

VTX50 Pressure Balanced Cage Control Valve



FEATURES

- ▶ Quick change, pressure balanced cage control valve
- ▶ Low noise, drilled hole plug
- ▶ For use in noisy gas and cavitating applications
- ▶ Equal percentage or linear control characteristics
- ▶ Shutoff to ANSI/FC170-2, Class IV, V
- ▶ Class 600 - Class 1500
- ▶ Valve sizes 3" (DN80) - 24" (DN600)

*Equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Schneider Electric for any consequences arising from the use of this material.*

KEY COMPONENTS OF THE CAGE QUICK CHANGE TRIM GLOBE VALVES

Figure 1. Key Components

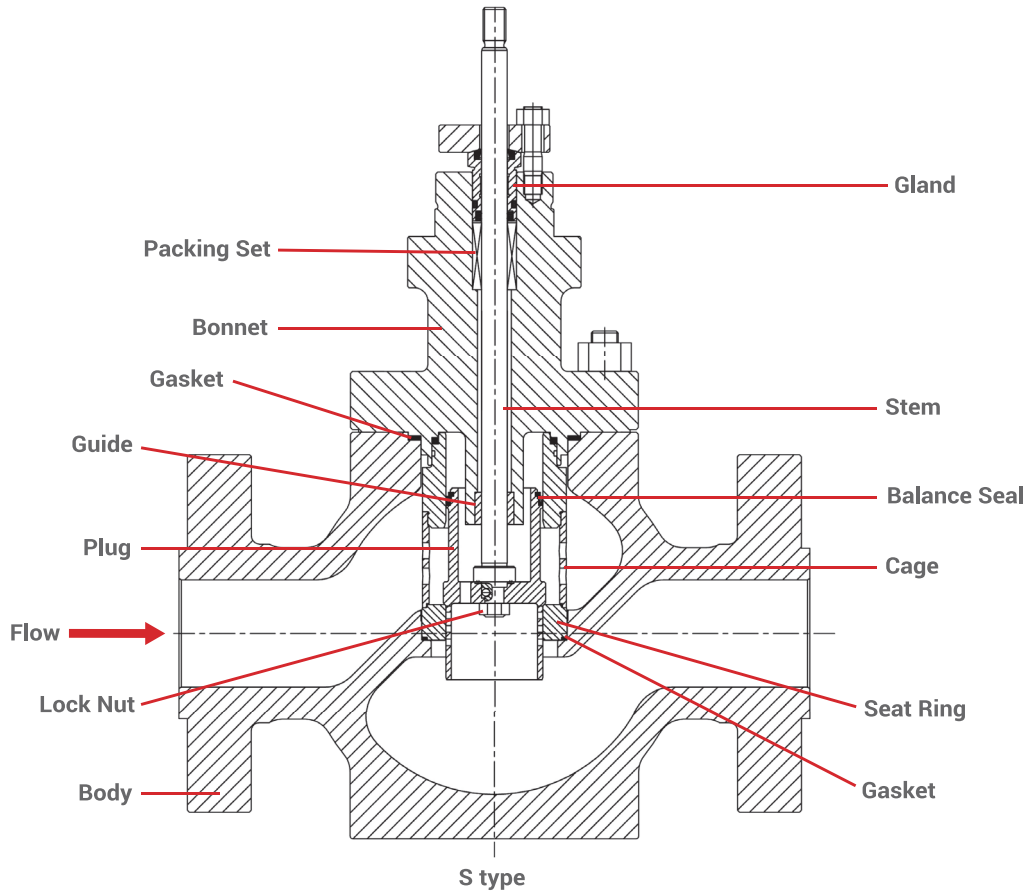


Table 1. Key Components

Type	Pressure balanced cage control valve
Body Size	3" to 24"
Plug Characteristics	Drilled hole plug - equal percentage, linear
Pressure Classes	Class 600 to Class 1500
Body Connections	RF, RTJ, BW (a)
Face to Face Dimensions	IEC 60534-3/ASME B16.10; see "Dimensions and Weights with Pneumatic Actuator"
Stem Packing	PTFE V-ring, PTFE V-ring double, PTFE filled, Grafoil®/graphite
Gasket	316 SS with Grafoil®
Balance Seal	S type, PTFE U-cup, < 270°C (518°F), class IV/V; P type, metal piston ring, class IV/V

a. DIN and PN flange are also available. Contact Global Customer Support for more information.

