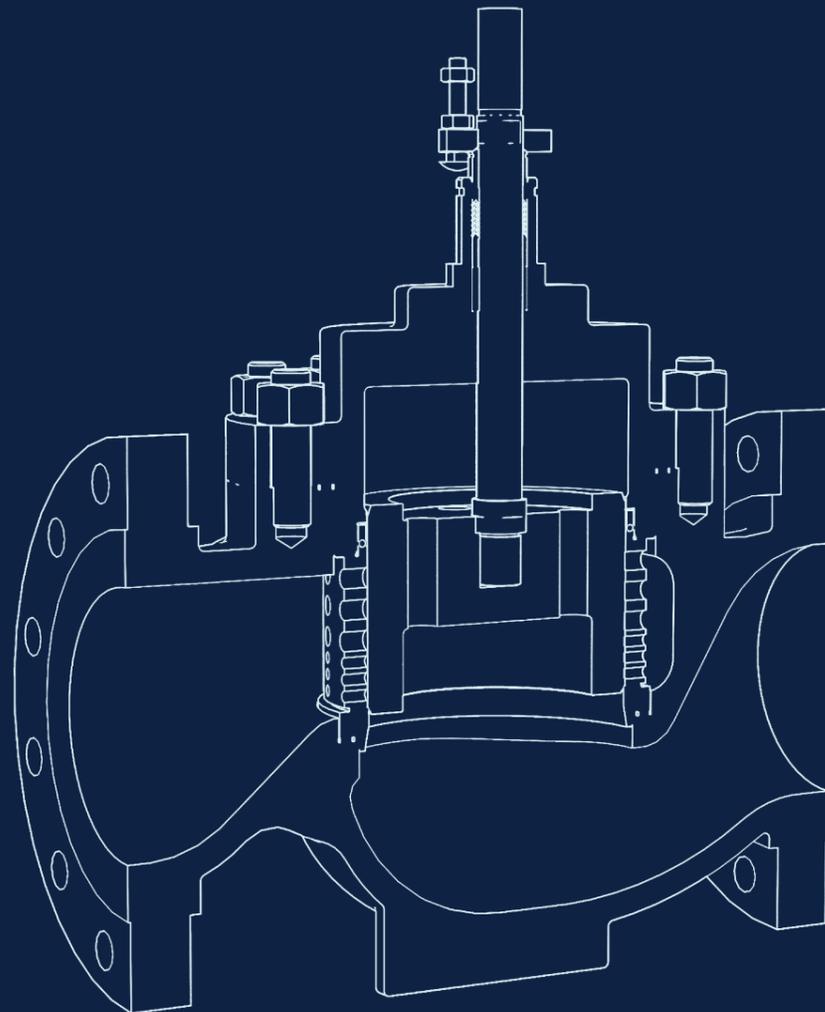
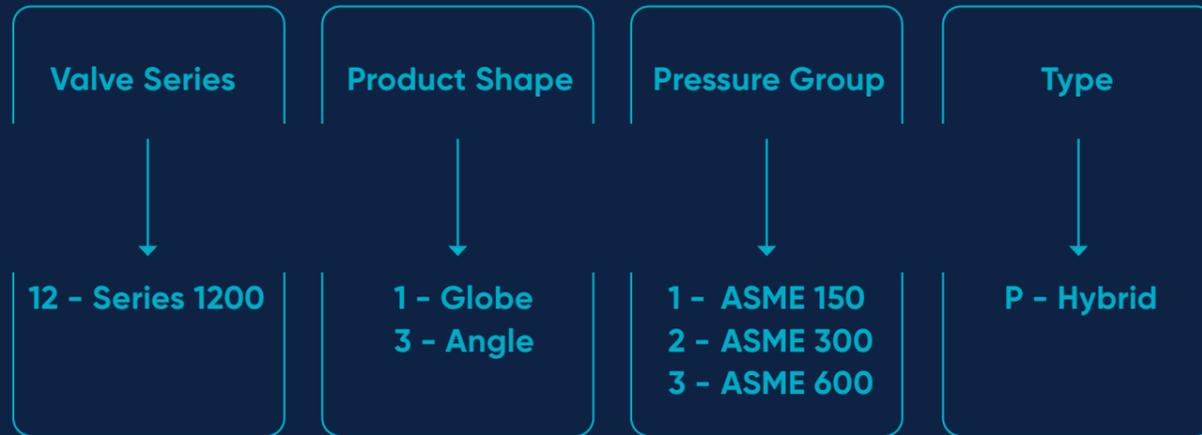


Valve Model Numbering

This series cover valves from size 1 inch to 12 inch and pressure class ASME 150 to 600. It also offers versatile trim characteristics and Cv options. It is multipurpose and suitable for cavitating / flashing applications or noise service.



Engineering data

Model

1200P Series Globe Valve

Sizes

2inch - 24inch

Design Standard

ASME B16.34

Face to Face

ISA 75.08 / IEC 60534-3-1

Body Style

2-way Globe straight
Angle Body

Body Material

Wide ranging options including;
WCB / WCC, LCB / LCC,
CF8M, CF3M, Duplex Gr.4A and Super duplex Gr.6A.

Pressure Class

ASME 150 - 600

End Connection

Integral flanged (RF/FF/RTJ*), ASME B16.5
*RTJ (For 14-24in ASME 600 Only)
Butt Weld End, ASME B16.25
Socket Weld End, ASME B16.11

End Finish

125-250 AARH and 63-125 AARH

Bonnet Styles

Standard
Extended
Above Bonnet styles are available only
in balanced configuration.

Gland Packing

PTFE Chevrons
Graphite
High integrity packing

Body / Bonnet bolting

Valve Material	Non Sour Service		Sour Service (NACE MR0175)	
	Stud	Nut	Stud	Nut
CS	B7	2H	B7M	2HM
LT. CS	L7	7L	L7M	7ML
SS / DSS	B8M	8M	B8M	8MA

Gaskets

316L spiral wound gaskets with graphite filler, standard. 32760 spiral wound gaskets with graphite filler, optional.

Trim Options

The trims are designed for easy assembly and maintenance. The "Clamped Seat - Quick change design" of 1200 series requires no special tooling for assembly and maintenance.

