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## HTP High Pressure Parabolic Plug Type

Large capacity high pressure globe valve body , thick wall bonnet, Metal-seated quick-changeable trim combination .HTP ensures safety and credibility in  $>100\text{Kg/cm}^2$  high pressure conditions. Insensitive to impurities with low cavitation design. Fast and easy to maintenance due to its rotational symmetry.

HTP series is especially suitable for the high pressure fluid with entrained particle and larger temperature variety because of won't being locked.

### ■ Standard Specification

#### Valve Body

Type: Cast globe Valve

Nominal Size: DN25, 32, 40, 50, 65, 80, 100, 150, 200,

Nominal Pressure: ANSI 600, 900, 1500

DIN PN63, 100, 160, 250

JIS 63K

GB PN6.3, 10.0, 16.0 MPa

End Connection: Flange ANSI B16.5 RF, RTJ

DIN2543/2544/2545 RF

JISB2201 RF

JB/T81 RF

JB/T82.2 FM

Weld: ANSI B16.5 SW (DN $\leq$ 80) ; BW (DN $>$ 80)

Face to Face Dimension:

ANSI (IEC60534-3-1 and ASME B16.10)

DIN PN 63, 100, 160 (DIN3202-F2)

DIN PN250 (DIN3202-F3)

GB PN6.3, 10.0, 16.0 MPa ISO12221 2 Series (ISO5752 2 Series)

Please refer to table 6.1~6.2

Body Material: Please refer to table1 Please refer to figure 3 for Operated Temp. &Pressure Range

Bonnet Type: STD type..... $-46^{\circ}\text{C} \sim 300^{\circ}\text{C}$

Radiation fin type..... $300^{\circ}\text{C} \sim 530^{\circ}\text{C}$

(Please pay attention to the different Temp. &Pressure Range of material)

Packing Material: graphite compound packing、 graphite packing、

Operating Temp. &Pressure range is shown in table 2, figure2

Seal Gasket: Spiral wound gasket (PTFE+316、 Flexible Graphite+316) ,

Graphite with metal gasket (Graphite+316、 Graphite+304)

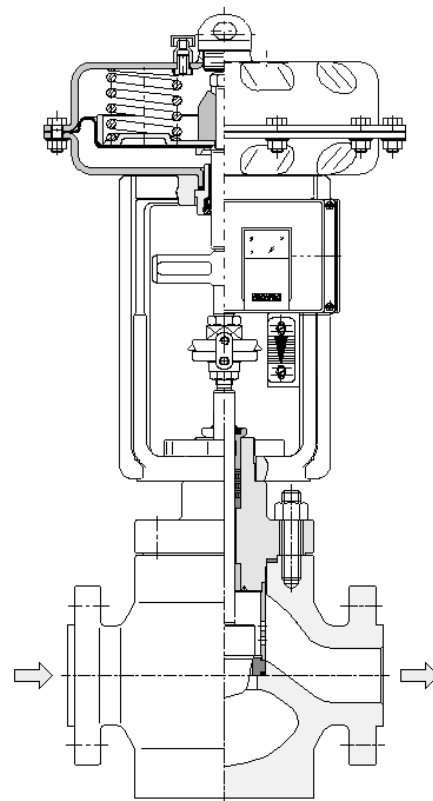
#### Valve Trim

Plug Type: Parabolic column plug

Flow Characteristic: EQ%、 Linearity、 Quickly opening(Please refer to figure4)

Trim Material: Please refer to table 3 for STD material assembly, operated Temp. &Pressure Range

#### Actuator



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Type: Multi-spring diaphragm

Air Supply: Max. 6bar

Ambient Temp.: -20°C~+80°C

Spring range: As shown in Table 5.1~5.2

Air Connection: G1/8 (SA1); G1/4 (SA2); G3/4 (SA3)

STD Specification: As shown in Table 5.1~5.2

### Accessory

Positioner, Filter-regulator valve, Solenoid valve, Limit switch,  
Valve position Transmitter, Booster relay, Lock-valve, Handwheel, etc.

