

A2003/A2004-...Dynamic Flow Balancing Valve Series



Dynamic Flow Balancing Valve
A2003/A2004...Series
Threaded / Flanged Connection
PN16 PN25

Performance & Features:

This product is mainly used to solve hydraulic imbalance problems in HVAC systems. When the system load fluctuates, it can maintain a stable flow rate unaffected by system disturbances, ensuring controlled equipment operates at the designed flow rate.

- ◆ Nominal diameter: DN15...DN600 (For other sizes, please consult ZIGTOO representative.)
- ◆ No on-site adjustment required for flow rate, which has been preset before delivery.
Multiple differential pressure ranges available for each size.
- ◆ When the system differential pressure fluctuates, the valve core automatically adjusts the opening of the variable flow passage to maintain a constant flow rate in the controlled area.
- ◆ When the differential pressure is within the working range, the precisely calibrated valve core ensures a constant flow rate with a deviation within $\pm 5\%$.

Applications:

This series of valves is used in central air conditioning, heating and cooling systems to ensure a rated water flow from pumps and chillers and avoid overload.

Model Designation:

For example: A2004-100-16Q

1. "A2004" Dynamic Flow Balancing Valve Flanged Connection; "A2003": Threaded Connection;
2. "-100": Nominal Pressure DN100;
3. "-": separator;
4. "-25/16": Nominal Pressure, PN25/PN16;
5. "Q" stands for ductile iron valve body, while "T" stands for brass

Technical Specification:

PN (Nominal Pressure)	PN16 PN25
Connection Standard	DN15-50: Threaded Connection EN10226 (ISO228) DN65-600: Flanged connection EN1092-1/2 (GB/T12221-2005)
Working Temperature	-15°C~130°C
Body	DN15-50: Forged Brass HPb59-1, DN65-600: Ductile Iron QT450-10
Core, Spring	Stainless Steel SS410
Seal	PTFE/EPDM

Flow Parameter Table

Model	Nominal Diameter	Differential Pressure Range (KPa)	Flow Range (m³/h)	Max. Valve Cartridges (pcs)
A2003-15-16T	DN15	15-150	0.473-2.646	1
		21-220	0.552-3.083	
		33-300	0.575-3.223	
A2003-20-16T	DN20	15-150	0.473-2.646	1
		21-220	0.552-3.083	
		33-300	0.575-3.223	
A2003-25-16T	DN25	15-150	0.473-4.322	1
		21-220	0.552-5.064	
		33-300	0.575-5.588	
A2003-32-16T	DN32	15-150	0.473-4.322	1
		21-220	0.552-5.064	
		33-300	0.575-5.588	
A2003-40-16T	DN40	15-150	0.473-5.688	1
		21-220	0.552-7.976	
		33-300	0.575-9.588	
A2003-50-16T	DN50	15-150	0.473-5.688	1
		21-220	0.552-7.976	
		33-300	0.575-9.588	

Model	Nominal Diameter	Differential Pressure Range (KPa)	Flow Range (m³/h)	Max. Valve Cartridges (pcs)
A2004-65-16Q	DN65	15-150	3-15	1
		21-220	4-2	
		33-300	5-26	
A2004-80-16Q	DN80	15-150	3-15	1
		21-220	4-20	
		33-300	5-26	
A2004-100-16Q	DN100	15-150	3-30	2
		21-220	4-40	
		33-300	5-52	
A2004-125-16Q	DN125	15-150	3~45	3
		21-220	4~60	
		33-300	5~78	
A2004-150-16Q	DN150	15-150	3~75	5
		21-220	4-100	
		33-300	5-130	
A2004-200-16Q	DN200	15-150	3-105	7
		21-220	4-140	
		33-300	5-164	
A2004-250-16Q	DN250	15-150	3-165	11
		21-220	4-220	
		33-300	5-286	
A2004-300-16Q	DN300	15-150	3-225	15
		21-220	4-300	
		33-300	5-390	
A2004-350-16Q	DN350	15-150	3-285	19
		21-220	4-380	
		33-300	5-494	
A2004-400-16Q	DN400	15-150	3-330	22
		21-220	4-440	
		33-300	5-572	
A2004-450-16Q	DN450	15-150	3-420	28
		21-220	4-560	
		33-300	5-728	
A2004-500-16Q	DN500	15-150	3-480	32
		21-220	4-640	
		33-300	5-832	
A2004-600-16Q	DN600	15-150	3-675	45
		21-220	4-900	
		33-300	5-1170	

Working Principle of Dynamic Cartridge:

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.

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.

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.

