

**Series 31,32  
3-Way Globe Valves  
Mixing / Diverting  
for ANSI 150-600  
DIN/BS 4504 PN10-PN100  
JIS 10K-40K****Series 31,32 Features****General**

The series 31,32 three-way type globe control valves are designed to be used for controlling the fluids mutually to three directional piping. Series 31 is for mixing service and series 32 is for diverting service. The series 31,32 three-way type control valves can be mounted with different types of actuators including diaphragm actuators, piston actuators, motor actuators, and etc.

**Performance:**

- High Cv to body size ratio.
- Streamlined flow passages to optimize capacity.
- High Cv to valve weight ratio.
- Excellent flow control rangeability.

**Design Flexibility:**

- Modular construction design available with a range of different connections and styles.
- All trim components removable from the top for easy of maintenance.
- Wide range of supplementary noise control options.
- Inherently characterized trim offered in linear(standard), equal percentage, quick opening and modified-parabolic (options).
- Multi trim sizes available.
- Full range of body and trim material options.
- Full range of bonnet and packing designs to suit various temperatures and fluids.



Figure 1.  
Series 31,32 3-way Valve mounted with AO-3600  
Pneumatic diaphragm actuator

## 3-Way Globe Valve Specifications

Valve Type	3-way Control Valve													
Valve Model	Series 31, 32													
Body Type	Mixing / Diverting													
Valve Size (inch)	3/4	1	1.1/2	2	2.1/2	3	4	5	6	8	10	12		
(mm)	20	25	40	50	65	80	100	125	150	200	250	300		
Pressure Rating	ANSI 150# ~ 600# (JIS 10K ~ 40K, PN 10~ 100)													
End Connection	RF, FF, SW, BW, RTJ													
Body Materials	A216WCB, A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on													
Bonnet Type	Plain(-17°C to 230°C), Extension(-45°C to -17°C, over 230°C), Cryogenic(-196°C to -45°C), Bellows Seal													
Packing	Graphite, PTFE, VOC, etc.													
Gasket	Spiral Wound Metal gasket													
Guiding	Top/Cage													
Seat Type	Metal/Soft													
Valve Plug Shape	Contoured / Cage / Pilot													
Plug Characteristic	Linear													
Trim Materials	A351CF8/CF8M, A351CF3/CF3M, H-C, H-B, and so on													

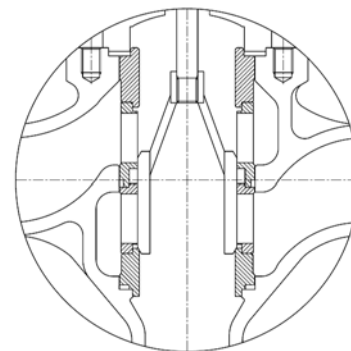
## Guide to Available Trim Options

### Modular Design

Series 31,32 valves have been designed around a modular manufacturing concept. Using this philosophy, a center body module selected to most suit the specified flow conditions and operating data, is combined with end connection size/rating, selected to support that module. This design feature allows not only the selection of full size ends, to offer oversize end connections to suit a particular requirement.

### Balance Trim (Standard)

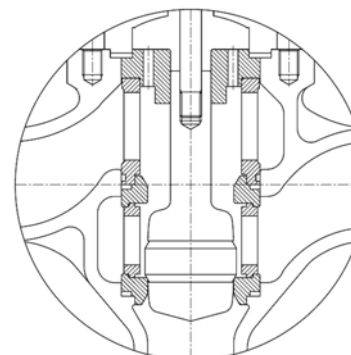
Pressure balanced cage port is used to reduced the thrust on the port. Balanced Cage Port (C-B) design is available up to 12".



**Balanced Trim**

### Unbalance Trim (Optional)

Single Contoured Unbalance Port (S-P) is available up to 4". For mixing service, it can be used for control or on-off applications. For diverting service, it can be used for on-off applications only.



