Simple in construction and very stable in operation due to heavy top guiding, the single seated design is the most versatile and hence most sought after control valve for meeting the majority of applications in the process industries. The irreversible body ensures trouble-free operation even while handling fluids with suspended particles. Specially designed trims optionally available cater to specific tasks of bubble tight closure and noise reduction. Available in a variety of material combinations, VST remains the best selection.

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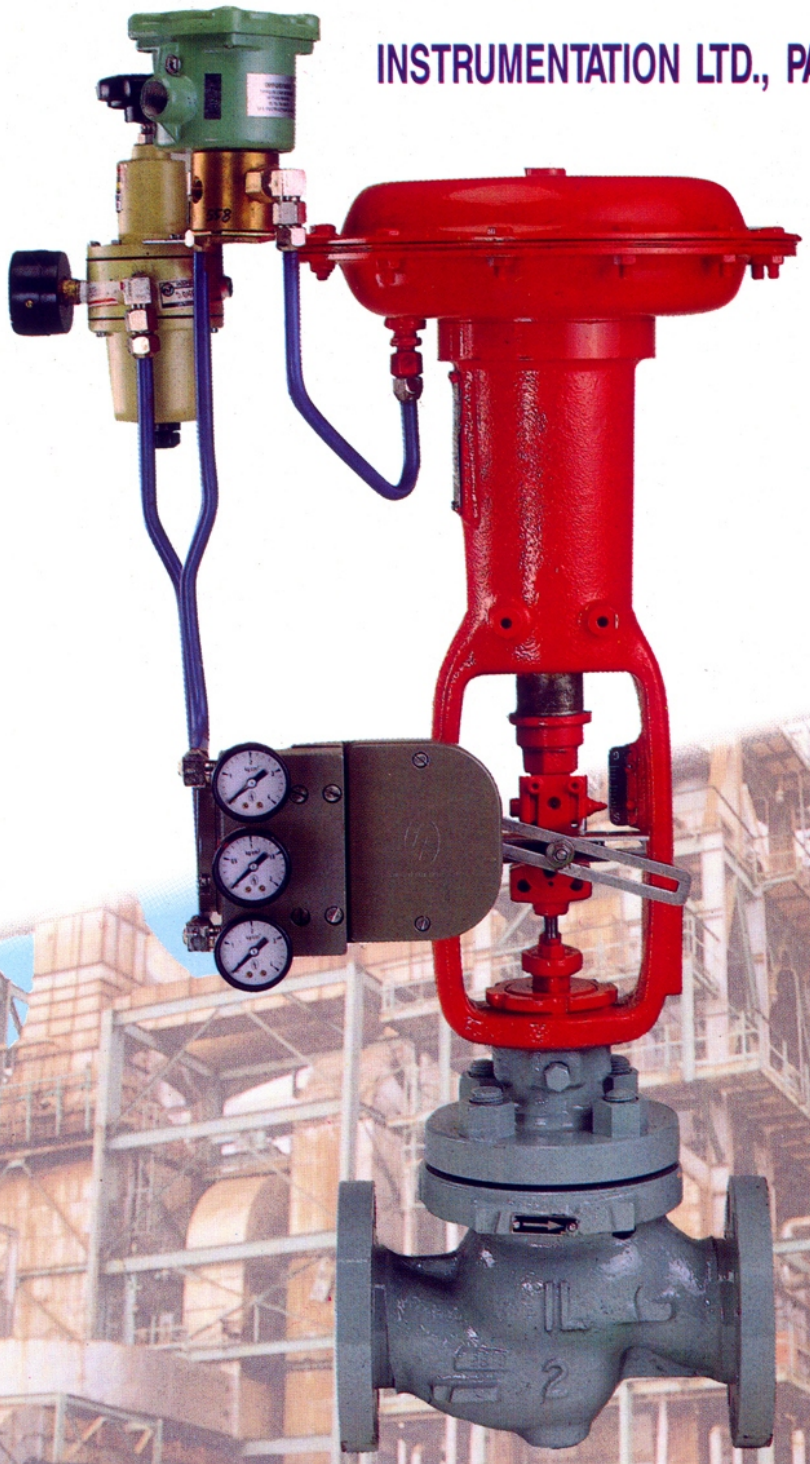


VST

TOP GUIDED SINGLE SEATED VALVE

I. FEATURES

VST models are available with three types of combinations.
■ Normal trim for non-cavitating service ■ Cascaded trim for cavitating service ■ VST Special trim for valve noise reduction.

SPECIFICATIONS	TYPE OF VALVE ASSEMBLY	Single seated, Globe valve with top guided plug and Single seated cage guided low noise valve for VST Special
	PRESSURE RATING	ANSI 150, 300, 600, 900, 1500, 2500 Allowable pressure for Bellow Sealed valve is 26 Kg/Cm^2 at 300^0 C and 40 Kg/Cm^2 at ambient temperature.
	NOMINAL SIZE (INCHES)	1, 1½, 2, 2½, 3, 4, 5, 6, 7, 8, 10, 12 & 14
	END CONNECTION	Flanged End (RF, FF, RJ & TG), Socket Welded and Butt Welded (Also screwed end for 1 Inch)
	SERVICE TEMP, RANGE	-150^0 C to 600^0 C (Max 200^0 C for soft seat) -30^0 C to 300^0 C For Bellow sealed valves
STANDARD MATERIALS	VALVE BODY	Carbon Steel ASTM A216 WCB Stainless Steel ASTM A351 CF8, CF8M Alloy Steel A217 WC6, WC9 Hastalloy & Alloy 20 Other materials against specific request.
	TRIM	Refer table 5
	PACKINGS	Teflon, Asbestos, Teflon Impregnated Asbestos, Graphited Asbestos & Graphoil. Other materials on request
	GASKET	Stainless Steel, Monel, Spiral wound etc. Other materials on request
PERFORMANCE	FLOW CHARACTERISTICS	**Standard trim** Linear, Equal Percentage and ON-OFF Other characteristics against specific request. **Cascade trim** Modified linear **VST Special trim** Low Noise (Mod. Linear)
	RANGEABILITY	30:1 (Higher rangeabilities are available against specific requests)
	LEAKAGE AT FULL CLOSURE (% OF Cv) AS PER ANSI B16. 104.	Soft Seat : 0.00001% (Class VI) Metallic Seat *Contoured : Class IV (0.01%) *QC On-Off (Q0) Class IV On-Off plug with stellite : 0.00001% or less *Class V optional with stellited trim
	BONNET	Plain, Finned, Extension and Bellows Bellow sealed valves are available only with actuators up to VA5
	ACTION — HYSTERESIS	With Positioner: 1% FS or less Without postioner: 3% FS or less
	ACTION — LINEARITY	With Positioner: ± 1% or less Without postioner: ± 5% FS or less
	MAX. ALLOWABLE PRESSURE DROP	Diaphragm Type, Pneumatic Single Piston or Double piston type actuators. Refer Tables 6 to 19. The values given are for.leakage class IV. For higher pressure drop contact Manufacturer. Electrical Actuators available against request.
	CV VALUE	Refer Tables 1 to 4
OPTIONS	TUBING	Copper Tubing (Std 8 / 10mm O D Without / with PVC Coating). SS Tubing for Copper prohibition (Std 8mm O D) Air Connection : *¼" NPT (STD) for VA1-VA3 actuators. ½" NPT (STD) for VA4 & VA5 actuators *½" NPT on request.
	ACCESSORIES	Valves with Steam Jacketing with a max. rating of ANSI 300 for the Jacket, can be provided. Manual Actuators. Side or Top mounted Handwheel. Pneumatic & Electro-Pneumatic Positioners. I. P. Converters, Solenoid valve, Air Filter Regulator, Air lock relay, Position Transmitters Limit Switches, Volume Boosters etc.

VALVE ASSEMBLY

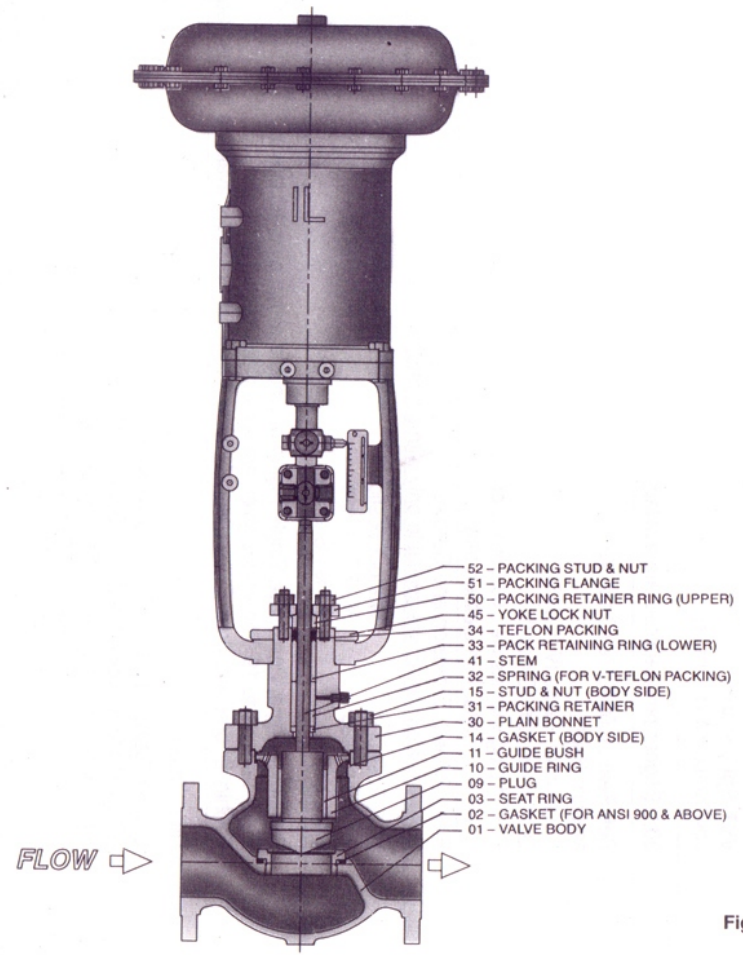


Fig. 1

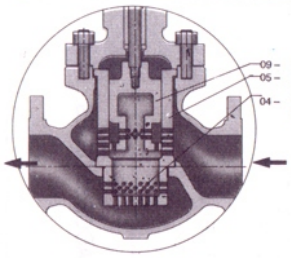


Fig. 2

ASSEMBLY WITH VST SPECIAL TRIM
ANSI 150 - 600

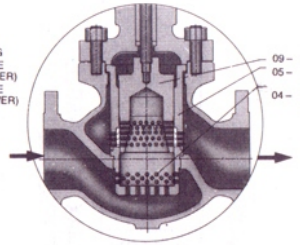


Fig. 3

ASSEMBLY WITH VST SPECIAL TRIM
ANSI 900 - 2500

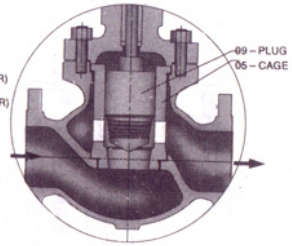
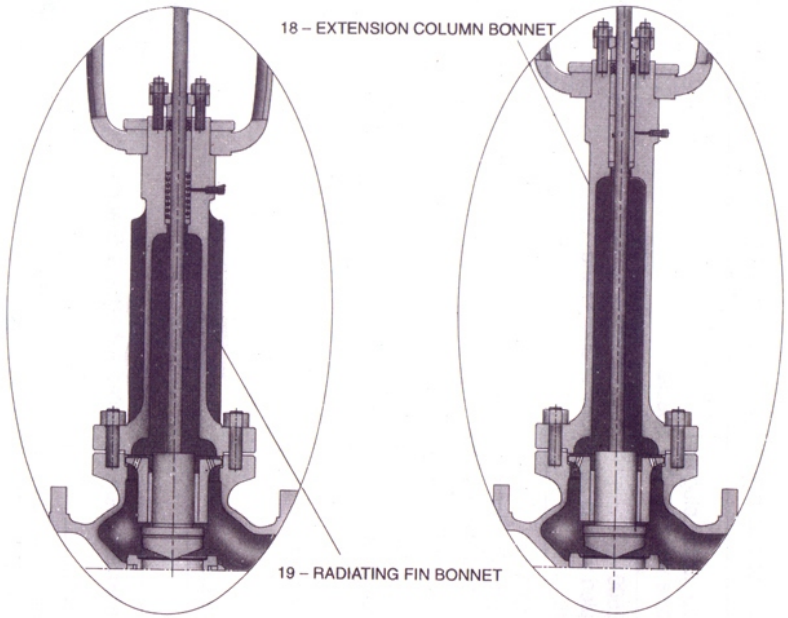


