H100-022 Balance Multi-Layer Cage Low Temperature Control Valve

H100-022[1] Balance multi-layer cage low temperature control valve is mainly used for regulating ultralow temperature media accurately. With temperature up to -196°C, it is applicable for ethylene, liquefied natural gas (LNG), air separation and PSA oxygen generation and other low temperature devices.

The product complies with GB/T4213-2008 standard.

Standard specification

Body

Type	Balance multi-layer cage low temperature control valve
Nominal size	15/20/25、32、40、50、65、80、100、125、150、200、250、300、350mm
Nominal pressure	Class 150、300、600、900、1500
Type of connection	Flanged: FF、RF、RJ、TG、MFM Welded: SW（40～50mm）；BW（65～200mm） Flange standard: JIS B2201、JB/T79.1-94(PN1.6MPa)、JB/T79.2-94(PN4.0、6.4MPa)、ANSI B16.5-2009、HG20592-2009、HG20615-2009
Size	See Table 5
Body and upper bonnet material	CF3、CF3M、CF8、CF8M See Table 1 & 2 for application temperature • pressure range of materials
Type of upper bonnet	Extension type III (EIII): -196 to +200°C
Type of gland	Bolted gland
Packing	V type PTFE and graphite packing. See Fig. 2
Gasket	Zigzag (316, 316L)
Surface coating	深 Dark gray (epoxy resin). No coating for the body if it is made of stainless steel.

Trim

Type of plug	Single seated plunger type
Trim material **Trim treatment**	See Table 1 and Figure 1 for standard material combination and application temperature • pressure range.
Flow feature	See Fig. 4-1 for high-capacity flow feature ● Equal percentage feature (%F) and linear feature (LF) See Fig. 4-2 for high-accuracy flow feature ● Equal percentage feature (%) and linear feature (L) **Note: See Fig. 1-2 for operating temperature and differential pressure of PTFE seat**

Note [1]: H100-022corresponding to old model H100;

Actuator

Model / Specification	Pneumatic diaphragm type	Cylinder piston type	Electronic type	Intelligent type	Motorized type
	HA	HV	EIL	M8 series	RS4
	Multi-spring type	单 Single-action and dual-action piston type			
Purpose	Regulation	Regulation	Regulation		Regulation
Air supply pressure or power supply voltage	Air supply pressure (spring range) 400（80～240）kPa	Air supply pressure 400～700kPa	Voltage: 220/380V 50HZ Input signal: 4-20mA DC		
Connector	Air piping: NPT 1/4（HA11~HA41）; NPT 1/2（HA51）	Air piping: NPT 1/4（HV21~31）; NPT 3/8（HV41~51）; NPT 1/2（HV61~71）; NPT 3/4（HV81）	Wiring: 2-PF3/4	Wiring: PG13.5	Wiring: 2-G1/2
Direct action	Air to valve close	Air to valve close	Input signal to valve close		
Reverse action	Air to valve open	Air to valve open	Input signal to valve open		
Intrinsic error	±1.5%		±1.5%		
Hysteresis error	1.5%		1.5%		
Ambient temperature	Standard type: -30 to +70°C High temperature type: -15 to +120°C Low temperature type: -40 to +70°C	Standard type: -20 to +80°C High temperature type: -15 to +120°C Low temperature type: -40 to +80°C	－20～＋70℃	－25～＋70℃	－25～＋70℃
Paint color	Aqua blue (color code RAL5021)	Aqua blue (color code RAL5021)	—	—	—
Accessories	Positioner, air filtration reducer, lock-up valve, valve location transmitter, hand wheel, etc.	Positioner, air filtration reducer, lock-up valve, valve location transmitter, hand wheel, etc.	EIL actuator handwheel	M8 actuator handwheel	RS actuator handwheel

Performance

CV value and stroke	See Table 3
Seat leakage	See Table 1
Rangeability	50:1
Allowable differential pressure	See Table 4
Weight	See Table 5

Table 1 Material combination and application temperature of body and trim • Allowable leakage of valve seat

- HT: Heat treatment
- ST: Stellite
- SS: Partial stellite
- SF: Full stellite

Table 1-1 Body material: Stainless steel

Body material		CF8, CF8M,CF3M		
Plug	**Material**	304/316/316L	304/316	304/316/316L
	Treatment	——	PCTFE	SS/SF
Valve seat	**Material**	304/316/316L	304/316/316L	304/316/316L
	Treatment	——	——	SS/SF
Guide	**Material**	304/316/316L	304/316/316L	304/316/316L
	Treatment	——	——	ST
Gasket	**Material**	316L	316L	316L
Allowable leakage	**ANSI**	Class IV	Class VI	Class IV
of valve seat	**Rated Cv×**	0.01%	Bubble-tight	0.01%
Application temperature °C		-196～+200	-196～+200	-196～+200

Fig. 1 Trim material · Treatment

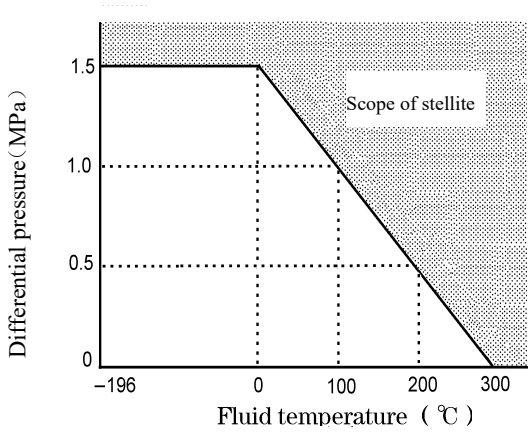


Fig. 1-1 Operating range of stellite

Note: 1. 9Cr18 hardened stainless steel is suggested for cavitation and flashing or water temperature over 100°C.
2. Cavitation, flashing, oil prohibitive service or normally-closed status.
3. If Cv≤0.16, SF or 9Cr18 hardened stainless steel is used for plug.

Pressure MPa

Fig. 2 Application temperature · pressure range of packing

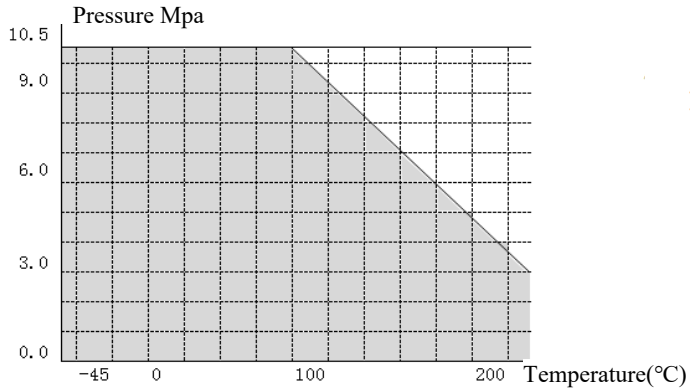


Fig. 2-1 Reinforced PTFE V type packing

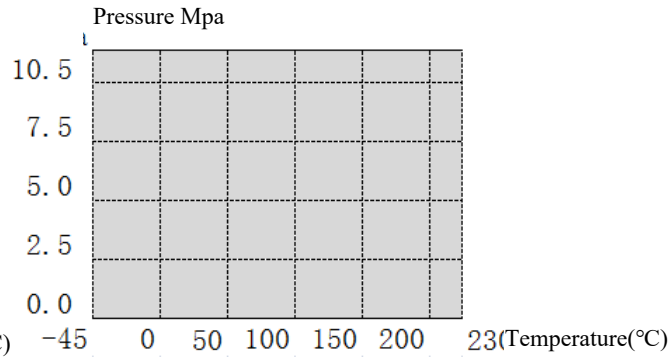


Fig. 2-2 PTFE carbon fiber

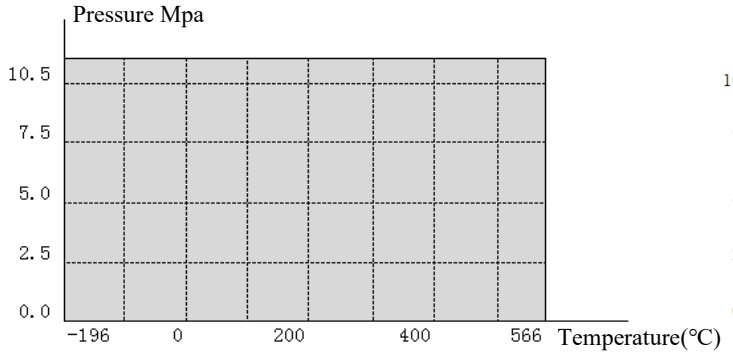


Fig. 2-3 Flexible graphite (non-oxidation environment)

