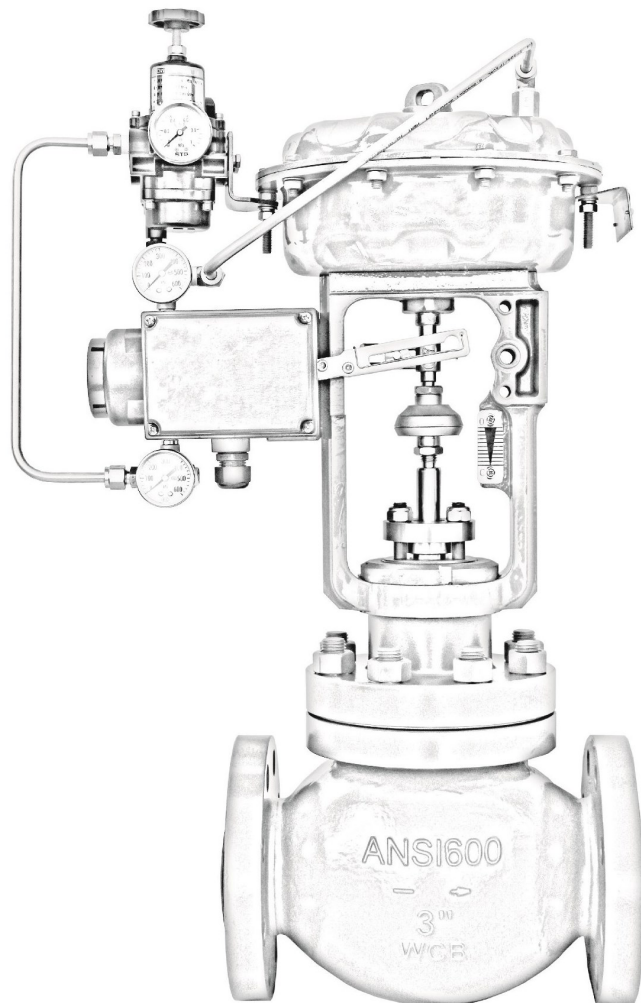


WZI FLOW CONTROL

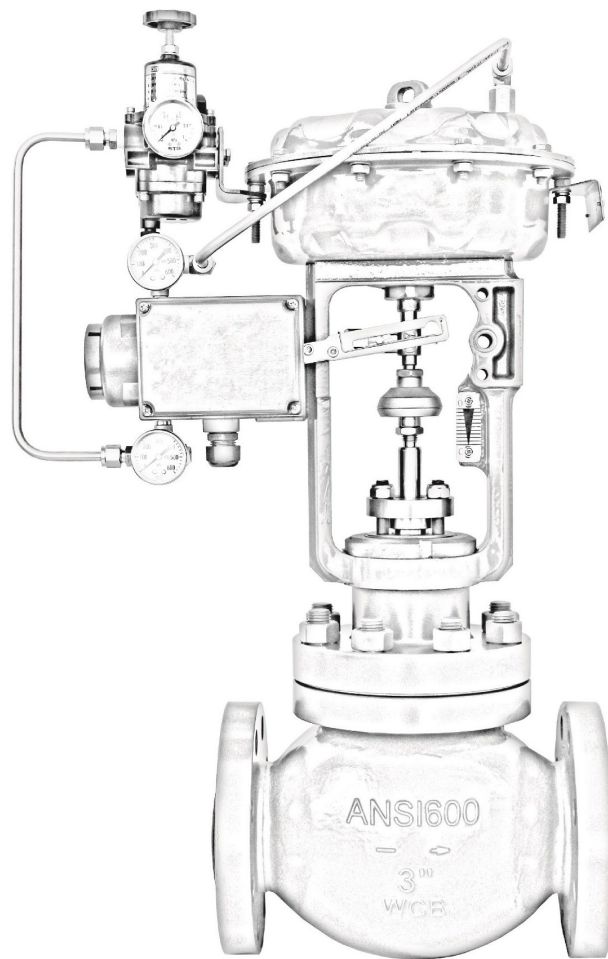


SERIES APC

CAGE CONTROL VALVE

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SERIES APC FEATURES

- Top Guided Stem and **Drilled Hole Plug**
- **Quick Change, Unbalanced Trim** Cage Control Valve
- Robust, Compact Body with **Various Trim Options**
- **Cv Range** 4.7 to 527 in Sizes 1" to 8" Class 600 to 1500, PN60m PN100, PN160, PN 250
- **Tight Shutoff** to ANSI/FCI70-2 Class IV, V
- **Options** Include NACE MR0103/MR0175 Compliance, Custom Materials, Extension Bonnet
- Bolted Bonnet and Packing Boxes **Eliminate Thread Corrosion** and Failure of Threaded Designs