Fig. 4

ASSEMBLY WITH CASCADED TRIM

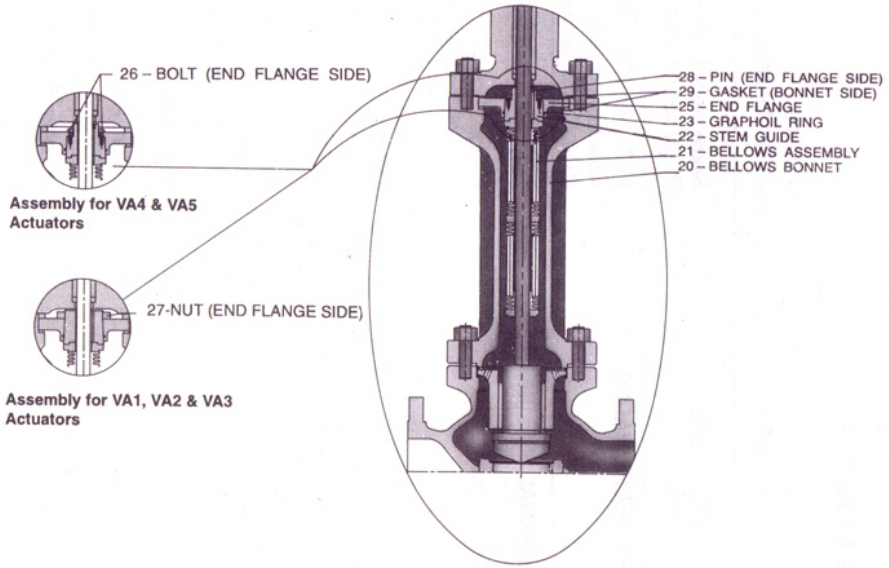


VALVE ASSEMBLY WITH
RADIATING FIN BONNET
(FOR -30° TO 650°C)

Fig. 5

VALVE ASSEMBLY WITH
EXTENSION COLUMN BONNET
(FOR O° TO –195°C)

Fig. 6



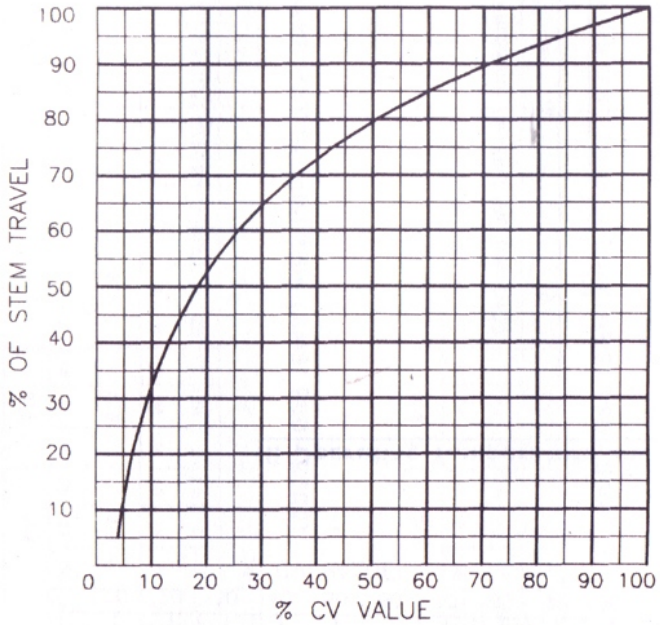
BELLOW SEAL VALVE ASSEMBLY
(FOR -30° TO 300°C)

Fig. 7

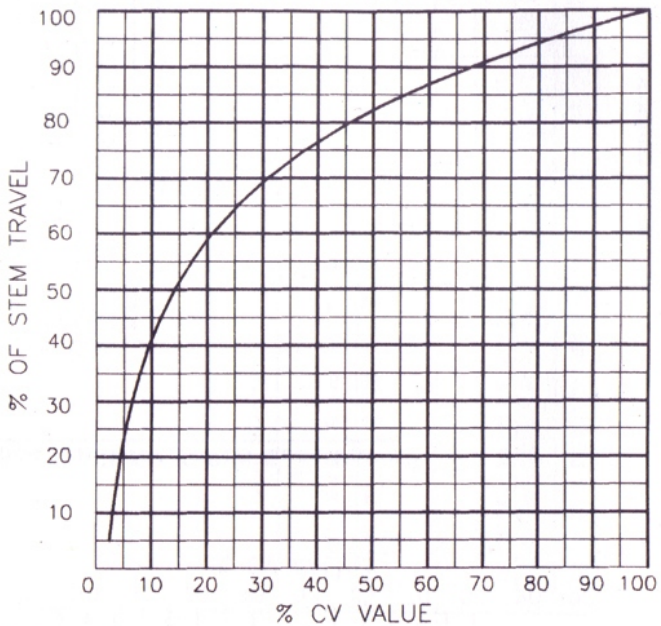
II. FLOW CHARACTERISTICS

II1. Flow Characteristics for VST trim

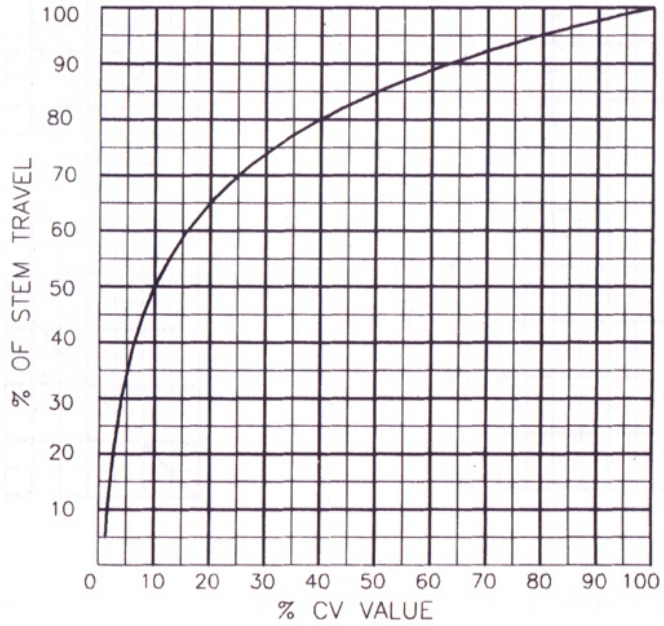
Equal Percentage Characteristics (Rangeability 30:1)



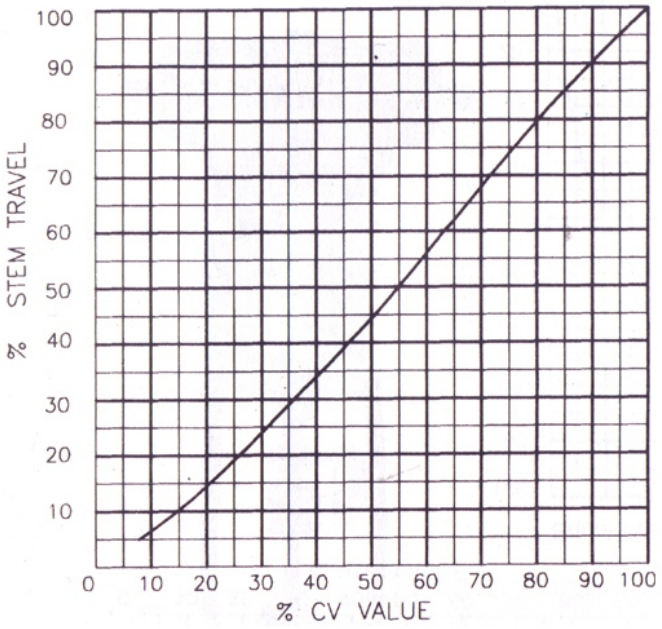
Equal Percentage Characteristics (Rangeability 50:1)



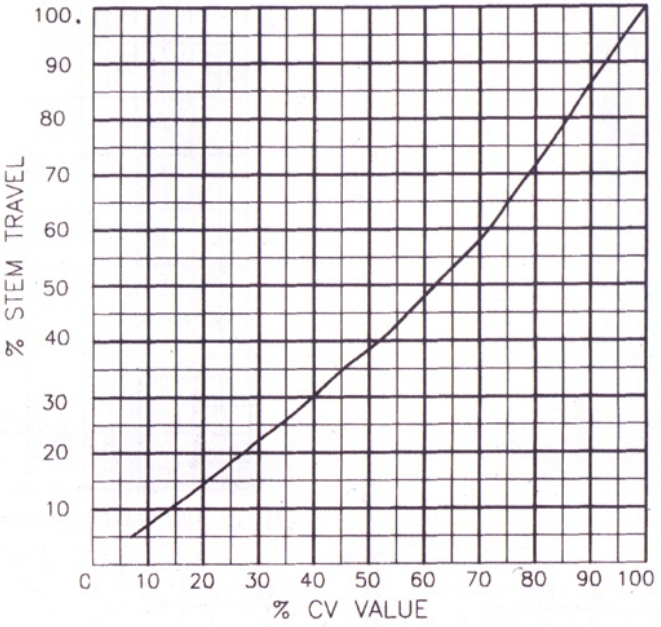
Equal Percentage Characteristics (Rangeability 100:1)



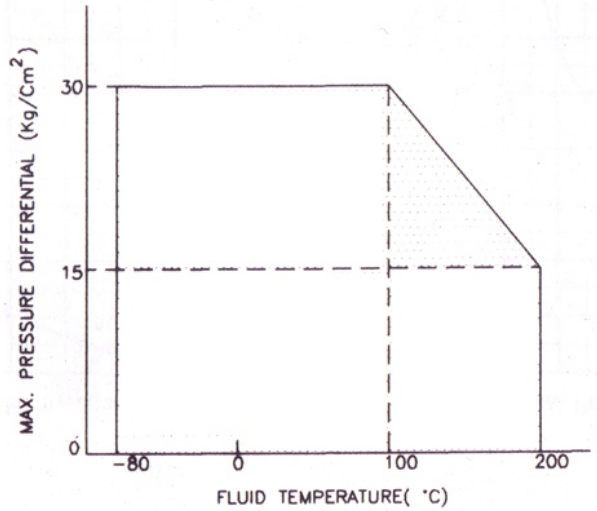
II 2. Flow Characteristics for Cascaded trim



II 2. Flow Characteristics for VST Special trim



III Operating Temperature and pressure Difference Limit for Teflon Seat Valve



IV. FLOW COEFFICIENT Cv WITH STEM TRAVEL

IV1. Valves with Standard Trim

Table 1

VALVE SIZE (Inch)	1	1½			2			2½			3			4			5			6			8			10			12			14		
PORT SIZE (Inch)		1	1¼	1½	1¼	1½	2	1½	2	2½	2	2½	3	2½	3	4	3	4	5	4	5	6	5	6	8	6	8	10	8	10	12	10	12	14
RATED Cv VALUE (ANSI 150-600)		11	17	24	17	24	44	24	44	68	44	68	99	68	99	175	99	175	275	175	275	395	275	395	640	395	640	1000	640	1000	1440	1000	1440	1960
STEM TRAVEL(mm) LINEAR & EQUAL %		25			25			37.5			37.5			37.5			50			50			75			100			100			100		
STEM TRAVEL(mm) ON-OFF		14.3			14.3			25			25			25			37.5			37.5			50			75			75			75		
RATED Cv VALUE (ANSI 900-1500)	Refer Note	10	14	21	14	21	39	21	39	56	39	56	83	56	83	144	83	144	210	144	210	315	-	-	-	-	-	-	-	-	-	-	-	-
RATED Cv VALUE (ANSI 2500)	Refer Note	-	10	14	10	14	25	14	25	39	25	39	56	39	56	91	56	91	144	91	144	210	-	-	-	-	-	-	-	-	-	-	-	-
STEM TRAVEL (mm)	14.3	25			25			37.5			37.5			37.5			50			50			-			-			-			-		

Note : For 1" size, Cv of 0.25, 0.4, 0.63, 1.0., 1.6, 2.5, 4.0, 6.3 and 10 are available.

