



ZJHQ/X Pneumatic Diaphragm Three-way Regulating Valve

Design Features

- European style finely made, precise control, good sealing performance, advanced design, excellent quality
- Exquisite technology, superior structure, stable flow, quick response, replace import
- Small pressure drop loss, stable output force, large flow coefficient, equal channel smooth cross-section
- Wide regulation range, high flow characteristic precision, top guide structure, easy handwheel operation

Overview

The ZJHQ pneumatic three-way merging regulating valve and the ZJHX pneumatic three-way diverging regulating valve are composed of a pneumatic diaphragm multi spring actuator and a three-way valve. Replacing the old ZMA/B actuator with the new ZHA/B multi spring actuator has the advantages of low height, light weight, and easy installation and maintenance. The valve core structure of the three-way valve adopts a cylindrical thin-walled window and is guided by the side of the valve core. It can be used for proportional regulation or bypass regulation, especially suitable for regulating the fluid temperature control system of heat exchangers in the petroleum industry. One three-way valve can replace two single or double seat valves, occupying smaller space, saving installation pipelines and costs.

Model Description

-Z	-JH	-M	-D	-4	-Y	-40	-40	-16	-D	-K
Control valve category	Structure form	Trim type	Bonnet type	Connection mode	Sealing material	Nominal diameter	Valve core size	Nominal pressure	Flow characteristics	Action mode

Technical parameters & performance -- Valve body

Type	Straight through cast ball shape valve		
Nominal diameter	Merging valve: 25~300 Diverging valve: 80~300		
Nominal pressure	PN16,40,64bar		
Flange standard	JB/T79.1-94, 79.2-94, etc.		
Material	Cast steel (ZG230-450), Stainless steel (ZG1Cr18Ni9Ti, ZG1Cr18Ni12Mo2Ti), etc.		
Top bonnet	Standard type: -17~230°C Heat sink type: 230~450°C Bellow seal type: -40~350°C		
Bonnet type	Bolt tightened type		
Packing	V-shaped PTFE, PTFE impregnated asbestos, graphite		
Structure form	See Figure 1~6 for details		

Technical parameters & performance -- Valve trim

Valve core type	Thin walled cylindrical valve core
Flow characteristic	EQ%, Linear
Material	Stainless steel (1Cr18Ni9Ti, 1Cr18Ni12Mo2Ti, 17-4PH, 9Cr18, 316L), Stainless steel surfacing STL, Titanium corrosion-resistant alloy, etc.

Technical parameters & performance -- Actuator

Type	ZHA/B Multi spring diaphragm actuator				
Model	ZHA/B-22	ZHA/B-23	ZHA/B-34	ZHA/B-45	ZHA/B-56
Effective area (cm ²)	350	350	560	900	1400
Stroke (mm)	10, 16	25	40	40, 60	100
Spring range (KPa)	20~100 (standard), 20~60, 60~100, 40~200, 80~240				
Diaphragm material	NBR with nylon cloth, EPDM with nylon cloth				
Air supply pressure	140~400KPa				
Air source interface	RC1/4"				
Ambient temperature	-30~70°C				

Valve action mode: Air to close (B) - Air failure valve position open (FO); Air to open (K) - Air failure valve position closed (FC)

Accessories: Positioner, air filter regulator, position holding valve, stroke switch, valve position transmitter, handwheel mechanism, etc.

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Performance

Item		Without positioner	With positioner
Basic error %		±5.0	±1.0
Return difference %		≤3.0	≤1.0
Deadband %		≤3.0	≤0.4
Start & end point deviation %	Air to open	Start	±2.5
		End	±5.0
	Air to close	Start	±5.0
		End	±2.5
Rated stroke deviation %		≤2.5	
Leakage rate l/h		0.01% * Valve rated capacity	
Regulating range R		30:1	

Rated flow coefficient Kv, rated stroke, matching actuator model, allowable differential pressure

Nominal diameter DN (mm)		25	32	40	50	65	80	100	125	150	200	250	300
Rated flow coefficient Kv	Merging valve	8.5	13	21	34	53	85	135	210	340	535	800	1360
	Diverging valve	-	-	-	-	-	85	135	210	340	535	800	1360
Rated stroke L (mm)		16		25			40		60			100	
Matching actuator model		ZHA/B-22		ZHA/B-23			ZHA/B-34		ZHA/B-45			ZHA/B-56	
Allowable differential pressure (bar)	20-100KPa	7.8	5.4	4.9	2.9	2.9	2	1.2	1.2	0.78	0.49	0.5	0.35
	40-200KPa	16	11	10	6	6	4	2.4	2.4	1.6	1	1	0.7

Note: For bellow sealed regulating valves, the max. allowable differential pressure is 10 bar. If the value in the table is less than 10 bar, it remains unchanged. If it is larger than 10 bar, it is taken as 10 bar.