### Action

Air to open, Air to close

### Performance

Range ability: 50:1

Seat leakage: Metal seal is according to ANSI B16.104 ClassIV, Class V

Hysteresis: 3% (Without Positioner) 1% (With Positioner)

Linearity:  $\pm 5\%$  (Without Positioner)  $\pm 1\%$  (With Positioner)

Rated CV: As shown in table 4

Allowable pressure differential: As shown in table 5.1~5.2

Figure Size: As shown in figure 5.1, 5.2, table 6.1~6.2

Weight of product: As shown in table 6.1~6.2

### ■ Specifications:

Special inspection

Flow characteristic test, material test, low temperature test, steam test, non-damages test

copper-free treatment

non-standard painting

dust and sand proof

vacuum service

tropical area proof

completely oil-free, water-free treatment

special air piping and fitting

strong corrosion proof

stainless steel bolt and nut for exposed parts

cold area proof

### ■ Body Assembly Structure (As shown in figure 1)

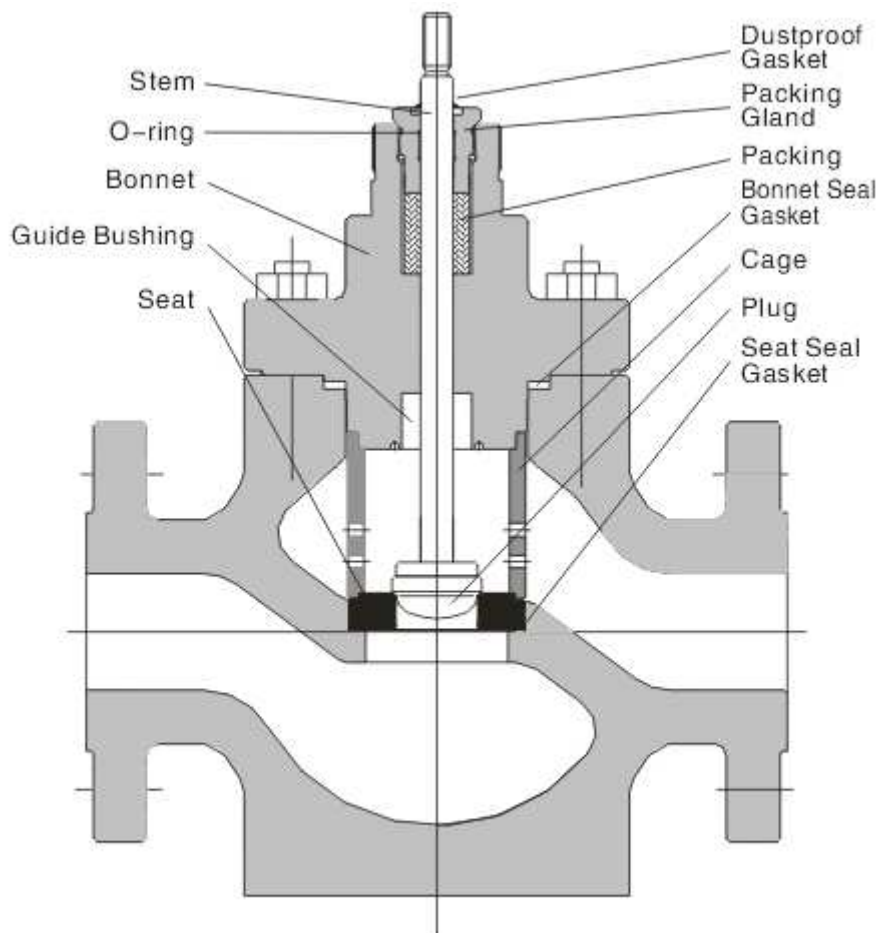


Figure 1

**Notable Characteristics**

- Both faces of valve seat can be used to improve service life
- Quickly disassembly and installation without any special tools
- Good price performance
- Optimize flow of cage
- Various of materials are available
- Maintenance-free for packing
- Packing stuffing box is wear resistance and corrosion resistance

**Table 1: Body material**

DIN	ANSI	GB	Temp.Range
1. 0619 GP240GH	A216 WCB (ASTM)	ZG20	-10°C ~ 400°C
1. 4308 G-X6CrNi18 9	A351 CF8 (ASTM)	ZG0Cr18Ni9	-200°C ~ 530°C
1. 4408 G-X6CrNiMo18 10	A351 CF8M (ASTM)	ZG0Cr17Ni12Mo2Ti	-200°C ~ 530°C
1. 4581 G-X5CrNiMoNb18 10	—	ZG0Cr17Ni12Mo2Nb	-200°C ~ 530°C
1. 7357 GS-17CrMo5 5	A21 7WC6 (ASTM)		-10°C ~ 450°C
1. 7379 GS-18CrMo9 10	A217 WC9 (ASTM)		-10°C ~ 450°C

**Table 2: Applicable Temp. & Pressure range of packing material**

Type of material (Shown in A)	Code	Dustproof ring (Shown in D)	Temp. Range	Bonnet type	Remarks
Graphite+Incnel packing	3	NBR VITON	-20°C ~ 400°C	Standard/with radiation fin	General occasion
Pure graphite (Density 1.6)	5	VITON	-196°C ~ 530°C	Standard/with radiation fin	High or Low Temp. occasion
Graphite+PTFE	6	NBR	-196°C ~ 200°C	Standard/extension type	Low Temp. occasion

Note: please choose the most related Temp. Range.