IV2. Valves with CascadedTrim

Table 2

VALVE SIZE (Inch)	1*	1½	2	2½	3	4
RATED Cv VALUE (ANSI 150-2500)	0.25	2.50	6.30	17.0	17.0	24.0
	0.40	4.00	11.0	24.0	24.0	30.0
	0.63	6.30			30.0	36.0
	1.0	11.0				44.0
	1.25					
	1.60					
	2.50					
	4.00					
STEM TRAVEL (mm.)	25	25	25	37.5	37.5	37.5

*Applicable for high pressure (900 ~ 2500) valves only

IV.3.1 Valves with VST Special Trim (ANSI 150 - 600)

Table 3

VALVE SIZE (Inch)	1½			2			2½			3			4			6			8			10			12		
PORT SIZE (Inch)	1	1¼	1½	1¼	1½	2	1½	2	2½	2	2½	3	2½	3	4	4	5	6	5	6	8	6	8	10	8	10	12
RATED Cv VALUE (ANSI 150 - 600)	-	-	13	-	13	24	13	24	37	24	37	54	37	54	96	96	150	210	150	210	380	210	380	600	380	600	860
STEM TRAVEL (mm)	25			25			37.5			37.5			37.5			50			75			100			100		

IV.3.2 Valves with VST Special Trim (ANSI 900 - 2500)

Table 4

VALVE SIZE (Inch)	1½			2			2½			3			4			6			8			10			12		
PORT SIZE (Inch)	1	1¼	1½	1¼	1½	2	1½	2	2½	2	2½	3	2½	3	4	4	5	6	5	6	8	6	8	10	8	10	12
RATED Cv VALUE (ANSI 900 - 1500)	-	-	14	-	14	25	14	25	39	25	39	56	39	56	91	91	144	210	144	210	365	210	365	580	365	580	820
STEM TRAVEL (mm)	25			25			37.5			37.5			37.5			50			75			100			100		
RATED Cv VALUE (ANSI 2500)	-	-	10	-	10	14	10	14	25	14	25	39	25	39	56	56	91	144	91	144	210	144	210	365	210	365	580
STEM TRAVEL (mm)	25			25			37.5			37.5			37.5			50			50			75			75		

Note: Flow coefficient Cv other tabulated can also be offered to suit specific flow conditions

V. TRIM MATERIAL SELECTION

Table 5

TRIM COMBINATION NO.	TRIM DESIGNATION	PLUG	CAGE	APPLICABLE TEMP. RANGE (°C)	STANDARD TRIM	CASCADED TRIM	VST (Spl.) TRIM
1	SS 304	SS 304	SS 304	– 195 to 300	O		
2	SS 304 St. Seat	SS 304 St. Seat	SS 304 St. Seat	– 195 to 425	O		
3	SS 304 St. Sheath	SS 304 St. Sheath	SS 304 St. Sheath	– 195 to 600	O		
4	SS 304 Teflon Ins.	SS 304 Teflon Ins.	SS 304	– 70 to 200	O		
5	SS 304L	SS 304L	SS 304L	– 20 to 300	O		
6	SS 316	SS 316	SS 316	– 195 to 300	O		
7	SS 316 St. Seat	SS 316 St. Seat	SS 316 St. Seat	– 195 to 425	O		O
8	SS 316 St. Sheath	SS 316 St. Sheath	SS 316 St. Sheath	– 195 to 650	O		
9	SS 316 St. Chrome	SS 316 St. Chrome	SS 316 St. Chrome	– 30 to 590			O
10	SS 316 Teflon Ins.	SS 316 Teflon Ins.	SS 316	– 70 to 200	O		
11	SS 316L	SS 316L	SS 316L	– 195 to 300	O		
12	SS 316L Stellited	SS 316L St. Seat	SS 316L St. Seat	– 195 to 425	O		
16	SS 440C	SS 440C	SS 440C	– 30 to 425	O	O	
17	MONEL	K. MONEL	K. MONEL	– 195 to 300	O		
18	Hastalloy B	Hastalloy B	Hastalloy B	– 195 to 370	O		
19	Hastalloy C	Hastalloy C	Hastalloy C	– 195 to 450	O		
20	Titanium	Titanium	Titanium	– 195 to 450	O		
21	Alloy 20	Alloy 20	Alloy 20	– 40 to 300	O		
22	SS 420 C	SS 420 C	SS 420 C	– 30 to 425	O		

Note : Other material combination can be offered on request.

VI. MAXIMUM PRESSURE DIFFERENTIAL

VI.1. Metallic Seat Valve (ANSI 150 - 600)

VI.1.1. Direct Action (Air to close)

Table 6

ACTUATOR MODEL	AIR TO DIAPHRAGM Kgf/Cm²	SPRING RANGE Kg/Cm²	WITH OR WITHOUT POSITIONER	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING PORT SIZE (Inch)											
				1	1¼	1½	2	2½	3	4	5	6	8	10	12
VA1D	1.2	0.2-1.0	X	7.5	4.7	3.1	1.8								
	1.4	0.2-1.0	O	19	12	7.9	4.7								
	2.6	0.2-1.0	O	95	51	40	23								
VA2D	1.2	0.2-1.0	X	10	6.8	4.5	2.6	1.6	1.1	0.6					
	1.4	0.2-1.0	O	27	17	11	6.8	4.2	3.0	1.7					
	2.6	0.2-1.0	O	100	73	57	34	21	15	8.5					
VA3D	1.2	0.2-1.0	x	17	11	7.4	4.4	2.7	1.9	1.1	0.7	0.4			
	1.4	0.2-1.0	O	45	28	19	11	7.0	5.0	2.8	1.8	1.2			
	2.6	0.2-1.0	O	100	100	95	57	34	25	14	9.1	6.3			
VA4D	1.2	0.2-1.0	x				6	3.9	2.8	1.6	1.0	0.7	0.4		
	1.4	0.2-1.0	O				15	9.8	7.0	3.9	2.5	1.7	0.99		
	2.6	0.2-1.0	O				79	49	35	19	12	8.8	4.9		
VA5D	1.2	0.2-1.0	x				8	5	3.5	2	1.4	0.95	0.5	0.3	0.2
	1.4	0.2-1.0	O				21	13	9	5	3.4	2.4	1.3	0.87	0.6
	2.6	0.2-1.0	O				100	67	48	27	17	12	6.8	4.3	3.0

X-WITHOUT POSITIONER 0-WITH POSITIONER

VI.1.2 Reverse Action (Air to open)

Table 7

ACTUATOR MODEL	AIR TO DIAPHRAGM Kgf/Cm²	SPRING RANGE Kg/Cm²	WITH OR WITHOUT POSITIONER	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING PORT SIZE (Inch)											
				1	1¼	1½	2	2½	3	4	5	6	8	10	12
VA1R	1.4	0.2-1.0	X OR O	7.5	4.7	3.1	1.8								
		0.4-1.2	P	22.5	12	9.4	5.6								
	2.8	0.8-2.4	O	52.5	28	22	13								
VA2R	1.4	0.2-1.0	X OR O	10	6.8	4.5	2.6	1.6	1.1	0.6					
		0.4-1.2	P	32	20	13	8.0	5.0	3.6	2.0					
	2.8	0.8-2.4	O	75	46	31	18	10	8.3	4.7					
VA3R	1.4	0.2-1.0	X OR O	17	11	7.4	4.4	2.7	1.9	1.1	0.7	0.4			
		0.4-1.2	P	53	34	22	13	8.2	5.9	3.3	2.1	1.5			
	2.8	0.8-2.4	O	100	77	52	31	19	13	7.8	5.0	3.4			
VA4R	1.4	0.2-1.0	X OR O				6	3.8	2.7	1.5	1.0	0.6	0.4		
		0.4-1.2	P				18	11	8.3	4.7	3.0	2.0	1.1		
	2.8	0.8-2.4	O				43	27	19	10	7	4.8	2.7		
VA5R	1.4	0.2-1.0	X OR O				8	5	3.5	2	1.4	0.95	0.5	0.3	0.2
		0.4-1.2	P				24	14.5	10	6	4.1	2.8	1.6	1.0	0.7
	2.8	0.8-2.4	O				58	35	25	14	9.6	6.6	3.7	2.4	1.7
VA6R	5.0	1.9-4.0	O				100	81	58	32	15	10			

X-WITHOUT POSITIONER 0-WITH POSITIONER P-PREFERABLY POSITIONER

Note : The Pressure Differential limits for 0.4 - 2.0 Kg/Cm² spring range are the same as 0.4 -1.2 Kg/Cm²

VI.2. Metallic Seat Valve (ANSI 900 - 2500)

VI.2.1. Direct Action (Air to close)

Table 8

RATING	ACTUATOR MODEL	AIR TO DIAPHRAGM Kg/Cm²	SPRING RANGE Kg/Cm²	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING PORT SIZE (Inch)										
				Cv=4 & Below	Cv=6.3	Cv=10	Cv = 14	1½	2	2½	3	4	5	6
ANSI 900-1500	VA3D	2.8	0.2-1.8	250	150	113	69	47	28	17				
		2.6	0.2-1.0	250	234	175	108	73	44	27				
	VA4D	2.8	0.2-1.8		210	157	97	66	40	24	18	10		
		2.6	0.2-1.0		250	245	150	102	61	38	27	16		
	VA5D	2.8	0.2-1.8			200	132	90	54	33	24	13	9	6
		2.6	0.2-1.0			250	207	140	84	51	37	21	13	10
ANSI 2500	VA3D	2.8	0.2-1.8	278	150	113	69	69	47	28				
		2.6	0.2-1.0	420	234	175	108	108	73	44				
	VA4D	2.8	0.2-1.8	388	210	157	97	97	66	40	24	18		
		2.6	0.2-1.0	420	337	245	150	150	102	61	38	27		
	VA5D	2.8	0.2-1.8		288	215	132	132	90	54	33	24	13	9
		2.6	0.2-1.0		420	344	207	207	140	84	51	37	21	13

VI.2.2. Reverse Action (Air to open)