The Series offers the following trim styles in balanced configuration

Ported cage.
Concentric cages 1CC and 2CC.
1CC ported cages - unbalanced and balanced configuration.
2CC cages - balanced configuration.
In Concentric cages, flow under is suited for aerodynamic noise control service and flow over is suited for cavitating and flashing service.

Inherent Trim Characteristics

Equal percentage
Linear
Bi-Linear

Guiding

Cage / Top guided.

Balance seal options

Spring energized PTFE lip seal (-196°C to 232°C)
Graphite laminates w/ scrapper rings (232°C to 427°C)

Hard facing

Wide ranging options available.
Refer to Table 1 for suitable combinations.
More options available on request.

Seat Leakage

ANSI / FCI 70.2 / IEC 60534-4 Class IV is standard.
Class V with metal seat.
Class VI with soft seat insert.

NACE MR0175 and MR0103

The 1200 Series product design, characteristic and manufacturing process assures easy compliance of body, bonnet, trim and bolting material with the requirement of NACE MR0175 / ISO 15156 and MR0103.

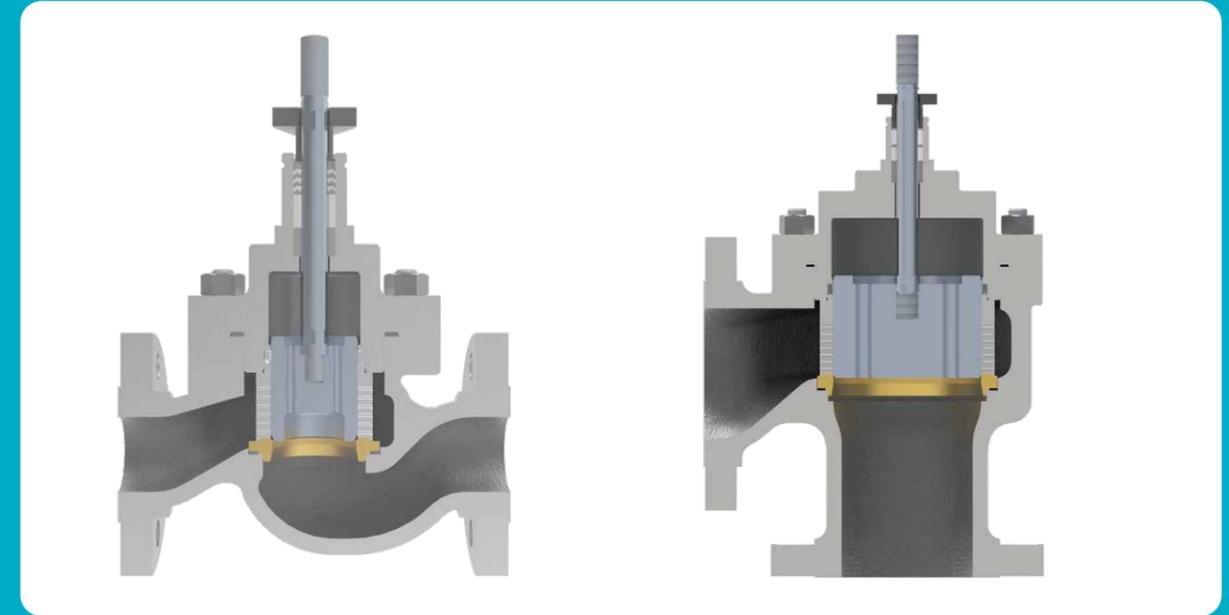
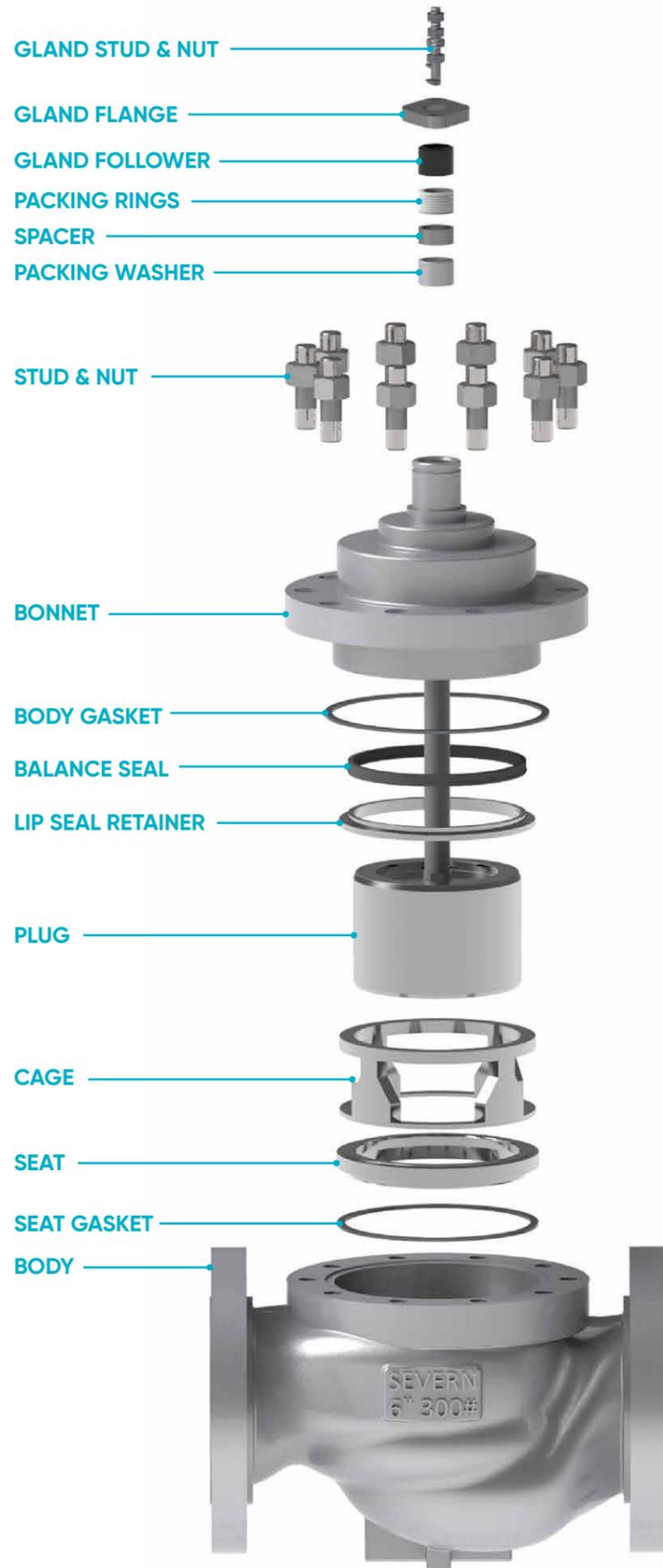
Actuation*