CAGE QUICK CHANGE TRIM GLOBE VALVES

KEY COMPONENTS

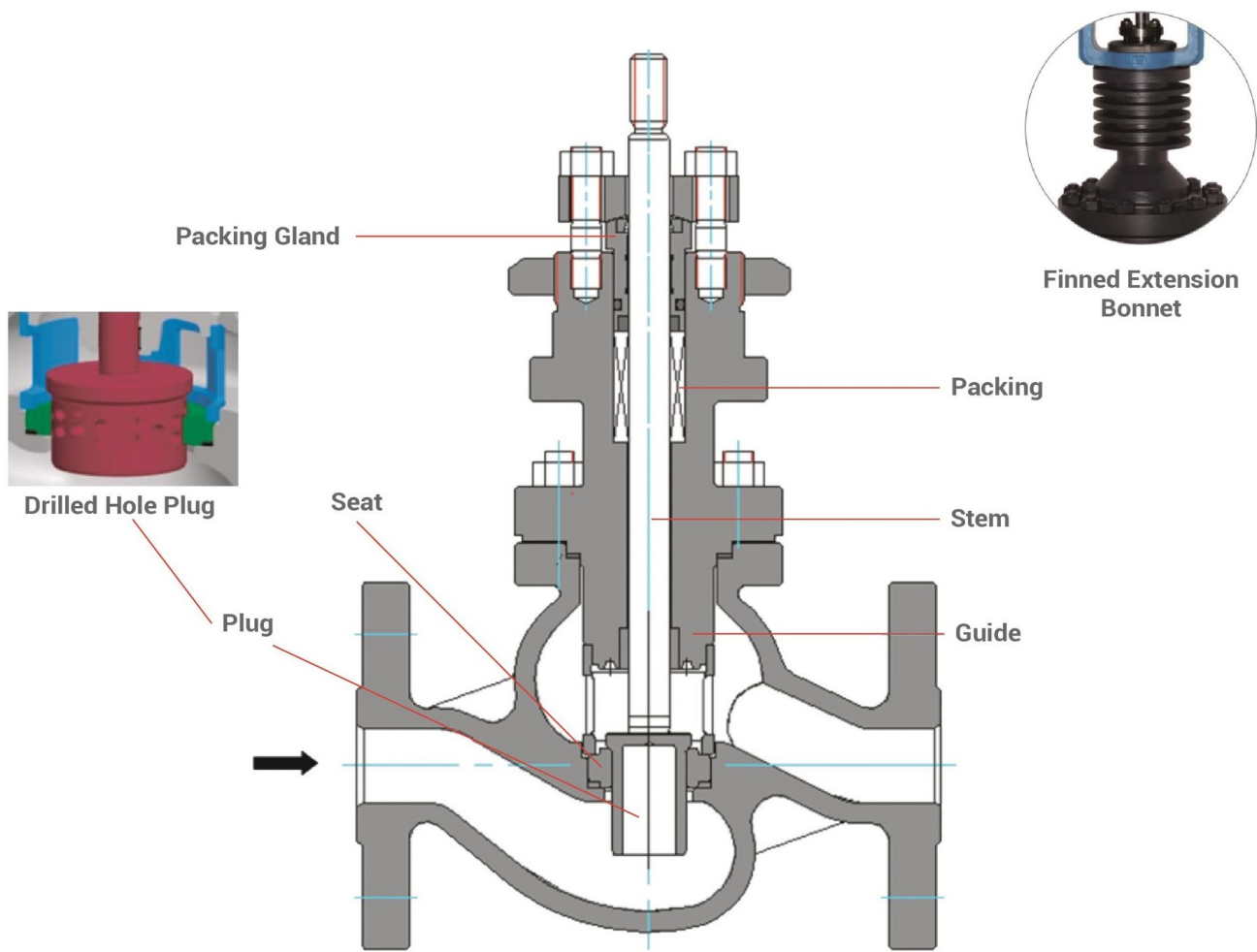


Table 1: Key Components

TYPE	Globe, Unbalanced Drilled Hole Plug
BODY SIZE	1" (DN25) ~ 8" (DN200)
PLUG CHARACTERISTIC	Drilled Hole Plug, Equal Percentage, Linear
PRESSURE CLASSES	Class 600 ~ Class 1500, PN63, PN100, PN160, PN250
BODY CONNECTIONS	RF, RTJ, BW
FACE TO FACE DIMENSIONS	IEC 60534-3, See Pages 10-13
STEM PACKING	PTFE V-Ring, PTFE V-Ring Double, PTFE Filled, Grafoil®/Graphite
GASKET	316ss, Reinforced Graphite

