STATIC & DYNAMIC
BALANCING VALVE

Hydraulic balance and control
Create ideal and comfortable indoor environment

NINGBO HOLY HVAC EQUIPMENT CO., LTD

It is a company with the hydraulic balancing technology as its core.

In September 2020, China set the goals of "carbon peaking" by 2030 and "carbon neutrality" by 2060. Under this background, Ningbo Holy HVAC Equipment Co., Ltd comes into being.

It has world-leading hydraulic balancing independent core technology. We focus on all kinds of dynamic balancing valves, static balancing valves, differential pressure valves,etc. Using our technology in air-conditioning system and heating system can improve system quality. We have provided OEM and ODM service to international and domestic famous enterprises for many years.

Our core goal is to provide comfortable, efficient,energy-saving and convenient products for air-conditioning system, heating system and domestic water system etc. Our company is committed to promoting industry development and improving human life.

Catalogue

Hydraulic Balancing System Introduction

In air-conditioning and heating system,water is commonly used as a medium for distribution. So the hydraulic balance of water-cycling system decides the quality of the whole system: comfortable, energy-saving, stable.

The operation load of air conditioner and heater system is always a variate. The variation of temperature in nature, the quantity variation of end start and close, building interior doors and windows switch decides the system to be in the state of constant change. This variation will straightly cause the hydraulic imbalance of the whole system(also called hydraulic imbalance). It is difficult to balance the system flow correctly. "Correct" means that the flow through the end is just enough to meet the required heat and cold load.As the positions of each end are different, so the distance from the center of heat is different. If there is no hydraulic balance or imbalance, then the end near the center of heat will appear over-flow and over-high of cold /heat load. On the other hand, the distant end has too low flow and cold /heat load. This will result in cold/heat imbalance.Such system will obviously lead to greater energy consumption and can not guarantee the comfort required by the users. In conclusion, the importance of balance in the design and implementation of the system is undoubted.

The Purpose of Hydraulic Balance:

- Obtain the highest heat comfort, for example, in the case of sufficient external cold and heat sources, avoid local over heating or cooling caused by incorrect output flow to the end.
- Reduce the power consumption of circulating pump, the system cycles only according to the required flow.
- Guarantee the host machine runs at the designed temperature difference, increase the efficiency of the host machine, save energy consumption.
- Avoid abnormal operation of the system, such as the noise caused by over flow.
- Ensure that the system runs according to the correct flow.

HYDRAULIC IMBALANCE SOLUTION

Hydraulic imbalance also includes static hydraulic imbalance and dynamic hydraulic imbalance.

1、Static hydraulic imbalance

Because of design, construction, equipment, materials, the ratio of system pipeline characteristic resistance number is not consistent. Hydraulic imbalance caused by inconsistency between actual flow and designed flow.

The static hydraulic imbalance is inherent in the system, steady and fundamental;Adding balancing valve (static or dynamic balancing valve) in the pipeline can solve the imbalance problem.In the fixed flow system, the static balancing valve can solve this problem. But the static balancing elements only can limit the highest flow within a certain range, it can not make dynamic adjustment according to the flow and pressure change. So under such situation, the dynamic balancing valve is needed. It can balance the flow adaptively and automatically.

Static hydraulic imbalance

Static hydraulic balance
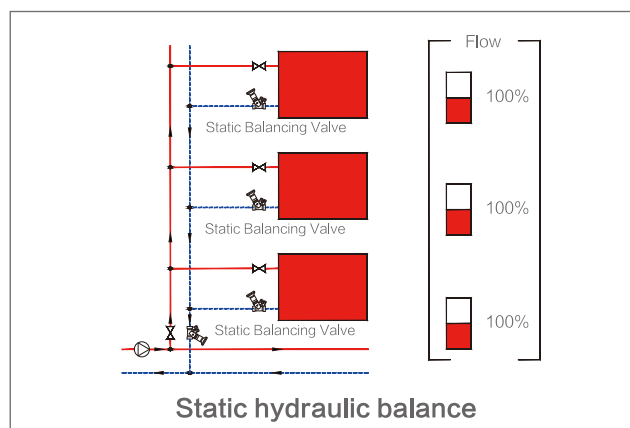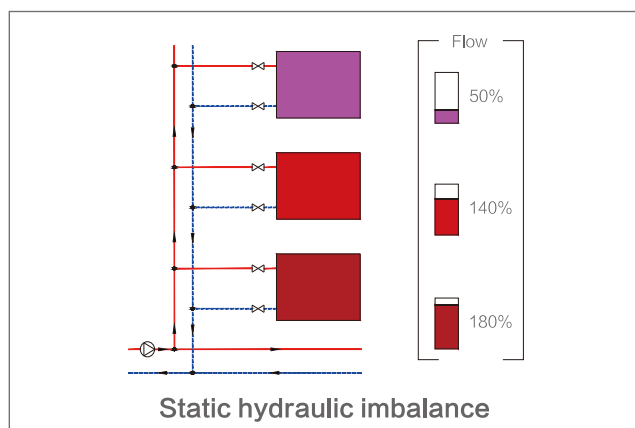
2、Dynamic hydraulic imbalance

　　Hydraulic imbalance due to end flow variation. That is, because of the users' need, the end of the water flow changes when a terminal control valve is closed or adjusted, resulting in changes in the resistance distribution of the system, leading to other end flow changes.

　　It is not inherent in the system. The imbalance occurred in the dynamic operation process has little impact on other ends, so the system stability is good. Otherwise, the hydraulic stability of the system is poor.

　　Static balancing valve can not solve this problem. Adding hydraulic dynamic balancing valve in the pipeline, when other end flow changes, dynamic balancing valve can play a "shield" role, so that its own control of the end flow does not change.

　　Active variable flow system of cold and heat sources. When the water supply from cold and hot sources is 100%, the system maintains dynamic and static balance. Due to the changes in the external environment temperature, in order to save the operating costs of the system, the flow mode often changes, and the flow through the frequency conversion pump is operated at the value set between 10−100%.

　　The total supply water flow of the system changes, resulting in the change of each end flow and easy to cause hydraulic imbalance.

　　Dynamic balancing valve or external set dynamic balancing valve can keep the dynamic hydraulic balance of the system.
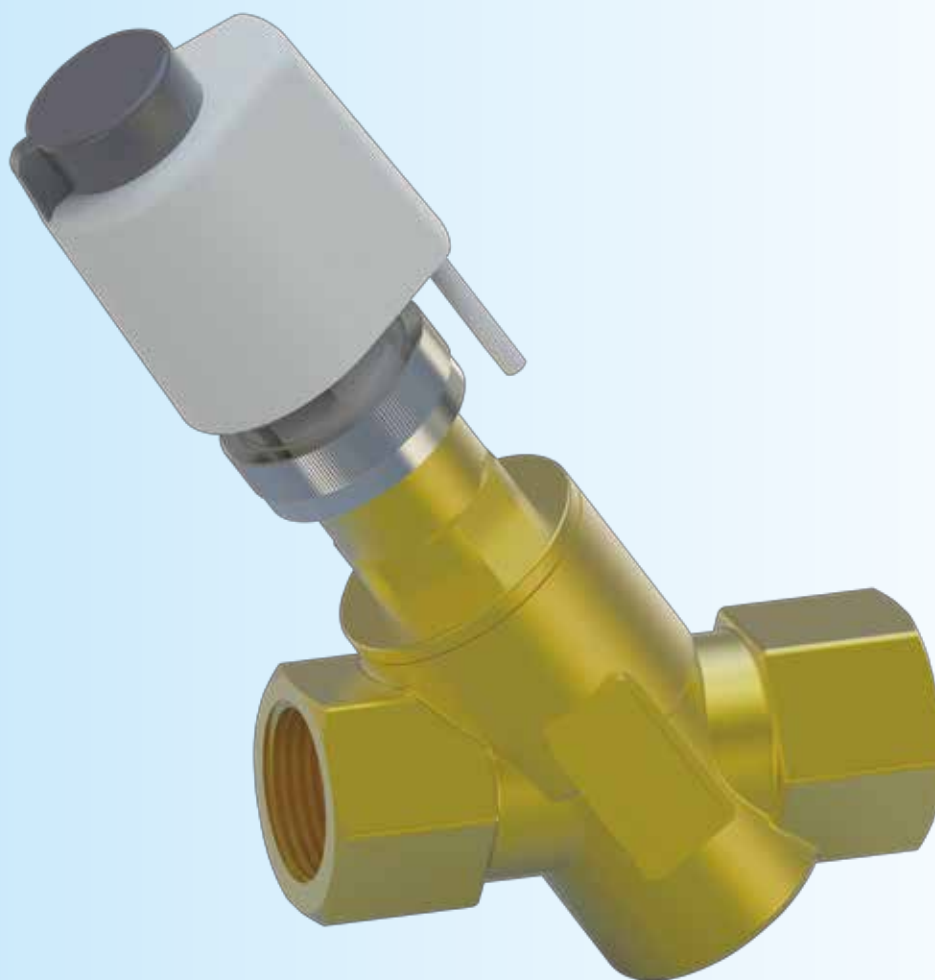