P-Series, Pneumatic Piston Cylinder actuator.
Hydraulic/ Electric / Electrohydraulic actuators.
Manual actuators.

Accessories

A wide range of control instruments are available from Severn, including : Positioners, Air-filter Regulators, Volume Boosters, Solenoid Valves, and Lock-up Valves.

* Flow coefficient and dimensional details of Globe valves offered with 'P Series' Actuators can be referred in 1200P catalogue - PLN/120P/3.07/01.

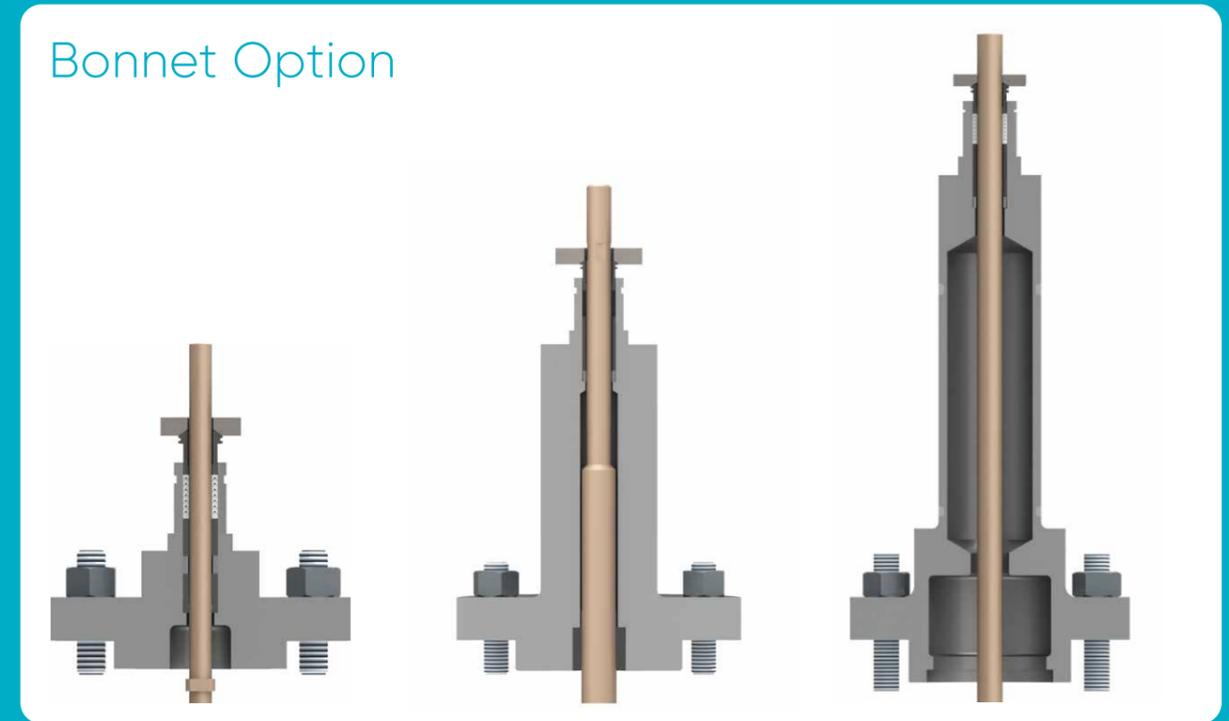


Globe Body

1200 Globe bodies with carefully designed streamlined flow passages offer excellent flow capacities.

Angle Body

1200 Series angle valves are typically offered with reduced seat allowing it to effectively handle increasing fluid velocities in flashing application.



Standard bonnet

The standard bonnet enables the forming of a deep packing box that is suitable for single or double packing with leak off connection. With PTFE packing standard bonnet is suitable to operate in a temperature range -29°C to 232°C.

Extended Bonnet

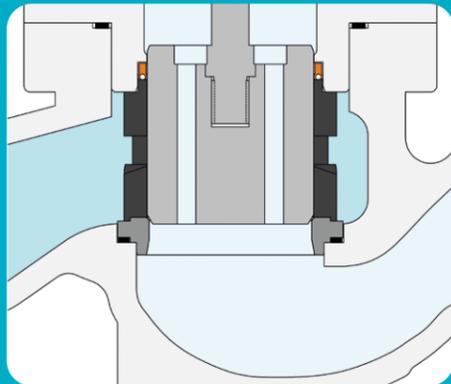
The extended bonnets are designed to function within the temperature range of -46°C to -29°C and 232°C to 427°C. Its construction protects the packing from high temperature. It accommodates all types of packing boxes that are required to meet stringent emission levels.

Cryogenic Bonnet

The Cryogenic bonnets are designed to typically operate in service conditions with temperature ranging from -46°C to -196°C. The length of the extension is sufficient to maintain the stem packing at temperature that is within normal operating conditions of the packing.