**Unbalanced Trim**

### Soft seat (Optional)

Soft seat is used in application requirement ANSI Class VI 'BUBBLE-TIGHT' shutoff and FIRE SAFE design. Its design consists of an elastomer sandwiched between two metal pieces, retainer (or cage) and metal seat. The installation can be done by inserting soft seat between retainer (or cage) and metal seat, thus it can be used for fire safe function.

### Balanced Trim (Standard)

#### How to use

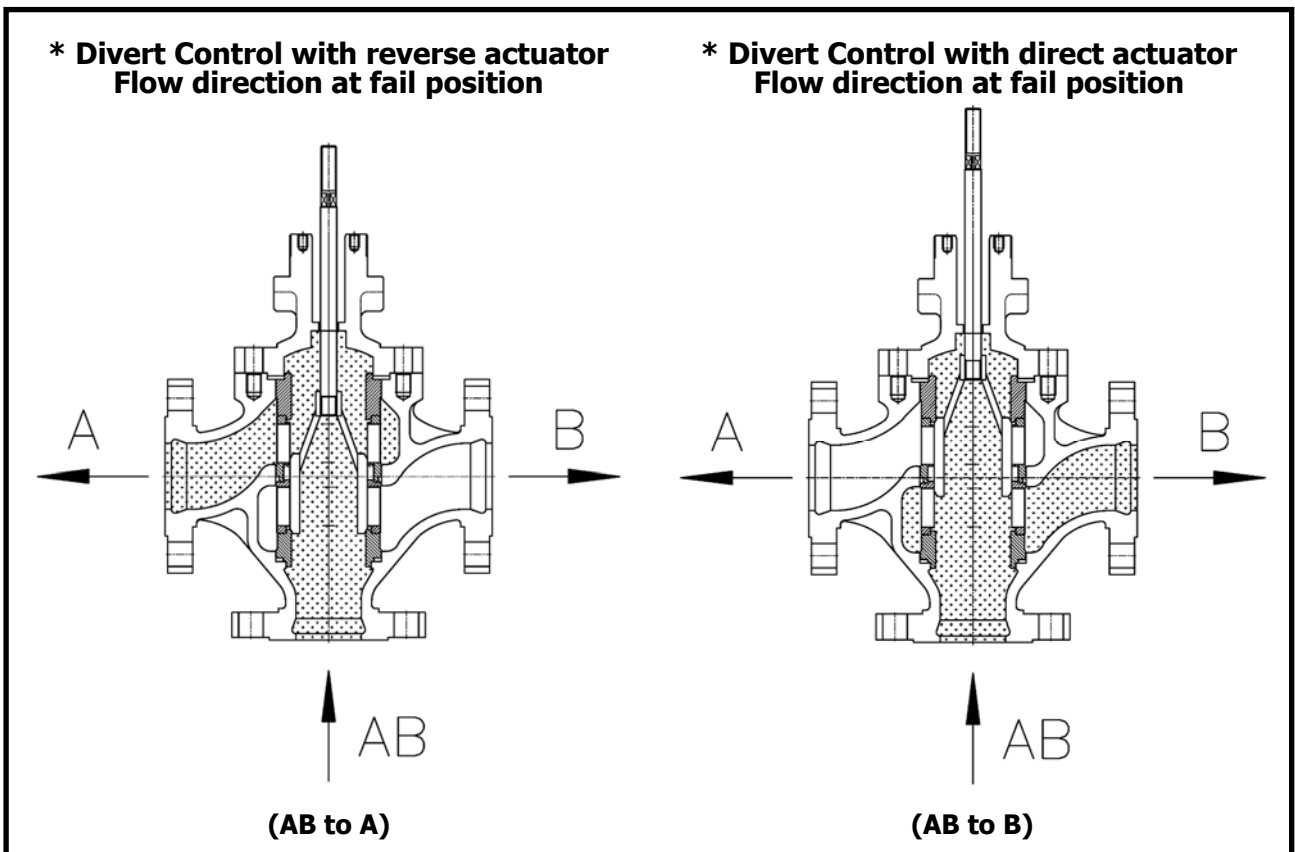
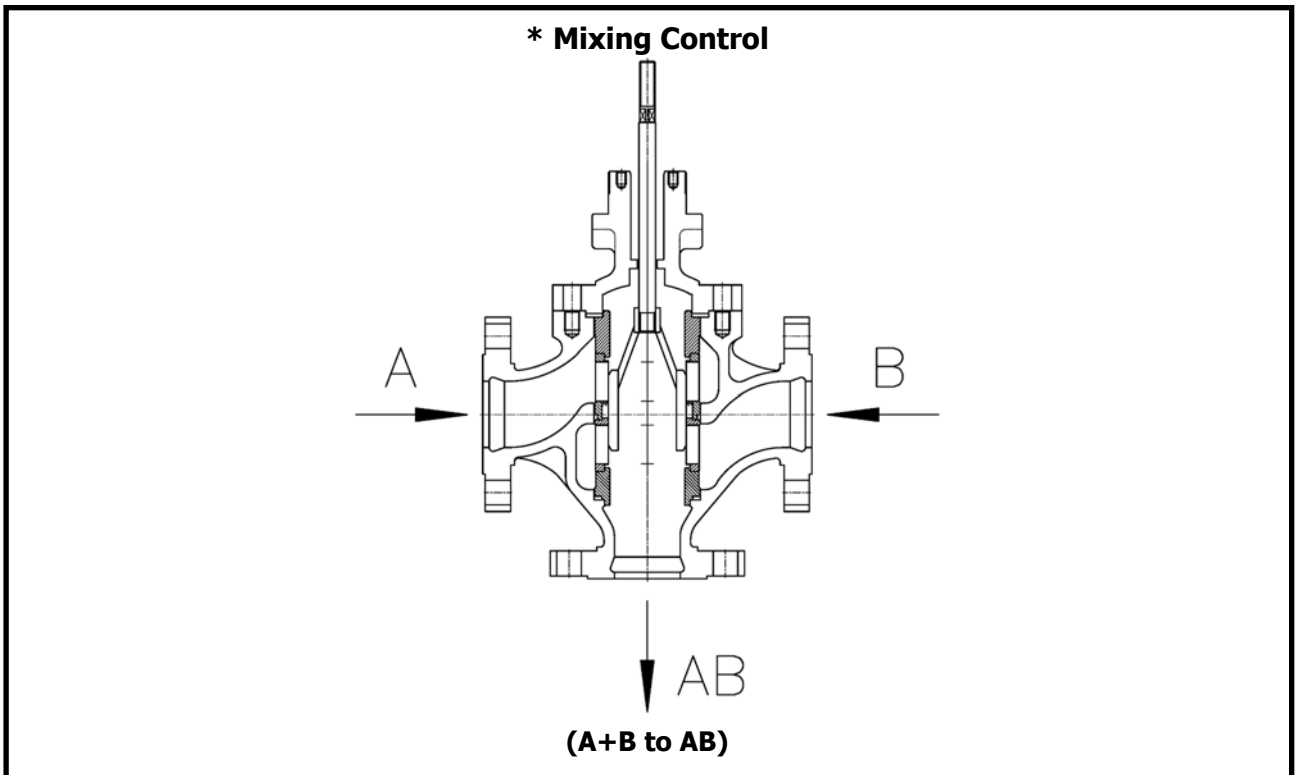