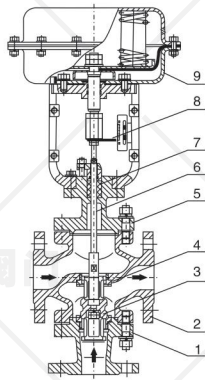


Figure 1 ZJHQ Standard type

1. Tube
2. Valve body
3. Valve core
4. Valve seat
5. Bonnet
6. Valve stem
7. Packing
8. Scale indication
9. Actuator

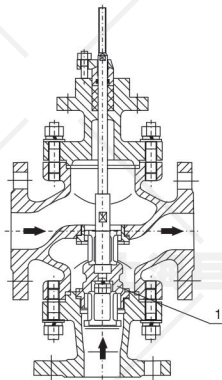


Figure 2 ZJHQ (Merging type) Merging condition

1. Merging valve core (Merging function)

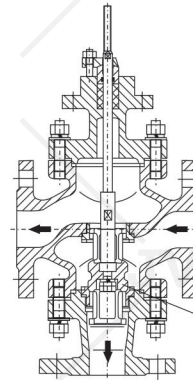


Figure 2 ZJHQ (Merging type) Diverging condition

1. Merging valve core (Diverging function)

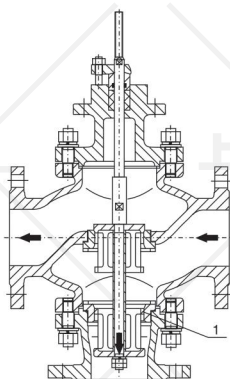


Figure 4 ZJHX (Diverging type) Diverging condition

1. Merging valve core (Diverging function)

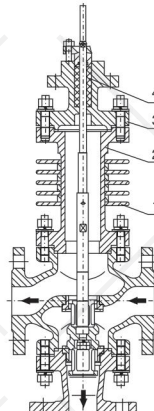


Figure 5 ZJHX-G Heat sink type

1. Heat sink
2. Tube
3. Bonnet
4. Packing

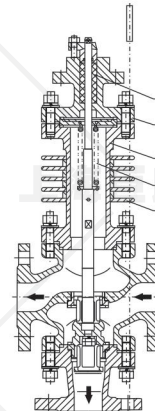
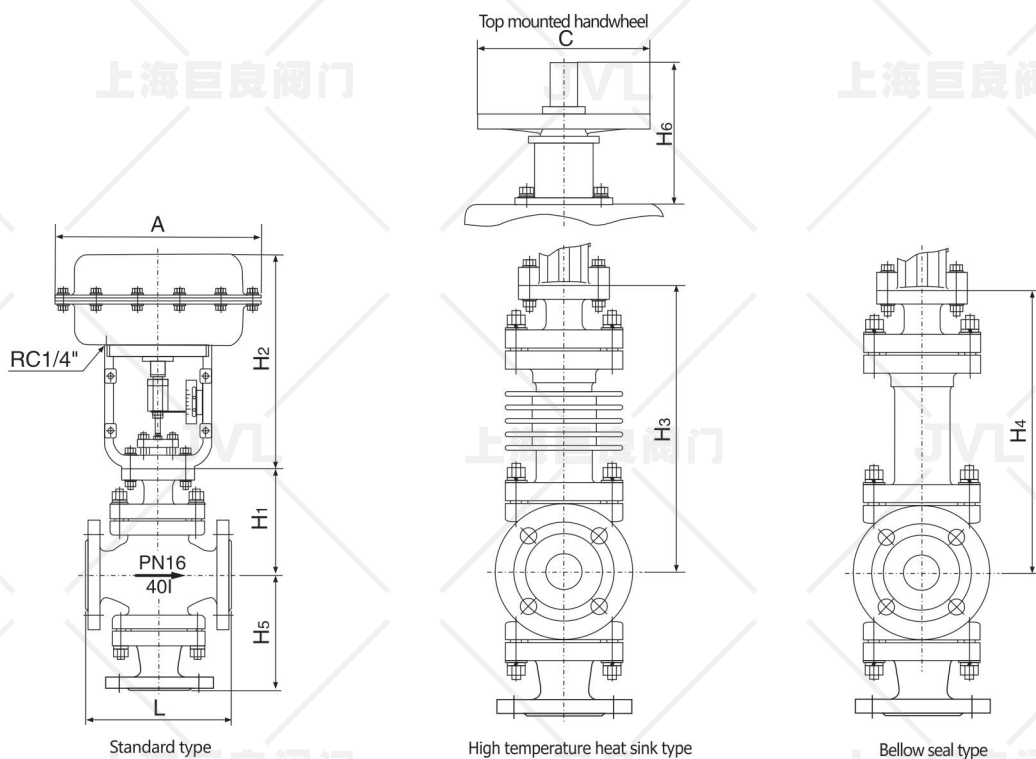


Figure 6 ZJHX-GW Heat sink bellow seal type

1. Heat sink
2. Bellow
3. Tube
4. Bonnet
5. Packing

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Outline dimensions & weight

Unit: mm

Nominal diameter		25	32	40	50	65	80	100	125	150	200	250	300
L	PN16/40	185	200	220	250	275	300	350	410	450	550	640	720
	PN64	200	210	235	265	295	320	370	440	475	570	670	750
A		285	285	285	285	360	360	360	470	470	470	580	580
H1	PN16/40	155	175	180	200	235	250	260	330	350	420		
	PN64	165	175	185	205	245	255	270	335	365	430		
H2		298	298	298	298	380	380	380	510	510	510		
H3	PN16/40	235	247	256	268	364	384	394	465	470	540		
	PN64	245	265	268	278	381	390	400	470	485	540		
H4	PN16/40	364	425	430	445	660	680	690	748	740	780		
	PN64	364	425	435	450	665	690	700	750	750	795		
H5	PN16/40	140	150	160	180	200	210	220	260	280	320	474	580
	PN64	150	170	180	200	220	240	260	300	320	380	474	580
	PN16/40	-	-	-	-	-	225	245	285	305	350	540	612
	PN64	-	-	-	-	-	265	285	325	345	410	540	612
C		220	220	220	220	270	270	270	320	320	320		
H6		180	180	180	180	236	236	236	310	310	310		
Weight (kg)	PN16/40	28	30	39	46	75	81	98	148	188	285		
	PN64	32	37	49	61	92	98	119	191	222	330		

- Note: 1. The weight in the table is for standard type without accessories. Side mounted handwheels can be installed.
- 2. The valve flange and flange face to face dimension can be manufactured according to user specified standards, such as ANSI, JIS, DIN standards.