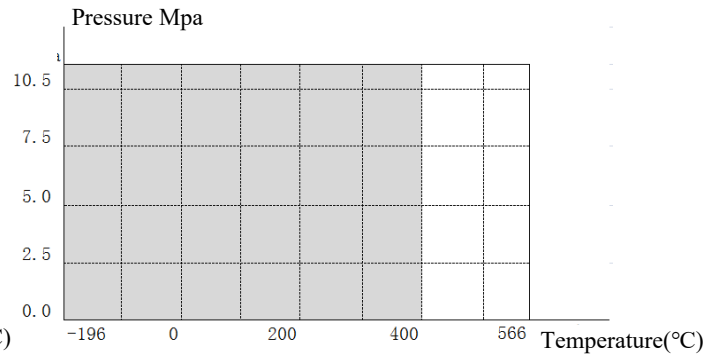


Fig. 2-3 Flexible graphite (oxidation environment)

Fig. 3 Structure of body components

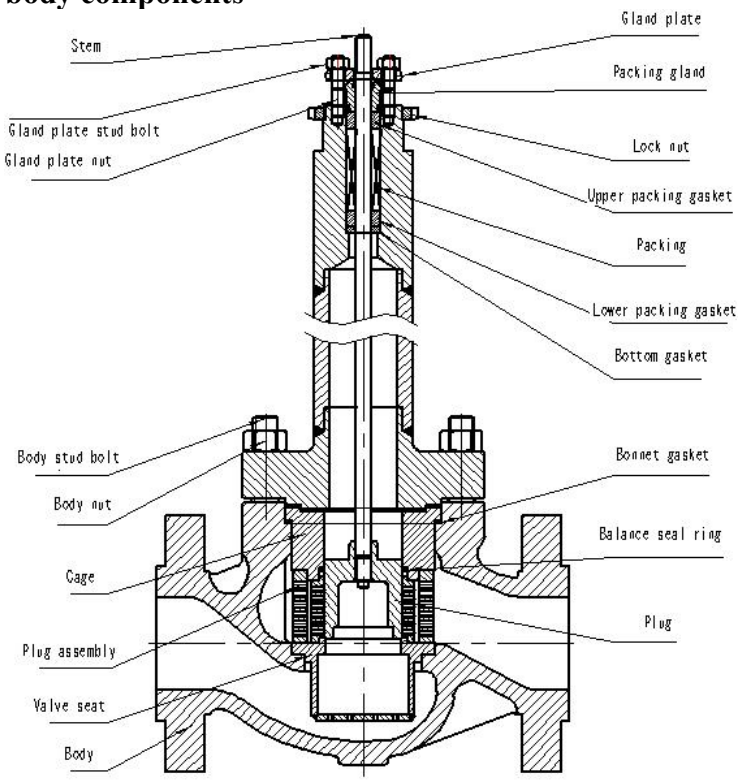


Table 3 CV value and stroke

Nominal pressure (Class150，PN16~25)

Nominal size		15/20/25			20/25	25	32	40	50	65	80	100	125	150	200	250	300	350	400
Diameter of valve seat		8	11	14	20	25	30	40	50	65	80	100	125	150	200	250	300	350	400
Reduced pressure level		2					2	2	2	2	2	2	2	2	2	2	2	2	2
(MPa) Differential pressure range (MPa)		ΔP1					ΔP1	ΔP1	ΔP1	ΔP1	ΔP1	ΔP1	ΔP1	ΔP1	ΔP1	ΔP1	ΔP1	ΔP1	ΔP1
Rated Cv value	Linear L	0.25	1	2.5	6.3	9	9	11	17	32	48	68	99	125	240	330	530	700	1000
		0.4	1.6	4			14	17	32	48	68	99	140	175	330	650	700	1050	1200
		0.63	-	-			17	26	48	80	99	140	200	275	530	850	1050	1440	1650
	Equal percentage %	0.25	1	2.5	4	6.3	6.3	9	11	17	24	48	68	99	125	175	330	530	700
		0.4	1.6	-			9	14	17	24	48	68	99	125	175	330	530	700	1000
		0.63	-	-			14	20	24	60	68	99	125	160	330	650	700	1000	1200
Rated stroke mm		14.3					25			38			50		75	100		120	

Note: **1. Differential pressure range(Mpa): 1.5＜ΔP1≤3；**

2. For special Cv and higher differential pressure conditions, please consult technical department.

Nominal pressure (Class300，PN40)

Nominal size		15/20/25					20/25		25		32		40		50		65		80		100	
Diameter of valve seat		8	11	14	8	11	20	14	25	20	30	25	40	30	50	40	65	50	80	65	100	75
Reduced pressure level		2			3		2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3
(MPa) Differential pressure range (MPa)		ΔP1			ΔP2		ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2
Rated Cv value	Linear L	0.25	1	2.5	0.25	1	6.3	4	9	6.3	9	4	11	6.3	17	11	32	24	48	32	68	44
		0.4	1.6	4	0.4	1.6		2.5			14	6.3	17	11	32	17	48	32	68	44	99	60
		0.63	-	-	0.63	-		-			17	9	26	16	48	24	80	44	99	68	140	80
	Equal percentage %	0.25	1	2.5	0.25	1	4	2.5	6.3	4	6.3	2.5	9	4	11	6.3	17	17	24	24	48	24
		0.4	1.6	-	0.4	1.6					9	4	14	6.3	17	11	24	24	48	32	68	32
		0.63	-	-	0.63	-					14	8	20	11	24	17	60	32	68	44	99	48
Rated stroke mm		14.3									25						38					

Nominal size		125		150		200				250				300				350			
Diameter of plug		125	90	150	115	200	160	130	115	250	190	160	130	300	275	205	160	350	275	250	190
Reduced pressure level		2	3	2	3	2	3	4	5	2	3	4	5	2	3	4	5	2	3	4	5
（MPa）Differential pressure range (MPa)		ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP3	ΔP4	ΔP1	ΔP2	ΔP3	ΔP4	ΔP1	ΔP2	ΔP3	ΔP4	ΔP1	ΔP2	ΔP3	ΔP4
Rated Cv value	Linear L	99	68	125	99	240	125	99	80	330	200	125	99	530	330	175	125	700	330	275	200
		140	99	175	125	330	200	150	125	650	290	200	150	700	480	240	200	1050	580	480	330
		200	125	275	160	530	330	200	175	850	420	275	200	1050	650	400	275	1440	700	650	450
	% Equal percentage %	68	32	99	48	125	80	68	44	175	175	125	68	330	240	150	99	530	330	200	125
		99	44	125	68	175	125	99	68	330	240	175	99	530	400	200	150	700	480	330	200
		125	68	160	85	330	200	140	99	650	350	240	150	700	530	275	200	1000	580	480	330
Rated stroke mm		50				75				100								120			

Note: **1. Differential pressure range(Mpa）: 1.5＜ΔP1≤3, 3＜ΔP2≤6；**

2. For special Cv and higher differential pressure conditions, please consult technical department.

Nominal pressure (Class600，PN64~110)