Table 9

RATING	ACTUATOR MODEL	AIR TO DIAPHRAGM Kg/Cm²	SPRING RANGE Kg/Cm²	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING PORT SIZE (Inch)										
				Cv=4 & Below	Cv=6.3	Cv=10	Cv=14	1½	2	2½	3	4	5	6
ANSI 900-1500	VA3R	2.6	04-2.0	70	50	37	23	15	9	5				
		2.8	0.8-2.4	165	115	85	55	35	22	13				
	VA4R	2.6	04-2.0	123	65	50	40	22	13	8	6	3		
		2.8	0.8-2.4	250	150	120	75	50	30	20	13	7		
	VA5R	2.6	04-2.0	168	91	55	45	30	18	11	8	4	3	2
		2.8	0.8-2.4	250	230	130	105	70	40	25	18	10	6	4
	VA6R	5.0	1.9-4.0		250	250	302	201	117	69	48	25	15	10
ANSI 2500	VA3R	2.6	04-2.0	70	50	37	23	23	15	9				
		2.8	0.8-2.4	165	115	85	55	55	35	22				
	VA4R	2.6	04-2.0	123	65	50	40	40	22	13	8	6		
		2.8	0.8-2.4	310	150	120	75	75	50	30	20	13		
	VA5R	2.6	04-2.0	168	91	55	45	45	30	18	11	8	4	3
		2.8	0.8-2.4	420	230	130	105	105	70	40	25	18	10	6
	VA6R	5.0	1.9-4.0		420	420	302	302	201	117	69	48	25	15

VI.2.3. Springless Piston Cylinder Actuator with Positioner

Table 10

Action : Direct/Reverse	RATING	ACTUATOR MODEL	SUPPLY PRESSURE Kg/Cm²	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING PORT SIZE (Inch)										
				1½	2	2½	3	4	5	6	8	10	12	14
	ANSI 150-600	DPA1	5			-	-	-	100	96	52	32	20	15
		SPA1	5			-	-	100	71	48	26	15	10	7
		SPA2	5			100	100	71	50	30	16	9	6	4
	ANSI 900-1500	DPA1	5	-	-	-	250	230	142	96				
		SPA1	5	-	-	250	200	115	71	48				
		SPA2	5	-	250	185	130	71	50	30				
	ANSI 2500	DPA1	5	-	-	-	420	400	230	140				
		SPA1	5	-	-	420	285	200	115	70				
		SPA2	5	420	420	300	185	130	72	45				

Note : The max. operating pressure is 250 250 Kg/Cm² for rating ANSI 900-1500 and 420 Kg/Cm² for rating ANSI 2500

When inlet pressure is greater than differential pressure with a valve, use the inlet pressure for actuator sizing

VI.3. Teflon Seated Valve (ANSI 150 - 600)

VI.3.1. Direct Action (Air to close)

Table 11

ACTUATOR MODEL	AIR TO DIAPHRAGM Kgf/Cm²	SPRING RANGE Kg/Cm²	WITH OR WITHOUT POSITIONER	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING PORT SIZE (Inch)										
				1	1¼	1½	2	2½	3	4	5	6	8	10	12
VA1D	1.2	0.2-1.0	X	5.5	2.6	1.2	0.1								
	1.4	0.2-1.0	O	15.9	9.7	6.3	3.3								
	2.6	0.2-1.0	O	30	30	30	19.4								
VA2D	1.2	0.2-1.0	X	9.9	5.7	3.4	1.5	0.5							
	1.4	0.2-1.0	O	19.9	15.9	10.7	6.1	3.4	2.2	0.9					
	2.6	0.2-1.0	O	30	30	30	27.9	18.7	15	8.3					
VA3D	1.2	0.2-1.0	x			8.2	4.6	2.4	1.5	0.5					
	1.4	0.2-1.0	O			20	12	7.2	5.0	2.5	1.4	0.8			
	2.6	0.2-1.0	O			30	30	30	23.4	14.8	9.4	6.4			
VA4D	1.2	0.2-1.0	x					4.3	2.8	1.2	0.8	0.3			
	1.4	0.2-1.0	O					11	7.8	4.1	2.5	1.6	0.6		
	2.6	0.2-1.0	O					30	30	21	13.6	9.4	5.1		
VA5D	1.2	0.2-1.0	x							2.6	1.2	0.7			
	1.4	0.2-1.0	O							6.2	3.8	2.5	1.2	0.6	0.3
	2.6	0.2-1.0	O							27	19	14	7.3	4.6	3.1

X-WITHOUT POSITIONER 0-WITH POSITIONER

VI.3.2. Reverse Action (Air to open)

Table 12

ACTUATOR MODEL	AIR TO DIAPHRAGM Kgf/Cm²	SPRING RANGE Kg/Cm²	WITH OR WITHOUT POSITIONER	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING PORT SIZE (Inch)										
				1	1¼	1½	2	2½	3	4	5	6	8	10	12
VA1R	1.4	0.2-1.0	X OR O	3.8	1.7	0.6									
		0.4-1.2	P	14.6	8.8	5.6	2.9								
	2.8	0.8-2.4	O	26.7	18.9	15.7	9.2								
VA2R	1.4	0.2-1.0	X OR O	8	4.4	2.5	1.0	0.1							
		0.4-1.2	P	18.6	14.6	9.8	5.5	3.0	1.9	0.7					
	2.8	0.8-2.4	O	30	27.3	20.3	14.6	8.8	6.2	3.2					
VA3R	1.4	0.2-1.0	X OR O			6.7	3.6	1.8	1.0	0.2					
		0.4-1.2	P			18	10	6.6	4.6	2.3	1.2	0.7			
	2.8	0.8-2.4	O			30	22	16.2	11.6	6.4	3.9	2.6			
VA4R	1.4	0.2-1.0	X OR O				4.3	3.4	2.2	0.9	0.4				
		0.4-1.2	P				13.1	10	7.2	3.7	2.2	1.4	0.6		
	2.8	0.8-2.4	O				30	23	17	9.5	5.9	4.0	2.0		
VA5R	1.4	0.2-1.0	X OR O					3.8	2.6	1.4	0.9	0.5			
		0.4-1.2	P					11.4	7.9	4.4	3.5	2.2	1.1	0.5	0.3
	2.8	0.8-2.4	O					26.8	18.6	10.4	8.6	5.8	3.1	1.9	1.2
VA6R	5.0	1.9-4.0	O							25.8	18.2	12.6			

X-WITHOUT POSITIONER 0-WITH POSITIONER P-PREFERABLY POSITIONER

VI.4. On - Off Plug with Stellite Seat Valve (ANSI 150 - 600)

Table 13

	ACTUATOR MODEL	AIR TO DIAPHRAGM Kg/Cm²	SPRING RANGE Kg/Cm²	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING PORT SIZE (Inch)									
				1½	2	2½	3	4	5	6	8	10	12
Direct Action (Air to Close)	VA1D	1.4	0.2-1.0	8.8	6.2								
		2.6	0.2-1.0	23	16								
	VA2D	1.4	0.2-1.0	12	8.9	5.2	3.8	2.2					
		2.6	0.2-1.0	33	23	14	10	6.2					
	VA3D	1.4	0.2-1.0	21	14	8.7	6.4	3.7	2.4	1.7			
		2.6	0.2-1.0	55	39	24	17	10	7.2	5.2			
	VA4D	1.4	0.2-1.0			12	8.9	5.2	4.4	3.2	1.5		
		2.6	0.2-1.0			34	25	14	11	8.0	4.3		
	VA5D	1.4	0.2-1.0			18.7	13.5	7.6	6.9	4.9	2.1	1.7	1.2
		2.6	0.2-1.0			75	54.1	30.4	16	11	5.9	3.9	2.8
Reverse Action (Air Open)	VA1R	1.6	0.4-1.2	4.8	3.3								
		2.8	0.8-2.4	9.5	6.7								
	VA2R	1.6	0.4-1.2	6.8	4.8	3.1	2.3	1.3					
		2.8	0.8-2.4	13	9.7	6.3	4.6	2.7					
	VA3R	1.6	0.4-1.2	11	8.0	5.2	3.8	2.2	1.6	1.1			
		2.8	0.8-2.4	22	16	10	7.6	4.4	3.2	2.3			
	VA4R	1.6	0.4-1.2			7.3	5.3	3.1	2.2	1.6	0.9		
		2.8	0.8-2.4			14	10	6.2	4.4	3.2	1.8		
	VA5R	1.6	0.4-1.2			9.7	6.7	3.8	3.0	2.2	1.2	0.8	0.6
		2.8	0.8-2.4			19.4	13.5	7.6	6.1	4.4	2.5	1.7	1.2
	VA6R	5.0	1.9-4.0			53	39	22	14	10			

VI.5. Valve with Cascaded Trim

Table 14

ACTUATOR MODEL	AIR TO DIAPHRAGM Kg/Cm²	SPRING RANGE Kg/Cm²	PRESSURE DIFFERENTIAL (Kg/Cm²) CORRESPONDING TO VALVE SIZE (Inch) & Cv.																	
			1			1½				2		2½		3			4			
			1.6	2.5	4	2.5	4	6.3	11	6.3	11	17	24	17	24	30	24	30	36	44
VA1D	1.8	0.2-1.0				115	59	24	15											
	2.6	0.2-1.0				249	131	57	37											
VA1R	2.8	0.8-2.4				115	59	24	15											
VA2D	1.8	0.2-1.0				174	90	38	25	38	25	13	7	13	7					
	2.6	0.2-1.0				325	195	86	57	86	57	33	19	33	19					
VA2R	2.8	0.8-2.4				174	90	38	25	38	25	13	7	13	7					
VA3D	1.8	0.2-1.0	301	301	159	301	159	70	46	70	46	26	15	26	15	10	15	10	8	
	2.6	0.2-1.0	325	325	259	325	259	150	100	150	100	58	35	58	35	24	35	24	17	
VA3R	2.8	0.8-2.4	301	301	159	301	159	70	46	70	46	26	15	26	15	10	15	10	6	
VA4D	1.8	0.2-1.0						102	67	102	67	39	23	39	23	16	23	16	11	8
	2.6	0.2-1.0						213	143	213	143	84	51	84	51	36	51	36	25	16
VA4R	2.8	0.8-2.4						102	67	102	67	39	23	39	23	16	23	16	11	8
VA5D	1.8	0.2-1.0						143	95	143	95	55	33	55	33	23	33	23	16	11
	2.6	0.2-1.0						259	198	259	198	117	71	117	71	50	71	50	35	22
VA5R	2.8	0.8-2.4						143	95	143	95	55	33	55	33	23	33	23	16	11
VA6R	5.0	1.9-4.0						259	207	259	207	123	75	123	75	53	75	53	37	29

Note : Pressure differential in Reverse are applicable only for pressure rating ANSI 900-2500

VI.6. Valves with VST Special trims (ANSI 150 - 600)

VI.6.1. Direct Action (Air to close)

Table 15

ACTUATOR MODEL	AIR TO DIAPHRAGM Kgf/Cm²	SPRING RANGE Kg/Cm²	WITH OR WITHOUT POSITIONER	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING VALVE SIZE (Inch)								
				1½	2	2½	3	4	6	8	10	12
VA1D	1.2	0.2-1.0	X	2.5	1.5							
	1.4	0.2-1.0	O	7.0	4.5							
	2.6	0.2-1.0	O	35.5	23.5							
VA2D	1.2	0.2-1.0	X		2.5	1.5	1.0	0.5				
	1.4	0.2-1.0	O		6.5	4.0	3.0	1.5				
	2.6	0.2-1.0	O		34	21	15	8.5				
VA3D	1.2	0.2-1.0	x		4.0	2.5	1.5	1.0	0.3			
	1.4	0.2-1.0	O		11	7	5.0	2.5	0.5			
	2.6	0.2-1.0	O		57	35	25	14	4			
VA4D	1.2	0.2-1.0	x			3.5	2.5	1.5	0.4	0.35		
	1.4	0.2-1.0	O			9.5	7.0	3.5	1.0	1.0		
	2.6	0.2-1.0	O			49	35	19.5	6	4.5		
VA5D	1.2	0.2-1.0	x						0.5	0.5	0.3	0.2
	1.4	0.2-1.0	O						1.5	1.0	0.5	0.5
	2.6	0.2-1.0	O						8	6.5	4	3.0

X-WITHOUT POSITIONER O-WITH POSITIONER

VI.6.2 Reverse Action (Air to Open)

Table 16

ACTUATOR MODEL	AIR TO DIAPHRAGM Kgf/Cm²	SPRING RANGE Kg/Cm²	WITH OR WITHOUT POSITIONER	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING VALVE SIZE (Inch)								
				1½	2	2½	3	4	6	8	10	12
VA1R	1.4	0.2-1.0	X OR O	2.5	1.5							
		0.4-1.2	P	8.5	5.5							
	2.8	0.8-2.4	O	19.5	13							
VA2R	1.4	0.2-1.0	X OR O		2.5	1.5	1.0	0.5				
		0.4-1.2	P		8	4.5	3.5	2				
	2.8	0.8-2.4	O		18.5	11.5	8	4.5				
VA3R	1.4	0.2-1.0	X OR O		4.0	2.5	1.5	1.0	0.3			
		0.4-1.2	P		13	8	5.5	3	1			
	2.8	0.8-2.4	O		31	19	13.5	7.5	2.0			
VA4R	1.4	0.2-1.0	X OR O			3.5	2.5	1.5	0.45	0.4		
		0.4-1.2	P			11.5	8	4.5	1.3	1		
	2.8	0.8-2.4	O			26.5	19	10.5	3	2.5		
VA5R	1.4	0.2-1.0	X OR O						0.6	0.5	0.3	0.2
		0.4-1.2	P						1.7	1.5	1	0.7
	2.8	0.8-2.4	O						4.0	3.5	2.3	1.6
VA6R	5.0	1.9-4.0	O						9.5			

X-WITHOUT POSITIONER O-WITH POSITIONER

Note : For Reduce CV Trim, DP Shutoff to be taken as Valve Size.