Dynamic hydraulic imbalance
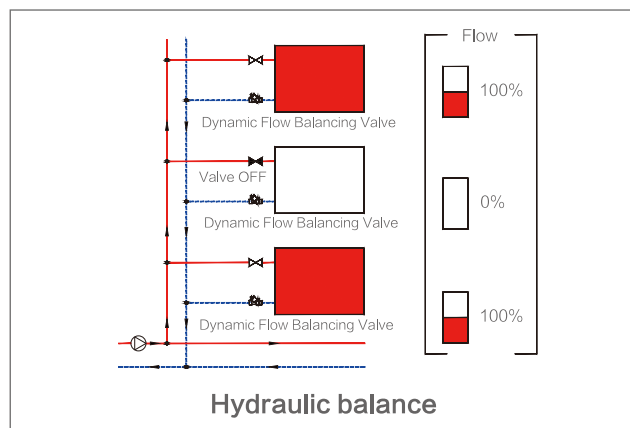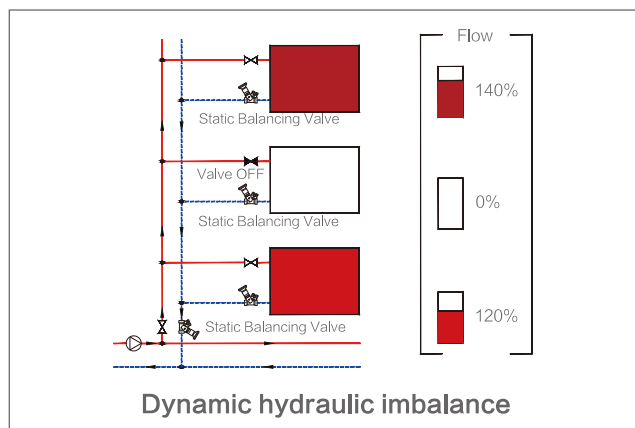
Hydraulic balance

More Comfortable

More Energy-saving

More Convenient

Balance is the core of all systems !

Static Balancing Valve

The static balancing valve is used to keep hydraulic balance between each branch of backwater.Its measuring channel changes the accuracy of flow measurement.It can assist debugging engineer in the debugging process of system balancing to reduce operation difficulty,improve the accuracy of debugging. Its refined ductile iron valve body and soft seal design ensure the life of static balancing valve and tight shut-off function.

Product Characteristics:

- It is often used in heating and cooling water system to control the hydraulic balance of every branch.
- Independent switch locking structure has clear and accurate opening instructions
- Hydroport is sealed by double "o" ring with self shut-off and antileakage functions
- Easy to debug

Technical Specifications

- body：under DN50: brass ; above DN50: ductile iron
- insert：brass alloy or stainless steel
- sealing ring：EPDM
- pressure：PN16/PN25
- maximum differential pressure：1.2MPa/2.5MPa (limited by noise)
- working temperature：-10~120℃
- connection type：under DN50:thread above DN50: flange
- suitable medium: water or ethylene glycol mixed liquid

Static Balancing Valve "LS JT"

Specification and size:
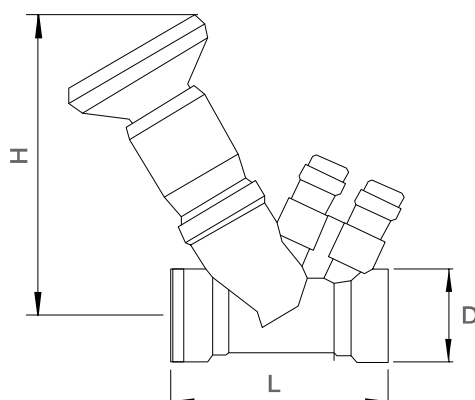
Application：
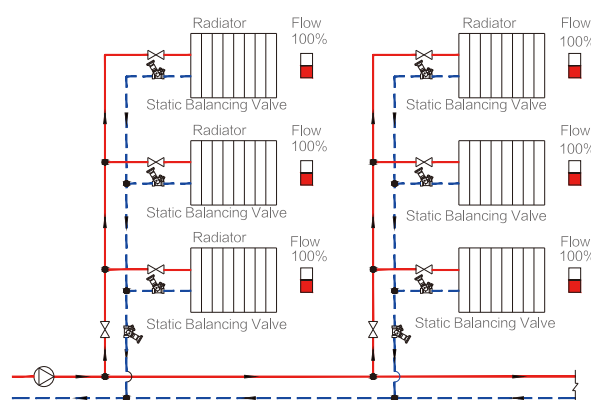
Type	Specification(DN)	D (mm)	L (mm)	H (mm)	Kvs(m³/h)
LS JT15	15	G1/2	83	100	1.8-3.0
LS JT20	20	G3/4	90	100	3.0-6.0
LS JT25	25	G1	110	101	4.6-8.8
LS JT32	32	G1 1/4	124	110	5.6-15
LS JT40	40	G1 1/2	130	120	6.8-30
LS JT50	50	G2	238	234	15-50

Dynamic Balancing Valve

Structure principle

Dynamic balancing valve consists of valve housing and stainless steel valve insert. The valve insert is one or more hydraulic automatic regulating devices. The hydraulic automatic regulating device consists of a valve insert with variable flow area, a spring with high precision and supporting parts.

STAINLESS STEEL HOUSING

STAINLESS STEEL SPRING

100% STAINLESS STEEL PISTON IS A MOVABLE PART

COMPUTER DESIGNED AND PRECISELY CUT ORIFICES

insert structure

Q (m³/h)

$\Delta P = \Delta Pmin * Q^2 / Qmax^2$

Qmax

$\Delta Pmin$ $\Delta Pmax$ ΔP (KPa)

flow characteristic
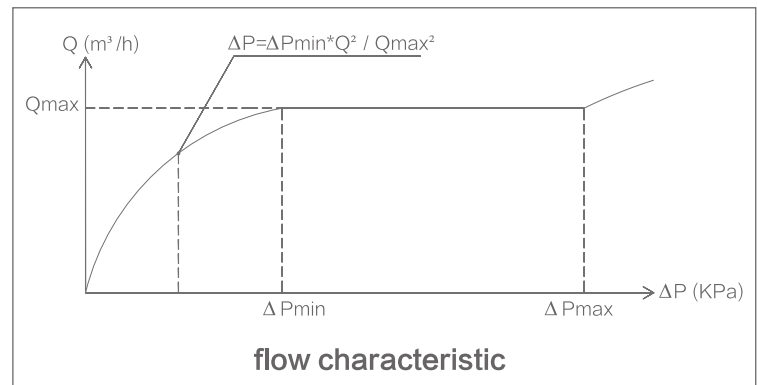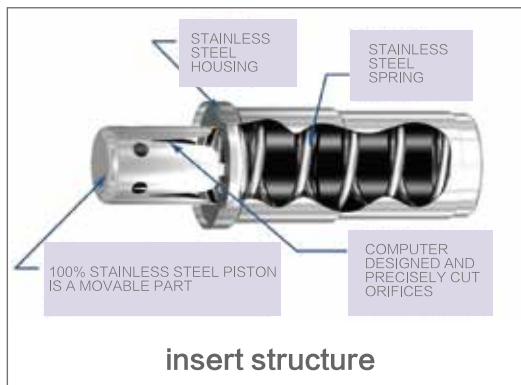
The relationship of pipe system flow and differential pressure:

$G = K \cdot A \cdot \sqrt{\Delta P}$ (G: flow, K: flow coefficient A: area of water flow ΔP: differential pressure)

dynamic balancing valve working state changes as follow:

Differential pressure:
$0 < \Delta P \leq \Delta P_{min}$
(partial load operation)
flow increases as the differential pressure increases, the flow can not meet the designed requirement

Flow
G

21kpa Pressure 210kpa
40kpa Difference 400kpa

working state (1)

$\Delta P_{min} \leq \Delta P \leq \Delta P_{max}$
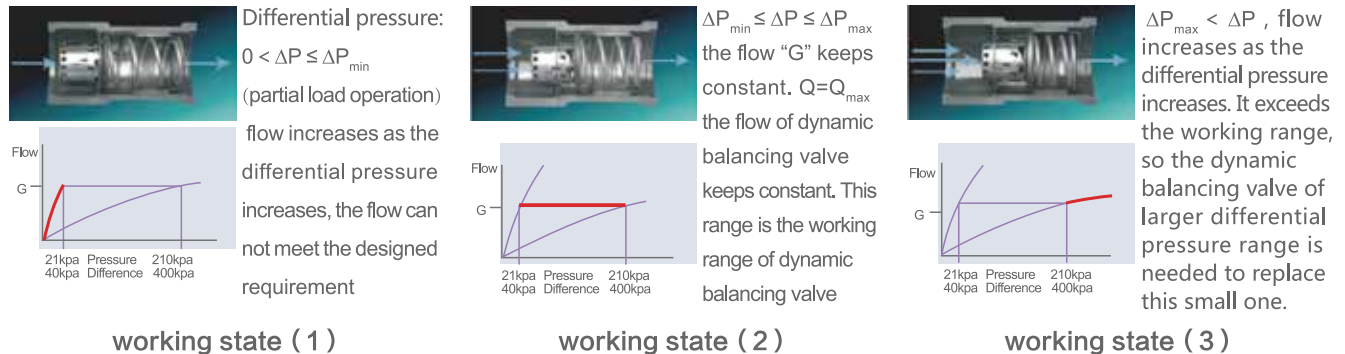the flow "G" keeps constant. $Q = Q_{max}$ the flow of dynamic balancing valve keeps constant. This range is the working range of dynamic balancing valve

Flow
G

21kpa Pressure 210kpa
40kpa Difference 400kpa

working state (2)

$\Delta P_{max} < \Delta P$, flow increases as the differential pressure increases. It exceeds the working range, so the dynamic balancing valve of larger differential pressure range is needed to replace this small one.