VALVE TRIM DESIGN OPTIONS

- ▶ Variety of standard and customizable configurations
- ▶ Diverse critical applications high pressure, high temperature designs
- ▶ Precision control with smooth open/close design
- ▶ High Cv with stable and repeatable flow parameters

Figure 2. Valve Trim Design Options

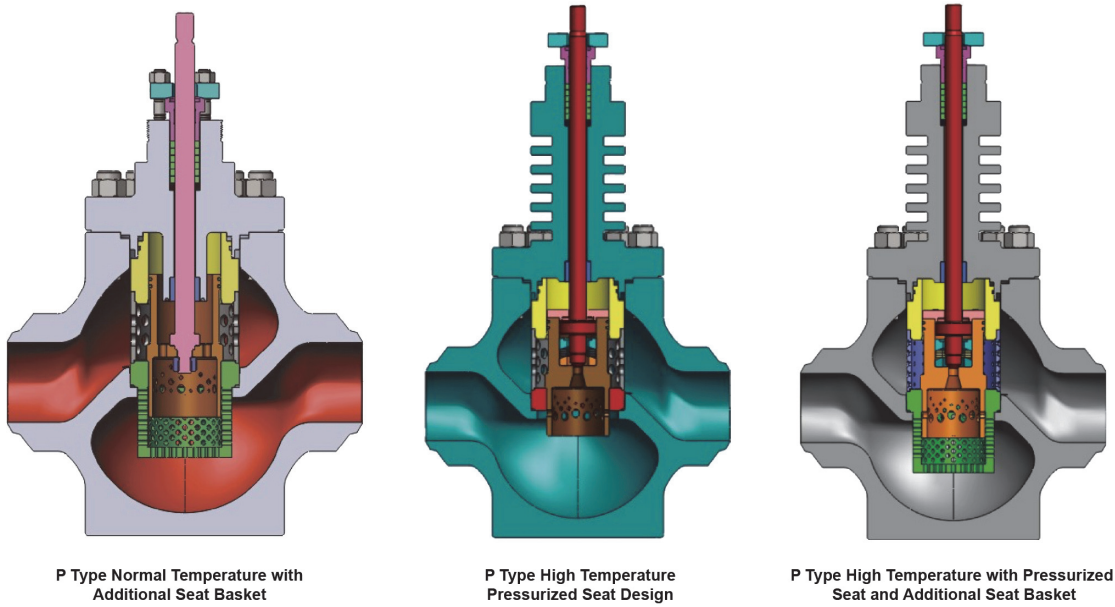
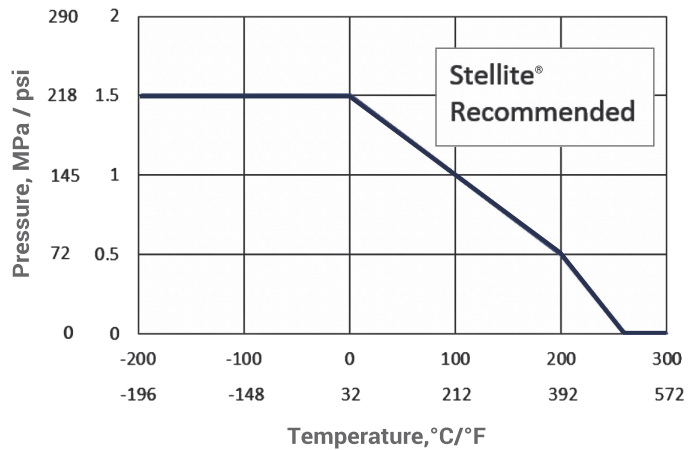