MATERIALS OF CONSTRUCTION

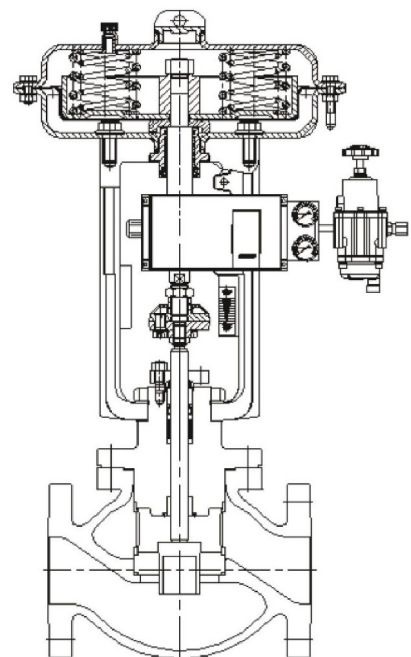
CARBON STEEL

Table 2-1: Body Material, Carbon Steel

Name	Temperature, °C / °F					
	-46	-29	200	260	345	425
	-50	-20	392	500	650	800
Body / Bonnet	A352-LCB					
	A216-WCB					
Body / Packing Stud	A193-B7					
Body / Packing Nut	A194-2H					
Plug	420ss HT					
	316ss/NT					
Stem	316ss					
Seat Gasket	316ss Graphite					
Seat	420ss HT					
	316ss / HF					
Leakage Class IV, V	Hard Seat					
Locknut	300ss					
Ball	300ss					
Plug Gasket	316ss Graphite					
Retainer	316ss				400ss	
Guide	420ss HT					
	316ss NT					
Flat Key	316ss					
Socket head screw	316ss					
Body Gasket	316ss Graphite					
Cap nut	Carbon Steel					
Gland Flange	A216-WCB					

Notes:

- 1) For flashing or cavitating service, Hardfaced 316ss trim is recommended.
- 2) For valve sizes 1" -2" (DN25-DN50) plug and stem are integral.
- 3) HT = heat treated, NT = nitrided, HF = hard faced with Cobalt 6 alloy
- 4) Optional materials are available, consult the factory
- 5) Pressure boundary parts are provided to ASTM Standards
- 6) Valve internal materials are supplied to ASTM/JIS/DIN/GB equivalent
- 7) Compliance to NACE is available to MR0103 or MR01-75/ISO-15156



MATERIALS OF CONSTRUCTION

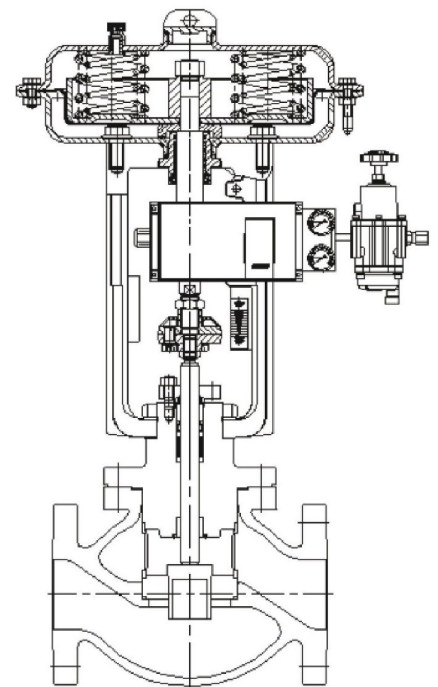
STAINLESS STEEL

Table 2-2: Body Material, Stainless Steel

Name	Temperature, °C / °F							
	-196	-46	-29	200	260	345	425	566
	-320	-50	-20	392	500	650	800	1050
Body / Bonnet	A351-CF8M, CF8M							
Body / Packing Stud	A193-B8M Class 1							
Body / Packing Nut	A194-B8M							
Plug	316ss/NT							
Stem	316ss							
Seat Gasket	316ss Graphite							
Seat	316ss, 316ss / HF							
Leakage Class IV, V	Hard Seat							
Locknut	300ss							
ball	300ss							
Plug Gasket	316ss Graphite							
Retainer	316ss							
Guide	316ss NT							
Flat Key	300ss							
Socket head screw	300ss							
Body Gasket	316ss Graphite							
Cap Nut	Carbon Steel							
Gland Flange	CF8M							

Notes:

- 1) For flashing or cavitating service, Hardfaced 316ss trim is recommended.
- 2) For valve sizes 1" - 2" (DN25-DN50) plug and stem are integral.
- 3) HT = heat treated, NT = nitrided, HF = hard faced with Cobalt 6 alloy
- 4) Optional materials are available, consult the factory
- 5) Pressure boundary parts are provided to ASTM Standards
- 6) Valve internal materials are supplied to ASTM/JIS/DIN/GB equivalent
- 7) Compliance to NACE is available to MR0103 or MR01-75/ISO-15156