Flow
G

21kpa Pressure 210kpa
40kpa Difference 400kpa

working state (3)

Insert

Type	specification (DN)	differential pressure (Kpa)	minimum flow (m³/h)	maximum flow (m³/h)
LS FD15	15/20/25	9-90	0.076	1.152
LS FD20		21-210	0.126	1.818
LS FD25		40-400	0.169	2.272
		88-800	0.248	3.636
LS FD32	32/40	9-90	0.684	3.33
		21-210	1.022	5.004
LS FD40		40-400	1.368	6.66
		88-800	2.045	8.64
LS FD50	50	9-90	3.168	29.52
		21-210	3.96	36.324
		40-400	5.292	50.031
		88-800	7.956	53.123

Dynamic Flow Balancing Valve

LS JC series of dynamic flow balancing valve can make the water flow constant in the pine. It can solve the hydraulic imbalance caused by the system pressure fluctuation in its working range. The flow is constant as designed when the valve is open. The operation of each end device will not bother with each other in the controlled loop.

LS JC(DN15-40)

LS JC(DN50-800)

Technical specification

insert mode：fixed maximum flow

valve insert material：stainless steel

body material：brass(DN15-DN40)

　　　　　　　gray or ductile iron(DN50-DN800)

flow error：≤5%

pressure：PN25 / PN16

　　spring material：stainless steel

maximum working temperature：280℃(DN15-DN40)

　　　　　　　　　　　　　118℃(DN50-DN800)

Technical specifications(1)

| Type	specification (DN)	differential pressure (Kpa)	minimum flow (m³/h)	maximum flow (m³/h)
LS JC15	15/20/25	9~90	0.076	1.152
LS JC20		21~210	0.126	1.818
		40~400	0.169	2.272
LS JC25		88~800	0.248	3.636
LS JC25	25/32/40	9~90	0.684	3.33
LS JC32		21~210	1.022	5.004
		40~400	1.368	6.66
LS JC40		88~800	2.045	8.64
LS JC50	50/65/80	10~130	3.168	29.52
LS JC65		22~210	3.96	36.324
		40~390	5.292	50.031
LS JC80		88~800	7.956	53.123

Dynamic Flow Balancing Valve

Technical specifications(2):

Type	specification (DN)	differential pressure (Kpa)	maximum flow	
			m³/h	L/s
LS JC 100	100	10-130	27.53	7.57
		22-210	66.12	18.34
		35-210	72.06	20.01
		40-390	100.1	27.78
		88-880	108.12	30.02
LS JC 125	125	10-130	40.82	11.34
		22-210	99.02	27.51
		35-210	108.11	30.01
		40-390	150.03	41.68
		88-880	160.12	44.45
LS JC 150	150	10-130	54.56	15.14
		22-210	132.03	36.67
		35-210	144.02	40.01
		40-390	200.05	55.56
		88-880	220.13	61.13
LS JC 200	200	10-130	95.36	26.49
		22-210	231.03	64.17
		35-210	252.02	70.01
		40-390	350.02	97.22
		88-880	366.54	101.75
LS JC 250	250	10-130	149.87	41.63
		22-210	363	100.83
		35-210	396.03	110.00
		40-390	550.06	152.78
		88-880	584.54	163.35
LS JC 300	300	10-130	204.37	56.77
		22-210	495.03	137.5
		35-210	540.03	150
		40-390	750.08	208.33
		88-880	790.07	219.45

Type	specification (DN)	differential pressure (Kpa)	maximum flow	
			m³/h	L/s
LS JC 350	350	10-130	258.88	71.91
		22-210	627.11	174.18
		35-210	684.00	190.00
		40-390	950.02	263.88
		88-880	1010.00	280.56
LS JC 400	400	10-130	327.02	90.84
		22-210	858.16	229.19
		35-210	900.01	250.00
		40-390	1250.08	347.22
		88-880	1330.00	369.44
LS JC 450	450	10-130	422.38	117.33
		22-210	1022.95	284.17
		35-210	1116.00	310.02
		40-390	1550.02	430.55
		88-880	1600.00	444.24
LS JC 500	500	10-130	504.14	140.04
		22-210	1221.00	339.10
		35-210	1332.03	370.10
		40-390	1850.00	513.90
		88-880	1930.02	536.12
LS JC 600	600	10-130	749.38	208.16
		22-210	1716.01	476.66
		35-210	1872.00	520.01
		40-390	2600.00	722.22
		88-880	2822.01	783.33
LS JC 800	800	10-130	1158.16	321.71
		22-210	3498.01	971.67
		35-210	3816.00	1060.00
		40-390	5300.18	1472.22
		88-880	5480.04	1522.41

Size-1:
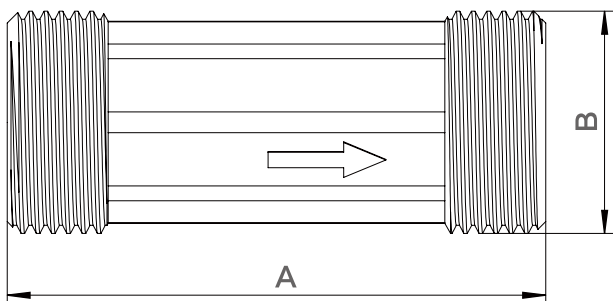
DN	A(mm)	B(mm)	Thread diameter
15	44	18	G1/2
20	65	27	G3/4
25	65	32	G1
32	105	40	G1 1/4
40	105	46	G1 1/2

Size-2:
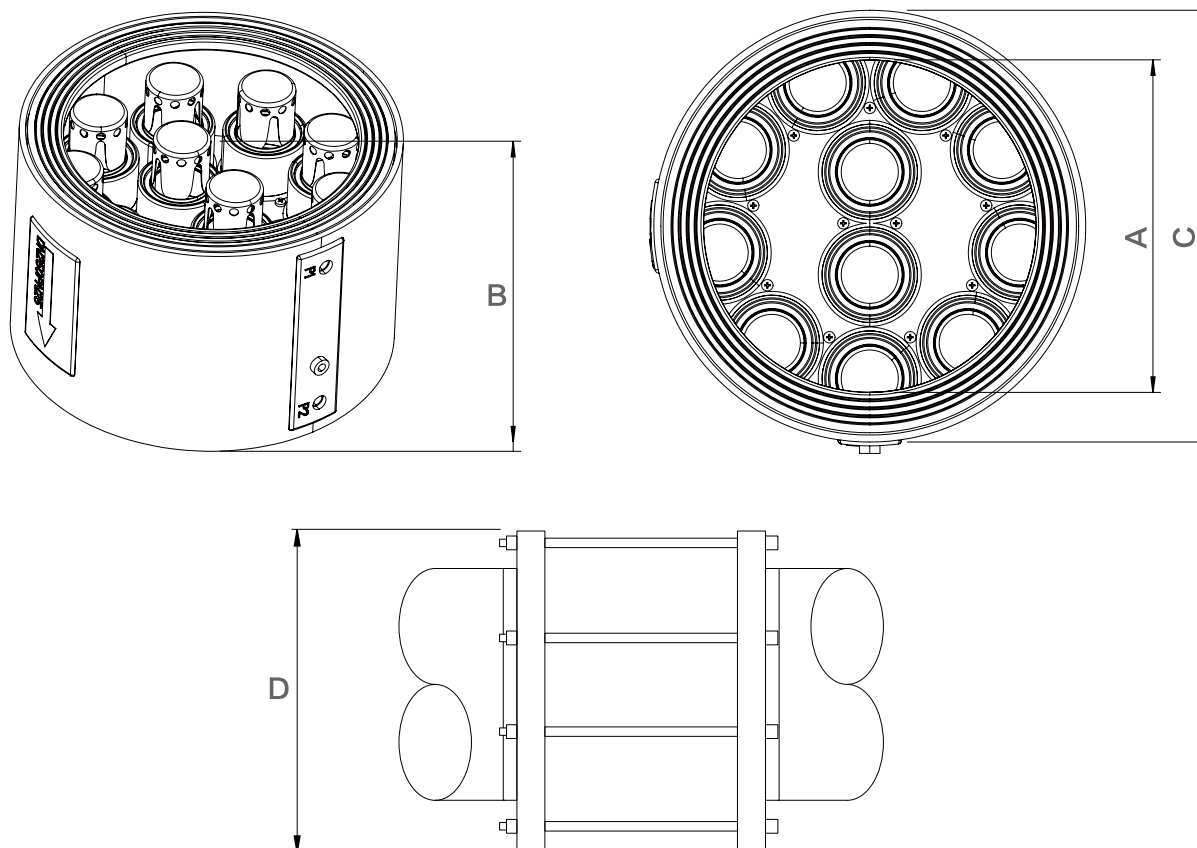
DN	A (mm)	B (mm)	C (mm)	D (mm)	weight (kg)
50	86	188	106	---	3.6
65	86	188	112	---	4
80	86	188	112	---	4
100	100	220	167	235	9.6
125	125	220	192	270	11.3
150	150	220	220	300	14
200	200	220	276.35	360	22
250	250	220	338	425	30.6
300	300	223.2	400	485	48.6
350	350	223.2	447.8	555	54.8
400	400	262	510	620	87.3
450	450	242	560	670	118
500	500	242	618	730	150
600	600	262	728	845	280
800	800	262	882	988	488