Figure 3. Pressure/Temperature Recommendation for Stellite®

TRIM HARDFACING VS OPERATING
PRESSURE-TEMPERATURE RATINGS



MATERIALS OF CONSTRUCTION

*Body/Trim Standard Material Combination
Operating Temperature and Seat Leakage*

Table 2. Body Material: Carbon and Chrome Moly Steel

Body Material		A216 - WCB, A217 - WC6, A217 - C5, A217 - WC9, A352 - LCB			
Plug	Material	420 SS	3Cr17NiMo	440B	316 SS
	Treatment	HT	NT	HT	NT NT
Seat	Material	420 SS	3Cr17NiMo	440B	316 SS
	Treatment	HT	HT	HT	HF -
Guide	Material	440B	440B	440B	316 SS
	Treatment	HT	HT	HT	NT
Gasket		316+Grafoil®			
Seat Leakage	ANSI/FCI 70-2	Class IV or V	Class IV or V	Class IV or V	Class IV or V
Body Operating Temperature °C/°F	A216-WCB	-5°C to +425°C (23°F to 800°F)	-5°C to +425°C (23°F to 800°F)	-5°C to +425°C (23°F to 800°F)	-5°C to +425°C (23°F to 800°F)
	A217-WC6	-5°C to +538°C (23°F to 1000°F)	-5°C to +538°C (23°F to 1000°F)	-5°C to +538°C (23°F to 1000°F)	-5°C to +538°C (23°F to 1000°F)
	A217-C5				
	A217-WC9				
A352-LCB	-45°C to +230°C (-49°F to +445°F)	-45°C to +230°C (-49°F to +445°F)	-45°C to +230°C (-49°F to +445°F)	-45°C to +230°C (-49°F to +445°F)	

NOTES:

1. Stellite® plug is not recommended to use.
2. HT = Hardening treatment; NT = Nitriding Treatment; HF = Stellite®.
3. 316 SS trim limited to 315°C (600°F) in a carbon steel body or chrome-moly.
4. Pressure boundary components are supplied to ASTM certification.
5. Trim components are supplied to ASTM/JIS/DIN/GB equivalent.

Table 3. Body Material: Stainless Steel

Body Material		A351-CF8	A351-CF8M
Plug		316 SS	304 SS
		NT	NT
Seat		316 SS	304 SS
		HF	HF
Guide		304 SS	304 SS
		NT	NT
Gasket		316 SS + Grafoil®	316 SS + Grafoil®
Seat Leakage	ANSI/FCI 70-2	Class IV and V	Class IV and V
Body Operating Temperature °C (°F)		-45°C to +538°C (-50°F to +1000°F)	-45°C to +538°C (-50°F to +1000°F)

NOTE: Several stainless steels such as ASTM A-890-99 Grade 3A (1.4468) duplex stainless steel and nickel alloy (equivalent to Hastelloy® C276) can be supplied according to your requirements. (Hastelloy is a registered trademark of Haynes International, Inc.)