Pressure Limits for the spring range 0.4 - 2.0 Kg/Cm² are the same as that for 0.4 - 1.2 Kg/Cm² for reverse actuator.

VI.7. Valves with VST Special trims (ANSI 900 - 2500)

VI.7.1. Direct Action (Air to close)

Table 17

RATING	ACTUATOR MODEL	AIR TO DIAPHRAGM Kg/Cm²	SPRING RANGE Kg/Cm²	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING VALVE SIZE (Inch)									
				1½	2	2½	3	4	5	6	8	10	12
ANSI 900-1500	VA3D	2.8	0.2-1.8	42	25	21	13	8	6	3.5			
		2.6	0.2-1.0	70.5	42	35	22.5	13	10	6			
	VA4D	2.8	0.2-1.8			29.5	18.5	11	8	5	3		
		2.6	0.2-1.0			49.5	31.5	18.5	14	9	5.5		
	VA5D	2.8	0.2-1.8					15	11.5	7	4.5	3	1.5
		2.6	0.2-1.0					25.5	19	12	7.5	5	2.5
ANSI 2500	VA3D	2.8	0.2-1.8	42	25	25	18	11	8	5			
		2.6	0.2-1.0	70.5	42	42	30	18.5	13	8			
	VA4D	2.8	0.2-1.8			35	25	15.5	11	7	3.5		
		2.6	0.2-1.0			59	42	26	18.5	11.5	6		
	VA5D	2.8	0.2-1.8					21.5	15	9.5	4.5	3.5	2
		2.6	0.2-1.0					35.5	25.5	16	8	5.5	3.5

Note : For reduced Cv Trims, DP Shut off to be taken same as that of valve size.
The maximum operating pressure is 150 kg/cm² for ANSI 900 rating.
For fully opened and fully closed positions, the values are the same.

VI.7.2. Reverse Action (Airto open)

Table 18

RATING	ACTUATOR MODEL	AIR TO DIAPHRAGM Kg/Cm²	SPRING RANGE Kg/Cm²	PRESSURE DIFFERENTIAL (Kg/Cm²) AT CORRESPONDING VALVE SIZE (Inch)									
				1½	2	2½	3	4	5	6	8	10	12
ANSI 900-1500	VA3R	2.6	0.4-2.0	14	8	7	4.5	2.5	2	1			
		2.8	0.8-2.4	33	19.5	16.5	10.5	6	4.5	3			
	VA4R	2.6	0.4-2.0			9.5	6	3.5	2.5	1.5	1		
		2.8	0.8-2.4			23	14.5	8.5	6.5	4	2.5	1.5	1.0
	VA5R	2.6	0.4-2.0					5	3.5	2	1.5	1	0.5
		2.8	0.8-2.4					11.5	9	5.5	3.5	2	1
	VA6R	5.0	1.9-4.0					41.5	31	20			
ANSI 2500	VA3R	2.6	0.4-2.0	14	8	8	6	3.5	2.5	1.5			
		2.8	0.8-2.4	33	19.5	19.5	14	8.5	6	3.5			
	VA4R	2.6	0.4-2.0			11	8	5	3.5	2	1		
		2.8	0.8-2.4			27.5	19.5	12	8.5	5.5	2.5		
	VA5R	2.6	0.4-2.0					7	5	3	1.5	1	0.5
		2.8	0.8-2.4					16.5	11.5	7.5	3.5	2.5	1.5
	VA6R	5.0	1.9-4.0					58	41.5	26			

VI.7.3. With Piston Cylinder Actuator

Table 19

RATING	ACTUATOR MODEL	SUPPLY PRESSURE Kg/Cm²	Pressure Differential (Kg/Cm²) for Corresponding Valve Size (Inch)									
			1½	2	2½	3	4	5	6	8	19	12
ANSI 150-600	DPA 1	5						83	53	52	32	21
	SPA 1	5					87	59	26	26	16	10.5
	SPA 2	5			90	78	57	32	17	16	9.5	6
ANSI 900-1500	DPA1	5				250	230	118	86	72	42	23
	SPA 1	5			235	161	115	59	43	33	21	11.5
	SPA 2	5		210	122	100	75	41	28	21	12.5	7
ANSI 2500	DPA 1	5				320	320	191	135	79	50	28
	SPA 1	5			365	177	167	95	77	37	25	14
	SPA 2	5	250	240	240	110	110	60	50	21.5	15	8.5

VII. FACE TO FACE DIMENSIONS

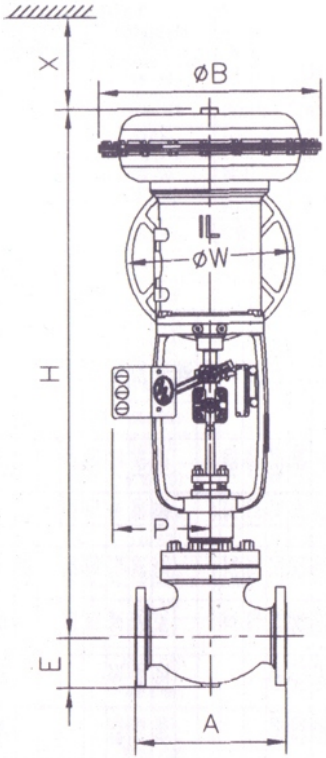


Table 20

VALVE SIZE (INCH)	A* (mm)												E (mm)		
	ANSI 150		ANSI 300		ANSI 600		ANSI 900		ANSI 1500		ANSI 2500		ANSI	ANSI	ANSI
	RF/BS	RJ/TG	RF/B/S	RJ/TG	RF/B/S	RJ/TG	RF/B/S	RJ/TG	RF/B/S	RJ/TG	RF/B/S	RJ/TG	150~600	900~1500	2500
1							290	290	290	290	290	290	-	100	100
1½	222	235	235	248	251	251	335	335	335	335	380	383	70	106	106
2	254	267	267	283	286	289	375	378	375	378	440	443	80	117	121
2½	276	289	292	308	311	314	410	413	410	413	500	506	85	133	128
3	298	311	318	333	337	340	440	443	460	463	540	546	100	151	143
4	352	365	368	384	394	397	510	513	530	533	615	625	130	205	205
5	403	416	425	441	457	460	635	638	680	683	680	693	150	250	230
6	451	464	473	489	508	511	715	718	770	776	770	783	175	285	255
8	543	556	568	584	610	613							275	-	-
10	673	686	708	724	752	756							300	-	-
12	737	749	775	791	819	822							345	-	-
14	889		927		972								375	-	-

RF - RAISED FACE END B- BUTT WELD EDGE S- SOCKET WELD EDGE
RJ - RING JOINT END TG - TONGUE GROOVE (SMALL & LARGE) END
*Tolerance limit is ± 1.6 for valve sizes upto 10" and ± 3.2 for 12" and above

VIII. External Dimensions

VIII.1. With diaphragm type actuators

Table 21

VALVE SIZE (INCH)	ACTUATOR MODEL	H ± 10 (mm)														ΦB (MM)
		DIRECT ACTION			REVERSE ACTION			DIRECT ACTION				REVERSE ACTION				
		150-600			150-600			900-1500		25000		900-1500		2500		
		P	F	B	P	F	B	P	F	P	F	P	F	P	F	
1	VA 3 D/R							1070	1220	1070	1220	1070	1220	1070	1220	450
	VA 4 D/R							1250	1455	1560		1370	1580	1385		520
	VA 5 D/R							1285		1285	1500	1395		1395	1610	620
1½	VA 1 D/R	695	845	855	695	845	855									300
	VA 2 D/R	835	985	1055	835	985	1055									350
	VA 3 D/R	1000	1150		1000	1150		1055	1260	1055	1260	1055	1260	1055	1260	450
	VA 4 D/R							1220	1415	1220	1415	1345	1540	1345	1540	520
	VA 5 D/R							1265	1460	1265	1460	1375	1570	1375	1570	620
	VA 6 R											1120	1320	1120	1320	445
	VA 6 RS											1320	1520	1320	1520	445
2	VA 1 D/R	705	855	865	705	855	865									300
	VA 2 D/R	845	995	1065	845	995	1065									350
	VA 3 D/R	1010	1160	1300	1010	1160	1300	1060	1265	1060	1265	1060	1265	1060	1265	450
	VA 4 D/R	1190	1330		1310	1450		1225	1420	1225	1420	1350	1545	1350	1545	520
	VA 5 D/R	1225	1370		1335	1480		1270	1465	1270	1465	1380	1575	1380	1575	620
	VA 6 R				1080	1230						1125	1320	1125	1320	445
	VA 6 RS				1280	1430						1325	1520	1325	1520	445
2½	VA 2 D/R	885	1035	1110	885	1035	1110									350
	VA 3 D/R	1055	1205	1345	1055	1205	1345		1295				1295			450
	VA 4 D/R	1220	1370		1335	1485		1285	1465	1285	1465	1410	1590	1410	1590	520
	VA 5 D/R	1265	1400		1375	1510		1330	1530	1330	1530	1440	1640	1440	1640	620
	VA 6 R				1120	1255						1185	1385	1185	1385	445
	VA 6 RS				1320	1455						1385	1585	1385	1585	445
3	VA 2 D/R	900	1050	1125	900	1050	1125									350
	VA 3 D/R	1060	1210	1360	1060	1210	1360									450
	VA 4 D/R	1225	1375		1340	1490		1285	1470	1290	1460	1410	1590	1415	1580	520
	VA 5 D/R	1265	1410		1375	1520		1330	1530	1335	1515	1440	1640	1445	1625	620
	VA 6 R				1120	1270						1185	1385	1190	1370	445
	VA 6 RS				1320	1470						1385	1585	1390	1820	445
4	VA 2 D/R	915	1070	1135	915	1070	1135									350
	VA 3 D/R	1080	1230	1370	1080	1230	1370									450
	VA 4 D/R	1245	1395	1595	1360	1510	1720									520
	VA 5 D/R	1300	1440	1720	1410	1550	1830	1340	1520	1340	1520	1450	1630	1450	1630	620
	VA 6 R				1160	1295						1195	1375	1195	1375	445
	VA 6 RS				1360	1495						1395	1575	1395	1575	445
5	VA 3 D/R	1115	1265		1115	1265	1410									450
	VA 4 D/R	1280	1430		1395	1545										520
	VA 5 D/R	1330	1480		1440	1590										620
	VA 6 R				1185	1335										445
	VA 6 RS				1385	1535										445
6	VA 3 D/R	1145	1295	1430	1145	1295	1430									450
	VA 4 D/R	1310	1460	1655	1425	1575	1780									520
	VA 5 D/R	1360	1510	1780	1470	1620	1980									620
	VA 6 R				1215	1365										445
	VA 6 RS				1415	1565										445
8	VA 4 D/R	1430	1575	1750	1540	1690	1875									520
	VA 5 D/R	1525	1670		1630	1780										620
10	VA 5 D/R	1560	1815		1670	1925										620
		1760	2015		1890	2145										
12	VA 5 D/R	1610	1820		1720	1930										620
		1810	2020		1940	2150										

p - Plain Bonnet F - Radiating Fin Bonnet B - Bellow Seal

Note : Values in **Reverse** *are applicable ONLY for valves used for ON - OFF applications*