Dynamic Flow Balancing Valve

Application −1

Dynamic Flow Balancing Valve

Fan Coil

M

Flow 100%

Dynamic Flow Balancing Valve

Fan Coil

M

Flow 100%

Dynamic Flow Balancing Valve

Fan Coil

M

Flow 100%

Dynamic Flow Balancing Valve

Fan Coil

M

Flow 100%
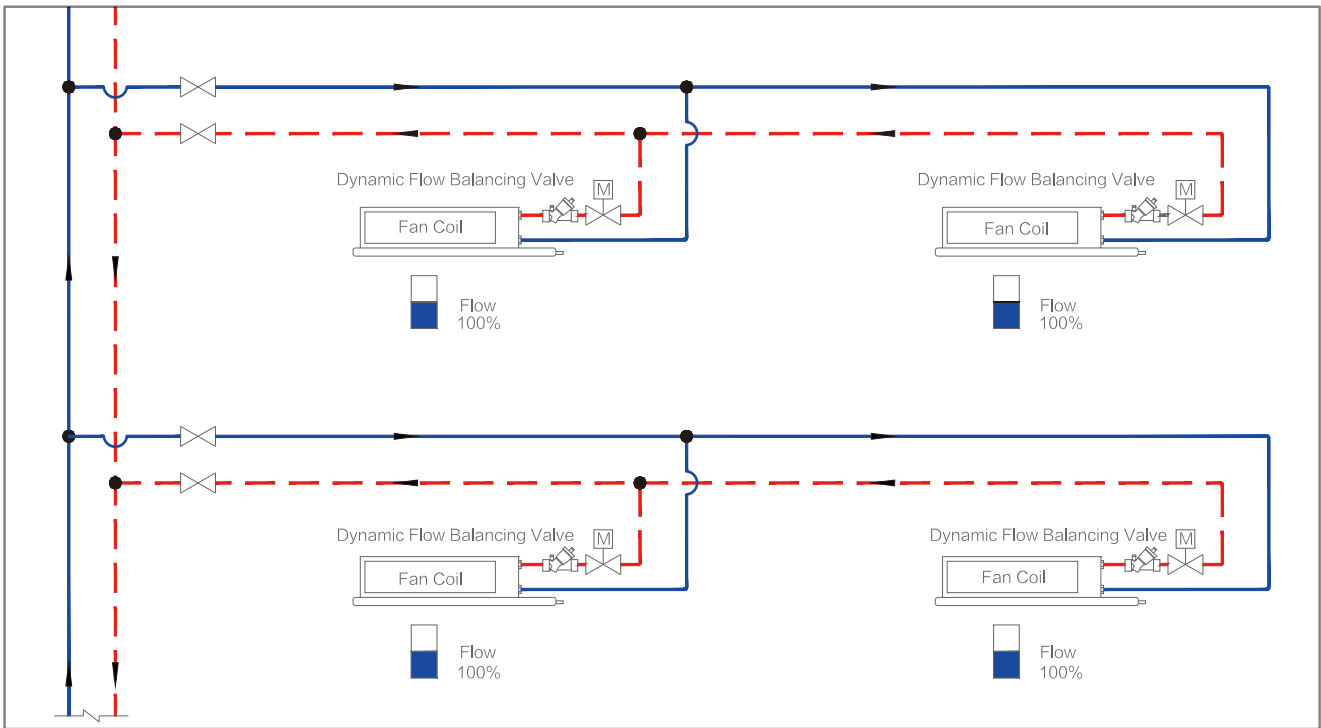
flow is balancing of each end device

heat pump −1

heat pump−2

Flow 100%

Flow 100%

Dynamic Flow Balancing Valve

Dynamic Flow Balancing Valve
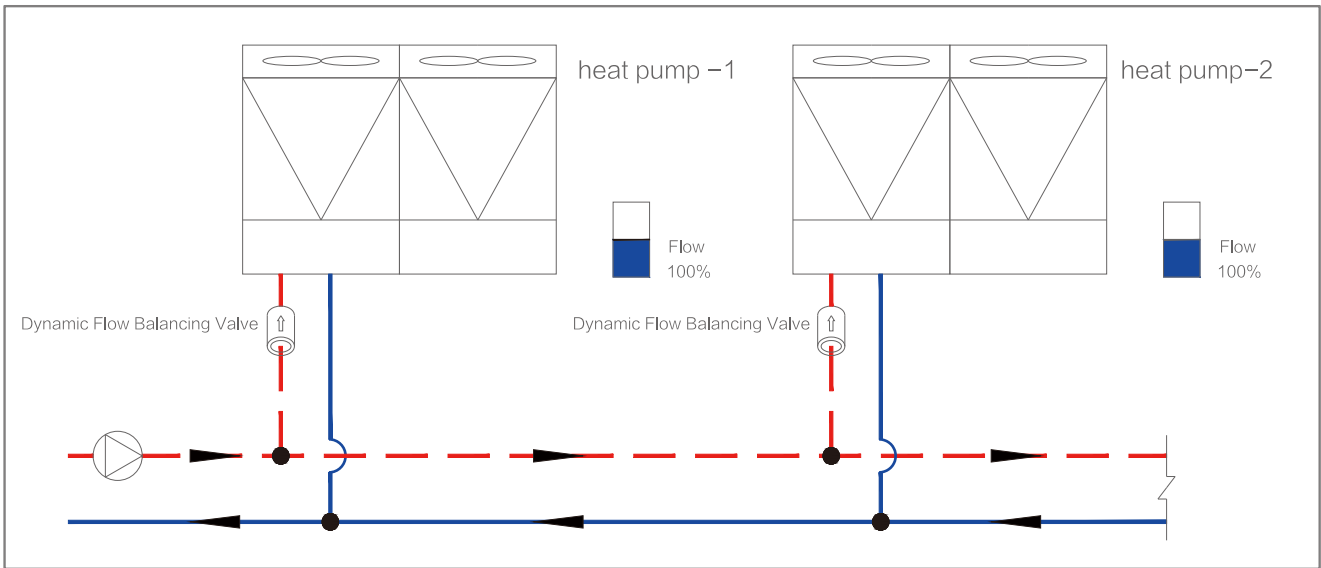
flow is balancing of heat pump

Dynamic Flow Balancing Valve

Application -2

Connected to air conditioning area water supply
Connected to air conditioning area water return