MATERIALS OF CONSTRUCTION

NACE STANDARD MATERIALS

Table 2-3: NACE Materials

Name	Temperature, °C / °F					
	-46	-29	200	260	345	425
	-50	-20	392	500	650	800
Body / Bonnet	A352-LCB					
		A216-WCB				
	A351-CF8, CF8M					
Body / Packing Stud	A193 B8M Class 1					
	A320-L7/L7M	A193-B7/B7M				
Body / Packing Nut	A194-B8M					
	A194-L7/L7M	A194-2H / 2HM				
Plug	316ss NT					
Stem	316ss					
Seat Gasket	316ss Graphite					
Seat	316ss / HF					
Leakage Class IV, V	Hard Seat					
Locknut	300ss					
ball	300ss					
Plug Gasket	316ss Graphite					
Retainer	316ss					
Guide	316ss NT					
Flat Key	300ss					
Socket head screw	300ss					
Body Gasket	316ss Graphite					
Cap nut	Carbon Steel					
Gland Flange	A216-WCB					

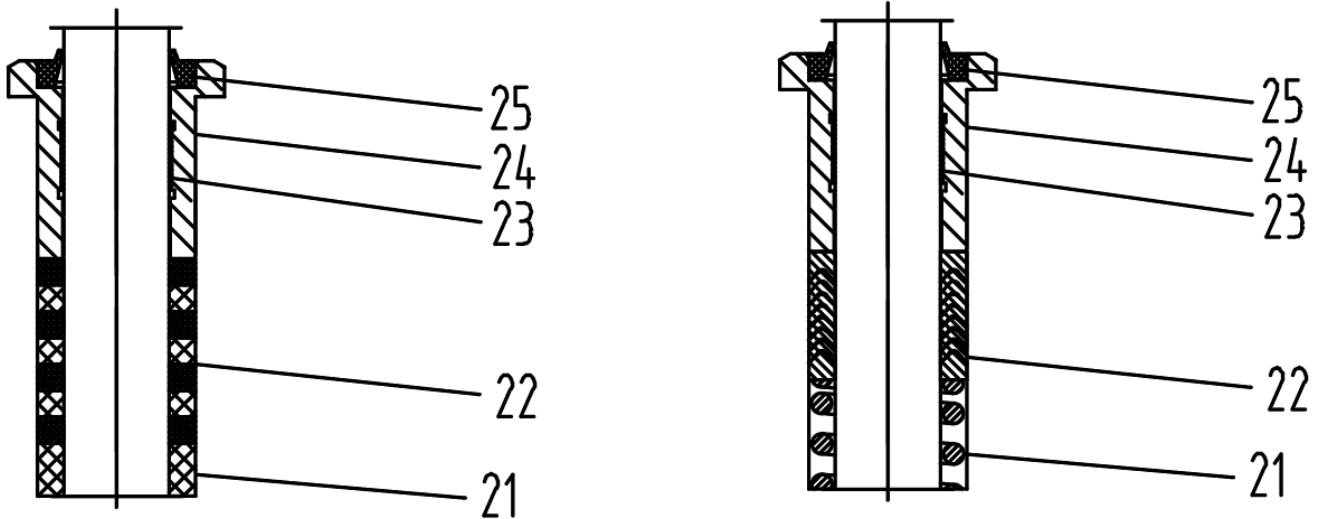
Notes:

- 1) For flashing or cavitating service, Hardfaced 316ss trim is recommended.
- 2) For valve sizes 1" - 2" (DN25-DN50) plug and stem are integral.
- 3) HT = heat treated, NT = nitrided, HF = hard faced with Cobalt 6 alloy
- 4) Optional materials are available, consult the factory
- 5) Pressure boundary parts are provided to ASTM Standards
- 6) Valve internal materials are supplied to ASTM/JIS/DIN/GB equivalent
- 7) Compliance to NACE is available to MR0103 or MR01-75/ISO-15156



MATERIALS OF CONSTRUCTION

VALVE PACKING BOX OPTIONS



PACKING BOX BILL OF MATERIAL AND TEMP. SELECTION

Table 3: Packing Box Materials

Item	Name	Temperature, °C / °F							
		-196	-46	-29	200	260	345	425	566
		-320	-50	-20	392	500	650	800	1050
21	Spacer, Graphite Packing	Carbon							
	Spring, V-Ring Packing	300SS							
	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	316ss							
25	Wiper Ring, Standard Bonnet	Buna-N							
	Wiper Ring, Extended Bonnet	Buna-N							

Notes:

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

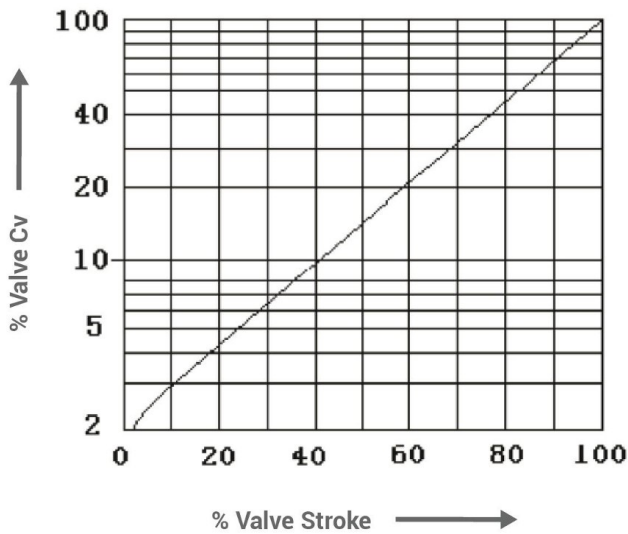
FLOW CHARACTERISTICS

Cv vs STROKE

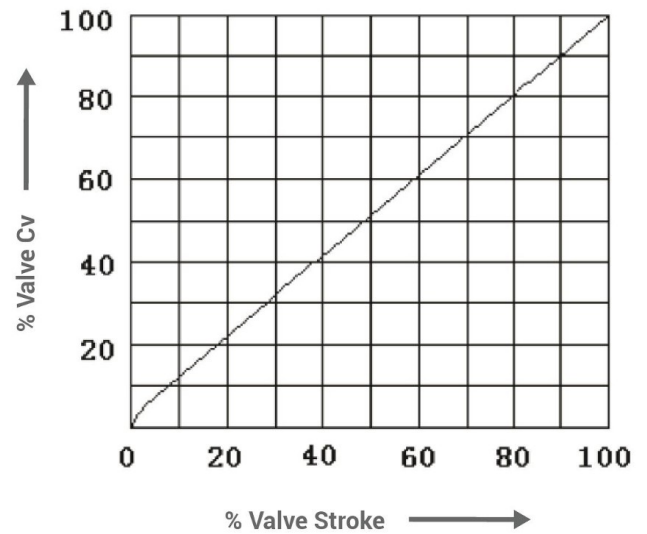
- Linear and Equal Percentage plug characteristics are available
- Linear characteristic recommended for constant pressure drop with variable flow conditions
- Equal Percentage characteristic recommended for variable pressure drop (high pressure drop at low flow and low pressure drop at high flow)
- For different conditions, the pressure drop profile should be reviewed to linearize flow response versus stroke through the valve. Variety of Standard and Customizable Configurations

Cv vs STROKE, METAL SEATED TRIM

Equal Percentage



Linear



The Cv versus stroke characteristic may also be dependent on the application of the valve. Certain industry applications are better served by a specific valve characteristic. Consult the factory for further information.