Table 22

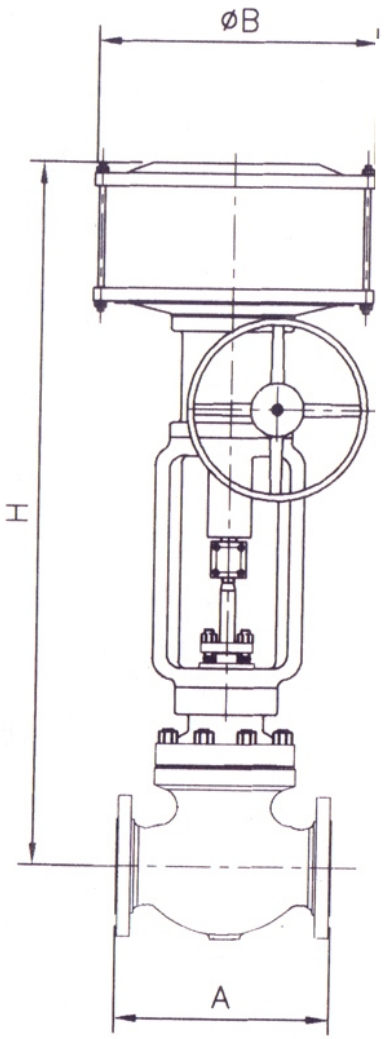
Actuator Model	X	ΦW	P
VA1	230	280	216
VA2	245	355	220
VA3	295	450	240
VA4	360	570	262
VA5	420	570	270

VIII.2. With Piston Cylinder Type Actuator

Table 23

VALVE SIZE (INCH)	ACUTATOR MODEL	H ± (mm) 150-300 P	150-300 F	600 P	600 F	900-1500 P	900-1500 F	2500 P	2500 F	ϕB (mm)
1½	SPA 2								1320	445
	SPA 2M								1565	
2	SPA 2					1130	1315	1130	1315	445
	SPA 2M					1370	1560	1370	1560	
2½	SPA 1	1220		1220		1355				545
	SPA 1M	1480		1480		1615				
	SPA 2							1245		445
	SPA 2M							1490		
3	DPA 1							1520		575
	DPA 1M							1770		
	SPA 1						1560	1360		545
	SPA 1M						1820	1620		
	SPA 2	1090		1090		1245	1445		1420	445
	SPA 2M	1340		1340		1490	1690		1665	
4	DPA 1						1735		1630	575
	DPA 1M						1985		1880	
	SPA 1	1255		1255			1575		1470	545
	SPA 1M	1515		1515			1835		1730	
	SPA 2	1140	1450	1140	1450		1315		1460	445
	SPA 2M	1385	1690	1385	1690		1555		1690	
5	DPA 1					1575	1775			575
	DPA 1M					1825	2025			
	SPA 1					1415	1615			545
	SPA 1M					1675	1875			
	SPA 2						1500			445
	SPA 2M						1740			
6	DPA 1	1470	1740	1470	1740	1580	1780		1780	575
	DPA 1M	1720	2090	1720	2090	1930	2130		2030	
	SPA 1	1310	1580	1310	1580	1420	1620		1620	545
	SPA 1M	1570	1840	1570	1840	1680	1880		1880	
	SPA 2	1200	1463	1200	1565		1500		1500	445
	SPA 2M	1445	1805	1445	1805		1745		1745	
8	DPA 1	1610		1610	1720					575
	DPA 1M	1855		1855	1965					
	SPA 1	1450		1450	1560					545
	SPA 1M	1705		1705	1815					
	SPA 2	1335	1570	1335	1450					445
	SPA 2M	1575	1810	1575	1590					
10	DPA 1	1670	1870	1670	1870					575
	DPA 1M	1920	2120	1920	2120					
	SPA 1	1510	1710	1510	1710					545
	SPA 1M	1770	1970	1770	1970					
	SPA2	1390	1590	1390	1590					445
	SPA 2M	1635	1835	1635	1835					
12	DPA 1	1725	1925	1725	1925					575
	DPA 1M	1975	2175	1975	2175					
	SPA 1	1565	1765	1565	1765					545
	SPA1M	1825	2025	1825	2025					
	SPA 2	1450	1650	1450	1650					445
	SPA 2M	1690	1890	1690	1890					

P - PLAIN BONNET F - RADIATING FIN BONNET



VIII.3. Extension Bonnets for Diaphragm & Piston type actuators

Table 24

VALVE SIZE (INCH)	TEMPERATURE RANGE (C)	H ± 10 (mm) VA1	VA2	VA3	VA4R	VA4D	VA5R	VA5D	SPA1	SPA1M	SPA2	SPA2M	DPA1	DPA1M
1½	0 to - 50	960	1101	1267										
	- 51 to - 100	1060	1201	1367										
	- 100 & less	1160	1301	1467										
2	0 to - 50	1010	1151	1317										
	-51 to - 100	1110	1251	1417										
	- 100 & less	1210	1351	1517										
2½	0 to -50		1180	1346	1510	1625								
	-51 to - 100		1280	1446	1610	1725								
	- 100 & less		1380	1546	1710	1825								
3	0 to - 50		1188	1354	1518	1633	1769	1899						
	- 51 to - 100		1288	1454	1618	1733	1869	1999						
	- 100 & less		1388	1554	1718	1833	1969	2099						
4	0 to - 50		1344	1510	1674	1789	1925	2055			1482	1722		
	- 51 to - 100		1444	1610	1774	1889	2025	2155						
	- 100 & less		1544	1710	1874	1989	2125	2255						
5	0 to - 50			1502	1666	1781	1917	2047						
	-51 to - 100			1602	1766	1881	2017	2147						
	- 100 & less			1702	1866	1981	2117	2247						
6	0 to - 50			1514	1674	1789	1925	2055	1665	1925	1598	1838	1825	2075
	- 51 to - 100			1614	1774	1889	2025	2155						
	- 100 & less			1714	1874	1989	2125	2255						
8	0 to - 50				1828	1943	2079	2209	1829	2089			1989	2239
	- 51 to -100				1928	2043	2179	2309						
	- 100 & less				2028	2143	2279	2409						
10	0 to - 50						2189	2319						
	- 51 to - 100						2289	2419						
	- 100 & less						2389	2519						
12	0 to - 50						2245	2375						
	- 51 to - 100						2345	2475						
	- 100 & less						2445	2575						

Applicable for VST Low pressure (ANSI 150 - 600) valves only

VIII.4 VST (Special) with diaphragm type actuators

Table 25

VALVE SIZE (INCH)	ACTUATOR MODEL	H ± 10 (mm)																ϕB (MM)
		DIRECT ACTION 150-600		REVERSE ACTION 150-600		DIRECT ACTION 900		DIRECT ACTION 1500		DIRECT ACTION 2500		REVERSE ACTION 900		REVERSE ACTION 1500		REVERSE ACTION 2500		
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
1½	VA 1 D/R	695	845	695	845													300
	VA 3 D/R					1055	1260	1055	1260	1055	1260	1055	1260	1055	1260	1055	1260	450
2	VA 1 D/R	705	855	705	855													300
	VA 2 D/R	845	995	845	995													350
	VA 3 D/R	1010	1160	1010	1160	1060	1265	1060	1265	1060	1265	1060	1265	1060	1265	1060	1265	450
2½	VA 2 D/R	885	1035	885	1035													350
	VA 3 D/R	1055	1205	1055	1205	1100	1305	1100	1305	1100	1305	1100	1305	1100	1305	1100	1305	450
	VA 4 D/R	1220	1370	1335	1485	-	1457	-	1457	-	1482	-	1582	-	1582	-	1607	520
3	VA2 D/R	900	1050	900	1050													350
	VA 3 D/R	1060	1210	1060	1210	1105	1310	1105	1310	1110	1315	1105	1310	1105	1310	1110	1315	450
	VA 4 D/R	1225	1375	1340	1490	1252	1424	1252	1424	1254	1426	1377	1549	1377	1549	1379	1551	520
4	VA 2 D/R	915	1070	915	1070													350
	VA 3 D/R	1080	1230	1080	1230	1115	1315	1115	1315	1155	1325	1115	1315	1115	1315	1155	1325	450
	VA 4 D/R	1245	1395	1360	1510	1275	1455	1275	1455	1300	1480	1390	1570	1390	1570	1415	1595	520
	VA 5 D/R					-	-	-	1311	-	1519	-	-	-	1421	-	1629	620
5	VA 3 D/R																	450
	VA 4 D/R	-	-	-	-	1310	1490	1310	1490	1310	1490	1425	1600	1425	1600	1425	1600	520
	VA 5 D/R	-	-	-	-	1355	1535	1355	1535	1355	1535	1470	1645	1470	1645	1470	1645	620
6	VA 3 D/R	1145	1295	1145	1295													450
	VA 4 D/R	1310	1460	1425	1575	1375	1575	1375	1575	1375	1580	1490	1690	1490	1690	1490	1695	520
	VA 5 D/R	1360	1510	1470	1620	1420	1620	1420	1620	1420	1625	1530	1730	1530	1730	1530	1735	620
8	VA 4 D/R	1430	1575	1540	1690	-	-	-	-	-	-	-	-	-	-	-	-	520
	VA 5 D/R	1525	1670	1630	1780	1470	1770	1520	1820	1570	1870	1580	1880	1630	1930	1680	1980	620
10	VA 5 D/R	1760	2015	1890	2145	1620	1920	1630	1930	1700	2000	1730	2030	1740	2040	1810	2110	620
12	VA 5 D/R	1810	2020	1940	2150	1660	1960	1730	2030	1820	2120	1770	2070	1840	2140	1930	2230	620

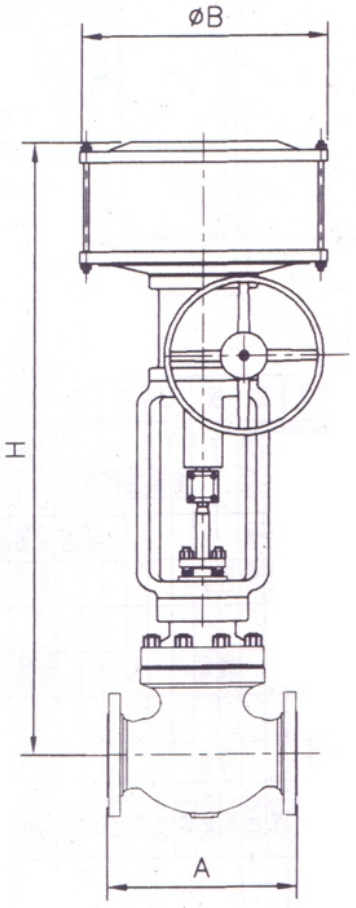
P - PLAIN BONNET F- RADIATING FIN BONNET