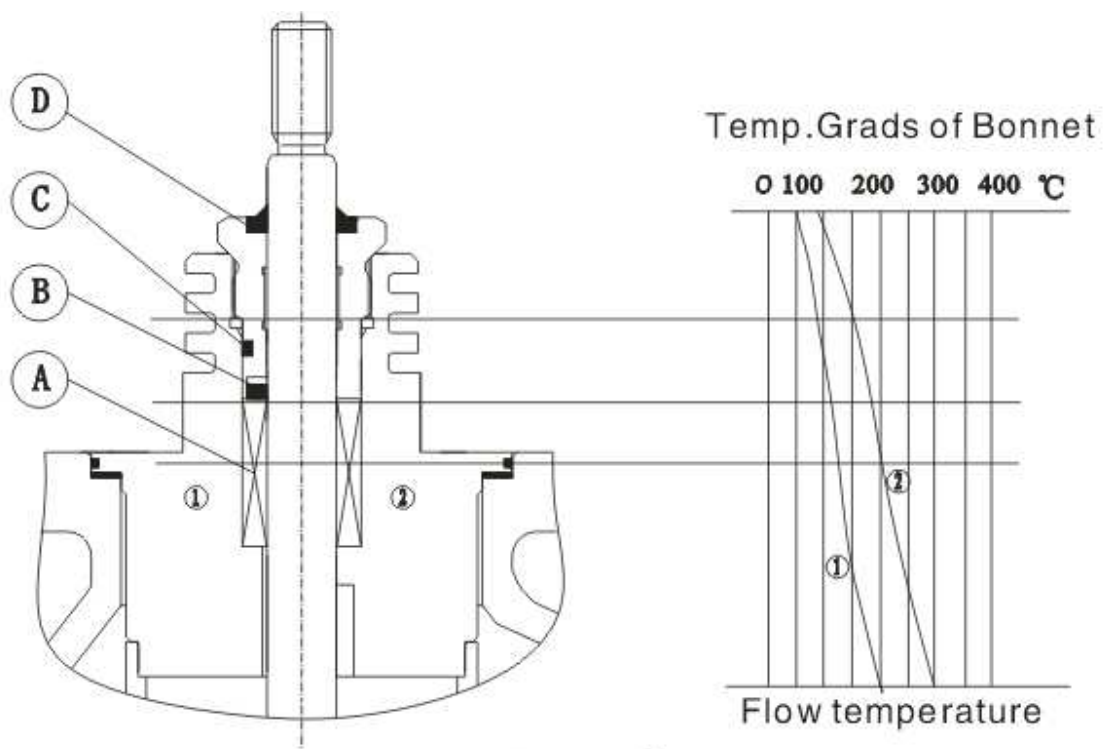
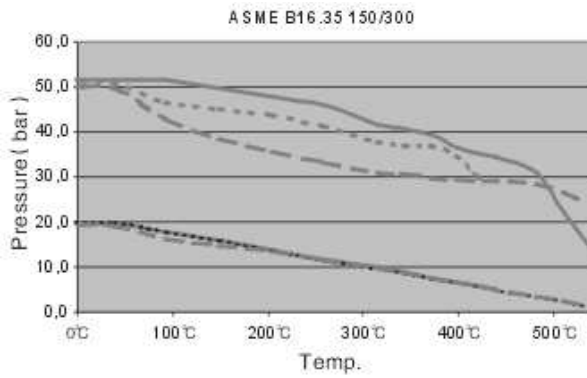
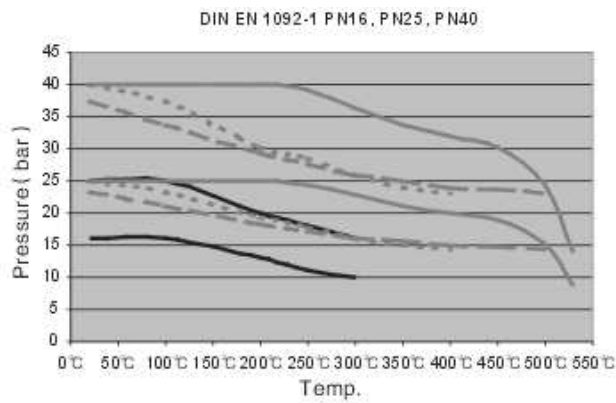
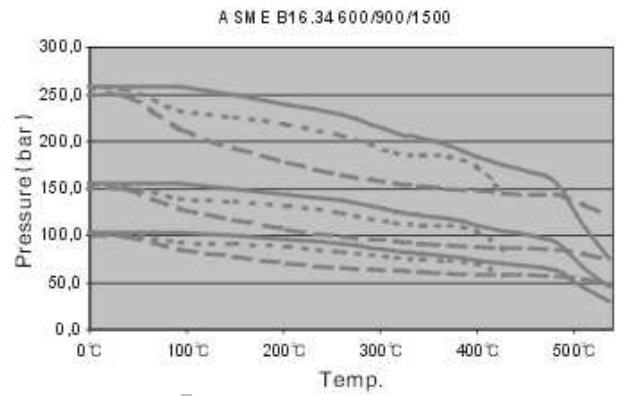