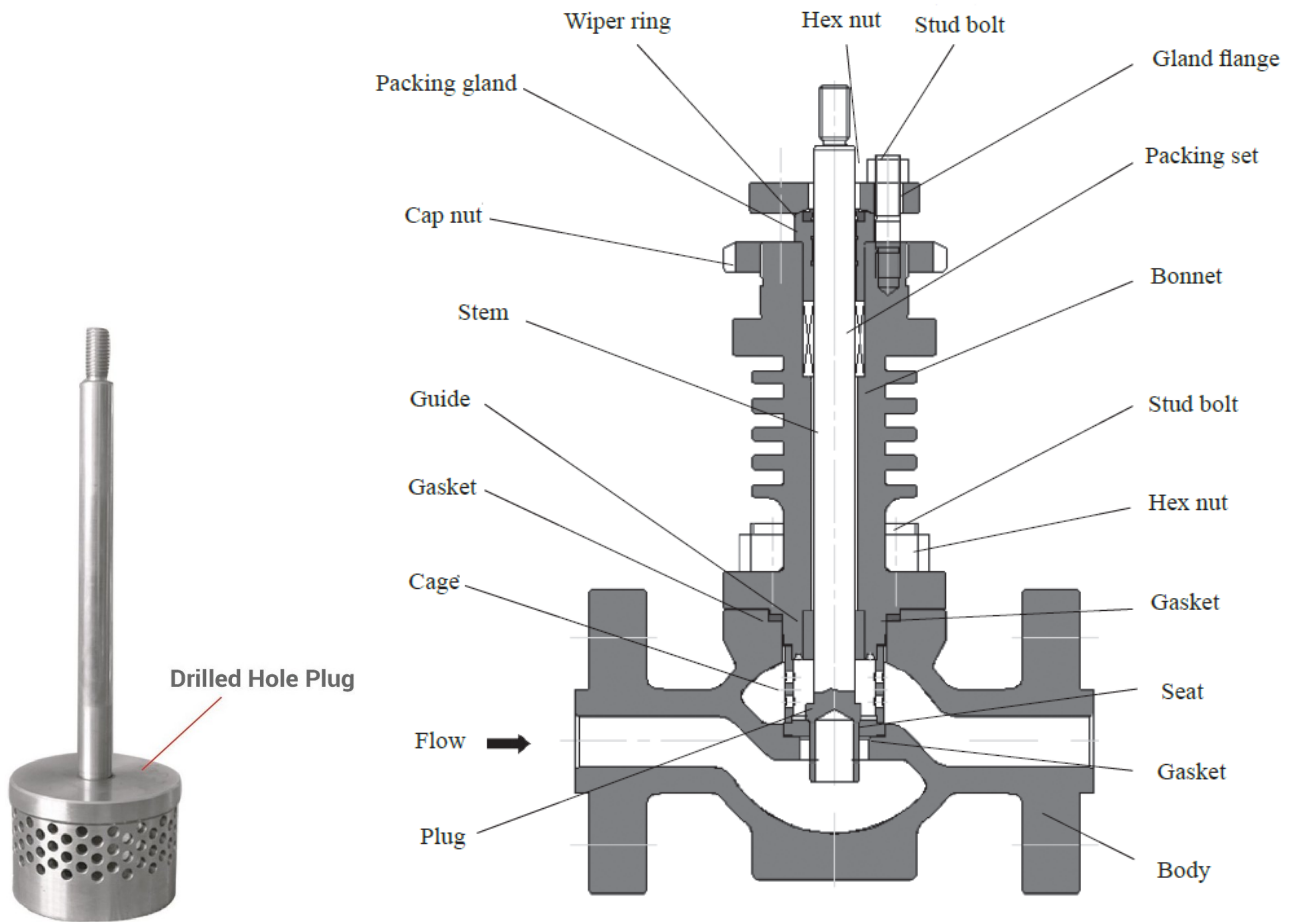


FLOW CHARACTERISTICS

Cv AND STROKE

Table 4: Valve Size, Cv, and Stroke

Plug type		Drilled Hole Plug					
Flow characteristics		Linear			Equal percentage		
Valve Size inch (mm)	Stroke inch (mm)	Cv1	Cv2	Cv3	Cv1	Cv2	Cv3
1" (25)	0.8" (20)	11.7	8.2	4.7	8.2	4.7	
1.5" (40)		31	21	-	19	13	
2" (50)	1.2" (30)	94	31	-	41	25	
3" (80)		94	70	65	65	50	44
4" (100)		129	94	70	80	65	50
6" (150)	2.4" (60)	445	304	198	246	176	145
8" (200)		527	445	304	304	246	176



ACP High Temperature

DIMENSIONS AND WEIGHTS

WITH PNEUMATIC ACTUATOR

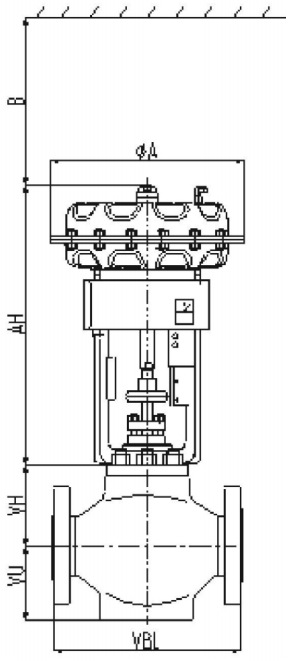


Figure 5-1: Overall drawing with top mounted handwheel
For DN25—DN200 (1"-8")

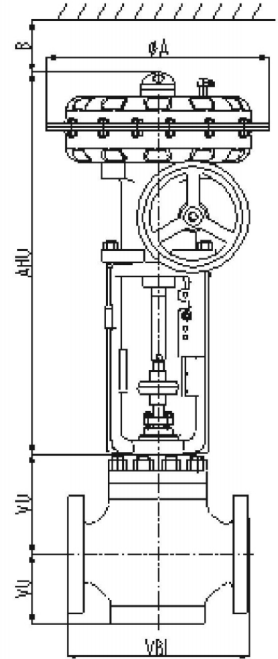
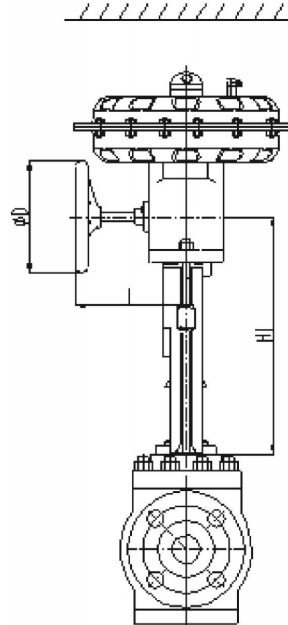
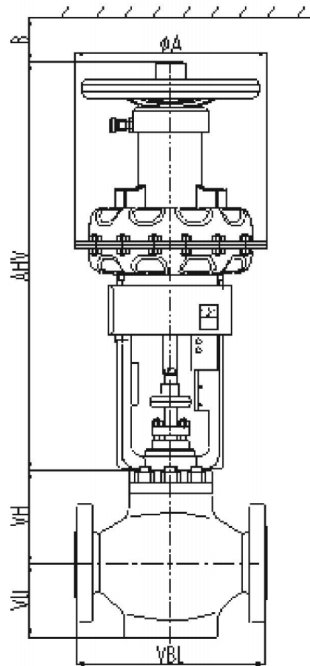