Figure 2. Flow Direction

**Parts List**

25	PORT BACK UP RING
24	PORT O-RING
23	GLAND O-RING
22	CAGE O-RING
21	PORT
20	TOP SEAT RING
19	TOP CAGE
18	BOTTOM CAGE
17	BOTTOM SEAT RING
16	STEM
15	BONNET GASKET
14	SEAT GASKET
13	HEAVY HEX NUT
12	STUD BOLT
11	CONICAL WASHER
10	GLAND NUT
9	GLAND BOLT
8	DUST RING
7	GLAND FLANGE
6	GLAND FOLLOWER
5	LANTERN RING
4	PACKING
3	PACKING RING
2	BONNET
1	BODY
No.	Name of Part

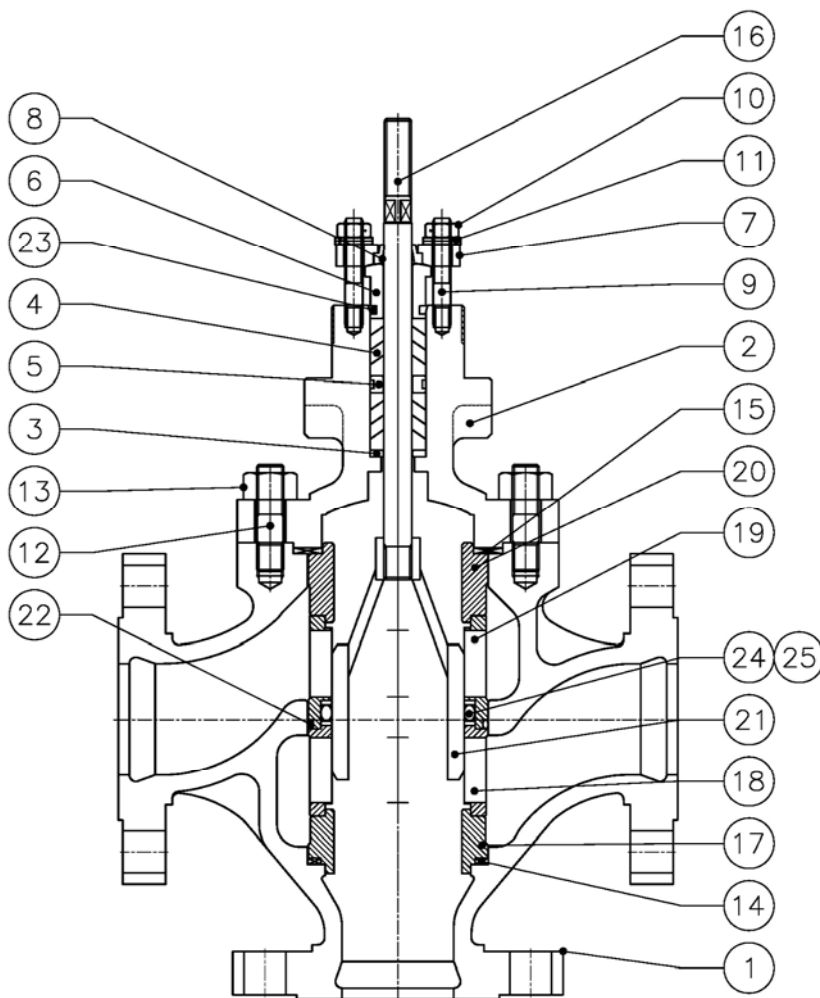


Figure 3. Body Assembly Diagram

**Cv Values**

Trim	Size	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
C-B	Cv	7.3	12	23.8	36.5	66.4	125	210	276	424	675	1050	1620