water chilling unit-1

Dynamic Flow Balancing Valve

Flow 100%

water chilling unit-2

Dynamic Flow Balancing Valve

Flow 100%

ΔP
M

manifold

manifold
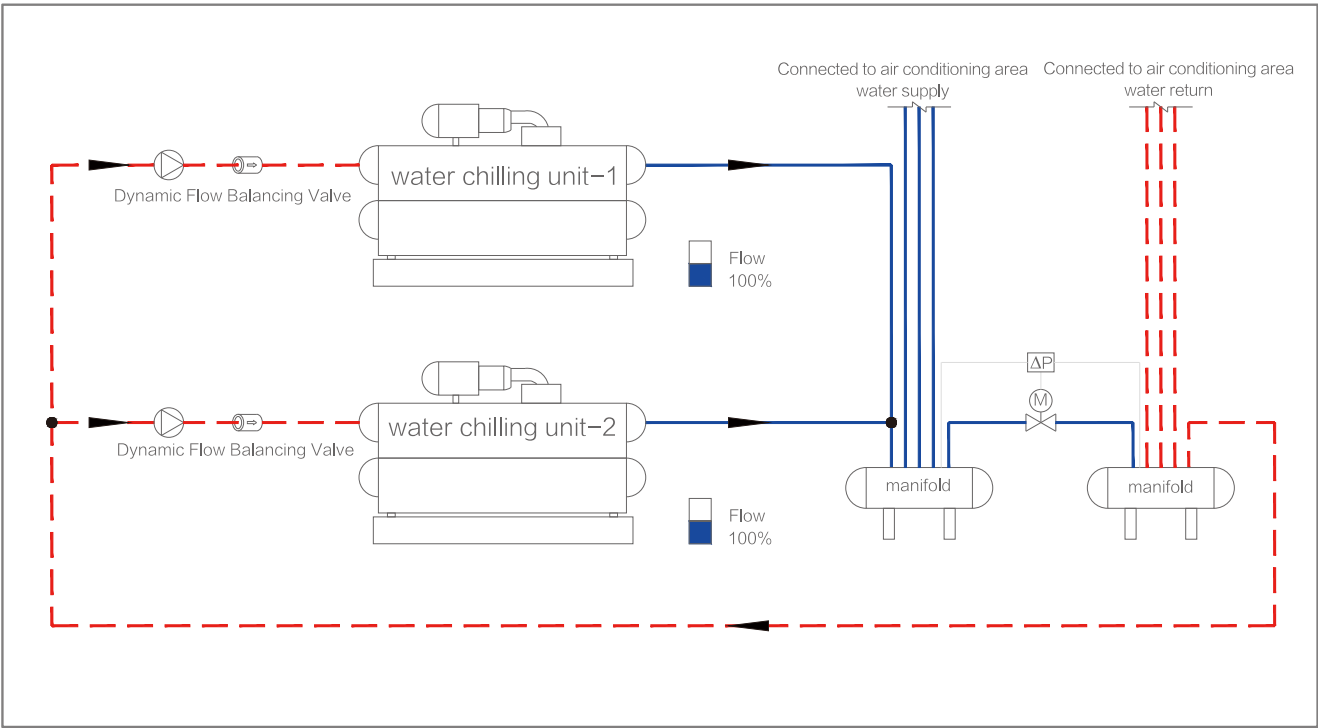
flow is balancing of water chilling unit

Dynamic Flow Balancing Valve

Dynamic Flow Balancing Valve

Cooling tower-1

Flow 100%

Cooling tower-2

Flow 100%
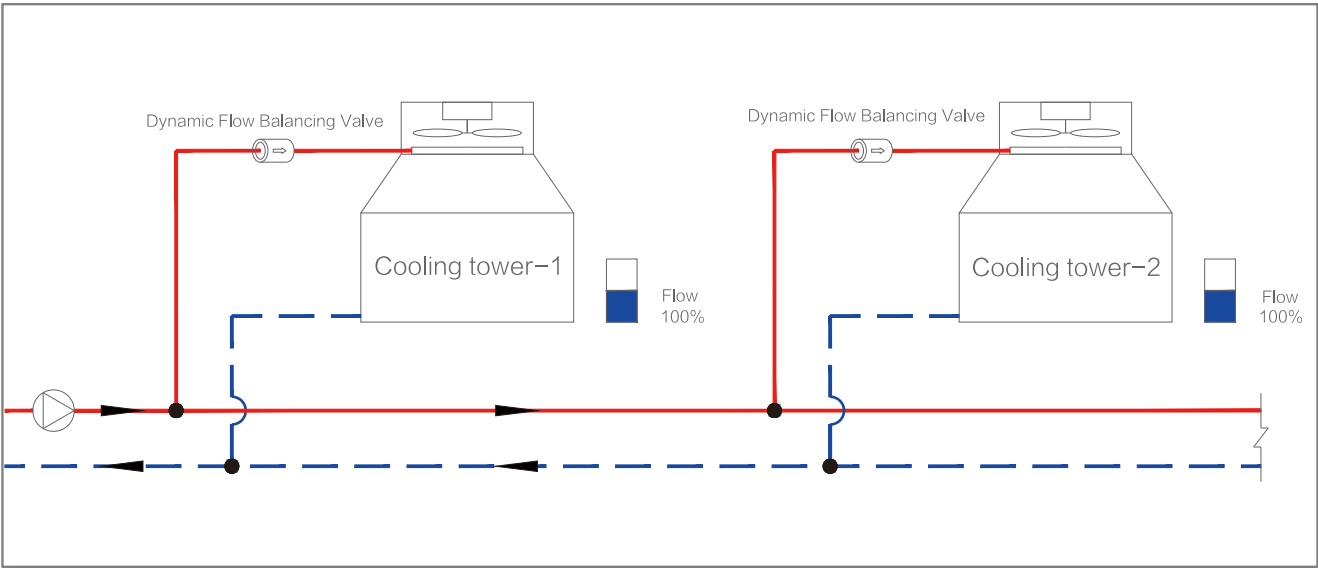
flow is balancing of cooling tower

External Set Dynamic Flow Balancing Valve

LS WS series of external set dynamic flow balancing valve is the combination of the static balancing valve and the dynamic differential pressure balancing valve. It can not only set flow in factory, but also set flow according to the actual flow requirement at installation site. It is especially suitable for each area of heating and air-conditioning system. It has the convenience as the static balancing valve regulates the flow and the accuracy as controlling the flow. It can not only control the maximum flow of the pipeline, but also keep the change relationship of flow and differential pressure suitable for the pipeline characteristics when flow changes.

External set dynamic flow balancing valve "LS WS"

Flow characteristic

Technical Specification

insert mode：adjustable flow type

body material：ductile iron

insert material：stainless steel or

        high resistance synthetic material

pressure：PN25

working temperature：-28~125℃

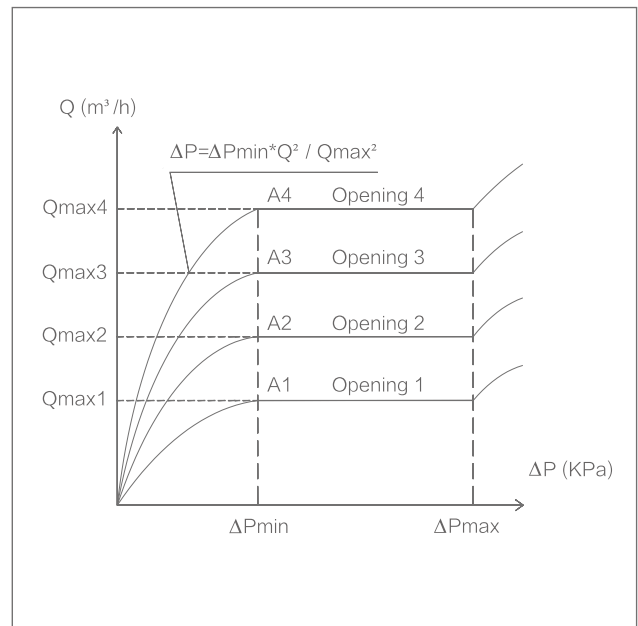environment temperature：-12~56℃

shut-off pressure：720Kpa

connection type：flange coupling

sealing：EPDM

flow error：≤5%

Working principle

This valve regulates the maximum flow by regulates the valve opening. Every opening corresponds to a flow value. As shown above, when the pipeline with balancing valve is operating under dynamic flow, $0 < \Delta P \leqslant \Delta P_{min}$ (partial load operation), the relationship of water flow Q and differential pressure ΔP is $\Delta P = \Delta P min * Q^2 / Qmax^2$, matching the pipe characteristics. When the pipeline with balancing valve is running under full load, $\Delta P_{min} \leqslant \Delta P \leqslant \Delta P_{max}$, the flow Q is constant. $Q = Q_{max}$. Set the opening according to the flow requirement of the pipeline where the valve is located. If the required flow changes because of the late system rectification, we can regulate the opening of the external set dynamic balancing valve to adapt the required flow after rectification. No need to replace the valve, reduce late investment and related costs.
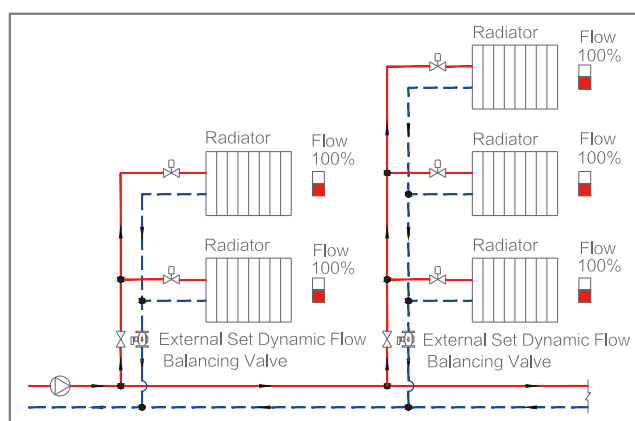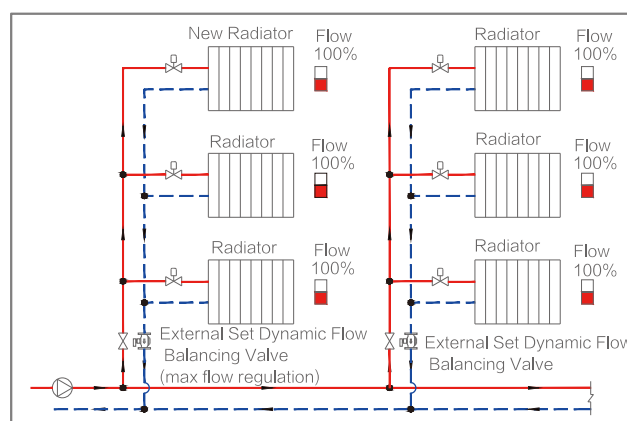
External Set Dynamic Flow Balancing Valve