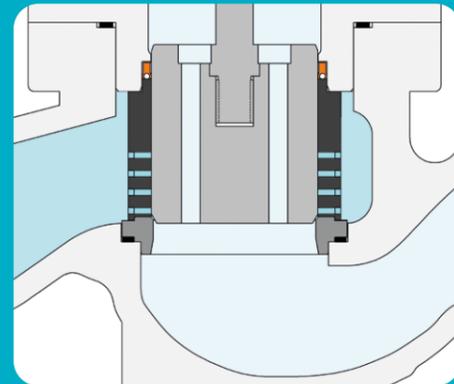
Trim options

Ported Cage



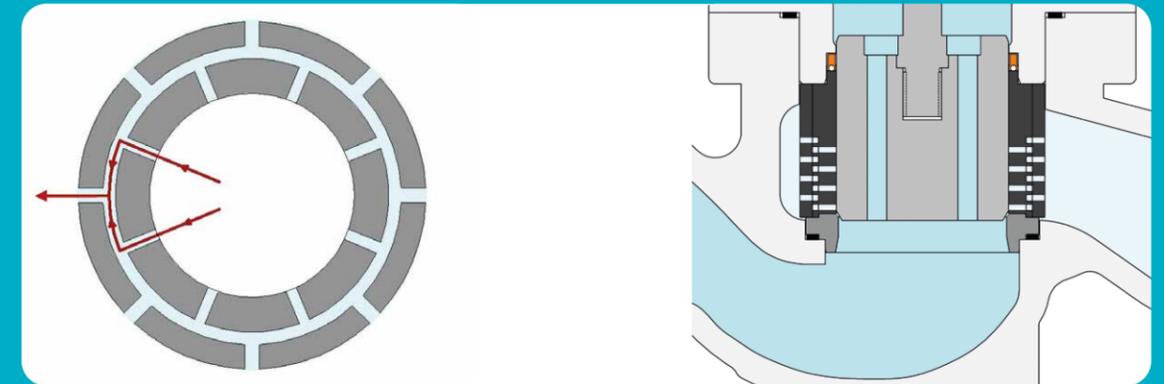
In this type, the trim characteristic is achieved through the profile of the port opening of the cage. Multiple ports enable streamlined flow. Large cage guiding, interchangeability of trim parts and high flow capacity are the defining features of this design.

1CC Concentric Cage Trim



Single and multiple heavy section 'drilled hole' cage design offers low pressure recovery that reduce the potential for excessive noise, cavitation, vibration and erosion. The CC trim range has been designed to operate on all fluid combinations, both clean and dirty service. The CC range of trims is normally the first choice for medium to relatively high pressure drop applications.

2CC Concentric Cage Trim (Gas Application)

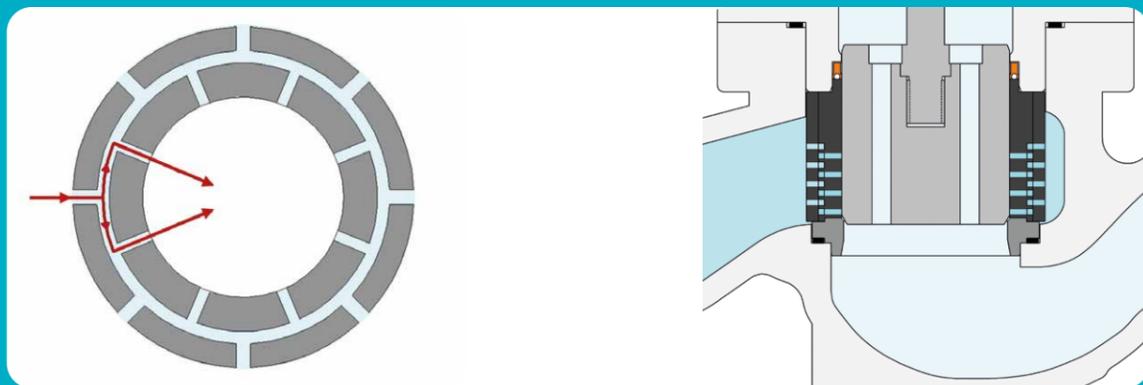


In gas applications, multiple cage designs are used to reduce the noise and vibration caused by abrupt pressure reduction in high pressure drop. The fluid flow is split into numerous small flow streams. There by substantially shifting the frequency of the generated noise beyond the audible spectrum. The pressure is dropped in many stages in velocity controlled manner through an expanding flow passage.

For this purpose flow under is preferred for gas application. Flow over may lead to generation of low frequency secondary noise due to pressure drop at the seat due to increased volume flow of the expanded gas.

Individual fluid streams emanating from the cage holes are allowed to impinge upon each other in the transfer passageways before taking a right angle turn and entering into the next cage holes. This way noise and vibration are reduced.

2CC Concentric Cage Trim (Liquid Application)



The erosive effect of cavitation is controlled by reducing the kinetic energy of the fluid by splitting the flow into many small flow streams. Multiple stage pressure let-down offered by 2CC trims results in low pressure recovery, thereby reducing the possibility of cavitation. The internal flow resistance offered by co-mingling of the adjacent flow streams acts as additional pressure drop stage, further reducing the pressure recovery.