Table 1. Cv Table

### Unbalanced Trim (Optional)

#### How to use

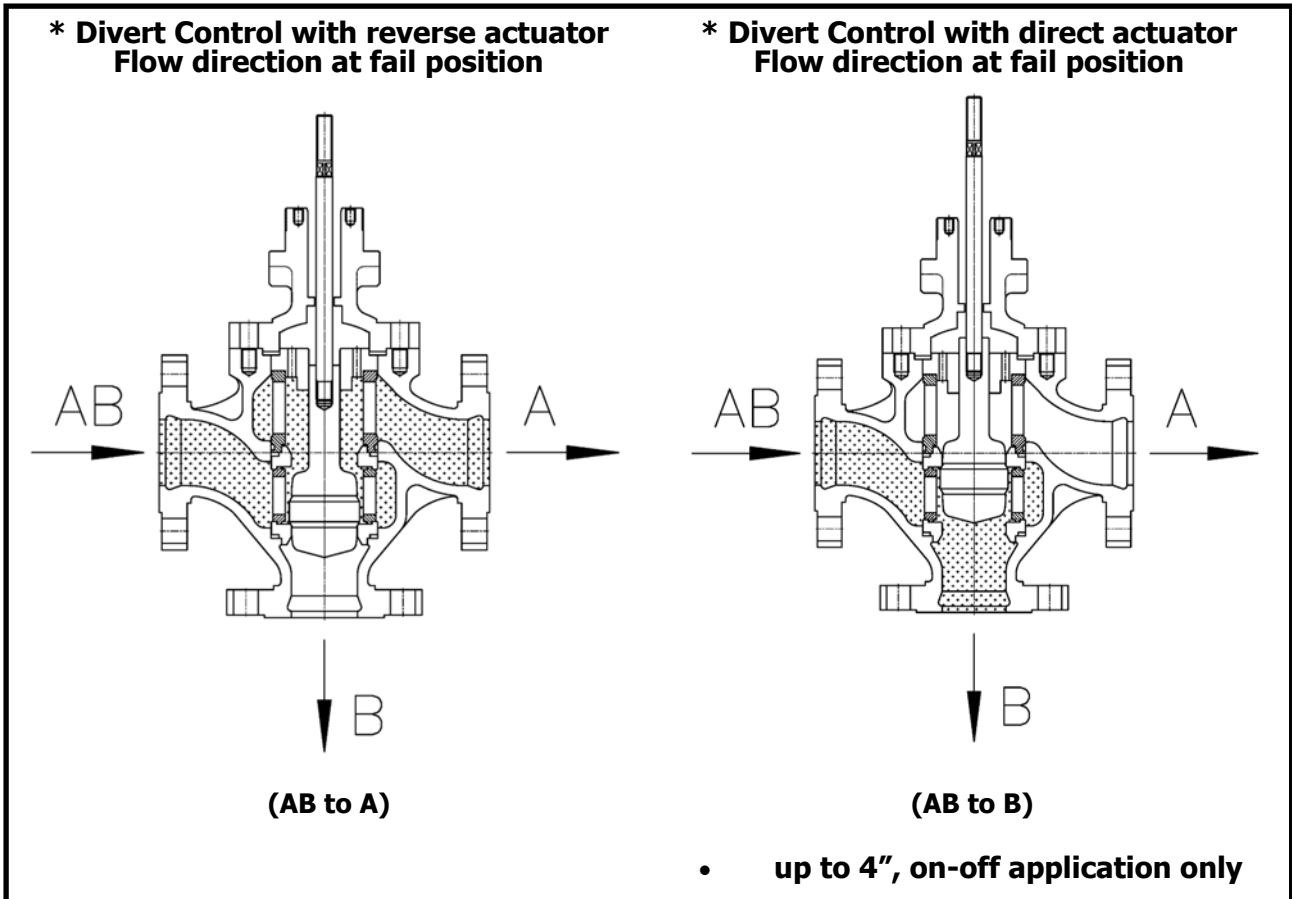
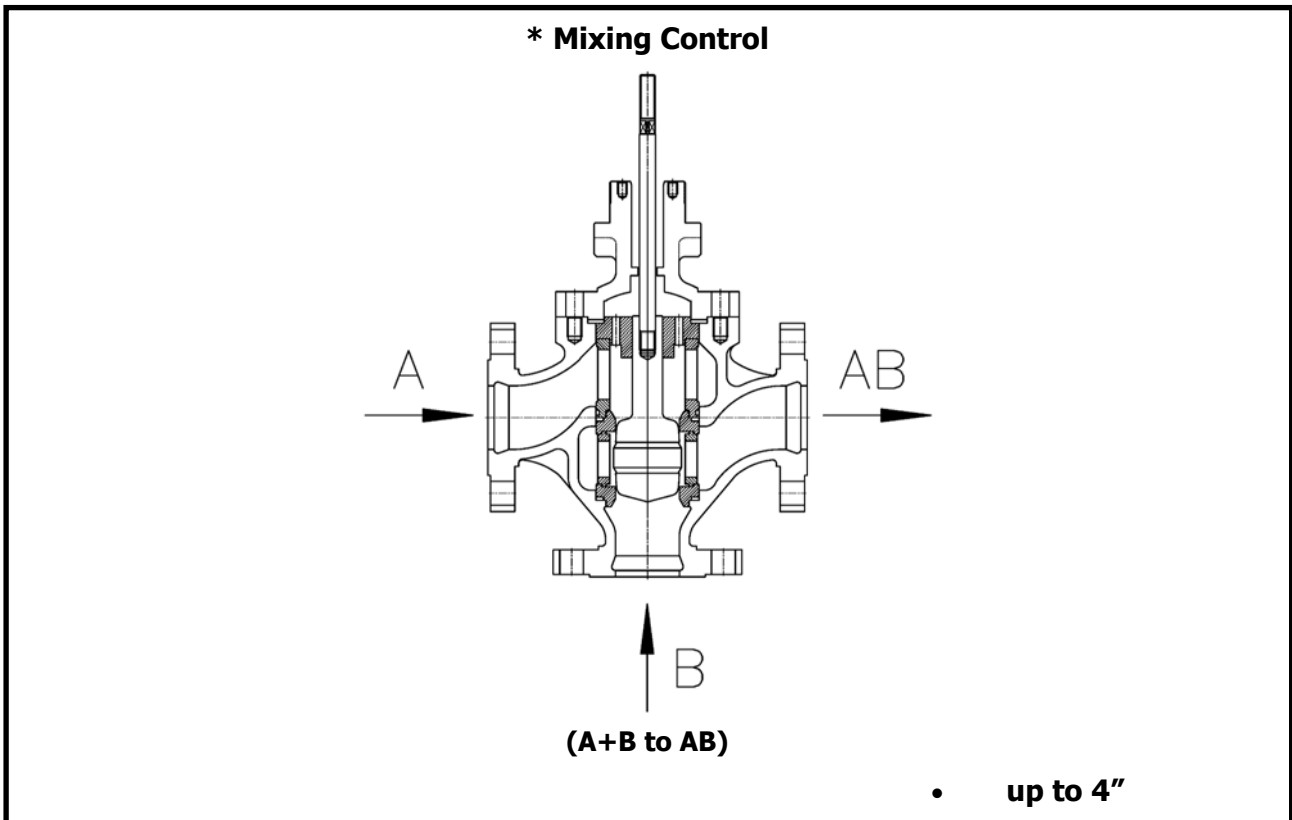