VIII.5. VST (Special) with Piston Cylinder type actuators

Table 26

VALVE SIZE (INCH)	ACTUATOR MODEL	H ± (mm)								ϕB (mm)
		150-600		900		1500		2500		
		P	F	P	F	P	F	P	F	
4	VA 6 R			-	-	-	1166	-	1374	445
	VA 6 RS			-	-	-	1366	-	1574	
5	VA 6 R			1215	1390	1215	1390	1215	1390	445
	VA 6 RS			1415	1590	1415	1590	1415	1590	
6	VA 6 R	1215	1365	1275	1475	1275	1475	1275	1480	445
	VA 6 RS	1415	1565	1475	1675	1475	1675	1475	1680	
8	SPA 2	1371	1605	1320	1620	1370	1670	1420	1720	445
	SPA 2M			1563	1863	1613	1913	1663	1963	
10	DPA 1	1667	1867	-	-	-	2007	-	2086	575
	DPA 1M	1917	2117	-	-	-	2257	-	2336	
	SPA1	1507	1707	-	-	-	1847	-	1926	545
	SPA 1M	1767	1967	-	-	-	2107	-	2186	
	SPA 2	1437	1627	1470	1770	1480	1780	1550	1850	445
	SPA 2M	1680	1870	1713	2013	1723	2113	1793	2093	
12	DPA 1	1723	1923	1744	-	-	2110	-	2202	575
	DPA 1M	1973	2173	1994	-	-	2360	-	2452	
	SPA 1	1563	1763	1584	-	-	1950	-	2042	545
	SPA 1M	1823	2023	1844	-	-	2210	-	2302	
	SPA 2	1483	1683	1510	1810	1580	1880	1670	1970	445
	SPA 2M	1726	1926	1753	2053	1823	2123	1913	2213	

P - PLAIN BONNET F- RADIATING FIN BONNET



IX. APPROXIMATE WEIGHT OF VALVES

IX.1. Flanged Valves With Plain and Radiating Fin Bonnets

Table 27

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)															
		VA1		VA2		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R	
		P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F
1½	150	37	39	48	50	76	78										
	300	42	44	53	55	81	83										
	600	50	52	61	63	89	91										
2	150	43	45	54	56	82	84	157	159	182	184	182	184	242	244	222	224
	300	43	46	54	57	82	85	157	160	182	185	182	185	242	243	222	223
	600	60	63	71	74	91	102	166	177	191	202	191	202	251	262	231	242

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)																							
		VA2		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R		SPA 1		SPA 1M		SPA 2		SPA 2M		DPA 1		DPA 1M	
		P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F
2½	150	60	63	88	91	163	166	188	191	188	191	248	251	228	231												
	300	65	68	93	96	168	171	193	196	193	196	253	256	233	236												
	600	110	113	138	141	213	216	238	241	238	241	298	301	278	281												
3	150	80	85	108	113	183	188	208	213	208	213	268	273	248	253												
	300	83	88	111	116	186	191	211	216	211	216	271	276	251	256												
	600	120	125	148	153	223	228	248	253	248	253	308	313	288	293					256		306					
4	150	95	100	123	128	198	203	223	228	223	228	283	288	263	268	455		515		238	248	288	298				
	300	110	115	138	143	213	218	238	243	238	243	298	303	278	283	440		500		253	263	303	313				
	600	150	155	178	183	253	258	278	283	278	283	338	343	318	323	400		460		291	301	341	351				

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)																							
		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R		SPA 1		SPA 1M		SPA 2		SPA 2M		DPA 1		DPA 1M	
		P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F
5	150	160	168	235	243	260	268	260	268	285	293	300	308	370	378	430	438	260	268	310	318	530	538	570	578
	300	170	178	245	253	270	278	270	278	295	303	310	318	380	388	440	448	270	278	320	328	540	548	580	588
	600	215	223	290	298	315	323	315	323	340	348	355	363	425	433	485	493	315	323	365	373	585	593	625	633
6	150	230	240	305	315	330	340	330	340	355	365	370	380	436	446	496	506	326	336	376	386	595	606	635	648
	300	240	250	315	325	340	350	340	350	365	375	380	390	446	456	506	516	336	346	386	396	606	616	646	656
	600	300	310	375	385	400	410	400	410	515	525	530	540	506	516	566	576	396	406	446	456	666	676	706	716
8	150			380	400	405	425	410	430	435	455			512	532	572	592	402	422	452	472	672	692	712	732
	300			430	440	455	465	460	470	485	495			562	572	622	632	452	462	502	522	722	732	762	772
	600			550	570	575	595	580	600	605	625			682	702	742	762	572	592	622	642	842	862	882	902
10	150							560	600	585	625			670	710	730	770	560	600	610	650	830	880	870	910
	300							690	710	715	735			800	820	860	880	690	710	740	760	960	980	1000	1020
	600							750	780	775	805			860	890	920	950	750	780	800	830	1020	1050	1060	1090
12	150							750	780	775	805			860	900	920	960	750	790	800	840	1020	1060	1060	1100
	300							900	920	925	945			1010	1030	1070	1090	900	920	950	970	1170	1190	1210	1230
	600							1000	1100	1025	1125			1110	1140	1170	1200	1000	1030	1050	1080	1270	1300	1310	1340

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)																							
		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R		SPA 1		SPA 1M		SPA 2		SPA 2M		DPA 1		DPA 1M	
		P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F
1	900	113	118	188	193	213	218	213	218	238	243	253	258												
	1500	113	118	188	193	213	218	213	218	238	243	253	258												
	2500	136	141	211	216	236	241	236	241	261	266	276	281												
1½	900	122	127	197	202	222	227	222	227	247	252	262	267												
	1500	122	127	197	202	222	227	222	227	247	252	262	267												
	2500	152	157	227	232	252	257	252	257	277	282	292	297												
2	900	145	156	221	231	246	256	246	256	271	281	286	296					246	256	296	306				
	1500	145	156	221	231	246	256	246	256	271	281	286	296					246	256	296	306				
	2500	179	189	254	264	279	289	279	289	304	314	319	329					279	289	329	339				
2½	900	184	199	259	274	284	299	284	299	309	324	324	339	399	404	459	464	284	299	334	349				
	1500	184	199	259	274	284	299	284	299	309	324	324	339	399	404	459	464	284	299	334	349				
	2500	339	404	314	329	339	354	339	354	424	439	379	394	454	469	514	529	339	354	389	404				
3	900			259	274	284	299	284	299	309	324	324	339	399	419	459	479	284	299	334	349	559	579	599	619
	1500			314	329	339	354	339	354	364	379	379	394	454	469	514	529	339	354	389	404	614	629	654	669
	2500			404	419	429	449	429	449	454	474	469	489	544	559	604	619	429	444	479	494	704	719	744	759
4	900			356	371	381	396	381	396	421	436	436	451		511		571	381	396	431	446		671		711
	1500			424	439	449	464	449	464	489	504	504	519		579		639	449	464	499	514		739		779
	2500			559	574	584	599	584	599	624	639	639	654		714		774	584	599	634	649		874		914
5	900							452	467	477	492	507	522	567	582	627	642	457	472	507	522	727	742	767	782
	1500							576	591	601	616	731	646	691	706	751	766	581	596	631	646	851	866	891	906
	2500							744	759	769	784	799	814	859	874	919	934	749	764	799	814	1019	1034	1059	1074
6	900							595	615	620	640	650	670	700	730	770	790	600	600	650	670	860	890	900	930
	1500							764	784	789	809	819	839	879	899	933	959	769	789	819	839	1039	1059	1079	1099
	2500							1029	1049	1054	1074	1084	1104	1144	1164	1204	1224	1034	1054	1084	1104	1304	1324	1344	1363

P - PLAIN BONNET E- EXTENSION BONNET F- RADIATING FIN BONNET

Note : 1. *For VA 6Rs model, add 30 Kg to weights of VA 6R model*

2. *Reduce 60 Kg for VA 5D model and 70 Kg for VA 5R model 10" & 12" valves used for ON- OFF Applications.*

IX. 2. Bellow Sealed Valves with Flanged End

Table 28

ACTUATOR MODEL	Weight (Kg)																				
	1½			2			2½			3			4			6			8		
	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600
VA 1	40	45	53	46	47	64															
VA 2	55	60	68	60	61	78	65	70	115	87	90	127	105	120	160						
VA 3				88	89	106	95	100	145	118	121	158	133	148	188	245	265	315			
VA 4 D																320	330	390	430	470	600
VA 4 R																345	355	415	455	495	625
VA 5 D																345	355	415			
VA 5 R																370	380	440			

IX.3. BUTT WELD END VALVES With plain and Rediating Fin Bonnets

Table 29

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)															
		VA1		VA2		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R	
		P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F
1½	150	34	36	45	47	73	75										
	300	36	38	47	49	75	77										
	600	44	46	55	57	83	85										
2	150	38	40	49	51	77	79	152	154	177	179	177	179	237	279	217	259
	300	36	39	47	50	75	78	150	153	175	178	175	178	235	238	215	218
	600	52	55	63	66	83	94	158	169	183	194	183	194	243	254	223	234

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)																					
		VA2		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R		SPA 1		SPA 1M		SPA 2		SPA 2M		DPA 1		DPA 1M	
		P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F
2½	150	52	55	80	83	155	158	180	183	180	183	240	243	220	223												
	300	55	58	83	86	158	161	183	186	183	186	242	246	222	226												
	600	99	102	127	130	202	205	227	230	227	230	287	290	267	270												
3	150	71	76	99	104	174	179	199	204	199	204	259	264	239	244												
	300	75	80	104	109	179	185	205	210	205	210	265	270	245	250												
	600	105	110	133	138	208	213	233	238	233	238	293	298	273	278					241		291					
4	150	82	87	110	115	185	190	210	215	210	215	270	275	250	255	332		392		225	235	275	285				
	300	89	94	117	122	192	197	217	222	217	222	277	282	257	262	339		399		232	242	282	292				
	600	119	124	147	152	222	227	247	252	247	252	307	312	287	292	369		429		260	270	310	320				

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)																									
		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R		SPA 1		SPA 1M		SPA 2		SPA 2M		DPA 1		DPA 1M	
		P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F
5	150	145	153	220	228	245	253	245	253	270	278	285	293	355	363	415	423	245	248	295	303	515	523	555	563
	300	155	158	225	233	250	258	250	258	275	283	290	298	360	368	420	428	250	253	300	308	520	528	560	568
	600	165	173	240	248	265	273	265	273	290	298	305	313	375	383	435	443	265	273	315	323	535	543	575	583
6	150	212	222	287	297	312	322	312	322	337	347	352	362	418	428	478	488	306	318	358	368	577	588	617	628
	300	205	215	280	290	305	315	305	315	330	340	345	355	411	421	471	484	291	301	341	351	560	571	600	611
	600	240	250	315	325	340	350	340	350	355	465	470	480	446	456	506	516	336	346	386	398	606	616	646	656
8	150			355	375	380	400	385	405	410	430			487	507	547	567	377	397	427	447	647	667	687	707
	300			390	400	415	485	420	430	445	455			522	532	582	592	412	422	462	482	682	692	722	732
	600			455	475	480	500	485	505	510	530			587	607	647	667	477	497	527	547	747	767	787	807
10	150							525	565	550	590			635	675	695	735	525	565	575	615	795	835	835	875
	300							590	610	615	635			700	720	760	780	590	610	640	660	860	880	900	920
	600							600	630	625	655			710	740	770	800	600	630	650	680	870	900	910	940
12	150							695	725	720	750			805	845	965	905	695	735	745	785	965	1005	1005	1045
	300							740	760	765	785			850	870	910	930	740	760	790	810	1010	1030	1050	1070
	600							815	915	840	940			925	955	985	1015	815	845	865	895	1085	1115	1125	1155