Nominal size		15/20/25					15/20		25		32		40		50			65			80			100		
Diameter of valve seat		8	11	14	8	11	20	14	25	20	30	25	40	30	50	40	30	65	50	40	80	65	50	100	75	65
Reduced pressure level		2			3		2	3	2	3	2	3	2	3	2	3	4	2	3	4	2	3	4	2	3	4
(MPa) Differential pressure range (MPa)		ΔP1			ΔP2		ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3
Rated Cv value	Linear L	0.25	1	2.5	0.25	1	6.3	4	9	6.3	9	4	11	6.3	17	11	6.3	32	24	11	48	32	17	68	44	24
		0.4	1.6	4	0.4	1.6		2.5			14	6.3	17	11	32	17	11	48	32	17	68	44	24	99	60	44
		0.63	-	-	0.63	-		-			17	9	26	16	48	24	14	80	44	24	99	68	40	140	80	60
	Equal percentage %	0.25	1	2.5	0.25	1	4	2.5	6.3	4	6.3	2.5	9	4	11	6.3	4	17	17	6.3	24	24	11	48	24	17
		0.4	1.6	-	0.4	1.6					9	4	14	6.3	17	11	6.3	24	24	11	48	32	17	68	32	24
		0.63	-	-	0.63	-					14	8	20	11	24	17	9	60	32	17	68	44	24	99	48	32
Rated stroke mm		14.3									25							38								

Nominal size		125			150				200				250				300				350			
Diameter of plug		125	90	75	150	115	90	75	200	160	130	115	250	190	160	130	300	275	205	160	350	275	250	190
Reduced pressure level		2	3	4	2	3	4	5	2	3	4	5	2	3	4	5	2	3	4	5	2	3	4	5
（MPa）Differential pressure range (MPa)		ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3	ΔP4	ΔP1	ΔP2	ΔP3	ΔP4	ΔP1	ΔP2	ΔP3	ΔP4	ΔP1	ΔP2	ΔP3	ΔP4	ΔP1	ΔP2	ΔP3	ΔP4
Rated Cv value	Linear L	99	68	44	125	99	60	44	240	125	99	80	330	200	125	99	530	330	175	125	700	330	275	200
		140	99	68	175	125	80	60	330	200	150	125	650	290	200	150	700	480	240	200	1050	580	480	330
		200	125	85	275	160	110	80	530	330	200	175	850	420	275	200	1050	650	400	275	1440	700	650	450
	Equal percentage %	68	32	24	99	48	24	17	125	80	68	44	175	175	125	68	330	240	150	99	530	330	200	125
		99	44	32	125	68	44	24	175	125	99	68	330	240	175	99	530	400	200	150	700	480	330	200
		125	68	48	160	85	60	44	330	200	140	99	650	350	240	150	700	530	275	200	1000	580	480	330
Rated stroke mm		50							75				100								120			

Note: **1. Differential pressure range(Mpa): 1.5＜ΔP1≤3；3＜ΔP2≤6；6＜ΔP3≤9；ΔP4＞9.**

2. For special Cv and higher differential pressure conditions, please consult technical department.

Nominal pressure (Class900/1500、PN150~260)

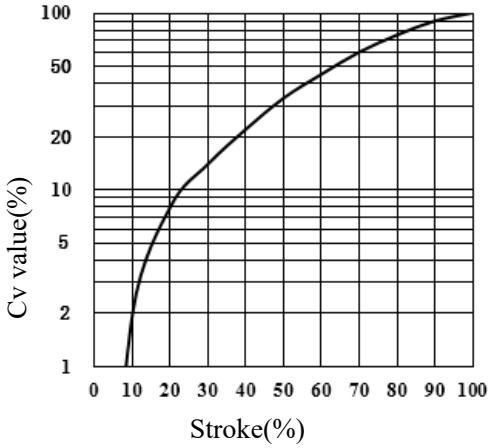
Nominal size		15/20/25								20/25			25			32		40		50	
Reduced pressure level		2			3			4		2	3	4	2	3	4	2	3	2	3	2	3
Diameter of valve seat		8	11	14	8	11	14	8	11	22	14	11	28	22	14	35	28	35	28	50	40
(MPa) Differential pressure range (MPa)		ΔP1			ΔP2			ΔP3		ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP1	ΔP2	ΔP1	ΔP2
Rated Cv value	Linear L	0.25	1	2.5	0.25	1	2.5	0.25	1	6.3	4	2.5	9	6.3	4	9	6.3	9	6.3	17	11
		0.4	1.6	4	0.4	1.6	-	0.4	1.6							13	11	13	11	24	17
		0.63	-	-	0.63	-	-	0.63	-							17	14	18	15	40	24
	Equal percentage %	0.25	1	2.5	0.25	1	2.5	0.25	1	6.3	4	2.5	9	6.3	4	6.3	4	6.3	4	11	6.3
		0.4	1.6	4	0.4	1.6	-	0.4	1.6							9	6.3	9	6.3	17	11
		0.63	-	-	0.63	-	-	0.63	-							13	11	13	11	24	17
Rated stroke mm		Cv＜1, rated stroke is 14.3mm; Cv≥1, rated stroke is 25mm。								25											

Nominal size		65			80			100			125			150				200			
Reduced pressure level		2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	5	2	3	4	5
Diameter of valve seat		75	50	40	75	50	40	100	75	50	150	130	100	150	130	100	90	190	160	130	115
(MPa) Differential pressure range (MPa)		ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3	ΔP1	ΔP2	ΔP3	ΔP4	ΔP1	ΔP2	ΔP3	ΔP4
Rated Cv value	Linear L	44	24	11	44	24	11	60	44	17	125	99	68	125	99	68	44	200	125	99	80
		60	32	17	60	32	17	99	60	24	200	125	99	200	125	99	68	330	200	140	125
		80	44	24	80	44	24	140	80	40	275	175	125	275	175	125	99	450	330	200	160
	Equal percentage %	24	17	6.3	24	17	6.3	44	24	11	68	44	24	68	44	24	17	125	80	68	44
		44	24	11	44	24	11	60	32	17	99	68	44	99	68	44	32	200	125	99	68
		60	32	17	60	32	17	80	48	24	125	99	68	125	99	68	48	275	200	140	99
Mm Rated stroke (mm)		38												50				75			

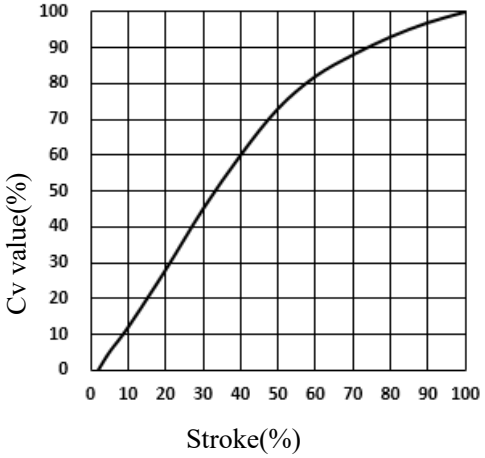
Note: **1. Differential pressure range(Mpa): 1.5＜ΔP1≤3；3＜ΔP2≤6；6＜ΔP3≤9；ΔP4＞9。**

2. For special Cv and higher differential pressure conditions, please consult technical department.

Fig. 4 Typical flow feature curve

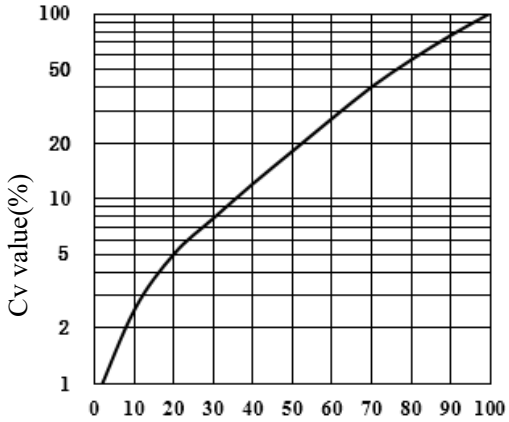


Equal percentage feature (%F)