Figure 4. Flow Direction

**Parts List**

23	GLAND O-RING
22	RETAINER O-RING
21	PORT
20	TOP GUIDE
19	TOP RETAINER
18	BOTTOM RETAINER
17	SEAT RING
16	STEM
15	BONNET GASKET
14	SEAT GASKET
13	HEAVY HEX NUT
12	STUD BOLT
11	CONICAL WASHER
10	GLAND NUT
9	GLAND BOLT
8	DUST RING
7	GLAND FLANGE
6	GLAND FOLLOWER
5	LANTERN RING
4	PACKING
3	PACKING RING
2	BONNET
1	BODY
No.	Name of Part

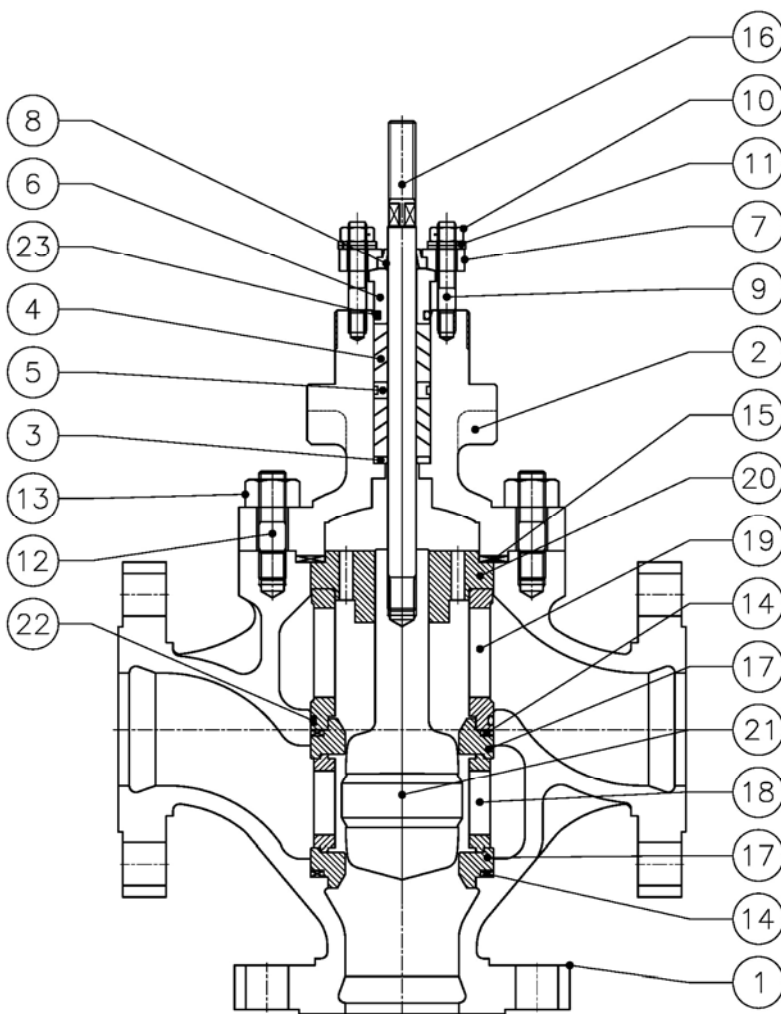


Figure 5. Body Assembly Diagram

**Cv Values**

Trim	Size	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"
S-P	Cv	9	14	32	52	78	116	195

Table 2. Cv Table

### 3-Way Globe Valve Bonnet Type

Bonnet Type	Plain Bonnet	Extension Bonnet	Cryogenic Bonnet	Bellows Bonnet
Allowable Temperature	-25°C ~ 230°C	Over 230°C -25°C ~ -45°C	-45°C ~ -196°C	-25°C ~ 350°C