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)																									
		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R		SPA 1		SPA 1M		SPA 2		SPA 2M		DPA 1		DPA 1M	
		P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F	P/E	F
1	900	105	110	180	185	205	210	205	210	230	235	245	250														
	1500	105	110	180	185	205	210	205	210	230	235	245	250														
	2500	125	130	200	205	225	230	225	230	250	255	265	270														
1½	900	110	115	185	190	210	215	210	215	235	240	250	255														
	1500	110	115	185	190	210	215	210	215	235	240	250	255														
	2500	130	135	205	210	230	235	230	235	255	260	270	275														
2	900	125	135	200	210	225	235	225	235	250	260	265	275							225	235	275	285				
	1500	125	135	200	210	225	235	225	235	250	260	265	275							225	235	275	285				
	2500	145	155	220	230	245	255	245	255	270	280	285	295							245	255	295	305				
2½	900	155	170	230	245	255	270	255	270	280	295	295	310	370	375	430	435	255	270	305	320						
	1500	155	170	230	245	255	270	255	270	280	295	295	310	370	375	430	435	255	270	305	320						
	2500	290	355	265	280	290	305	290	305	315	330	330	345	405	420	465	480	290	305	340	355						
3	900			235	250	260	275	260	275	285	300	300	315	375	390	435	450	260	275	310	325	535	550	575	590		
	1500			275	290	300	315	300	315	325	340	340	355	415	430	475	490	300	315	350	365	575	590	615	630		
	2500			330	345	355	375	355	375	380	400	395	415	470	485	530	545	355	370	405	420	630	645	670	685		
4	900			315	330	340	355	340	355	380	395	395	410		470		530	340	355	390	405		630		670		
	1500			365	380	390	405	390	405	430	445	445	460		520		580	390	405	440	455		680		720		
	2500			445	460	470	485	470	485	510	525	525	540		600		660	470	485	520	535		760		800		
5	900							385	400	410	425	440	455	500	515	560	575	390	405	440	455	660	675	700	715		
	1500							460	475	485	500	615	530	575	590	635	650	465	480	515	530	735	750	775	790		
	2500							555	570	580	595	610	625	670	685	730	745	560	575	610	625	830	845	870	885		
6	900							510	530	535	555	565	585	625	645	685	705	515	535	565	585	785	805	825	845		
	1500							625	645	650	670	680	700	740	760	800	820	630	650	680	700	900	920	940	960		
	2500							735	755	760	780	790	810	850	870	910	930	740	760	790	810	1010	1030	1050	1070		

P - PLAIN BONNET E- EXTENSION BONNET F- RADIATING FIN BONNET

Note : 1. *For VA 6Rs model, add 30 Kg to weights of VA 6R model*

2. *Reduce 60 Kg for VA 5D model and 70 Kg for VA 5R model 10" & 12" valves used for ON- OFF Applications.*

IX. 4. Bellow Sealed Valves with Butt Weld End

Table 30

ACTUATOR MODEL	Weight (Kg)																						
	1½			2			2½			3			4			6			8		
	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600
VA 1	37	39	47	41	40	56															
VA 2	52	55	62	55	54	70	57	60	104	78	77	112	92	99	129						
VA 3				83	82	98	87	90	134	109	108	143	120	127	157	228	229	255			
VA 4 D																303	294	330	403	431	507
VA 4 R																328	319	355	428	456	532
VA 5 D																328	319	355			
VA 5 R																353	344	380			

IX.5. VST (Special) FLANGED END with diaphragm type actuators

Table 31

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)															
		VA1		VA2		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
1½	150	37	39														
	300	42	44														
	600	50	52														
	900					122	127										
	1500					122	127										
	2500					152	157										
2	150	43	45	54	56	82	84										
	300	43	46	54	57	82	85										
	600	60	63	71	74	91	102										
	900					146	156										
	1500					146	156										
	2500					179	189										
2½	150			60	63	88	91	163	166	188	191						
	300			65	68	93	96	168	171	193	196						
	600			110	113	138	141	213	216	238	241						
	900					184	199	259	274	284	299						
	1500					184	199	259	274	284	299						
	2500					239	254	314	329	339	354						
3	150			81	86	109	114	184	189	209	214						
	300			84	88	112	117	187	192	212	217						
	600			121	126	149	154	224	229	249	254						
	900					191	206	266	281	291	306						
	1500					246	261	321	336	346	361						
	2500					336	351	411	426	436	451						
4	150			97	102	125	130	200	205	225	230						
	300			112	117	140	145	215	220	240	245						
	600			152	157	180	185	255	260	280	285						
	900					266	281	341	356	366	381	366	381	391	406	406	421
	1500					334	349	409	424	434	449	434	449	459	474	474	489
	2500					474	489	549	564	574	589	574	589	599	614	614	629

Table 31 (Contd...)

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)																							
		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R		SPA 1		SPA 1M		SPA 2		SPA 2M		DPA 1		DPA 1M	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
5	900	375	390	450	465	475	490	475	490	500	515	515	530												
	1500	499	414	574	589	599	614	599	614	624	639	639	654												
	2500	666	681	741	756	766	781	766	881	791	816	806	931												
6	150	235	245	310	320	335	345	335	345	360	370	375	385												
	300	245	255	320	330	345	355	345	355	370	380	385	395												
	600	305	315	380	390	405	415	405	415	430	440	535	545												
	900	526	546	601	621	626	646	626	646	651	671	666	686												
	1500	695	715	770	790	795	815	795	815	820	840	835	855												
	2500	862	982	1037	1057	1062	1082	1062	1082	1087	1107	1102	1122												
8	150			402	412	427	437	432	442	457	467							437	447	487	497				
	300			442	452	467	477	472	482	497	507							475	495	525	545				
	600			556	576	581	601	586	606	611	631							590	620	640	670				
	900			1180	1235	1220	1275	1205	1260	1245	1300							1225	1280	1275	1330				
	1500			1429	1494	1469	1534	1454	1519	1494	1573							1488	1553	1538	1603				
	2500			2033	2073	1630	2113	2058	2098	2098	2138							2078	2098	2128	2168				
10	150							600	620	625	645			645	665	705	725	535	555	585	605	865	885	905	925
	300							710	730	735	755			755	775	815	835	650	675	700	725	975	995	1015	1035
	600							757	787	782	812			805	835	865	895	700	720	750	770	1025	1055	1065	1095
	900							1874	1944	1914	1984			1934	2004	1994	2064	1824	1894	1874	1944	2154	2224	2194	2264
	1500							2709	2789	2749	2829			2769	2849	2829	2909	2659	2739	2709	2789	2989	3069	3029	3109
	2500							3726	3806	3766	3844			3786	3866	3846	3926	3676	3756	3726	3806	4006	4086	4046	4126
12	150							836	856	861	881			881	901	941	961	775	791	825	841	1101	1121	1141	1161
	300							979	996	1001	1021			1021	1041	1081	2001	820	955	970	990	1241	1261	1281	2201
	600							1058	1158	1083	1183			1103	1203	1163	1263	1000	1100	1050	1150	1323	1423	1363	1463
	900							2626	2726	2666	2766			2686	2786	2746	2846	2576	2676	2626	2726	2906	3006	2946	3046
	1500							3975	4075	4015	4115			4035	4135	4095	4195	3925	4025	3975	4075	4255	4345	4295	4395
	2500							5649	5749	5689	5789			5709	5809	5769	5769	5599	5699	5649	5749	5929	5929	5969	5969

P - PLAIN BONNET F - RADIATING FIN BONNET

Note : 1. For VA 6RS model, add 30 Kg to weights of VA 6R model.

IX.6. VST (Special) BUTT WELD END with diaphragm type actuators

Table 32

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)															
		VA1		VA2		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
1½	150	34	36														
	300	36	38														
	600	34	36														
	900					110	115										
	1500					110	115										
	2500					130	135										
2	150	38	40	49	51	77	79										
	300	36	39	47	50	75	78										
	600	52	55	63	66	83	94										
	900					125	135										
	1500					125	135										
	2500					145	155										
2½	150			52	55	80	83	155	158	180	183						
	300			55	58	83	86	158	161	183	186						
	600			99	102	127	130	202	205	227	230						
	900					155	170	230	245	255	270						
	1500					155	170	230	245	255	270						
	2500					190	205	265	280	290	305						
3	150			72	77	100	105	175	180	200	205						
	300			71	75	99	104	174	179	199	204						
	600			106	111	134	139	209	214	234	239						
	900					167	182	242	257	267	282						
	1500					207	222	282	297	307	322						
	2500					262	277	337	352	362	377						
4	150			84	89	112	117	187	192	212	217						
	300			91	96	119	124	194	199	219	224						
	600			121	126	149	154	224	229	249	254						
	900					225	240	300	315	325	340	325	340	350	365	365	380
	1500					275	290	350	365	375	390	375	390	400	415	415	430
	2500					360	375	435	450	460	475	460	475	485	500	500	515

Table 32 (Contd...)

VALVE SIZE (INCH)	RATING (ANSI)	Weight (Kg)																							
		VA3		VA 4D		VA4R		VA 5D		VA5R		VA 6R		SPA 1		SPA 1M		SPA 2		SPA 2M		DPA 1		DPA 1M	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
5	900	308	323	383	398	408	423	408	423	433	448	448	463												
	1500	383	398	458	473	483	498	483	498	508	523	523	538												
	2500	477	492	552	567	577	592	577	692	602	627	617	742												
6	150	218	228	293	303	318	328	318	328	343	353	358	368												
	300	209	219	284	294	309	319	309	319	334	344	349	356												
	600	245	255	320	330	345	355	345	355	370	380	475	485												
	900	441	461	516	536	541	561	541	561	566	586	581	601												
	1500	556	576	631	651	656	676	656	676	681	701	696	716												
	2500	568	688	743	763	768	788	768	788	793	813	808	828												
8	150			375	385	400	410	405	415	430	440							410	420	460	470				
	300			403	413	428	438	433	443	458	468							436	456	486	506				
	600			463	483	488	508	493	513	518	538							497	527	547	577				
	900			1036	1091	1076	1131	1061	1116	1101	1158							1089	1144	1139	1194				
	1500			1211	1276	1251	1316	1236	1301	1276	1341							1264	1329	1314	1379				
	2500			1590	1630	1630	1670	1615	1655	1655	1695							1643	1683	1693	1733				
10	150							563	583	588	608			608	628	668	688	498	518	548	568	768	788	808	828
	300							607	627	632	652			652	672	712	729	547	572	597	622	812	832	852	872
	600							603	633	628	658			651	681	711	741	546	566	596	616	811	841	851	881
	900							1666	1736	1706	1776			1726	1796	1786	1856	1616	1686	1666	1736	1886	1956	1926	1996
	1500							2256	2336	2296	2376			2316	2396	2376	2456	2206	2286	2256	2336	2476	2556	2516	2596
	2500							2874	2954	2914	2994			2934	3014	2994	3074	2824	2904	2874	2954	3094	3174	3134	3214
12	150							781	801	806	826			826	846	886	906	720	736	770	786	986	1006	1026	1046
	300							818	838	843	863			863	883	923	1843	662	797	812	832	1023	1043	1063	1083
	600							874	974	899	999			919	1019	979	1079	816	916	866	966	1079	1179	1119	1219
	900							2340	2440	2380	2480			2400	2500	2460	2560	2290	2390	2340	2440	2560	2660	2600	2700
	1500							3390	3490	3430	3530			3450	3550	3510	3610	3340	3440	3390	3490	3610	3710	3650	3750
	2500							4441	4541	4481	4581			4501	4601	4561	4661	4391	4491	4441	4541	4661	4761	4701	4801

P - PLAIN BONNET F - RADIATING FIN BONNET

Note : 1. For VA 6RS model, add 30 Kg to weights of VA 6R model.

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