Size:
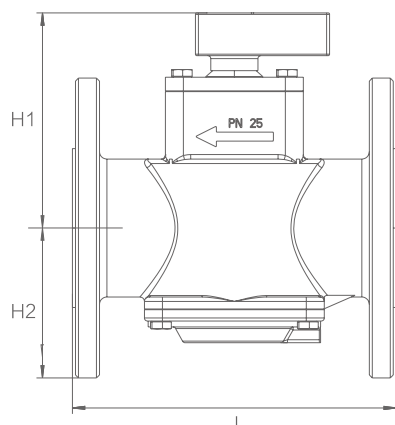
Type	specification (DN)	L (mm)	H1 (mm)	H2 (mm)	weight (kg)	differential pressure (Kpa)	flow range (m³/h)
LS WS 32/40	32–40	196	138	69	11.5	40–400	0–7
LS WS50	50	238	150	82	14	40–400	0–38
LS WS65	65	296	178	106	23	40–400	0–50
LS WS80	80	342	182	108	35	40–400	0–60
LS WS100	100	426	206	142	52	40–400	0–80
LS WS125	125	525	230	156	67	40–400	0–100
LS WS150	150	548	252	168	98	40–400	0–180
LS WS200	200	620	306	192	155	40–400	0–350

Application:

Hydraulic balance before system rectification

Hydraulic balance after system rectification

Comparison of external set dynamic balancing valve and other valve installed at corresponding position

comparison details	static balancing valve		static balancing valve +differential pressure adjustment valve	dynamic flow balancing valve		external set dynamic balancing valve
	horizontal pipe (static)	end (static)		horizontal pipe (dynamic)	end (dynamic)	
regulation accuracy	general	general	good	good	good	good
resistance to interference	general	general	good	good	good	good
static balancing capacity	yes	yes	yes	yes	yes	yes
dynamic balancing capacity	no	no	yes	yes	yes	yes
working state	unstable,affected by pressure fluctuation		stable, not affected by pressure fluctuation to a certain extent	stable, not affected by pressure fluctuation to a certain extent		stable,not affected by pressure fluctuation
maintain designed flow capacity	no		yes	yes		yes
min.differential pressure requirement	no		must meet the differential pressure requirement value of the differential pressure regulator	maintain min. differential pressure		maintain min. differential pressure
installation and debugging	complicated		complicated	simple		simple
requirements for load variation in air-conditioning area	small load change of fan coin and heating system		fan coin and heating system with large load variation	fan coin and heating system with generally large load variation		fan coin and heating system with large load variation

Dynamic balancing electric two-way valve

Dynamic balancing electric two-way valve is the combination of electric two-way valve and dynamic balancing valve. It is commonly used in fan coils of air-conditioning system. It can avoid overflow and underflow of fan coils caused by differential pressure variation, compared with the ordinary electric two-way valve not with balancing function.The indoor temperature fluctuation reduces and the comfort increases. The related energy consumption of water system deduces,too.
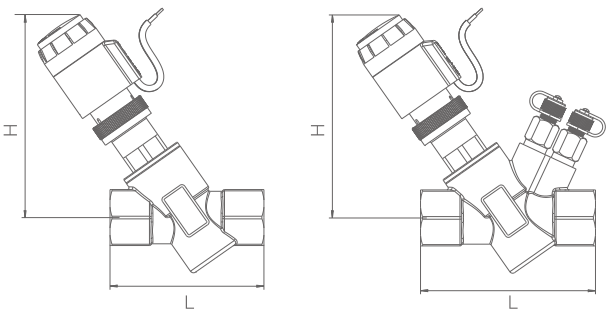

Dynamic balancing electric two-way valve" LS RJ"

Dynamic balancing electric two-way valve" LS DJ"

Product characteristic

- pressure independent flow control
- reduce energy consumption of system
- increase the room comfort, reduce temperature fluctuation
- pressure/temperature testing points
- easy to maintain the insert

Insert specification

insert mode：fixed flow mode   body：brass
insert material：stainless steel   pressure：PN25
sealing：EPDM   flow error：≤5%
working temperature：-2~100℃
environment temperature：-10~45℃
shut-off pressure：400Kpa
connection type：thread

Size:

specification (DN)	L (mm)	H1 (mm)	end joint length		weight (kg)
			external thread	internal thread	
15	88	122	20	–	0.6
20			20	–	
25			–	36	
15	100	126	20	–	0.7
20			20	–	
25			–	36	

Technical parameter

Type	specification (DN)	differential pressure range (Kpa)	minimum flow (m³/h)	maximum flow (m³/h)
LS DJ15 LS DJ20 LS DJ25	15/20/25	9-90	0.076	1.152
		21-210	0.126	1.818
		40-400	0.169	2.272
		88-800	0.248	3.636
LS DJ32 LS DJ40	32/40	9-90	0.684	3.33
		21-210	1.022	5.004
		40-400	1.368	6.66
		88-800	2.045	8.64
LS DJ50	50	9-90	3.168	29.52
		21-210	3.96	36.324
		40-400	5.292	50.031
		88-800	7.956	53.123

Type	specification (DN)	differential pressure range (Kpa)	flow range (m³/h)
LS RJ15 LS RJ20 LS RJ25	15/20/25	10-95	0.075-1.135
		22-300	0.125-1.825
		40-390	0.165-2.275

Application:

Dynamic balancing electric two-way valve

Fan Coil

Flow 100%

Dynamic balancing electric two-way valve

Fan Coil

Flow 100%

Dynamic balancing electric two-way valve

Fan Coil

100%

Dynamic balancing electric two-way valve

Fan Coil

100%

full load flow balancing

Dynamic balancing electric two-way valve

Fan Coil

Flow 100%

Dynamic balancing electric two-way valve

Fan Coil

Valve OFF

Flow 0%

Dynamic balancing electric two-way valve

Fan Coil

Valve OFF

Flow 0%

Dynamic balancing electric two-way valve

Fan Coil

Flow 100%

partial load flow balancing

Dynamic balancing electric adjustable valve

Dynamic balancing electric adjustable valve is special valve that dynamic balancing and electric adjustment is operating at the same time. Its insert consists of adjustable part(input) and hydraulic automatic adjustable part(output). The opening of adjustable part(input)is regulated electrically at any time according to actual need. The hydraulic automatic adjustable part(output) can regulate the opening of nsert automatically according to different differential pressure. That is, the size of flow area in the output. It can make the flow through the valve constant at any opening.

Dynamic balancing electric adjustable valve "LS TJ"
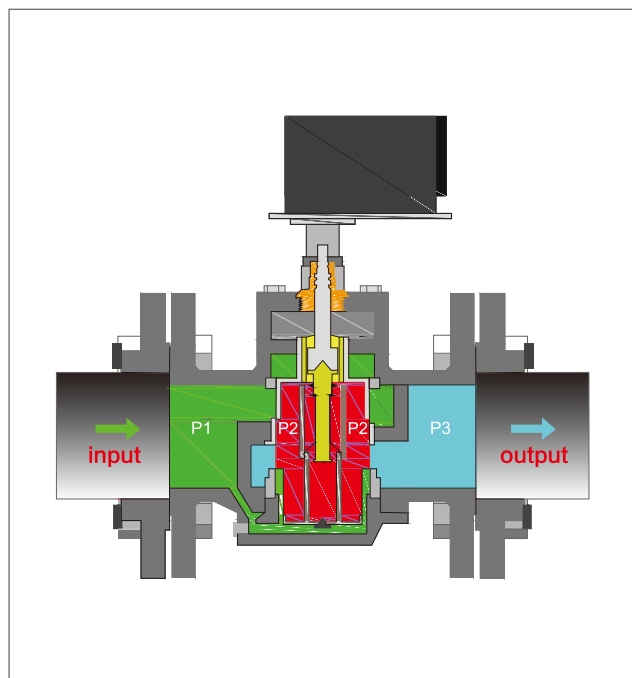
section

Technical parameter

- insert mode：adjustable flow mode
- body material：ductile iron
- insert material：stainless steel or high resistance synthetic material
- pressure：PN25
- working temperature：-28~125℃
- environment temperature：-12~56℃
- shut-off pressure：720Kpa
- connection type：thread or flange coupling
- sealing：EPDM
- flow error：≤5%