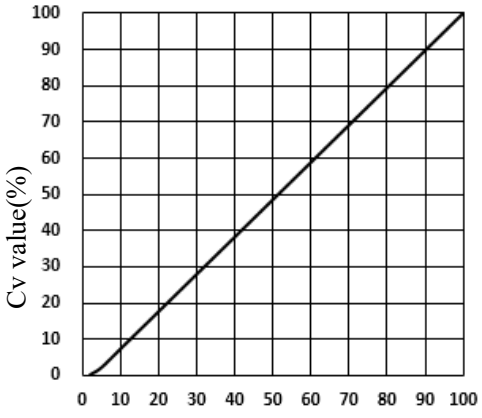


Linear feature (LF)

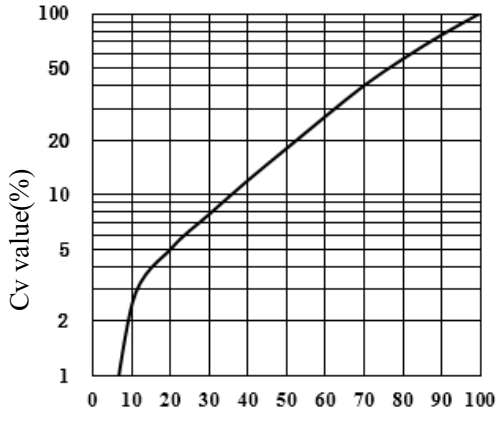
Fig. 4-1 High-capacity flow feature curve



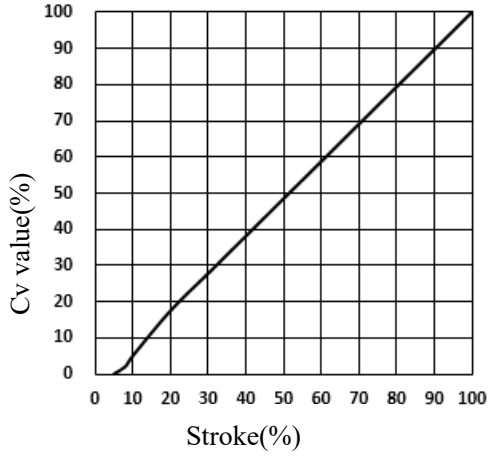
Equal percentage feature (% metal valve seat)



Linear feature (L metal valve seat)



Equal percentage feature (% flexible valve seat)



Linear feature (L flexible valve seat)

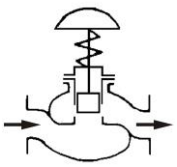
4-2 High-accuracy flow feature curve

Table 4 Allowable differential pressure

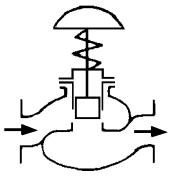
Table 4-1 Diaphragm type actuator

Table 4-1 Diaphragm type actuator

Table 4-1-1 Air-to-close valve **100kPa**



(For gases and vapours)



(For liquids)

(Nominal pressure Class150~600、PN16~110)

Nominal pressure	Actuator	Air supply pressure	Spring range	Type of valve seat	Allowable differential pressure																						
					Nominal size																						
					15/20/25					32		40		50			65			80			100			125	
					Diameter of valve seat (mm)																						
					8	11	14	20	25	25	30	30	40	30	40	50	40	50	65	50	65	80	65	75	100	75	90	125
Class150~600、PN16~110	HA21D8	4.0	0.8～2.4	Metal seal	100	100	100	100	100	100	100	100	100	100	100	100	—	—	—	—	—	—	—	—	—	—	—	—
	HA31D8	4.0	0.8～2.4	Metal seal	—	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100	100	100	100	100	100	100	100	100
	HA41D8	4.0	0.8～2.4	Metal seal	—	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100	100	100	100	100	100	100	100	100

Nominal pressure	Actuator	Air supply pressure	Spring range	Type of valve seat	Allowable differential pressure																			
					Nominal size																			
					150				200				250				300				350			
					Diameter of valve seat (mm)																			
					75	90	115	150	115	130	160	200	130	160	190	250	160	205	275	300	205	250	300	350
Class150~600、PN16~110	HA31D8	4.0	0.8～2.4	Metal seal	100	100	100	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	HA41D8	4.0	0.8～2.4	Metal seal	—	—	—	—	100	100	100	100	—	—	—	—	—	—	—	—	—	—	—	—
	HA42D8	4.0	0.8～2.4	Metal seal	—	—	—	—	100	100	100	100	—	—	—	—	—	—	—	—	—	—	—	—
	HA51D4	4.0	1.06~2.4	Metal seal	—	—	—	—	—	—	—	—	100	100	100	100	100	100	100	100	—	—	—	—
	HA51D8	4.0	0.8~2.4	Metal seal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100

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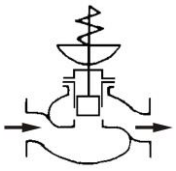
（Class900~1500、PN150~260）

(Nominal pressure Class900~1500、PN150~260)

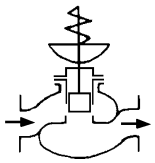
Nominal pressure	Actuator	Air supply pressure	Spring range	Type of valve seat	Allowable differential pressure																	
					Nominal size																	
					15/2025					32		40		50		65			80			
					Diameter of valve seat (mm)																	
					8	11	14	16	28	28	35	28	35	40	50	40	50	75	40	50	75	
Class 900 ~1500 PN150~260 JIS 63K	HA31D8	4.0	0.8～2.4	Metal seal	260	260	260	260	260	256	240	256	240	230	206	230	206	150	230	206	150	
	HA41D8	4.0	0.8～2.4	Metal seal	—	—	—	—	—	260	260	260	260	260	260	260	260	240	260	260	240	

Nominal pressure	Actuator	Air supply pressure	Spring range	Type of valve seat	Allowable differential pressure													
					Nominal size													
					100			125			150				200			
					Diameter of valve seat (mm)													
					50	75	100	100	130	150	90	100	130	150	115	130	160	190
Class 900 ~1500 PN150~260 JIS 63K	HA31D8	4.0	0.8～2.4	Metal seal	206	150	95	95	—	—	—	—	—	—	—	—	—	—
	HA41D8	4.0	0.8～2.4	Metal seal	260	240	210	210	165	135	220	210	165	135	185	165	120	80
	HA51D4	4.0	1.06～2.4	Metal seal	—	—	—	—	—	—	—	—	—	—	—	210	180	160

Table 4-1-2 Air-to-open valve



(For gases and vapours)



(For liquids)

(Nominal pressure Class150~600、PN16~110) **100kPa**

Nominal pressure	Actuator	Air supply pressure	Spring range	Type of valve seat	Allowable differential pressure																							
					Nominal size																							
					15/20/25					32		40		50		65			80			100			125		
					Diameter of valve seat (mm)																							
					8	11	14	20	25	25	30	30	40	30	40	50	40	50	65	50	65	80	65	75	100	75	90	125
Class150~600、PN16~110	HA21R8	4.0	0.8～2.4	Metal seal	100	100	100	100	100	100	100	100	92	100	92	68	—	—	—	—	—	—	—	—	—	—	—	—
	HA31R8	4.0	0.8～2.4	Metal seal	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100	100	100	100	100	100	63	—	—	—
	HA41R8	4.0	0.8～2.4	Metal seal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100

100kPa

Nominal pressure	Actuator	Air supply pressure	Spring range	Type of valve seat	Allowable differential pressure																			
					Nominal size																			
					150				200				250				300				350			
					Diameter of valve seat (mm)																			
					75	90	115	150	115	130	160	200	130	160	190	250	160	205	275	300	205	250	300	350
Class150~600、PN16~110	HA41R8	4.0	0.8～2.4	Metal seal	100	100	100	100	100	100	82	42	—	—	—	—	—	—	—	—	—	—	—	—
	HA42R8	4.0	0.8～2.4	Metal seal	—	—	—	—	—	—	100	100	100	100	100	100	—	—	—	—	—	—	—	—
	HA51R5	4.0	1.06~2.4	Metal seal	—	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100	—	—	—	—
	HA51R9	4.0	0.8~2.4	Metal seal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100

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(Nominal pressure Class900~1500、PN150~260)