Figure1



Figure2

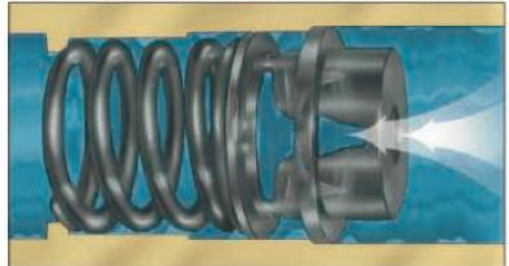
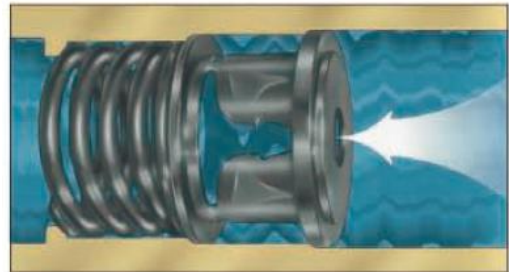
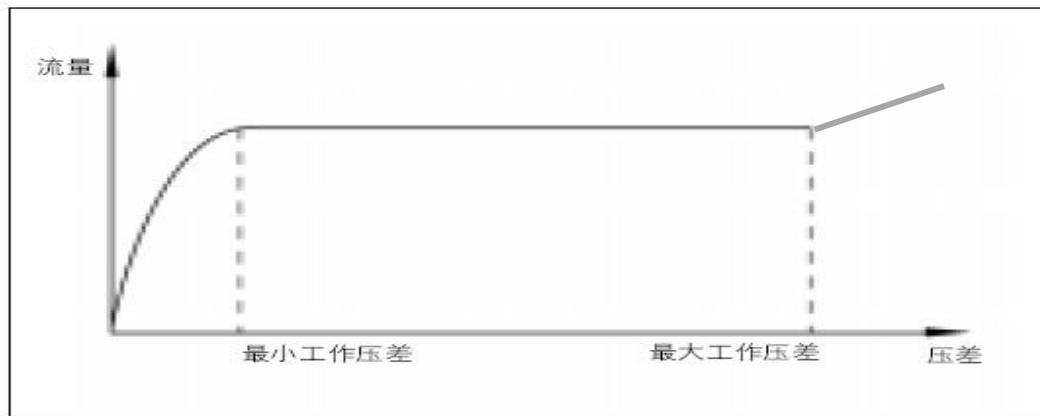


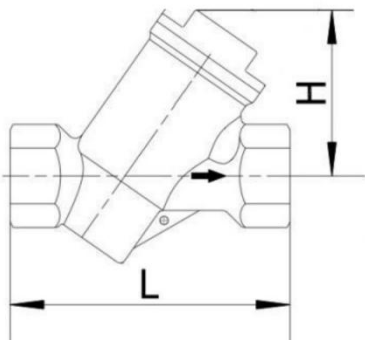
Figure3



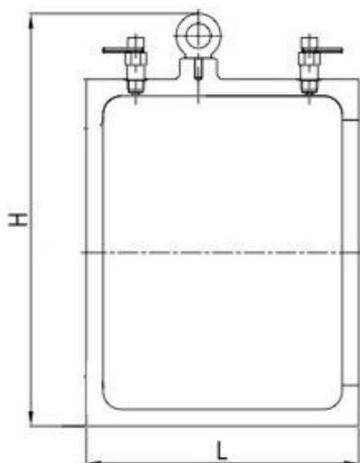
Pressure Difference vs. Flow Rate Curve



Dimension Chart



Model	Nominal Diameter	L (mm)	H (mm)
A2003-15-16T	DN15	100	60
A2003-20-16T	DN20	100	60
A2003-25-16T	DN25	110	65
A2003-32-16T	DN32	140	80
A2003-40-16T	DN40	150	84
A2003-50-16T	DN50	160	90



Model	Nominal Diameter	L (mm)	H (mm)
A2004-65-16Q	DN65	180	106
A2004-80-16Q	DN80	180	120
A2004-100-16Q	DN100	220	177
A2004-125-16Q	DN125	220	193
A2004-150-16Q	DN150	220	273
A2004-200-16Q	DN200	220	333
A2004-250-16Q	DN250	220	394
A2004-300-16Q	DN300	224	469
A2004-350-16Q	DN350	224	512
A2004-400-16Q	DN400	390	532
A2004-450-16Q	DN450	390	565
A2004-500-16Q	DN500	495	625
A2004-600-16Q	DN600	590	755

Installation Instructions

Installation on the return water pipe is recommended. In a system, 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 sealing materials.

There may be a risk of the valve core seizing up in the system due to scale deposits. In such cases, an actuator with a larger 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, clean the pipeline thoroughly to ensure it is free of debris, welding slag and other foreign matter. The pipeline should be laid horizontally and vertically without significant vibration.