Actuator technical parameter

- voltage：alternating 22~26V; direct 28~32V
- full running time：98-180s
- input power：10VA
- protection level：IP44
- output ：2-10VDC，4-20mA
- frequency：50/60Hz
- control input：2-10VDC，4-20mA, 3-point floating，
- PWM control；2-10VDC，4-20mA, 3-point floating
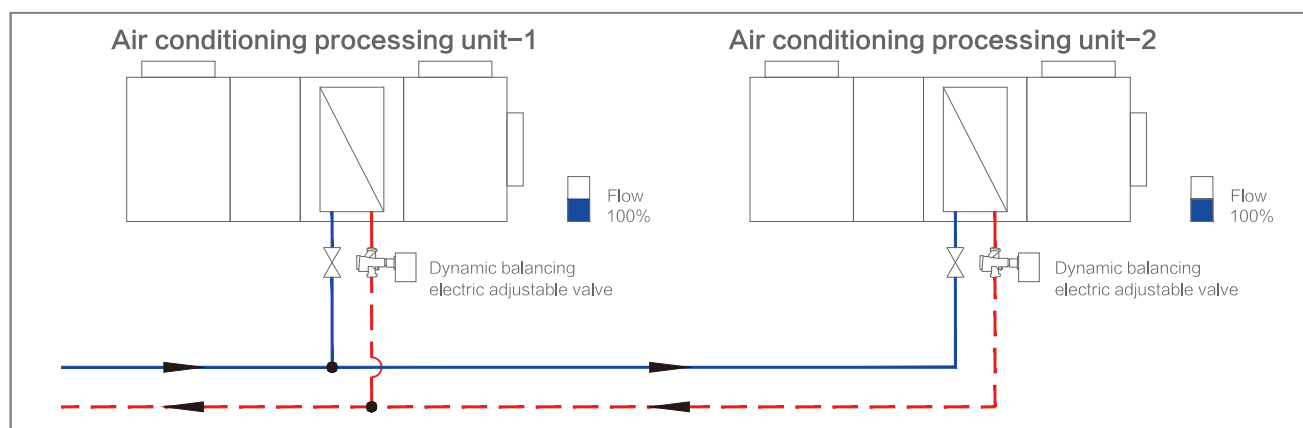- life：200,000 times switching cycle
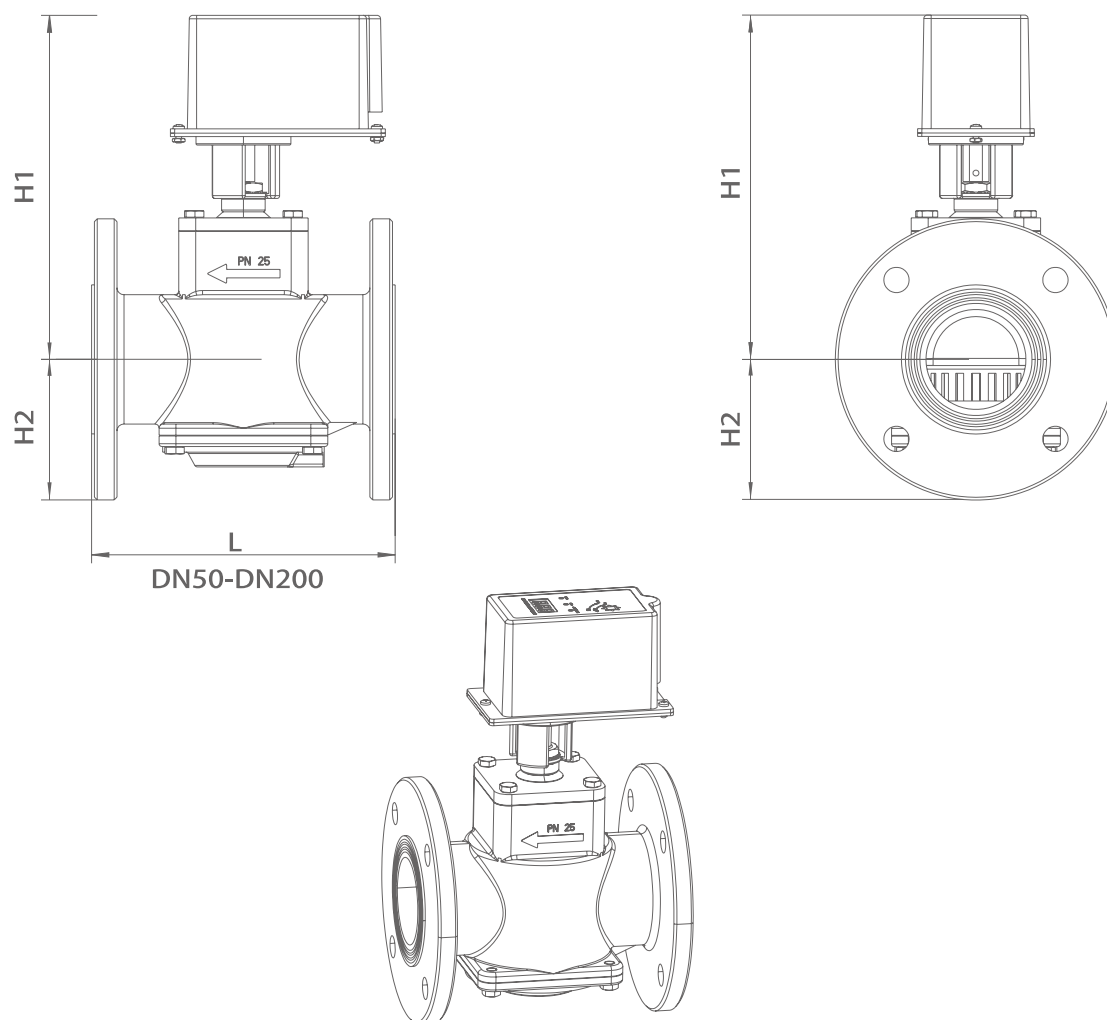
Dynamic balancing electric adjustable valve

Size:

DN50-DN200

Technical parameter

Type	specification (DN)	L(mm)	H1(mm)	H2 (mm)	weight (kg)	differential pressure range (Kpa)	flow range (m³/h)	connection type
LS TJ32	32	195	237	69	12.5	35−300	0−7	thread
LS TJ40	40	195	237	69	12.5	35−300	0−7	thread
LS TJ50	50	216	246	78	14	35−300	0−38	flange
LS TJ65	65	300	276	115	25	35−300	0−50	flange
LS TJ80	80	300	276	115	25	35−300	0−50	flange
LS TJ100	100	418	303	143	48	35−300	0−100	flange
LS TJ125	125	565	353	168	99	35−300	0−180	flange
LS TJ150	150	565	353	168	99	35−300	0−180	flange
LS TJ200	200	686	407	192	166	35−300	0−350	flange

Dynamic balancing electric adjustable valve

Application

Air conditioning processing unit-1

Flow 100%
Dynamic balancing electric adjustable valve

Air conditioning processing unit-2

Flow 100%
Dynamic balancing electric adjustable valve

flow balancing of air-conditioning processing units

comparison of dynamic balancing electric adjustable valve
and other valve installed at corresponding position

comparison details	electric adjustable valve	static balancing valve+ electric adjustable valve	differential pressure adjustable valve+ electric adjustable valve	dynamic balancing electric adjustable valve
adjustable accuracy	general	good	better	better
static balancing capacity	no	yes	yes	yes
dynamic balancing capacity	no	yes	yes	yes
opening adjustment	It is not only controlled by temperature control signal, but also affected by pressure fluctuation	It is not only controlled by temperature control signal, but also affected by pressure fluctuation	mainly controlled by temperature control signal, the influence of pressure fluctuation is small	only controlled by temperature control signal
resistance to interference	general	general	good	better
working state	not sure, affected by system pressure fluctuation	not sure, affected by system pressure fluctuation	relatively stable, little affected by system pressure fluctuation	stable, not affected by system pressure fluctuation
flow characteristic curve	The greater the system pressure fluctuation, the greater the deviation from the ideal characteristic curve, the worse the regulation characteristics	The greater the system pressure fluctuation, the greater the deviation from the ideal characteristic curve, the worse the regulation characteristics	No matter how the pressure fluctuation of the system changes, it is basically consistent with the ideal characteristic curve	No matter how the pressure fluctuation of the system changes, it is consistent with the ideal characteristic curve
min. Differential pressure requirement	no	no	must larger than certain working differential pressure	must larger than the min.differential pressure
flow transport	flow changes as the pressure changes	flow changes as the pressure changes	at the same opening, flow is basically constant	at the same opening, flow is constant and unique
installation and debugging	complicated	complicated	complicated	simple
application range	suitable for the temperature control of the end equipment of HVAC system with small load fluctuation (such as air conditioning box, fresh air unit, air handling unit)	suitable for the temperature control of the end equipment of HVAC system with small load fluctuation (such as air conditioning box, fresh air unit, air handling unit)	Suitable for temperature control of the end equipment of HVAC system(such as air conditioning box, fresh air unit, air handling unit)	Suitable for temperature control of the end equipment of HVAC system(such as air conditioning box, fresh air unit, air handling unit), It has obvious advantage in variable flow system with large load fluctuation

Dynamic balancing manifold

In the return of manifold, we can install customized connection nipple of return with dynamic balancing insert to ensure each room meet the designed and usage requirement.It can solve the disturbing influence of other branches caused by flow variation of some branch perfectly.