Nominal pressure	Actuator	Air supply pressure	Spring range	Type of valve seat	Allowable differential pressure																
					Nominal size																
					15/2025					32		40		50		65		80			
					Diameter of valve seat (mm)																
					8	11	14	16	28	28	35	28	35	40	50	40	50	75	40	50	75
Class 900 ~1500 PN150~260	HA31R8	4.0	0.8～2.4	Metal seal	150	150	150	135	120	120	102	120	102	92	68	92	68	10	92	68	20
	HA41R8	4.0	0.8～2.4	Metal seal	180	180	180	180	160	160	150	160	150	143	130	143	130	93	143	130	100

Nominal pressure	Actuator	Air supply pressure	Spring range	Type of valve seat	Allowable differential pressure												
					Nominal size												
					100			125			150			200			
					Diameter of valve seat (mm)												
					50	75	100	100	130	150	90	100	130	150	115	130	160	190
Class900 ~ 1500 PN150 ~260	HA31R8	4.0	0.8～2.4	Metal seal	68	10	—	—	—	—	—	—	—	—	—	—	—	—
	HA41R8	4.0	0.8～2.4	Metal seal	130	93	58	58	15	—	73	58	15	—	36	15	—	—
	HA42R8	4.0	0.8～2.4	Metal seal	—	—	—	—	—	185	—	—	—	185	238	215	170	125
	HV61SR5	5.0	0.8～2.4	Metal seal	—	—	—	—	152	—	178	170	152	138	162	152	132	111

Table 4-2 Cylinder type actuator (HV dual-action)

Class150~600、PN16~110 **100kPa**

Nominal pressure Class150~600、PN16~110 **100kPa**

Nominal pressure	Actuator	Air supply pressure	Type of valve seat	Temperature range	Allowable differential pressure													
					Nominal size													
					100			125			150				200			
					Diameter of valve seat (mm)													
					63	75	100	75	90	125	75	90	115	150	115	130	160	200
Class150~600、PN16~110	HV41D00	5.0	Metal seal	EIII	100	100	100	100	100	100	100	100	100	100	—	—	—	—
	HV51D00	5.0	Metal seal	EIII	—	—	—	—	—	—	—	—	—	—	100	100	100	100

100kPa

Nominal pressure	Actuator	Air supply pressure	Type of valve seat	Temperature range	Allowable differential pressure											
					Nominal size											
					250				300				350			
					Diameter of valve seat (mm)											
					130	160	190	250	160	205	275	300	205	250	300	350
Class150~600、PN16~110	HV41D00	5.0	Metal seal	EIII	—	—	—	—	—	—	—	—	—	—	—	—
	HV51D00	5.0	Metal seal	EIII	100	100	100	100	100	100	100	100	—	—	—	—
	HV61D00	5.0	Metal seal	EIII	—	—	—	—	—	—	—	—	100	100	100	100

Note: 1. The maximum allowable differential pressure shall not exceed the maximum operating pressure in ASME B16.34 or JIS B2201 standard.

2. The figure in the black box indicates the valve is applicable for the actuator of standard specification.

100kPa

Nominal pressure	Actuator	Air supply pressure	Type of valve seat	Temperature range	Allowable differential pressure																						
					Nominal size																						
					150				200				250				300				350				400			450
					Diameter of valve seat (mm)																						
					90	100	130	150	115	130	160	190	130	160	190	250	160	205	275	300	205	250	300	350	205	250	300	400	450
Class900、1500 PN150~260	HV51D00	5.0	Metal seal	EIII	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	—	—	—	—	—	—	—	—	—
	HV61D00	5.0	Metal seal		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	260	260	260	260	260	260	260	260	260
	HV71D00	5.0	Metal seal		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	HV81D00	5.0	Metal seal		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 4-3 Electronic actuator (EIL) and intelligent actuator (M8)

Nominal pressure Class150~600、PN16~110 **100kPa**

Nominal pressure	Actuator	Type of valve seat	Allowable differential pressure																				
			Nominal size																				
			15/2025					32		40		50			65			80			100		
			Diameter of valve seat (mm)																				
			8	11	14	20	25	20	30	30	40	30	40	50	40	50	65	50	65	80	65	75	100
Class150~600、PN16~110	EIL04	Metal valve seat	100	100	100	100	100	100	100	100	100	100	100	100	—	—	—	—	—	—	—	—	—
	EIL08 M8610+L8210	Metal valve seat	—	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100	100	100	100	100	100

Nominal pressure	Actuator	Type of valve seat	Nominal size																						
			125			150				200				250				300				350			
			Diameter of valve seat (mm)																						
			75	90	125	75	90	115	150	115	130	160	200	130	160	190	250	160	205	275	300	205	250	300	350
Class150~600、PN16~110	EIL08 M8610+L8210	Metal valve seat	100	100	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	EIL12	Metal valve seat	—	—	—	100	100	100	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	EIL20 M8620+L8220	Metal valve seat	—	—	—	—	—	—	—	100	100	100	100	—	—	—	—	—	—	—	—	—	—	—	—
	EIL25 M8620+L8230	Metal valve seat	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100	100	100	100	100	—	—	—	—
	M8630+L8240	Metal valve seat	—	—	—	—	—	—	—	—	—	—	—	100	100	100	100	100	100	100	100	100	100	100	100

100kPa

Nominal pressure	Actuator	Type of valve seat	Temperature range	Allowable differential pressure																		
				Nominal size																		
				15/20/25					32		40		50		65			80			100	
				Diameter of valve seat (mm)																		
				8	11	14	20	25	20	30	30	40	40	50	40	50	65	40	50	75	50	75	100
Class900~1500、PN150~260	EIL04	Metal valve seat	EIII	260	260	260	235	219	219	202	202	169	169	136	—	—	—	—	—	—	—	—	—
	M8610+L8210	Metal valve seat		—	—	—	—	—	—	—	—	—	—	—	260	260	260	260	260	234	260	234	180
	EIL12	Metal valve seat		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	260	-	260	260

Nominal pressure	Actuator	Type of valve seat	Temperature range	Allowable differential pressure																		
				Nominal size																		
				15/20/25					32		40		50		65			80			100	
				Diameter of valve seat (mm)																		
				8	11	14	22	28	28	35	28	35	40	50	32	40	65	32	40	65	40	65	90
Class2500、PN420	EIL04	Metal valve seat	EIII	275	265	255	228	209	209	185	209	185	169	136	—	—	—	—	—	—	—	—	—
	M8610+L8210	Metal valve seat		420	420	420	420	420	420	420	420	420	420	420	328	310	256	328	310	256	310	256	201
	EIL12	Metal valve seat		—	—	—	—	—	—	—	—	—	—	—	420	420	420	420	420	420	420	420	420

Nominal pressure	Actuator	Type of valve seat	Temperature range	Nominal size										
				125			150				200			
				Diameter of valve seat (mm)										
				100	130	150	90	100	130	150	115	130	160	190
Class900~1500、PN150~260	EIL12	Metal valve seat	EIII	242	200	172	256	242	200	172	—	—	—	—
	EIL20 M8620+L8220	Metal valve seat		260	260	260	—	260	260	260	260	260	260	260

Nominal pressure	Actuator	Type of valve seat	Temperature range	Nominal size										
				125			150				200			
				Diameter of valve seat (mm)										
				100	115	130	75	90	115	130	90	115	130	160
Class2500、PN420	EIL12	Metal valve seat	EIII	242	221	200	277	256	221	200	—	—	—	—
	EIL20 M8620+L8220	Metal valve seat		420	420	420	420	420	420	420	420	420	420	413

Note: 1. The allowable differential pressure above is the allowable differential pressure when the valve is totally closed.