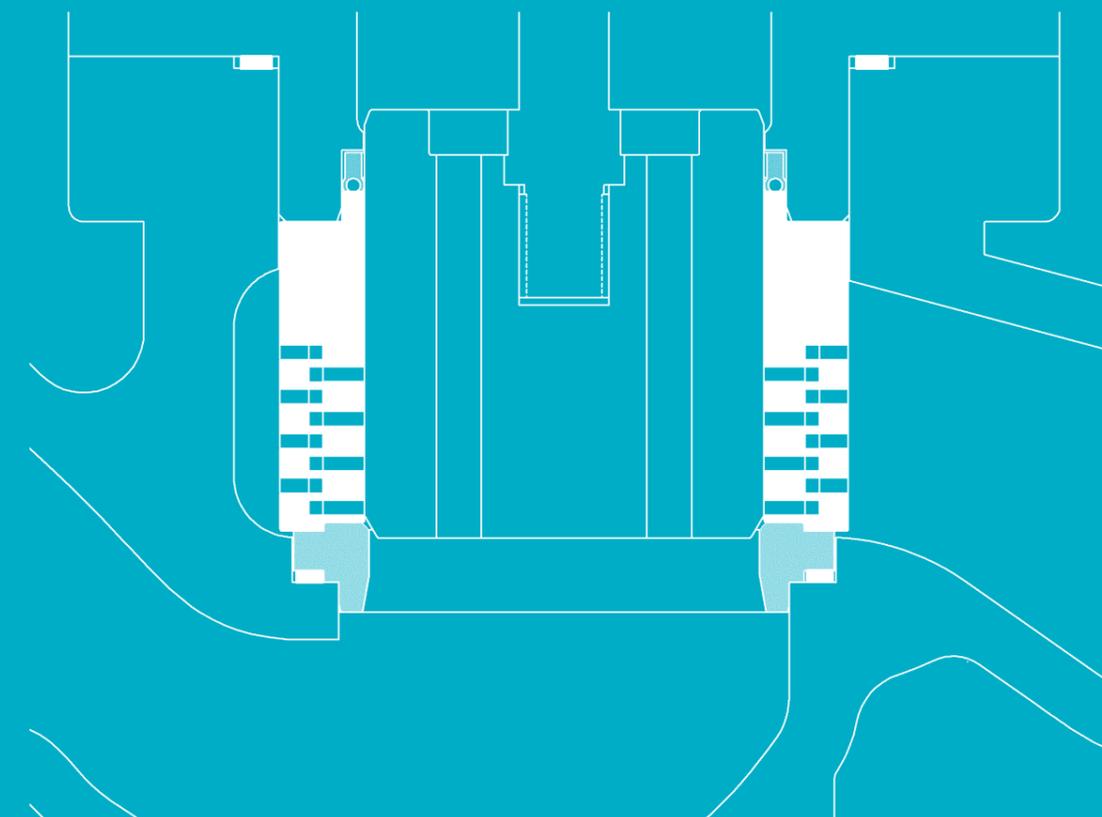
Localised erosion due to release of enormous kinetic energy by implosion of bubbles is avoided by allowing vapour bubbles to implode at the middle of the cage (far away from metal surfaces). For this purpose flow over is always recommended for liquid applications. Flow under shall be avoided in order to protect the body gallery from the impingement of the fluid jet emanating from outer cage causing damage.

The internal flow resistance offered by co-mingling of the adjacent flow streams acts as additional pressure drop stage, further reducing the pressure recovery.

Any vapour bubbles emanating from the cage assembly are allowed to implode at the middle of the cage (far away from metal surfaces). Localised erosion due to release of enormous kinetic energy by implosion of bubbles is thus avoided. For this purpose, flow-over direction is always recommended for liquid applications. Flow under shall be avoided in order to protect the body gallery (pressure boundary) from the impingement of the fluid jet emanating from outer cage causing damage.

Individual fluid streams emanating from the cage holes are allowed to impinge upon each other in the transfer passage-ways before taking a right angle turn and entering into the next cage holes. This way the pressure drop, gets converted into heat energy and carried by the fluid flow instead of getting converted into noise and vibration.

Flow under is the preferred flow direction for gas application. Flow over may lead to generation of low frequency secondary noise due to pressure drop at the seat due to increased volume flow of the expanded gas.



Trim options (Continued)

Table 1 – 1200 Series – Trim material combinations

Trim type	Plug	Stem	Seat	Cage	Clamp	Retainer
Contoured/ Micro spline	316	316 / 17-4 PH	316	-	316 + Alloy 6*	-
	316		316 + PTFE	-	316 + Alloy 6*	316
	316 Hard Faced SA		316 Hard Faced SA	-	316 + Alloy 6*	-
	316 Hard Faced FC		316 Hard Faced FC	-	316 + Alloy 6*	-
Cage guided	316 Hard Faced GA	316 / 17-4 PH	316	316	-	-
	316 Hard Faced GA 316		316 + PTFE	316	-	316
	316 Hard Faced FC		316 Hard Faced FC	316	-	-

SA - Seat Area, FC - Full Contoured, GA - Guide Area. Trim parts are also available in Duplex, Super duplex or Inconel. Soft seat option is not available with micro spline trim. *Hard facing in Clamp is not available with micro spline trim.

Gland packing options

Variety of packings are available to suit wide ranging requirements of the industry. Most commonly offered packing types include:



PTFE Chevrons

Usually offered as a set of PTFE V-rings, with anti extrusion rings at the ends. May be offered in two sets when used for vacuum service, with inverted V-ring on the top and upright V-ring at the bottom facing the process medium. PTFE Chevrons are preferred for their excellent sealing capability, low friction and cost effectiveness. The operating temperature ranges from -196°C to 232°C.



Graphite packing

These are self lubricating and does not require external lubrication. They are suitable for a wide range of temperatures from -196°C to 450°C. It achieves fugitive emission Class A and Class B as per ISO 15848.



High integrity packing

The packing set consist of two sets of sealing rings and adaptors in cup and cone configuration with varying densities. This arrangement allows selective component compression resulting in effective sealing through out wide ranging temperatures (-196°C to 232°C) and pressures. The packing is also equipped with a spring energized lip seal at the bottom facing the process medium and an anti extrusion ring on the top. It achieves fugitive emission Class B as per ISO 15848.