Dynamic balancing manifold "LS FJ"

insert section

product characteristic:

● **more comfortable**

The flow adjustment of each room does not affect the flow of other branches

● **more energy-saving**

Each branch adjusts the flow according to the required comfort and distributes according to demand without any waste of heat energy

● **more convenient**

adjustment, new installation and debugging conveniently

● **less configuration**

No need for differential pressure valve, dynamic balancing valve,static balancing valve etc of manifold, no effect on the final usage result

flow parameter of manifold connection:

flow distributor	stainless steel / brass
branches	2-13 branches
thread both ends	DN25
external thread	DN20
flow of each branch	0.1—0.5m³/h

## Technical parameter:

differential pressure range（KPa）	10-100
flow range（m³/h）	0.1~0.5

Dynamic balancing radiator valve

Dynamic balancing radiator valve is the combination of dynamic balancing valve and radiator valve. It consists of dynamic balancing automatic radiator valve and dynamic balancing electric radiator valve. It is mainly used in the return of manifold and radiators in heating system. Compared with the radiator valve not with balancing function, it can avoid overflow and underflow caused by different differential pressure because of different position that the same valve installed or the differential pressure variation of the same valve. The indoor temperature fluctuation reduces and the comfort increases.The energy consumption of system operation reduces,too.

Dynamic balancing radiator valve "LS WK"
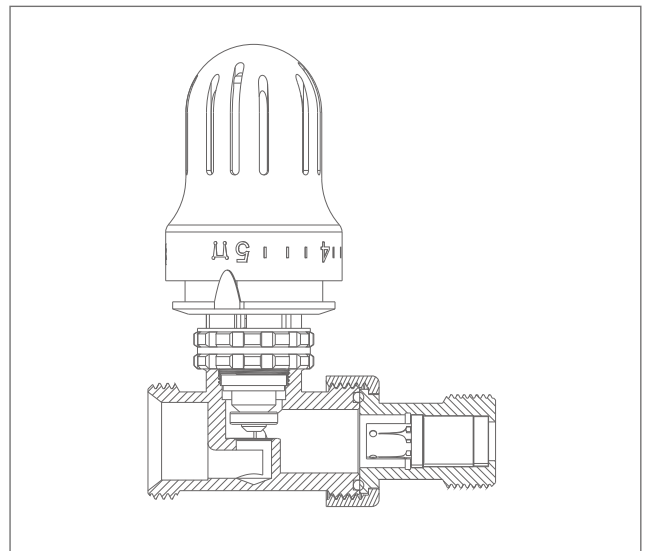
section

Product characteristic:

● pressure independent flow control
● reduce energy consumption of system
● increase room comfort
● easy to maintain the insert

Technical specification:

body：brass   pressure：PN25

insert material：stainless steel   sealing：EPDM

shut-off pressure：400Kpa   flow error：≤5%

working temperature：-30~100℃

environment temperature：-10~45℃

connection type：thread

Technical parameter

Type	specification (DN)	differential pressure range (Kpa)	flow range	
			L/s	m³/h
LS WK15	15	10-95	0.020-0.315	0.075-0.800
LS WK20	20	22-300	0.035-0.505	0.125-1.825
LS WK25	25	40-390	0.045-0.635	0.165-2.275

Dynamic balancing angle valve

The appearance of constant flow angle valve is the same as common faucet angle valve. The secret is the internal self-operated dynamic balancing insert. In the working differential pressure range, it can eliminate the pressure fluctuation to keep the flow constant.
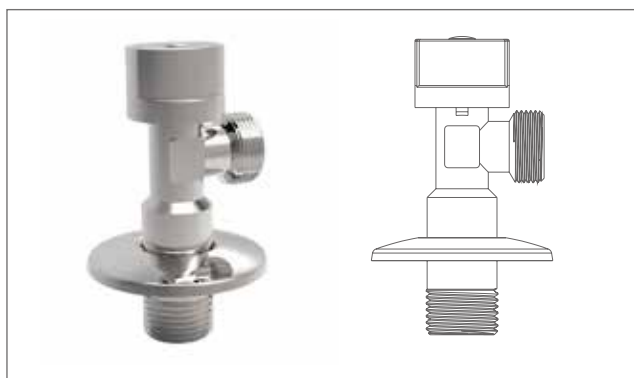
Dynamic balancing angle valve "LS JF"
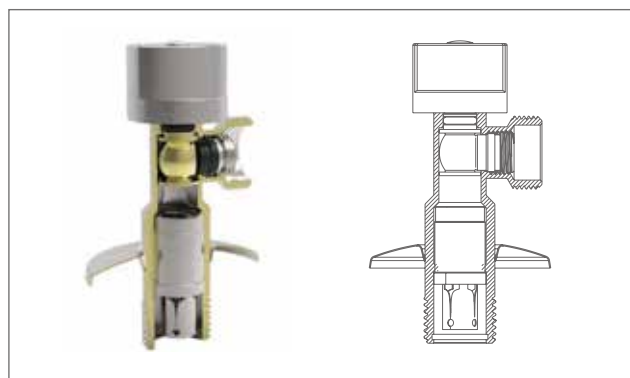
Section

Product characteristics:

The core worth of this constant faucet angle valve that can avoid water-grab is:
more comfortable, safer, more water-saving

● **More comfortable, ensure efficient debugging**
Due to the constant flow dynamic balancing angle valve can keep flow constant in a large range of differential pressure or keep differential pressure constant in a large range of flow, variation of hot and cold water flow could be stabilized.When the users adjust the valve opening, the change of water temperature can be immediately achieved . After the valve opening of hot and cold water is fixed, the water temperature nearly does not change any more. It can perfectly solve the water-grab phenomenon and improve the comfort of water system.

● **Safer, avoid scald**
There are often news reports of scalding accidents involving the elderly and children in hospitals, hotels and families. Most of these accidents are caused by the increased flow of hot water and the insufficient supply of cold water in the water supply system that uses centralized heating water. It is known that the installation of this valve at the end of the shower system can limit the maximum flow and ensure the hydraulic balance, which can ensure the safety and effectively prevent the occurrence of scalding accidents

● **More water-saving, distribution according to demand**
Constant flow dynamic balancing angle valve can limit the maximum flow, refuse extra water and achieve the flow distribution according to demand of each faucet end.It can effectively save water. If hot water is saved, it is also energy-saving. The system energy consumption is reduced.

Flow parameter:

Type	specification(DN)	flow range(m³/h)
LS JF15	22～210	0.25～0.8

Application:
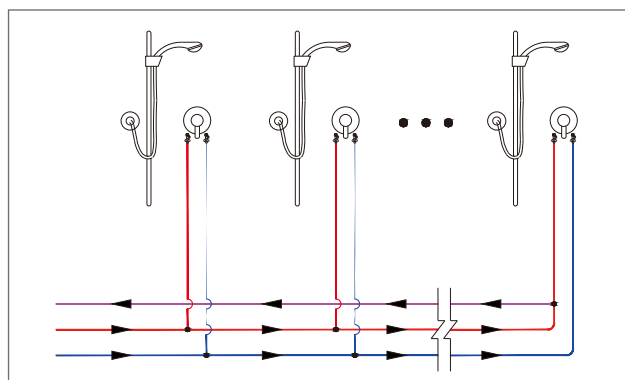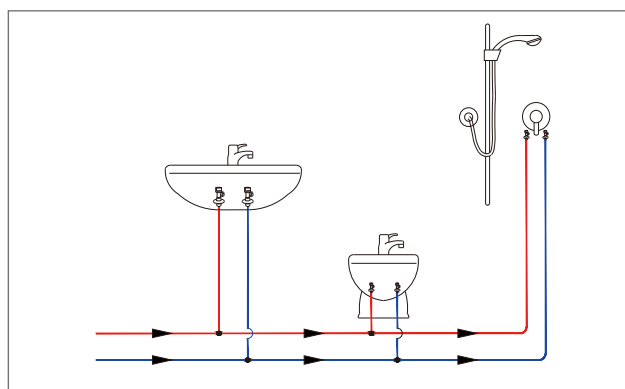
● CHAOHU SHANGHAI CENTURY LIANHUA SUPERMARKET

● SHENGZHOU PAUL INTERCONTINENTAL HOTEL

● FUJIAN PUTIAN CITY COMPREHENSIVE GYMNASIUM

● SHANGHAI UNIVERSITY

● SHANDONG QIANFOSHAN HOSPITAL

● SHENGZHOU CITY PEOPLE' HOSPITAL

Project case

● ZHESHANG WEALTH CENTER(HAGZHOU)

● JINAN GINZA DIGITAL PLAZA

● BEIJING FINANCIAL INTERNATIONAL HOTEL

● SHENGZHOU SANDING HOTEL

● HEFEI HUANGSHAN BUILDING

● HEFEI ZHONGHUAN SQUARE

Project case

● SHANGHAI THUMB PLAZA

● SHANGHAI XINJINJIANG BUILDING(MULTIMEDIALIFE SQUARE)

● SHANGHAI ZHONGHUAN OASIS SQUARE

● JINAN INTERNATIONAL AIRPORT

● JINGGANGSHAN RAILWAY STATION

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