2. The figure in the black box indicates the valve is applicable for the actuator of standard specification.

Table 5 Size

Table 5-1-1 Face-to-face size

H100-022 Class150~Class600，PN16~PN110 **mm**

Nominal size	A						
	Class150 RF JIS 10K FF RF PN16 RF	Class300 RF JIS 20、30K RF PN40 MFM	Class 600 RF JIS 40K RF PN63 MFM	JIS 16K TG	JIS 20K TG	JIS 30K TG	JIS 40K TG
25	184	197	210	—	198	212	—
32	190	205	210	—	—	—	—
40	222	235	251	235	236	248	251
50	254	267	286	265	267	276	286
65	276	292	311	290	292	303	311
80	298	317	337	310	317	326	337
100	352	368	394	360	368	379	394
125	403	425	457	—	425	—	457
150	451	473	508	475	473	486	508
200	543	568	610	570	568	580	610
250	673	708	752	—	—	—	—
300	737	775	819	—	—	—	—
350	889	927	972	—	—	—	—
400	1016	1057	1108	—	—	—	—

mm

Nominal size	A					
	Class 150 RJ	Class 300 RJ	Class 600 RJ	Class 300 TG	Class 600 TG	Class 300、600 SW、BW
25	197	210	210	206	—	210
32	235	248	251	244	248	251
40	235	248	251	244	248	251
50	267	283	289	276	283	286
65	289	308	314	302	308	311
80	311	333	340	327	333	337
100	365	384	397	378	391	394
150	464	489	511	483	505	508
200	556	584	613	578	606	610

H100-022 Class900~Class2500，PN150~PN420 **mm**

Nominal size	A						
	JIS63K	Class 900		Class 1500		Class 2500	
	RF	RF（SW，BW）	RJ	RF（SW，BW）	RJ	RF（SW，BW）	RJ
25	245	245	245	245	245	245	249
32	323	333	333	333	333	358	361
40	323	333	333	333	333	358	361
50	354	375	378	375	378	400	403
80	431	440	443	460	463	498	504
100	496	510	513	530	533	575	585

150	699	715	718	770	776	820	833
200	895	915	918	972	982	1020	1036
250	—	1137	1140	1327	1336	—	—
300	—	1311	1314	1400	1416	—	—
350	—	—	—	1526	1526	—	—
400	—	1520	1520	—	—	—	—

Table 5-1-2 The maximum size of side

H100-022 Class150~Class600，PN16~PN110 **mm**

Nominal size	C					
	PN16	PN40	PN64	Class150	Class300	Class600
25	115	115	140	105	125	125
32	147	149	152	147	149	152
40	150	150	170	150	150	170
50	177	180	184	177	180	184
65	198	202	206	198	202	206
80	209	214	218	209	214	218
100	249	256	262	249	256	275
125	301	306	316	301	312	330
150	351	358	370	351	358	370
200	434	450	458	434	450	468
250	560	568	574	560	568	580
300	575	583	589	575	583	597
350	706	716	722	706	716	740
400	781	798	811	781	798	827

H100-022 Class900~Class2500，PN150~PN420 **mm**

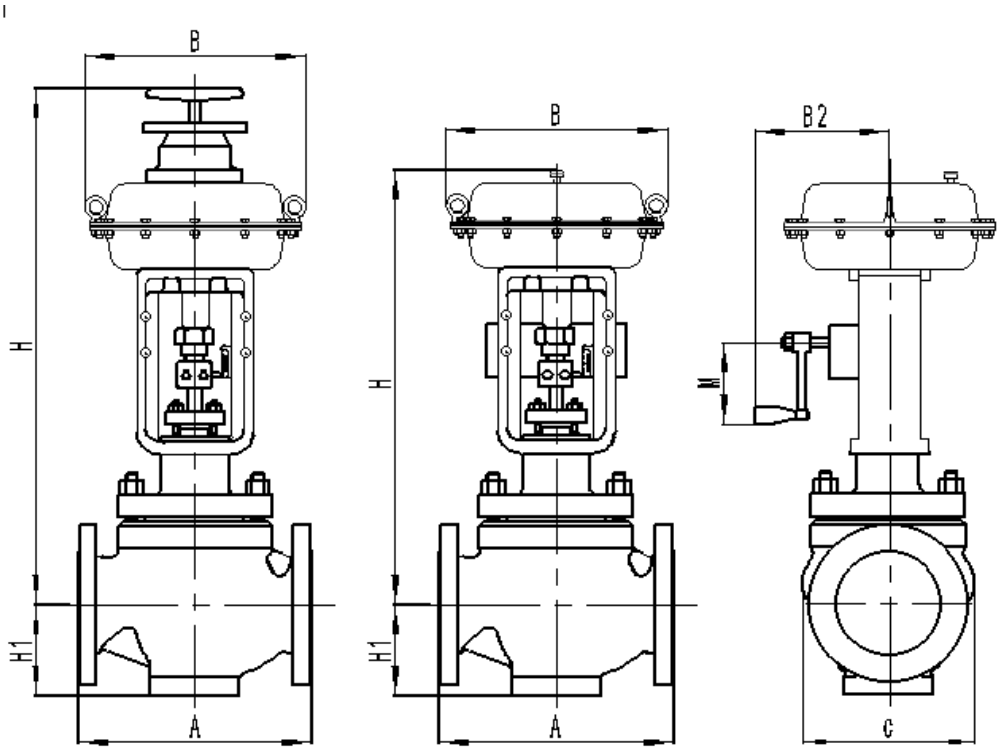
Nominal size	C		
	Class900	Class1500	Class2500
25	135	135	176
32	180	180	205
40	180	180	205
50	215	215	235
80	240	265	305
100	290	310	355
150	380	395	485
200	470	498	550