Hard Facing

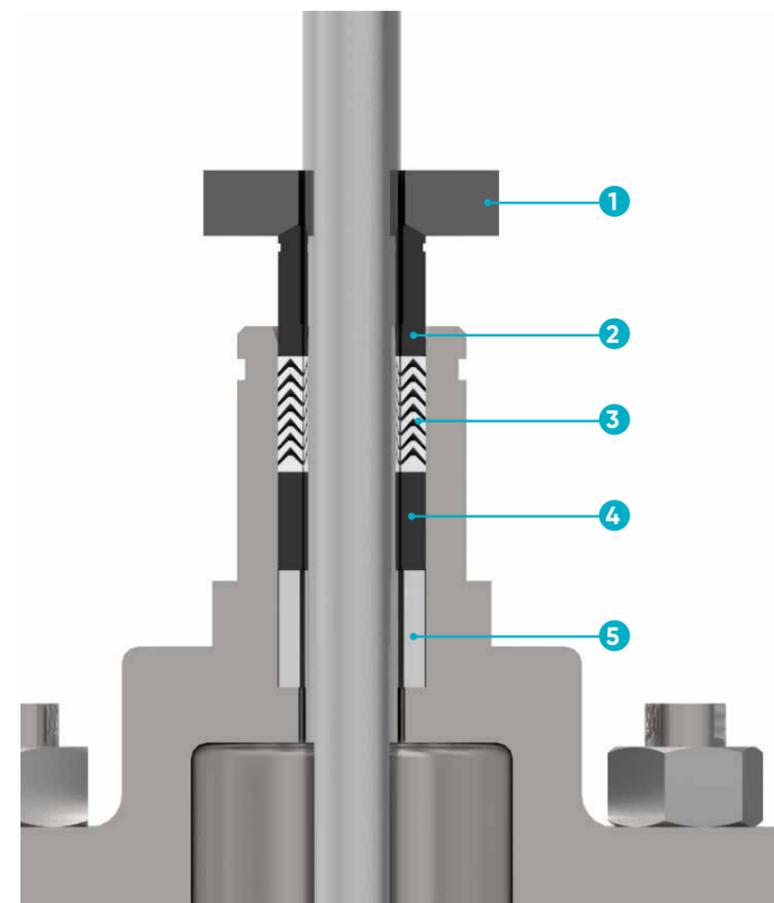
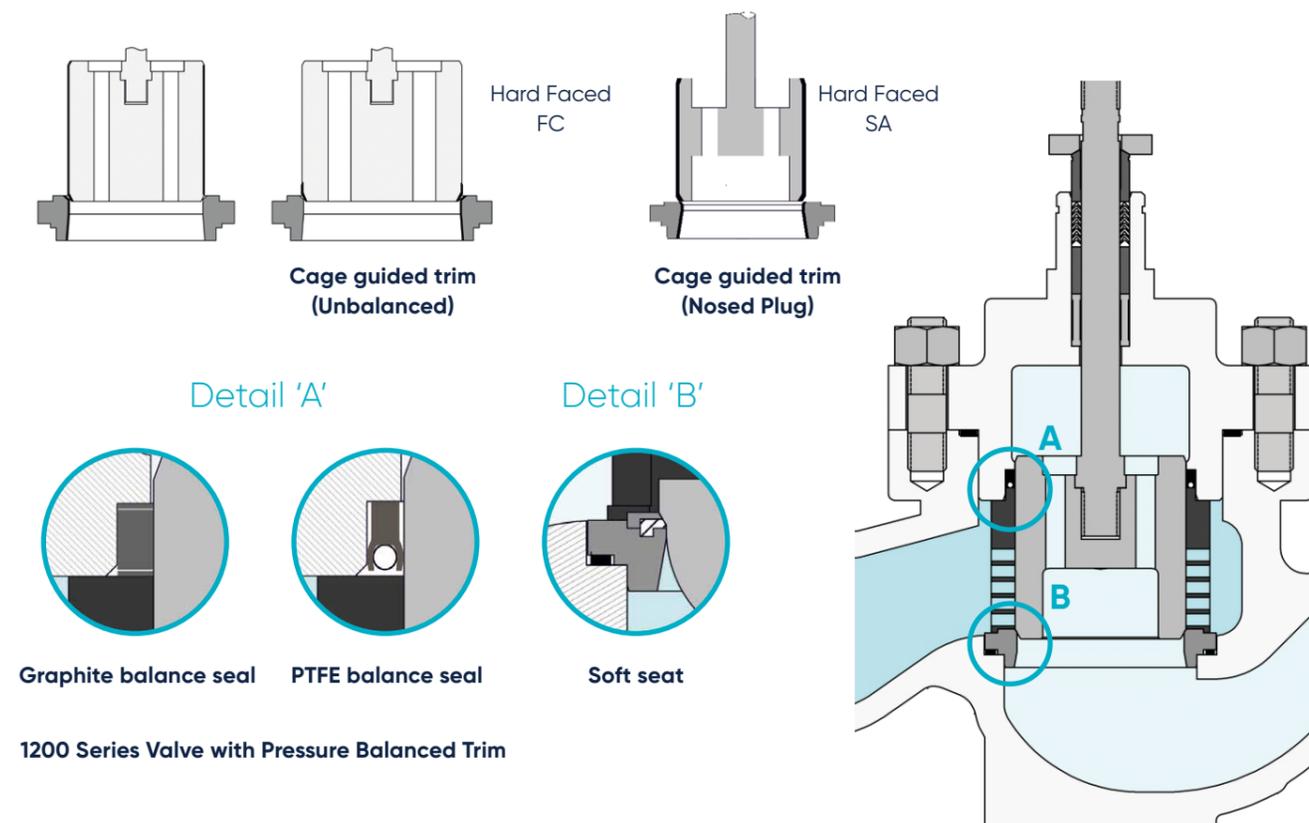


Table 2 – Stuffing box parts and materials

Item No	Component	Material
1	Gland flange	316SS
2	Gland follower	316SS Hard faced
3	Packing rings	Virgin PTFE
		Graphite
		Carbon filled PTFE
		Glass filled PEEK
	PTFE	
4	Packing washer*	316SS & Virgin PTFE
5	Packing Spacer	316SS
6**	Gland Nut	316SS
7**	Gland Stud	316SS

* Note (1): Packing box ring shall be used for higher temperatures.
Note (2): Stuffing Box material is available based on trim material.

** Item No 5, 6 and 7 not shown in this image.
Please refer to 1200 Series brochure.

Flow Coefficients Cv

Table 3 – Microspline (Available in 1 and 1 1/2 inch size only)

Flow Over

Seat Bore (Travel)							
0.250(0.75)						0.625 (0.75)	
0.01	0.05	0.10	0.15	0.25	0.50	0.95	1.45

