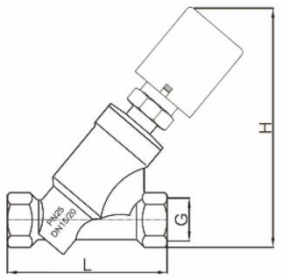
3. When the differential pressure exceeds the control range, the cartridge is fully compressed, and the flow area is reduced to the minimum designed flow passage.

Figure3



Pressure Difference vs. Flow Rate Curve

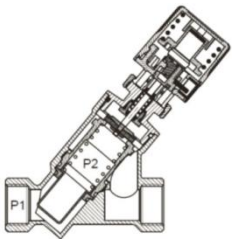
Dimension Chart



规格	G	L(mm)	H(mm)
DN15	G1/2"	103±1.5	145～150
DN20	G3/4"	103±1.5	
DN25	G1"	112±1.5	

Function Description

The valve stem retracts downward. ↓: Valve closes Flow rate decreases
Valve stem extends upward ↑: Valve open Flow rate increases



Electric thermal actuator:

Normally closed (NC, opens when energized):

Valve opens when energized, and closes when de-energ

Normally open (NO, closes when energized):

Valve closes when energized, and opens when de-energ

Installation Instructions

Installation on the return water pipe is recommended. In heating systems, the water flow in the return pipe is relatively stable, securing a higher control accuracy. In addition, the return water temperature is lower, which helps extend the service life of the valve stem sealing materials.

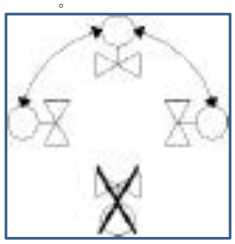
In open systems, there may be a risk of the valve core seizing due to scale deposits. In such cases, an actuator with a higher driving force should be selected. In addition, the valve should be operated regularly (two to three times per week). A filter must be installed at the valve inlet!

Before installing the valve, the pipeline shall be thoroughly cleaned to ensure it is free of debris, welding slag and other foreign matters. The pipeline shall be laid horizontally and vertically without excessive vibration. When installing the valve, the actuator shall be positioned upward, slightly upward or horizontal. It must not be installed facing downward or inclined downward (as shown in the diagram below).

Sufficient space shall be reserved for on-site installation, future inspection and maintenance of the valve and actuator. The actuator body and bracket shall not be covered with insulation cotton or other thermal insulation materials, so as not to affect normal heat dissipation.

The valve shall not be installed in locations prone to collision, impact or vibration. The ambient temperature shall be maintained within 2 – 50 ℃. In addition, it shall not be installed in environments exposed to steam, water spray or dripping water.

Actuator Installation



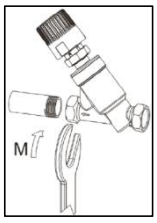
1. The valve shall not be installed downward, to prevent condensate water from flowing into the actuator.
2. Pay attention to the parameter values and supply the operating voltage as required.
3. Do not open the interior of the actuator to avoid damage.

Valve Body Installation

It is recommended to use PTFE tape or graphite glycerin as sealing material for the connection between the valve body and the pipeline.

Installation torque M (as shown in the figure below) is generally 30 Nm for DN15-25, with a maximum of 50 Nm. Ensure that the valve body is not subjected to axial force after installation.

During installation, observe the flow direction arrow marked on the valve body.



System Pressure Test

Do not close the valve during system pressure test. For normally closed valves, do not install the actuator.(The valve is not in closed position upon delivery.)