Table 5-2 Overall size

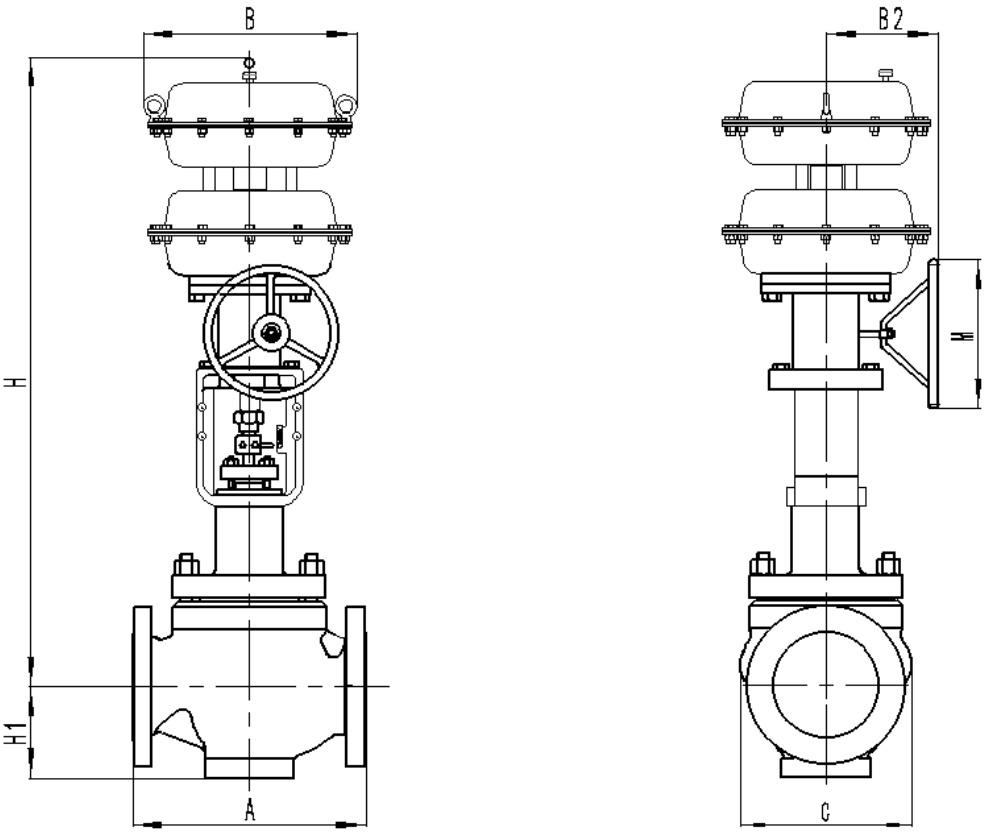
Table 5-2-1 Overall size

H100-022 Class150~Class600，PN16~PN110 **mm**

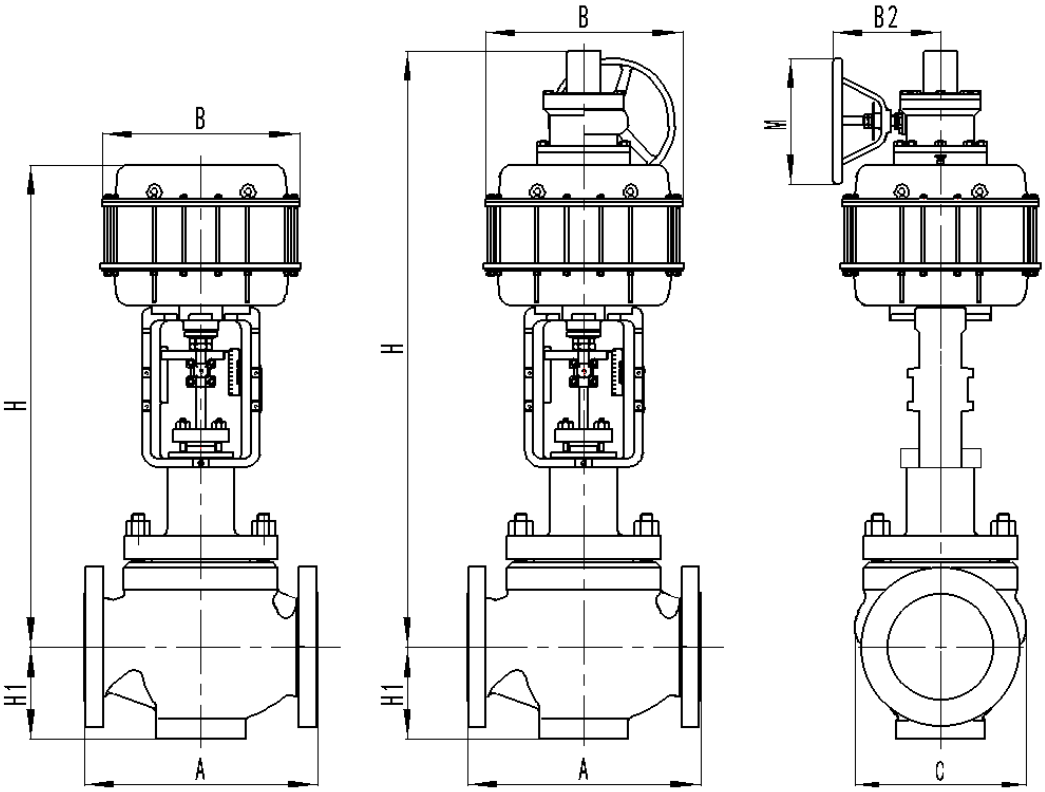
Nominal size	Actuator	H(Extension type III EIII)	B	B1	B2	B3	B4	M	H1
40	HA21D8、R8	1095	281	—	273.5	—	—	¢175	70
	HA31D8、R8	1245	363	—	278.5	—	—	¢175	
	EIL04	1310	172	—	258	—	—	—	
50	HA21D8、R8	1100	281	—	273.5	—	—	¢175	80
	HA31D8、R8	1250	363	—	278.5	—	—	¢175	
	EIL04	1315	172	—	258	—	—	—	
65	HA31D8、R8	1290	363	—	278.5	—	—	¢175	88
	HA41D8、R8	1550	520	—	303	—	—	¢320	
	EIL08	1475	229	—	338	—	—	—	
	M8610+L8210	1530	—	285	346	253	350	—	
80	HA31D8、R8	1295	363	—	278.5	—	—	¢175	98
	HA41D8、R8	1560	520	—	303	—	—	¢320	
	EIL08	1485	229	—	338	—	—	—	
	M8610+L8210	1535	—	285	346	253	350	—	
100	HA31D8、R8	1315	363	—	278.5	—	—	¢175	113
	HA41D8、R8	1575	520	—	303	—	—	¢320	
	HV61SR5	2115	475	—	384	—	—	¢380	
	HV51D00	1825	382	—	324	—	—	¢380	
	EIL08	1515	229	—	338	—	—	—	
	M8610+L8210	1555	—	285	346	253	350	—	
125	HA31D8、R8	1450	363	—	278.5	—	—	¢175	146
	HA41D8、R8	1630	520	—	303	—	—	¢320	
	HV61SR5	2175	480	—	384	—	—	¢380	
	HV51D00	1880	382	—	324	—	—	¢380	
	HV61D00	1995	480	—	384	—	—	¢380	
	HV71D00	1995	580	—	384	—	—	¢380	
	EIL08	1670	229	—	338	—	—	—	
	M8610+L8210	1795	—	313	350	253	350	—	
150	HA31D8、R8	1450	363	—	278.5	—	—	¢175	170
	HA41D8、R8	1630	520	—	303	—	—	¢320	
	HV61SR5	2175	480	—	384	—	—	¢380	
	HV51D00	1880	382	—	324	—	—	¢380	
	HV61D00	1995	480	—	384	—	—	¢380	
	HV71D00	1995	580	—	384	—	—	¢380	
	EIL08	1660	229	—	338	—	—	—	
	M8610+L8210	1795	—	313	350	253	350	—	
200	HA41D8、R8	1780	520	—	303	—	—	¢320	220
	HV51D00	2050	382	—	324	—	—	¢380	
	HV61D00	2165	480	—	384	—	—	¢380	
	HV71D00	2165	580	—	384	—	—	¢380	
	M8620+L8220	2205	—	313	350	253	350	—	
250	HA51	—	605	—	380	—	—	¢325	305
	HV61D00	—	480	—	384	—	—	¢380	
	HV71D00	—	580	—	384	—	—	¢380	
	EIL25	—	258	—	356	—	—	—	
	M8620+L8230	—	—	313	350	253	350	—	