Figure2



ASME  
B16.34/B16.35



DIN EN  
1092-1

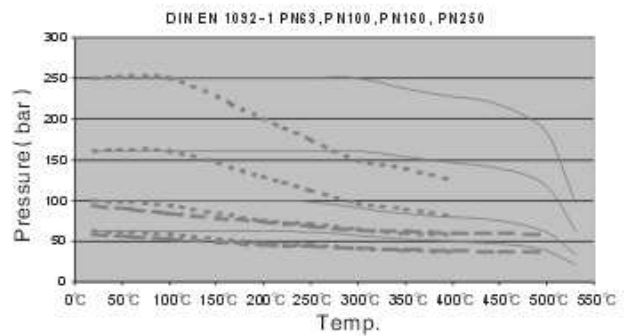


Figure3 Temp.&Pressure curve

**Table 3: STD Material Assembly, Operated Temp. & Pressure Range of Trim**

Parabolic column plug	Seat	Type of seat seal	Temp.
0Cr18Ni12Mo2Ti(1.4571)	0Cr18Ni12Mo2Ti(1.4571)	Metal seal	-46~530°C
9Cr18MoV (1. 4112) Harden treatment	9Cr18MoV (1. 4112) Harden treatment		
3Cr17NiMo(1. 4122) Harden treatment	2Cr13(1. 4021) Harden treatment		

Harden treatment: Hard chrome plated, Stellite surface, Heat treatment, Nitriding treatment, Spray tungsten carbide, etc

**Table 4: Rated Cv**

Plug type		Parabolic column plug						
Flow characteristic		Linearity			EQ%			Quick
Nominal Size(DN)	Travel	Cv1	Cv2	Cv3	Cv1	Cv2	Cv3	Cv1
15								
20								
25	20	12.9	8.2	4.7	12.9	8.2	4.7	12.9
32								
40	20	31	21	13	31	21	13	31
50	30	50	31	21	50	31	21	50
65								
80	30	117	80	50	117	80	50	117
100	30	176	117	80	176	117	80	176
150	60	445	304	176	445	304	176	445
200	60	761	445	304	761	445	304	761
250								
300								
350								
400								