Table 4 – Contoured

Valve Size (Inch)	Seat Bore (Inch)	Travel (Inch)	Flow Under	
			Linear	EP
1	0.25	0.75	1.60	1.40
	0.375	0.75	3.50	3.50
	0.5	0.75	6.00	6.00
	0.625	0.75	9.50	9.00
	0.75	0.75	11.50	10.50
	0.875	0.75	15	14
	1	0.75	18	15
1.5	0.25	0.75	1.60	1.60
	0.375	0.75	3.50	3.50
	0.5	0.75	6.00	6.00
	0.625	0.75	9.50	9.00
	0.75	0.75	13	12
	0.875	0.75	16	16
	1	0.75	20	19
	1.125	0.75	24	23
	1.25	0.75	27	26
	1.375	0.75	30	27
2	0.25	0.75	1.60	1.60
	0.375	0.75	3.70	3.70
	0.5	0.75	6.20	6.20
	0.625	0.75	9.50	9.00
	0.75	0.75	13	13
	0.875	0.75	17	17
	1	0.75	22	21
	1.5	0.75	46	43
	2	0.75	59	51
	3	1.5	0.75	49
2		0.75	80	54
2.625		1.5	105	95
3		1.5	127	103
4	2.625	1.5	135	127
	3	1.5	159	135

 Soft seat option available

Table 5 – Cage guided - 1CC Cage

Valve Size (Inch)	Seat Bore* (Inch)	Travel (Inch)	Flow Over			Flow Under			
			Linear	EP	Bi-Linear	Linear	EP	Bi-Linear	
1	0.625	0.75	2	2	-	2	2	-	
			4	4	-	4	4	-	
			6	6	7	7	7	8	
	1	0.75	9	8	-	9	8	-	
			12	10	-	13	10	-	
1.5	0.625	0.75	16	12	14	16	12	15	
			2	2	-	2	2	-	
			4	4	-	4	4	-	
	1	0.75	6	6	8	7	7	8	
			9	8	-	10	8	-	
			14	10	-	14	10	-	
			18	12	15	20	13	16	
	1.5	1.125	24	22	-	25	23	-	
			32	27	26	32	28	27	
	2	0.625	0.75	2	2	-	2	2	-
				4	4	-	4	4	-
				6	6	8	7	7	8
		1	0.75	9	8	-	10	8	-
				13	10	-	14	11	-
				19	12	16	21	13	18
36				37	-	38	37	-	
2.25		1.125	44	41	-	47	43	-	
			59	50	50	62	54	53	
3		2.25	1.125	77	61	60	84	63	62
		3.25	1.5	134	111	120	133	117	122
4		3.25	1.5	162	125	142	178	136	157
	4.375	2.25	224	198	201	217	196	203	
6	4.375	2.25	292	240	253	314	270	286	
	6.75	2.25	432	367	376	418	378	381	
8	6.75	2.25	548	440	456	586	476	495	
	8	3.5	781	691	715	712	653	668	
10	8	3.5	802	704	727	849	745	777	
12	8	3.5	951	779	849	982	861	914	
	11	4	1294	1241	1072	1356	1297	1166	

EP - Equal Percentage

1CC - For Cavitating / Flashing service use flow over. Flow under is suitable for aerodynamic noise reduction.

Rated flow capacity for soft seated valves is 98% as that of metal seated valves.

*For soft seated design the seat bore (S) size shall be 'S - 0.069 inches'.

Flow Coefficients Cv (Continued)

Table 6 – Cage guided – Ported Cage (Flow Over)

Valve Size (inch)	Seat Bore (Inch)	Travel (Inch)	Plug OD (Inch)	Stem Dia (Inch)	Linear	EP
2	2.25	1.5	2.325	0.75	79	71
3	2.25	1.5	2.325	0.75	103	89
	3.25	1.5	3.325	0.75/1.06	148	121
4	3.25	1.5	3.325	0.75/1.06	183	139
	4.375	2.5	4.450	1.06/1.5	257	214
6	4.375	2.5	4.450	1.06/1.5	327	284
	6.75	2.5	6.825	1.06/1.5	465	405
8	6.75	2.5	6.825	1.06/1.5	642	537
	8	3.5	8.075	1.5	835	749
10	8	3.5	8.075	1.5	941	834
12	8	3.5	8.075	1.5	1058	940
	11	4	11.075	1.5	1476	1327

Table 7 – Cage guided – ICC Cage

Valve Size (inch)	Seat Bore (Inch)	Travel (Inch)	Plug OD (Inch)	Stem Dia (Inch)	Linear		EP		Bi Linear	
					FO	FU	FO	FU	FO	FU
2	2.25	1.5	2.325	0.75	66	68	54	57	56	59
3	2.25	1.5	2.325	0.75	88	99	63	67	72	80
	3.25	1.5	3.325	0.75/1.06	134	133	111	117	120	122
4	3.25	1.5	3.325	0.75/1.06	162	178	125	136	142	157
	4.375	2.5	4.450	1.06/1.5	233	221	211	201	214	207
6	4.375	2.5	4.450	1.06/1.5	305	321	260	291	274	300
	6.75	2.5	6.825	1.06/1.5	442	434	398	399	404	399
8	6.75	2.5	6.825	1.06/1.5	562	588	482	524	500	540
	8	3.5	8.075	1.5	781	712	691	653	715	668
10	8	3.5	8.075	1.5	802	849	704	745	727	777
12	8	3.5	8.075	1.5	951	982	779	861	849	914
	11	4	11.075	1.5	1294	1356	1241	1297	1072	1166