Figure 5.2: Overall drawing with side mounted handwheel
For DN25—DN200 (1"-8")

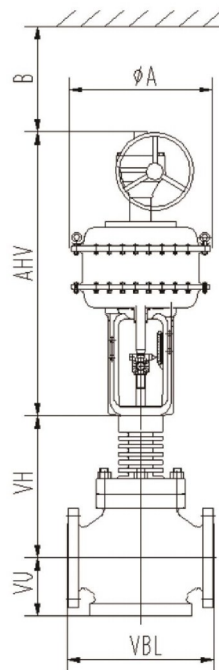
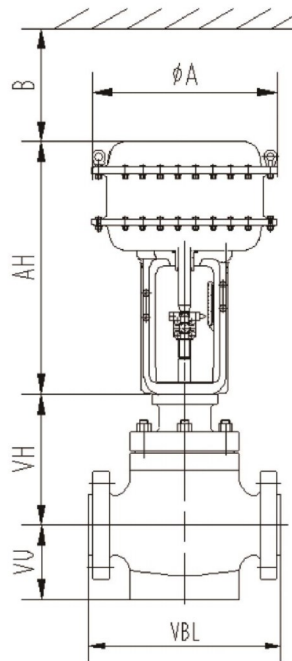


Figure 5.3: Overall drawing with MF5 Actuator
For DN25—DN200 (1"-8")

DIMENSIONS AND WEIGHTS

WITH PNEUMATIC ACTUATOR

Table 5.1: Outline Dimensions and Weights, DN25-DN200 (1"-8"), PN 63/100/160/250
See Fig. 5.1, 5.2, and 5.3 for Overall Drawing

Valve	Valve size, inch (DN)			1" (25)	1 1/2" (40)	2" (50)	3" (80)	4" (100)	6" (150)	8" (200)
	VBL	PN63	RF	230	260	300	380	430	550	700
FM			230	260	300	380	430	550	700	
RJ			243	268	312	380	440	557	710	
LG			230	260	300	380	430	550	700	
PN100		RF	230	260	300	380	430	550	700	
		FM	230	260	300	380	430	550	700	
		RJ	243	268	316	392	440	557	716	
		LG	230	260	300	380	430	550	700	
PN160		RF	230	272	320	380	462	610	700	
		FM	230	272	320	380	462	610	700	
		RJ	243	281	336	396	472	613	716	
PN250		RF	260	300	350	450	520	700	800	
VH		<300°C	132	183	205	236	268	363	413	
	≥300°C	207	278	255	361	400	504	557		
VU	Flange	68	103	113	153	178	238	273		
Actuator	ØA	MF2	270							
		MF3	400							
		MF5							630	
	AH	MF2	405			425				
		MF3	505			645				
		MF5							920	
	AHV	MF2	560, Top mounted Handwheel			580, Top mounted handwheel				
		MF3	780 Top mounted Handwheel			920 Top mounted handwheel				
		MF5							1370 Top mounted side operating handwheel	
	AHU	MF2	525 Side mounted handwheel			545 Side mounted handwheel				
		MF3	685 Side mounted Handwheel			825 Side mounted handwheel				
	ØD	MF2	200							
		MF3	250							
	L	MF2	159							
		MF3	197							
	H1	MF2	308							
		MF3	424							
	B		130				150		200	
	Approximate weight (kg)	MF2	37	46	75	104	138			
MF3					102	130	164	317	607	
MF5								462	752	

Notes:

- 1) All dimensions in mm
- 2) Weights—Valve + actuator without handwheel
- 3) For alternate sizing and actuators, consult Factory
- 4) Flange distance complies with DIN 2543/2544/2545, JB/T79, HG/T20592-2009, face-to-face dimensions comply with DIN 3202-F1

DIMENSIONS AND WEIGHTS

WITH PNEUMATIC ACTUATOR

Table 5.2: Outline Dimensions and Weight DN25-200 (1"-8"), Class 600/900/1500
 See Fig. 5.1, 5.2, and 5.3 for Overall Drawing