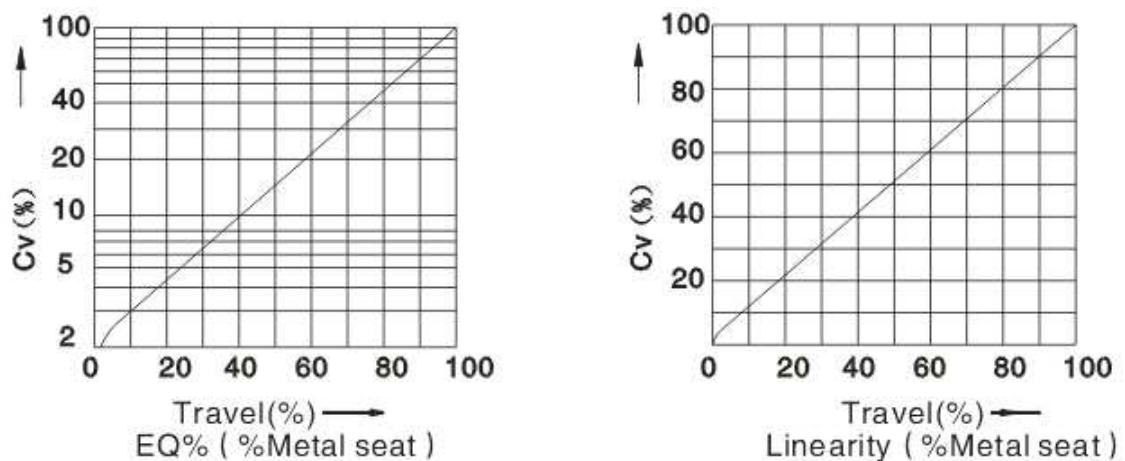


Figure4 Flow characteristic curve

**Table 5.1: Allowable pressure differential (Leakage CLASS IV):**

Actuator SA1,2 Series					Air to open spring Nos.				Air to close spring Nos.				
Nominal Size DN(mm)	Travel (mm)	Actuator size parameter	Cv	Seat Dia. Ø(mm)	3	6	9	12	3	3	3	6	6
					bar	bar	bar	bar	Air supply(bar)				
									3.0	4.5	6.0	4.5	6.0
25 1"	20	SA1 <sub>R</sub> <sup>D</sup> -3XX 320cm <sup>2</sup> (50in <sup>2</sup> )	12.9	24	0.5	53.6	-	-	53.6	159.7	160.0	53.6	159.7
			8.2	19	3.6	88.3	-	-	88.3	160.0	160.0	88.3	160.0
			4.7	16	7.4	126.8	-	-	126.8	160.0	160.0	126.8	160.0
			2.9	11	23.9	160.0	-	-	160.0	160.0	160.0	160.0	160.0
			1.9	9	40.7	160.0	-	-	160.0	160.0	160.0	160.0	
40 1 1/2"	20	SA1 <sub>R</sub> <sup>D</sup> -3XX 320cm <sup>2</sup> (50in <sup>2</sup> )	31	37	-	20.6	-	-	20.6	65.3	110.0	20.6	65.3
			21	32	-	28.6	-	-	28.6	88.3	148.0	28.6	88.3
			12.9	24	0.5	53.6	-	-	53.6	159.7	160.0	53.6	159.7
50 2"	30	SA1 <sub>R</sub> <sup>D</sup> -5XX 320cm <sup>2</sup> (50in <sup>2</sup> )	50	48	-	11.3	-	-	11.3	37.9	64.4	11.3	37.9
			31	37	-	20.6	-	-	20.6	65.3	110.0	20.6	65.3
			21	32	-	28.6	-	-	28.6	88.3	148.0	28.6	88.3
		SA2 <sub>R</sub> <sup>D</sup> -1XX 720cm <sup>2</sup> (111in <sup>2</sup> )	50	48	12.4	40.1	56.7	73.2	44.5	104.2	160.0	44.5	104.2
			31	37	22.5	69.0	97.0	124.9	76.5	160.0	160.0	76.5	160.0
			21	32	31.1	93.3	130.6	160.0	103.2	160.0	160.0	103.2	160.0
80 3"	30	SA1 <sub>R</sub> <sup>D</sup> -5XX 320cm <sup>2</sup> (50in <sup>2</sup> )	117	73	-	4.0	-	-	4.0	15.4	26.9	4.0	15.4
			80	62	-	6.1	-	-	6.1	22.0	37.9	6.1	22.0
			50	48	-	11.3	-	-	11.3	37.9	64.4	11.3	37.9
		SA2 <sub>R</sub> <sup>D</sup> -1XX 720cm <sup>2</sup> (111in <sup>2</sup> )	117	73	4.4	16.4	23.6	30.7	18.3	44.1	69.9	18.3	44.1