FO – Flow Over FU – Flow Under EP – Equal Percent

Table 8 – Cage guided – 2CC Cage

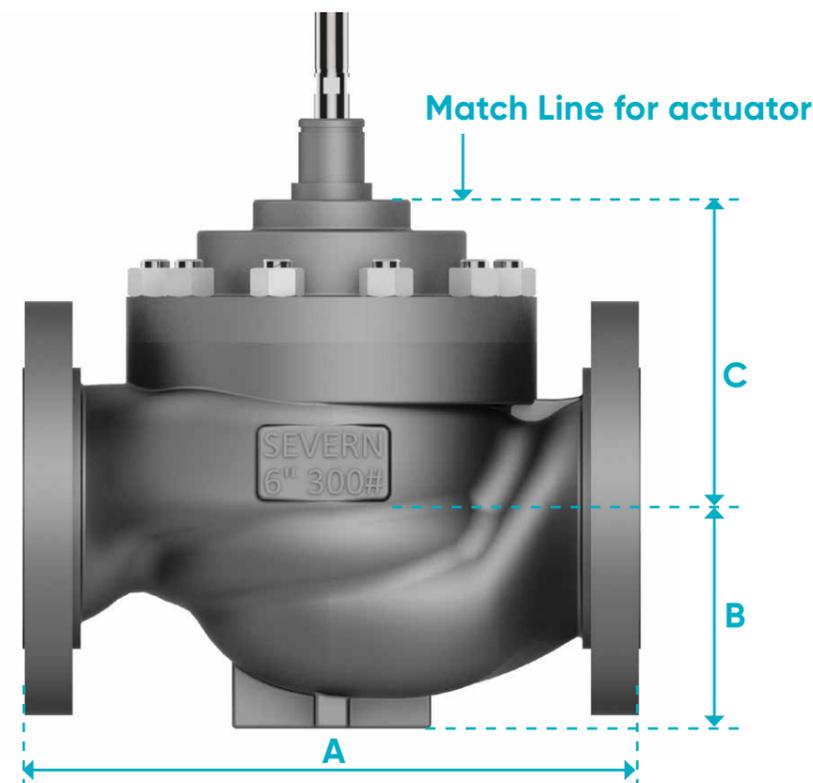
Valve Size (inch)	Seat Bore (Inch)	Travel (Inch)	Plug OD (Inch)	Stem Dia (Inch)	Linear		Bi Linear	
					FO	FU	FO	FU
2	2.25	1.5	2.325	0.75	33	28	30	26
3	2.25	1.5	2.325	0.75	43	34	36	32
	3.25	1.5	3.325	0.75/1.06	72	61	62	52
4	3.25	1.5	3.325	0.75/1.06	75	64	69	54
	4.375	2.5	4.450	1.06/1.5	141	122	124	106
6	4.375	2.5	4.450	1.06/1.5	170	153	145	125
	6.75	2.5	6.825	1.06/1.5	261	215	225	189
8	6.75	2.5	6.825	1.06/1.5	286	242	243	204
	8	3.5	8.075	1.5	497	421	418	352
10	8	3.5	8.075	1.5	501	436	418	362
12	8	3.5	8.075	1.5	558	473	450	370
	11	4	11.075	1.5	812	721	650	605

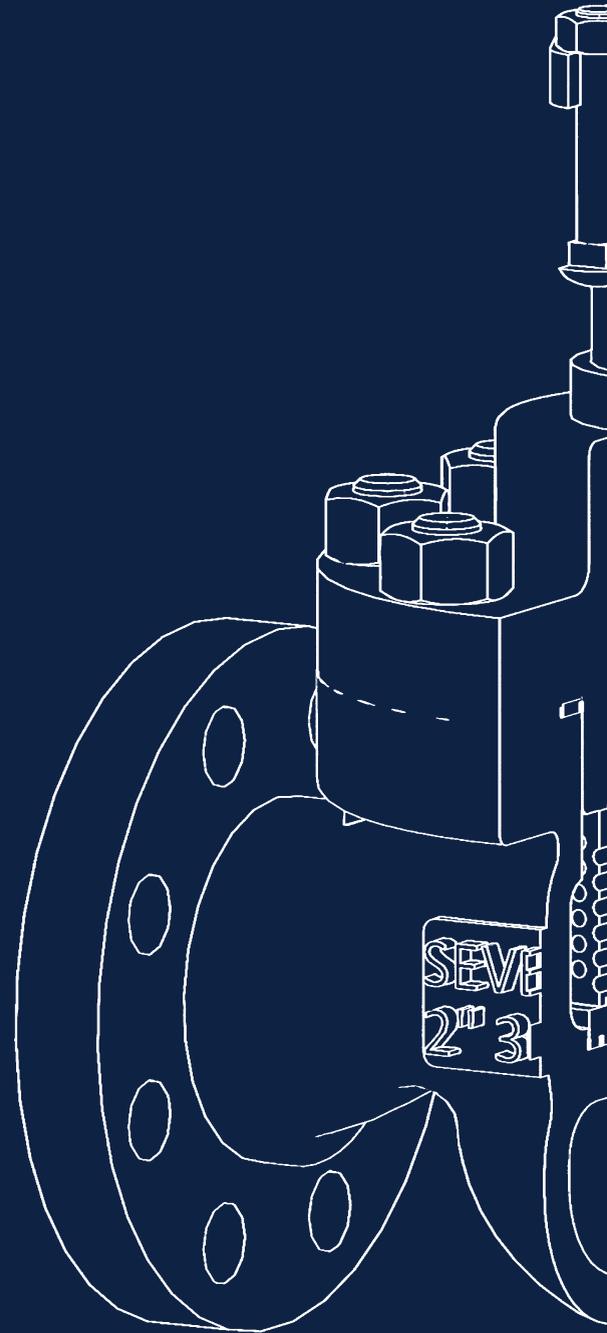
Dimensions and weights

Table 9 – Dimensions and weights

Valve size	Seat Bore	Stem dia	DIM A			DIM B			DIM C	Approx. weight (kg)		
			150#	300#	600#	150#	300#	600#		Bal	150#	300#
2	2.25	0.75	254	267	286	76	83	83	158	29	30	37
3	2.25	0.75	298	318	337	95	105	105	143	37	43	52
	3.25	0.75/1.06				102	111	111	170	46	53	62
4	3.25	0.75/1.06	352	368	394	121	133	143	170	61	74	95
	4.375	1.06				121	133	143	230	75	88	117
6	4.375	1.06	451	473	508	149	171	187	216	101	130	184
	4.375	1.5				149	171	187	263	113	142	195
	6.75	1.06				149	168	187	250	145	176	238
	6.75	1.5				149	168	187	273	152	183	241
8	6.75	1.06	543	568	610	181	200	216	281	195	242	344
	6.75	1.5				181	200	216	305	202	281	351
10	8	1.5	673	708	752	197	203	222	342	230	282	396
	8	1.5				213	232	264	364	275	366	548
12	8	1.5	737	775	819	254	270	279	330	407	509	736
	11	1.5				254	270	286	393	448	590	899

Note (1): Consider the unit as "mm" when the same is not indicated. Consider the unit as "mm" when the same is not indicated.
 Note (2): Actual weight will be ± 5% of given weight in above table.





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