	Valve Size inch (DN)		1" (25)	1 1/2" (40)	2" (50)	3" (80)	4" (100)	6" (150)	8" (200)	
	Valve	VBL CI 600	RF	216	241	292	356	432	559	660
RJ			216	241	295	359	435	562	664	
VBL CI 900		RF	254	305	368	381	457	610	737	
		RJ	254	305	372	384	460	613	740	
VBL CI 1500		RF	254	305	368	470	546	705	832	
		RJ	254	305	372	473	549	711	841	
VH		<300°C	132	183	205	236	268	363	413	
		≥300°C	207	278	255	361	400	504	557	
VU		Flange	68	103	113	153	178	238	273	
		Flange				174	219	254	314	366
Actuator	ØA	MF2	270							
		MF3	400							
		MF5							630	
	AH	MF2	405		425					
		MF3	505			645				
		MF5							920	
	AHV	MF2	560 Top Mounted Handwheel		580 Top Mounted Handwheel					
		MF3	780 Top Mounted Handwheel		920 Top Mounted Handwheel					
		MF5							1370 Top Mounted Handwheel	
	AHU	MF2	525 Side Mounted Handwheel		545 Side Mounted Handwheel					
		MF3	685 Side Mounted Handwheel		825 Side Mounted Handwheel					
	ØD	MF2	200							
		MF3	250							
	L	MF2	159							
		MF3	197							
	H1	MF2	308							
		MF3	424							
	B		130			150			200	
	Approximate Weight (kg)	MF2	37	46	75	104	138			
		MF3				102	130	164	317	607
MF5								462	752	

Notes:

- 1) All dimensions are in mm
- 2) Weights—Valve + actuator without handwheel
- 3) For alternate sizing and actuators, consult the Factory
- 4) Flanges comply with ASME B16.5

DIMENSIONS AND WEIGHTS

WITH PNEUMATIC ACTUATOR

Table 5.2: Outline Dimensions and Weight DN25-200 (1"-8"), Class 600/900/1500
 See Fig. 5.1, 5.2, and 5.3 for Overall Drawing

Valve Size inch (DN)		1" (25)	1 1/2" (40)	2" (50)	3" (80)	4" (100)	6" (150)	8" (200)	
Valve	VBL CI 600	RF	8.50	9.49	11.50	14.02	17.01	22.01	25.98
		RJ	8.50	9.49	11.61	14.13	17.13	22.13	26.14
	VBL CI 900	RF	10.00	12.01	14.49	15.00	17.99	24.02	29.02
		RJ	10.00	12.01	14.65	15.12	18.11	24.13	29.13
	VBL CI 1500	RF	10.00	12.01	14.49	18.50	21.50	27.76	32.76
		RJ	10.00	12.01	14.65	18.62	21.61	27.99	33.11
	VH	<572°F	5.2	7.2	8.1	9.3	10.6	14.3	16.3
		≥572°F	8.1	10.9	10.0	14.2	15.7	19.8	21.9
	VU	Flange	2.7	4.1	4.4	6.0	7.0	9.4	10.7
		Flange			6.9	8.6	10.0	12.4	14.4
Actuator	ØA	MF2	10.6						
		MF3	15.7						
		MF5							24.8
	AH	MF2	15.9		24.8				
		MF3	19.9			24.8			
		MF5							920.0
	AHV	MF2	22.0 Top mounted handwheel		22.8 Top mounted handwheel				
		MF3	30.7 Top Mounted handwheel		36.2 Top Mounted Handwheel				
		MF5							53.9 Top Mounted handwheel
	AHU	MF2	20.7 Side Mounted Handwheel		21.5 Side Mounted Handwheel				
		MF3	27.0 Side Mounted Handwheel		32.5 Side Mounted Handwheel				
	ØD	MF2	7.9						
		MF3	9.8						
	L	MF2	6.3						
		MF3	7.8						
	H1	MF2	12.1						
		MF3	16.7						
	B		5.1		5.9			5.9	
	Approximate Weight (lb)	MF2	81	101	165	229	304		
		MF3			224	286	361	697	1335
MF5								1016	1654

Notes:

- 1) All dimensions are in inches
- 2) Weights—Valve + actuator without handwheel
- 3) For alternate sizing and actuators, consult the Factory
- 4) Flanges comply with ASME B16.5



WHO WE ARE

WZI Flow Control, Ltd., a subsidiary of WuZhong Instrument Company, Ltd., began business in 1959. As China's largest control valve manufacturer, WZI has a state of the art 2.8M ft2 production, foundry and corporate office campus. With over 1000 employees, WZI is expanding globally with increased manu-facturing, sales and service capabilities to better serve our rapidly growing global customer base.

As a member of the highly acclaimed China Automation Group (www.cag.com.hk), WZI has successfully supplied over 1 million valves for the global market. With our 100% Testing and Serialization Program, WZI prides itself on our high quality, competitively priced products with superior delivery from our new sales and service center located in Houston, Texas. Our Southern California office designs new products and makes continuous improvements to our broad existing product offering.

LET'S WORK TOGETHER

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WE'RE QUALIFIED

As a global manufacturing company, WZI Flow Control verifies that we are operating in full compliance with this partial list of industry standards. Our compliance includes additional standards not shown here. Please contact the factory for additional details.

ISO 9001	API Spec Q1	API 6DSS	API 607, 7th Edition
ISO 14001	API 6A	API 17D	API 6FA, 3rd Edition
OHSAS 18001	API 6D	API 609 Cat B	SIL-capable

QUALITY
TRUST
INTEGRITY

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