			80	62	6.7	23.3	33.2	43.2	25.9	61.7	97.5	25.9	61.7
			50	48	12.4	40.1	56.7	73.2	44.5	104.2	160.0	44.5	104.2
100 4"	30	SA1 <sub>R</sub> <sup>D</sup> -5XX 320cm <sup>2</sup> (50in <sup>2</sup> )	176	90	-	2.2	-	-	2.2	9.7	17.3	2.2	9.7
			80	73	-	4.0	-	-	4.0	15.4	26.9	4.0	15.4
			50	62	-	6.1	-	-	6.1	22.0	37.9	6.1	22.0
		SA2 <sub>R</sub> <sup>D</sup> -1XX 720cm <sup>2</sup> (111in <sup>2</sup> )	176	90	2.5	10.4	15.1	19.8	11.6	28.6	45.6	11.6	28.6
			80	73	4.4	16.4	23.6	30.7	18.3	44.1	69.9	18.3	44.1
			50	62	6.7	23.3	33.2	43.2	25.9	61.7	97.5	25.9	61.7
150 6"	60	SA2 <sub>R</sub> <sup>D</sup> -2XX 720cm <sup>2</sup> (111in <sup>2</sup> )	445	143	0.6	4.1	6.2	8.3	4.7	12.2	19.8	4.7	12.2
			304	113	1.2	6.2	9.2	12.2	7.0	17.8	28.6	7.0	17.8
			176	90	2.5	10.4	15.1	19.8	11.6	28.6	45.6	11.6	28.6
200 8"	60	SA2 <sub>R</sub> <sup>D</sup> -2XX 720cm <sup>2</sup> (111in <sup>2</sup> )	761	172	0.1	2.3	3.6	4.9	2.6	7.3	11.9	2.6	7.3
			445	143	0.6	4.1	6.2	8.3	4.7	12.2	19.8	4.7	12.2
			304	113	1.2	6.2	9.2	12.2	7.0	17.8	28.6	7.0	17.8
Actuator SA3 Series					spring Nos.			spring Nos.					
Nominal Size DN(mm)	Travel (mm)	Actuator size parameter	Cv	Seat Dia. Ø(mm)	4	6	8	2	2	2	4	4	
					bar	bar	bar	Air supply(bar)					
								3.0	4.5	6.0	4.5	6.0	
150 6"	60	SA3 <sub>R</sub> <sup>D</sup> -1XX 1600cm <sup>2</sup> (248in <sup>2</sup> )	445	143	11.1	18.1	25.1	26.1	45.7	64.9	35.9	55.1	
			304	113	16.2	26.2	36.1	37.6	65.6	93.0	51.6	79.0	
			176	90	26.1	41.8	57.5	59.9	103.9	147.2	81.9	125.2	
200 8"	60	SA3 <sub>R</sub> <sup>D</sup> -1XX 1600cm <sup>2</sup> (248in <sup>2</sup> )	761	172	6.6	10.9	15.2	15.8	27.9	39.7	21.9	33.7	
			445	143	11.1	18.1	25.1	26.1	45.7	64.9	35.9	55.1	
			304	113	16.2	26.2	36.1	37.6	65.6	93.0	51.6	79.0	