VALVE PACKING BOXES AND OPTIONS

Figure 4. Valve Packing Boxes and Options

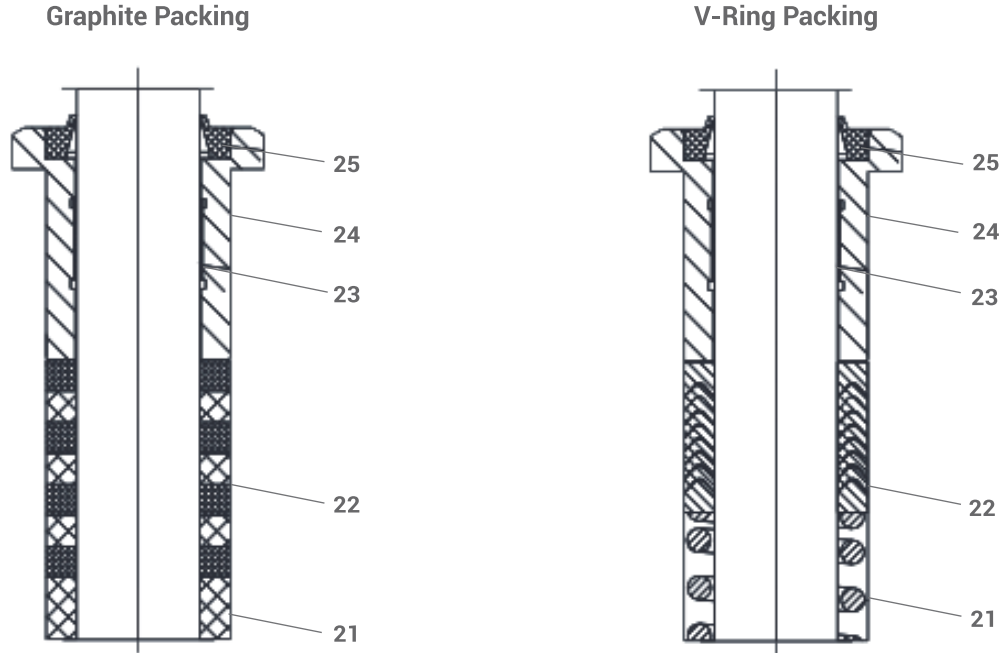


Table 4. Packing Box Bill of Material and Temperature Selection

Item	Component (a)	Temperature, °C/°F						
		-196/ -320	-46/ -50	-29/ -20	200/ 392	260/ 500	345/ 650	425/ 800
21	Spacer, Graphite Packing	Carbon						
	Spring, V-Ring Packing	-	300 SS			-	-	-
	Spacer, NACE Service	-	Carbon					
22	Packing, Standard Bonnet	-	PTFE		-	-	-	-
		-	Filled PTFE		-	-	-	
		-	Grafoil®/Graphite					
	Packing, Extended/Finned Bonnet	PTFE		-	-	-	-	
		Filled PTFE		-	-	-	-	
		Grafoil®/Graphite						
23	Guide Standard Bonnet	-	Metaloplast™			-	-	-
	Guide Extended Bonnet	Metaloplast™						-
24	Packing Follower	316 SS						
25	Wiper Ring, Standard Bonnet	-	Buna-N			-	-	-
	Wiper Ring, Extended Bonnet	Buna-N						-

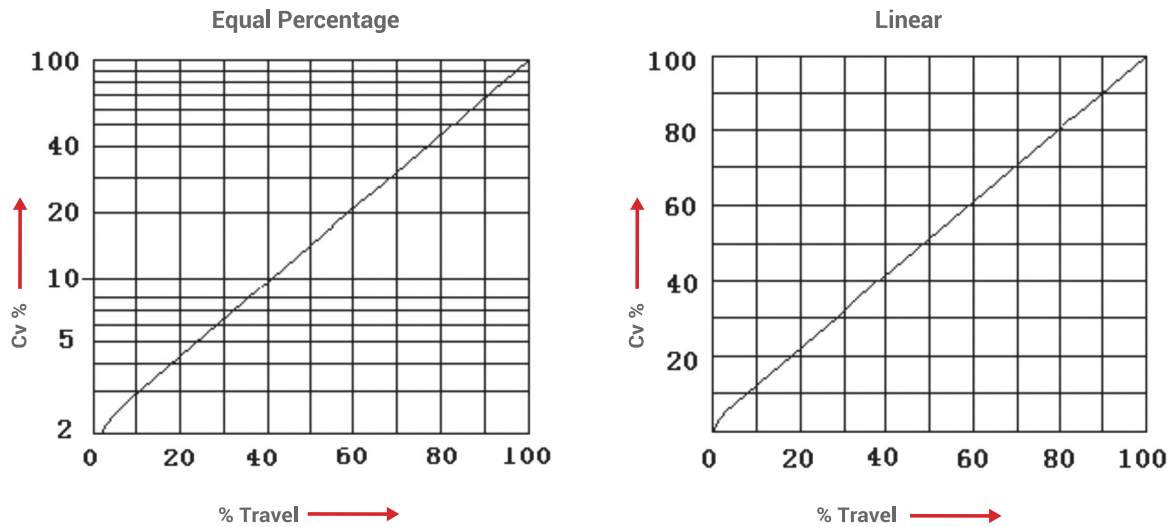
a. Standard packing boxes are shown. Fugitive Emission qualified and live loading options are available.