Table 3. Allowable Temperature

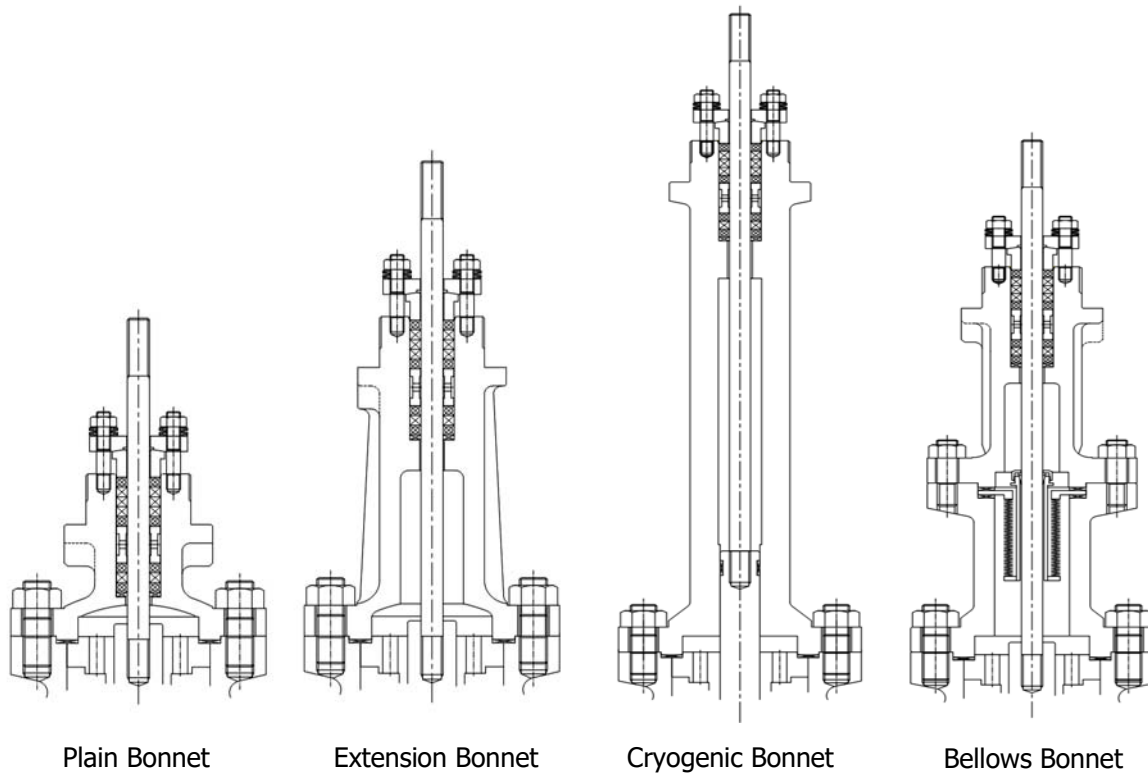


Figure 6. Bonnet Design Option

### 3-way Globe Valve Outline Dimensions

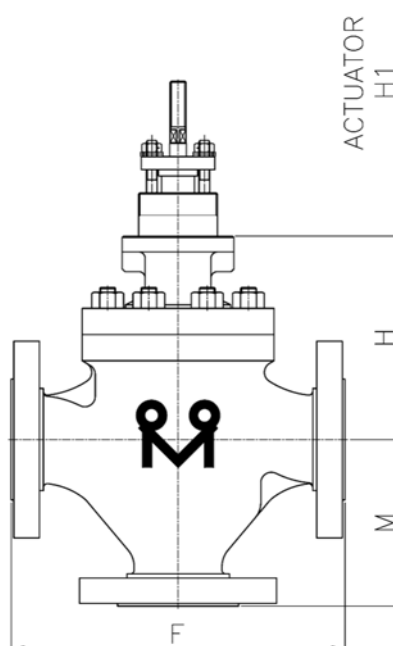


Figure 7. AO-3632 dimensions

Table 4. Body Dimensions

(unit: mm)

Size		F			H (Plain)		H (Extension)		M		
		150#	300#	600#	150#,300#	600#	150#,300#	600#	150#	300#	600#
1/2"	15A	184	194	206	117	132	217	232	92	97	103
3/4"	20A	184	194	206	117	132	217	232	92	97	103
1"	25A	184	197	210	123	128	223	228	92	98.5	105
1 1/2"	40A	222	235	251	137	142	237	248	111	117.5	125.5
2"	50A	254	267	286	155	180	255	280	127	133.5	143
2 1/2"	65A	276	292	311	175	201	270	280	138	146	155.5
3"	80A	298	317	337	201	210	351	368	149	158.5	168.5
4"	100A	352	368	394	253	263	403	405	176	184	197
5"	125A	403	425	457	323	343	473	510	201.5	212.5	228.5
6"	150A	451	473	508	330	339	480	507	225.5	236.5	254
8"	200A	543	568	610	430	453	580	634	271.5	284	305
10"	250A	673	708	752	470	491	620	641	336.5	354	376
12"	300A	737	775	819	575	605	720	755	368.5	387.5	409.5

Table 5. AO-3600 Actuator Dimensions

(unit: mm)

	T-1	T-2	T-3S	T-3	T-4	T-5 (100)	T-5 (130)
H1	333	340	473	493	503	691	739



## **Warranty / Remedy**

Korea Motoyama Inc. warrants goods of its manufacture as being free of defective materials and faulty workmanship for 12 months from the date of shipment, unless otherwise specified. In this period, all of our products claimed by original defects may be returned to our factory after notice and authorization by us. If warranted goods are returned to Korea Motoyama Inc. during the period of coverage, it will be repaired or replaced without charge for those items it finds defective. Such defects shall be exclusive of the effects of corrosion, erosion, normal wear or improper handling and storage. In case our engineers have field service, the user shall detach and install valves by his cost. Determination of the suitability of the Products for the use contemplated by the buyer or buyer's customer(s) is the sole responsibility of the buyer in connection therewith. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.

**Specifications are subject to change without notices.**

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