Note: 1. "\*" stands for bolt and unt impacted yoke(Nor. temp.), the rest is round unt impacted yoke(Nor. Temp. or High Temp.)

2. the implication of "XX" is show in SA series actuator specification.

**Table 5.2: Allowable pressure differential (Leakage CLASS V):**

Actuator SA1,2 Series					Air to open spring Nos.				Air to close spring Nos.				
Nominal Size DN(mm)	Travel (mm)	Actuator size parameter	Cv	Seat Dia. Ø(mm)	3	6	9	12	3	3	3	6	6
					bar	bar	bar	bar	Air supply(bar)				
									3.0	4.5	6.0	4.5	6.0
25 1"	20	SA1 <sup>D</sup> <sub>R</sub> -3XX 320cm <sup>2</sup> (50in <sup>2</sup> )	12.9	24	-	20.3	-	-	20.3	126.4	160.0	20.3	126.4
			8.2	19	-	46.2	-	-	46.2	160.0	160.0	46.2	160.0
			4.7	16	-	76.8	-	-	76.8	160.0	160.0	76.8	160.0
			2.9	11	-	160.0	-	-	160.0	160.0	160.0	160.0	160.0
40 1 1/2"	20	SA1 <sup>D</sup> <sub>R</sub> -3XX 320cm <sup>2</sup> (50in <sup>2</sup> )	1.9	9	-	160.0	-	-	160.0	160.0	160.0	160.0	160.0
			31	37	-	-	-	-	-	43.7	88.4	-	43.7
			21	32	-	3.6	-	-	3.6	63.3	123.0	3.6	63.3
			12.9	24	-	20.3	-	-	20.3	126.4	160.0	20.3	126.4
50 2"	30	SA1 <sup>D</sup> <sub>R</sub> -5XX 320cm <sup>2</sup> (50in <sup>2</sup> )	50	48	-	-	-	-	-	21.2	47.7	-	21.2
			31	37	-	-	-	-	-	43.7	88.4	-	43.7
			21	32	-	3.6	-	-	3.6	63.3	123.0	3.6	63.3
		SA2 <sup>D</sup> <sub>R</sub> -1XX 720cm <sup>2</sup> (111in <sup>2</sup> )	50	48	-	23.4	40.0	56.6	27.8	87.5	147.2	27.8	87.5
			31	37	0.9	47.4	75.3	103.2	54.9	155.4	160.0	54.9	155.4
			21	32	6.1	68.3	105.6	142.9	78.2	160.0	160.0	78.2	160.0
80 3"	30	SA1 <sup>D</sup> <sub>R</sub> -5XX 320cm <sup>2</sup> (50in <sup>2</sup> )	117	73	-	-	-	-	-	4.5	15.9	-	4.5
			80	62	-	-	-	-	-	9.1	25.0	-	9.1
			50	48	-	-	-	-	-	21.2	47.7	-	21.2
		SA2 <sup>D</sup> <sub>R</sub> -1XX 720cm <sup>2</sup> (111in <sup>2</sup> )	117	73	-	5.4	12.6	19.8	7.3	33.2	59.0	7.3	33.2
			80	62	-	10.4	20.3	30.3	13.0	48.8	84.6	13.0	48.8
			50	48	-	23.4	40.0	56.6	27.8	87.5	147.2	27.8	87.5
100 4"	30	SA1 <sup>D</sup> <sub>R</sub> -5XX 320cm <sup>2</sup> (50in <sup>2</sup> )	176	90	-	-	-	-	-	0.8	8.4	-	0.8
			80	73	-	-	-	-	-	4.5	15.9	-	4.5
			50	62	-	-	-	-	-	9.1	25.0	-	9.1
		SA2 <sup>D</sup> <sub>R</sub> -1XX 720cm <sup>2</sup> (111in <sup>2</sup> )	176	90	-	1.5	6.2	10.9	2.7	19.7	36.7	2.7	19.7
			80	73	-	5.4	12.6	19.8	7.3	33.2	59.0	7.3	33.2
			50	62	-	10.4	20.3	30.3	13.0	48.8	84.6	13.0	48.8
150 6"	60	SA2 <sup>D</sup> <sub>R</sub> -2XX 720cm <sup>2</sup> (111in <sup>2</sup> )	445	135	-	-	0.3	2.4	-	6.3	13.8	-	6.3
			304	115	-	-	2.1	5.1	-	10.7	21.5	-	10.7
			176	90	-	1.5	6.2	10.9	2.7	19.7	36.7	2.7	19.7
200 8"	60	SA2 <sup>D</sup> <sub>R</sub> -2XX 720cm <sup>2</sup> (111in <sup>2</sup> )	761	180	-	-	-	0.2	-	2.6	7.3	-	2.6
			445	135	-	-	0.3	2.4	-	6.3	13.8	-	6.3
			304	115	-	-	2.1	5.1	-	10.7	21.5	-	10.7
Actuator SA3 Series					spring Nos.			spring Nos.					
Nominal Size DN(mm)	Travel (mm)	Actuator size parameter	Cv	Seat Dia. Ø(mm)	4	6	8	2	2	2	4	4	
					bar	bar	bar	Air supply(bar)					
								3.0	4.5	6.0	4.5	6.0	
150 6"	60	SA3 <sup>D</sup> <sub>R</sub> -1XX 1600cm <sup>2</sup> (248in <sup>2</sup> )	445	135	5.2	12.2	19.2	20.2	39.8	59.0	30.0	49.2	
			304	115	9.1	19.1	29.1	30.6	58.5	85.9	44.5	72.0	
			176	90	17.2	32.9	48.7	51.0	95.0	138.3	73.0	116.3	
200 8"	60	SA3-1XX 1600cm <sup>2</sup> (248in <sup>2</sup> )	761	180	1.9	6.2	10.5	11.2	23.3	35.1	17.2	29.1	
			445	135	5.2	12.2	19.2	20.2	39.8	59.0	30.0	49.2	
			304	115	9.1	19.1	29.1	30.6	58.5	85.9	44.5	72.0	

Note: 1. "\*" stands for bolt and unt impacted yoke(Nor. temp.), the rest is round unt impacted yoke(Nor. Temp. or High Temp.)

2. the implication of "XX" is show in SA series actuator specification.