FLOW CHARACTERISTICS

Table 5. Valve Size, Cv, and Stroke

Plug Type		Drilled Hole Plug					
Flow Characteristics		Linear			Equal Percentage		
Rated Size inch (DN)	Stroke inch (mm)	Cv1	Cv2	Cv3	Cv1	Cv2	Cv3
3" (80)	1.2" (30)	94	70	65	65	50	44
4" (100)		129	94	70	80	65	50
6" (150)	2.4" (60)	445	304	198	246	176	146
8" (200)		527	445	304	304	246	176
10" (250)	3.9" (100)	1053	761	445	608	445	375
12" (300)		1521	1053	761	842	698	445
14" (350)		2106	1521	1053	995	842	608
16" (400)	4.7" (120)	2925	2106	1638	1463	1053	878
18" (450)	6.9" (175)	3900	3100	2106	2106	1638	1053
20" (500)	7.9" (200)	4650	3900	3100	2480	2106	1638
24" (600)	11.8" (300)	6700	5808	4650	3250	2925	2480

Figure 5. Cv vs Stroke Curves



DIMENSIONS AND WEIGHTS WITH PNEUMATIC ACTUATOR

Figure 6. With Top-Mounted Handwheel for DN80 (3") - DN400 (16")

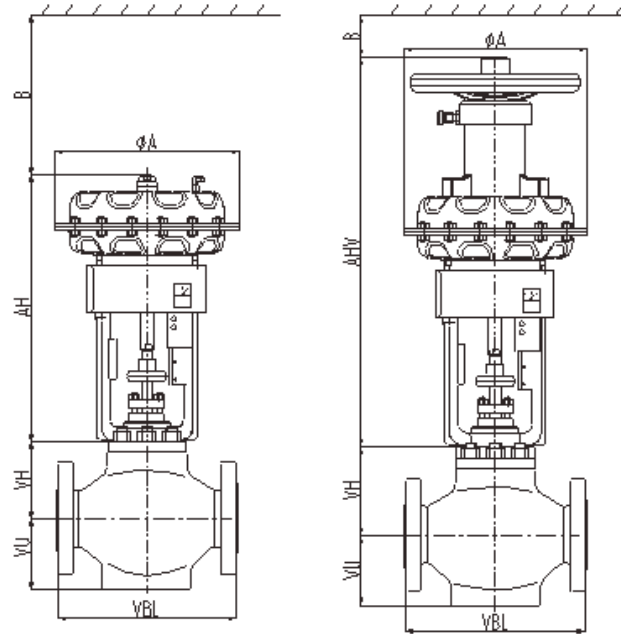


Figure 7. With Side-Mounted Handwheel for DN80 (3") - DN200 (8") (Only ASP2 and ASP3)

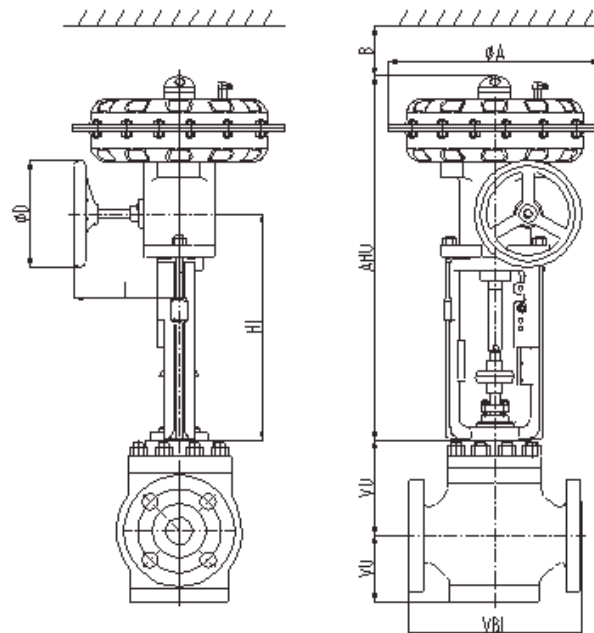


Figure 8. With ASP5 Actuator DN150 (6") - DN400 (16")