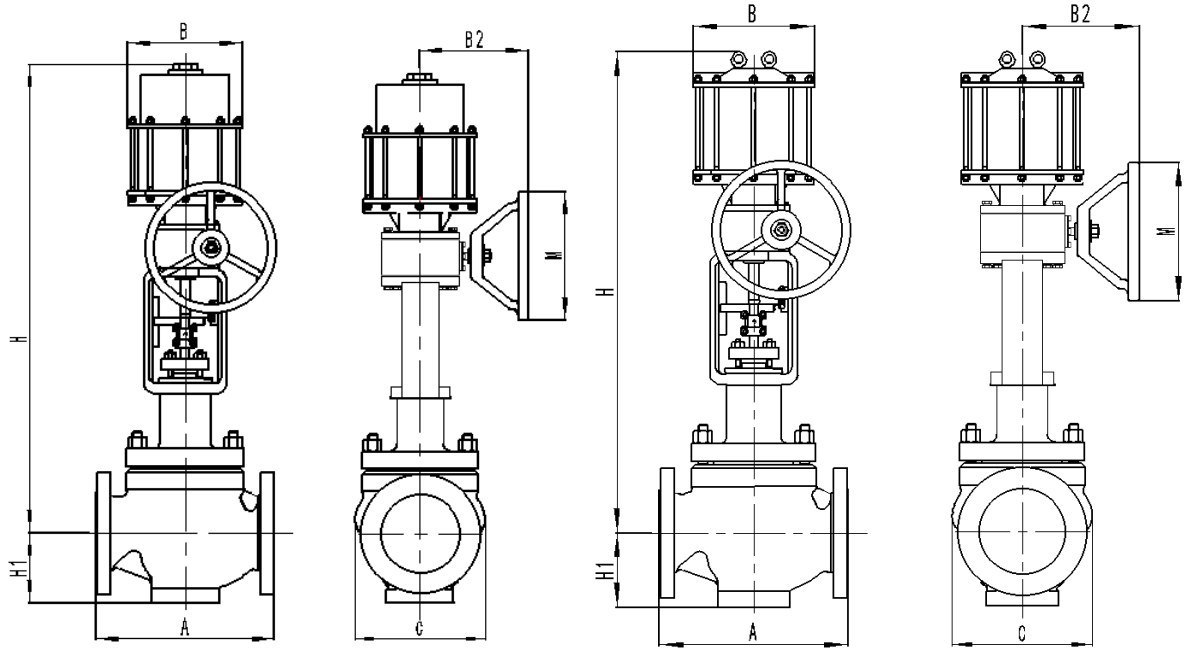
H100-022 with HA11~HA41 actuator



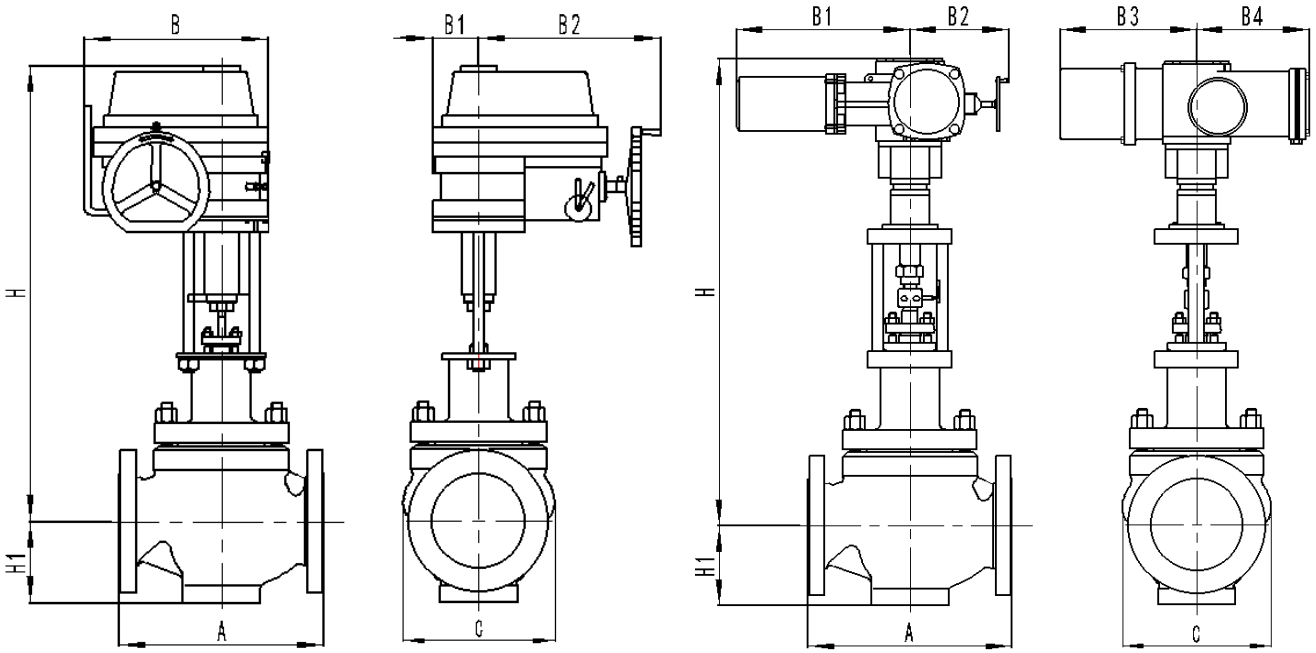
H100-022 with HA42 actuator



H100-022 with HA51 actuator



H100-022 with HV single/dual-action actuator



H100-022 with M8 actuator

Fig. 5 Face-to-face size and overall size

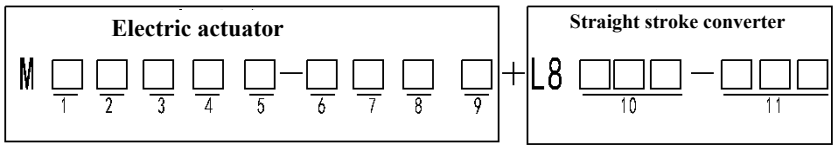
Table 6 Weight

H100-022 Class150~Class600，PN16~PN110 **kg**

Nominal size	Actuator	Flanged			Welded
		ANSI 125、150	ANSI 300	ANSI 600	ANSI 150、300、600
		EIII			
40	HA21D8、R8	39	44	52	44
	HA31D8、R8	51	56	64	56
	EIL04	31	36	44	36
50	HA21D8、R8	45	50	55	50
	HA31D8、R8	57	62	67	62
	EIL04	37	42	50	56
65	HA31D8、R8	65	70	87	70
	HA41D8、R8	96	101	118	101
	EIL08	49	54	71	54
	M8610+L8210	71	76	93	76
80	HA31D8、R8	80	90	112	90
	HA41D8、R8	111	121	143	121
	EIL08	64	74	96	74
	M8610+L8210	86	96	118	96
100	HA31D8、R8	93	108	143	105
	HA41D8、R8	124	139	174	136
	HV61SR5	266	281	316	278
	HV51D00	141	156	191	153
	EIL08	77	92	127	89
	M8610+L8210	99	114	149	111

通径 Nominal size	Actuator	Flanged			Welded
		ANSI 125、150	ANSI 300	ANSI 600	ANSI 150、300、600
		EIII			
125	HA31D8、R8	168	193	243	180
	HA41D8、R8	199	224	274	211
	HV61SR5	341	366	416	353
	HV51D00	231	256	306	243
	HV61D00	291	316	366	303
	HV71D00	401	426	476	413
	EIL08	152	177	227	164
	M8610+L8210	174	199	249	186
150	HA31D8、R8	182	212	262	202
	HA41D8、R8	213	243	293	233
	HV61SR5	355	385	435	375
	HV51D00	245	275	325	265
	HV61D00	305	335	385	325
	HV71D00	415	445	495	435
	EIL08	166	196	247	186
	M8610+L8210	188	218	268	208
200	HA41D8、R8	303	353	473	343
	HV51D00	335	365	505	375
	HV61D00	395	445	565	435
	HV71D00	505	555	675	545
	M8620+L8220	283	333	453	323
250	HA5YD、R	—	—	—	—
	HV61D00	—	—	—	—
	HV71D00	—	—	—	—
	EIL20	—	—	—	—
	M8620+L8230	—	—	—	—

M series model code rules



Model rules: (1) Output type

8-8000 multi-revolution type

0-Small torque 90° type

1-Small thrust linear stroke

(2) Control module:

1-Simple ON-OFF type (MCC)

2-ON-OFF control

3-Intelligent ON-OFF type

4-Intelligent control type

5-Variable frequency ON-OFF type

6-Variable frequency control type

(3) Output torque:

1—50N.m 或 100N.m/90°

1—50N.m or 100N.m/90°

2—100N.m 或 200N.m/90°

2—100N.m or 200N.m/90°

3—200N.m 或 300N.m/90°

3—200N.m or 300N.m/90°

4—400N.m

5—600N.m

6—1000N.m.或 600N.m/90°

6—1000N.m. or 600N.m/90°

3—200N.m 或 300N.m/90°

3—200N.m or 300N.m/90°

7—1600N.m～2500N.m

8—3000N.m

Note: Small thrust is output thrust

(4) Output speed:

0—36r/min or 34s/90°

1—24r/min or 28s/90°

2—12r/min；

3—72r/min

4—84r/min；

6—144r/min

Small thrust default

(5) Explosion-proof rating:

None-No requirement

d—Ex dIIBT4

D—Ex dibIICT4

(6) Ambient temperature

0-Normal temperature

E-Low temperature

G-High temperature

(7) Power:

0—380V/3PH

S—220V/1PH

B—24 V d.c.

U—12 Vd.c.

X—440V～460V/3PH

(8) Communication protocol:

0-None

r-Infrared

w-Wireless）

p-Profibus (2p is two-channel)

m-Modbus

f-FF fieldbus

h-HART fieldbus

(9) Feedback:

0-None

c-ON-OFF type with 4mA-20mA

(10) Specification code

(11) Stroke: not indicated in general model

e.g.: M8510-0S0C+L8210