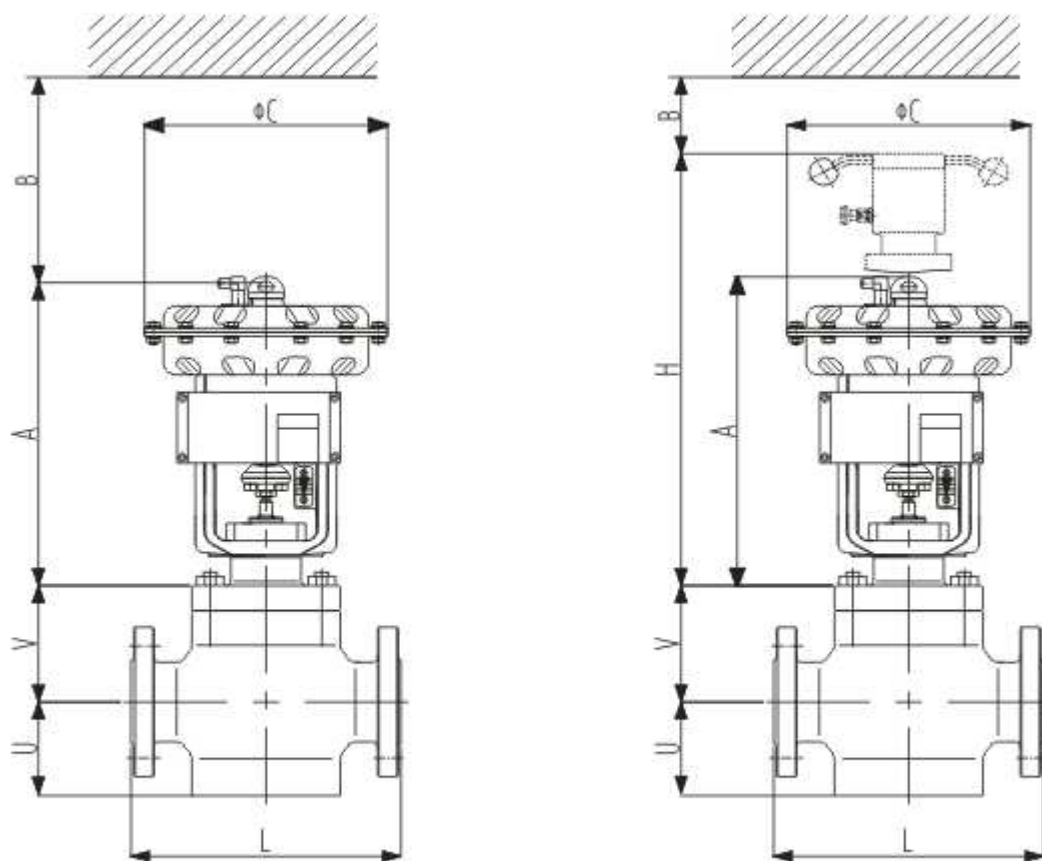


Figure5 **DN25 ~ DN200 (1" ~ 8" )**

**Table 6.1 Figure size(mm)&Weight(Kg) (DN25~DN200, PN63/100/160/250)**

Flange (DIN 2546/2547/2548). Face to face dimension DIN PN63/100/160(DIN 3202-F2)  
(Except DN200), DIN PN250(DIN 3202-F3).After Body U size "/" is Data of DIN PN250.

Body assembly	DN		25	40	50	80	100	150	200
	L	PN63/100/160	230	260	300	380	430	550	700
		PN250	260	300	350	450	520	700	800
	V	<300°C	132	159	178	220	255	342	357
		≥300°C	167	239	243	300	332	402	447
U		68	103	113	153	178	228/238	260/273	
Actuator	ØC	SA1	270						
		SA2				400			
		SA3				596			
	A	SA1	361						
		SA2				489		625	
		SA3				840			
	H	SA1	508						
		SA2				657		888	
	B		130			150		200	
	Weight	SA1	34	42	72	101	136		
		SA2				98	127	162	317
SA3								460	750

Note: Weight=Body assembly + Actuator(without handwheel)

**Table 6.2 Figure size(mm)&Weight(Kg) (1" ~8" , ANSI600/900/1500)**

Flange (ANSI B16.5 Class600/900/1500 RF/RTJ ). Face to face dimension ASME B16.10 Class600/900/1500 RF/RTJ & IEC60534-3-1.After Body U size "/" is Data of ANSI Class 1500.									
Body assembly	DN		1"	2/3"	2"	3"	4"	6"	8"
	L CL.600	RF	216	241	292	356	432	559	660
		RFJ	126	241	295	359	435	562	664
	L CL.900	RF	254	305	368	381	457	610	737
		RFJ	254	305	372	384	460	613	740
	L CL.1500	RF	254	305	368	470	546	705	832
		RFJ	254	305	372	473	549	711	841
	V	<300℃	132	159	178	220	255	342	357
		≥300℃	167	239	243	300	332	402	447
	U		68	103	113	153	178	228/238	260/273
Actuator	ØC	SA1	270						
		SA2				400			
		SA3							596
	A	SA1	361						
		SA2				489		625	
		SA3							840
	H	SA1	508						
		SA2				657		888	
	B		130		150			200	
	Weight	SA1	34	42	72	101	136		
SA2					98	127	162	317	607
SA3								460	750

Note: Weight=Body assembly + Actuator(without handwheel)