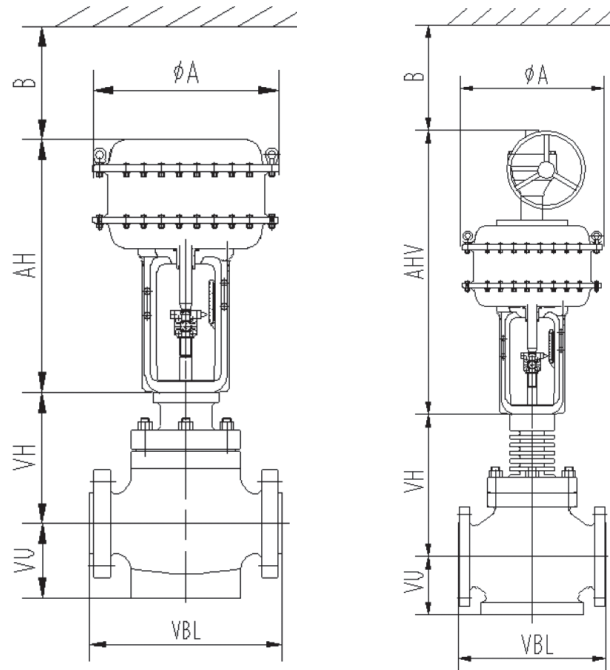


Table 6. Outline Dimensions and Weight DN80 (3") - DN400 (16"), Class 600/900/1500

Lengths are in mm		DN	80	100	150	200	250	300	350	400	
Valve	VBL Class 600	RF	356	432	559	660	752	850	972	1108	
		RJ	359	435	562	664					
	VBL Class 900	RF	381	457	610	737	-	-	-	-	
		RJ	384	460	613	740					
	VBL Class 1500	RF	470	546	705	832	-	-	-	-	
		RJ	473	549	711	841					
	VH	< 300°C	236	268	363	413	373	409	472	534	
		≥ 300°C	361	400	504	557	620	674	726	787	
	VU			153	178	228	260	300	330	390	458

Table 6. Outline Dimensions and Weight DN80 (3") - DN400 (16"), Class 600/900/1500 (Continued)

Lengths are in mm		DN	80	100	150	200	250	300	350	400	
Actuator	A dia	ASP2	270		-						
		ASP3	400				-				
		ASP5	-			630					
	AH	ASP2	425		-						
		ASP3	505		645		-				
		ASP5	-		920		820				
	AHV	ASP2	580		-						
		ASP3	780		920		-				
		ASP5	-		1265 - (direct action) 1370 - (reverse action)		1295 - (direct action) 1400 - (reverse action)				
	AHU	ASP2	545		-						
		ASP3	685		825		-				
	D dia	ASP2	200		-						
		ASP3	250				-				
	L	ASP2	159		-						
		ASP3	197				-				
	H1	ASP2	308		-						
ASP3		424				-					
B		150		200		450					
Approximate Weight kg	ASP2	104	138	-							
	ASP3	130	164	317	607	-					
	ASP5	-		462	752	830	940	1595	2490		

NOTES:

1. Main outline sizes (mm), connection sizes of flange comply with ANSI Class 600/900/1500, RF/RTJ.
2. Weight is valve + actuator without handwheel.
3. Class 600 valves comply with ASME B16.10 face to face dimensions.

Table 7. Outline Dimensions and Weight 3" (DN80) to 16" (DN400), Class 600/900/1500

Lengths are in inches		3"	4"	6"	8"	10"	12"	14"	16"	
Valve	VBL Class 600	RF	14.00	17.00	22.00	26.00	29.6	33.5	38.3	43.6
		RJ	14.13	17.13	22.13	26.13				
	VBL Class 900	RF	15.00	18.00	24.00	29.00	-	-	-	-
		RJ	15.13	18.13	24.13	29.13				
	VBL Class 1500	RF	18.50	21.50	27.75	32.75	-	-	-	-
		RJ	18.62	21.62	28.00	22.13				
	VH	< 572°F	9.3	10.6	14.3	16.3	14.7	16.1	18.6	21.0
		≥ 572°F	14.2	15.7	19.8	32.9	24.4	26.5	28.6	31.0
	VU		6.0	7.0	9.0	10.2	11.8	13.0	15.4	18.0
Actuator	A dia	ASP2	10.6		-					
		ASP3	15.75			-				
		ASP5	-		24.8					
	AH	ASP2	16.7		-					
		ASP3	19.9		25.4		-			
		ASP5	-		36.2		32.3			
	AHV	ASP2	22.8		-					
		ASP3	30.7		36.2		-			
		ASP5	-		49.8 - (direct action) 53.9 - (reverse action)		51.0 - (direct action) 55.1 - (reverse action)			
	AHU	ASP2	21.5		-					
		ASP3	27.0		32.5		-			
	D dia	ASP2	7.9		-					
		ASP3	9.8			-				
	L	ASP2	6.3		-					
		ASP3	7.8			-				
	H1	ASP2	12.1		-					
		ASP3	16.7			-				
	B		5.9		7.9		17.7			
Approximate Weight lbs	ASP2	229	304	-	-	-	-	-	-	
	ASP3	286	361	697	1335					
	ASP5	-		1016	1654	1826	2068	3509	5478	

NOTES:

1. Main outline sizes, connection sizes of flange comply with ANSI Class 600/900/1500, RF/RTJ.
2. Weight is valve + actuator without handwheel.
3. Class 600 valves comply with ASME B16.10 face to face dimensions.

Figure 9. With Pneumatic Piston Actuator for DN450 (18") - DN600 (24")

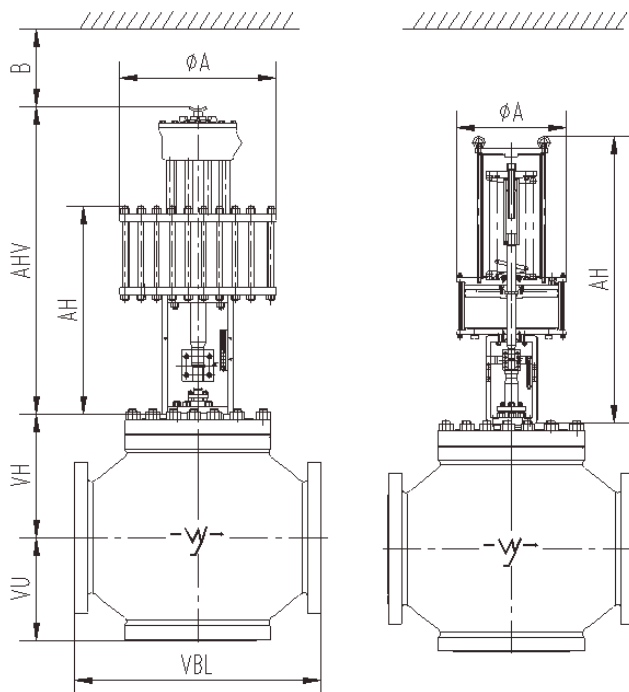


Table 8. Outline Dimensions and Weight with Pneumatic Piston Actuator 18" - 24" Class 600

inches (DN)		18" (450)	20" (500)	24" (600)	
Valve	VBL Class 600		50.2" (1275 mm)	53.3" (1354 mm)	65.7" (1670 mm)
	VH	< 572°C/300°F	23.8" (605 mm)	32.1" (815 mm)	45.3" (1150 mm)
		≥ 572°C/300°F	31.7" (805 mm)	40.7" (1035 mm)	55.5" (1410 mm)
VU		19.1" (485 mm)	22.5" (570 mm)	28.0" (710 mm)	
Actuator	A dia	MP500	23.4" (595 mm)		-
		MP500-SR/SD			
		MP650			29.3" (745 mm)
	AH	MP500	45.5" (1115 mm)		
		MP500-SR/SD	76.6" (1945 mm)		
		MP650	-	41.0" (1041 mm)	
		MP650-SR/SD	-	77.2" (1960 mm)	
	AHV	MP500	59.6" (1515 mm)		
		MP650	-	56.7" (1441 mm)	
	B		11.8 (300 mm)		13.8" (350 mm)
Approximate Weight lb. (kg)		8525 (3875)	1980 (5445)	18380 (8354)	

NOTES:

1. Main outline sizes, connection sizes of flange comply with ANSI Class 600, RF/RTJ/BW.
2. Weight is valve + actuator without handwheel.

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