

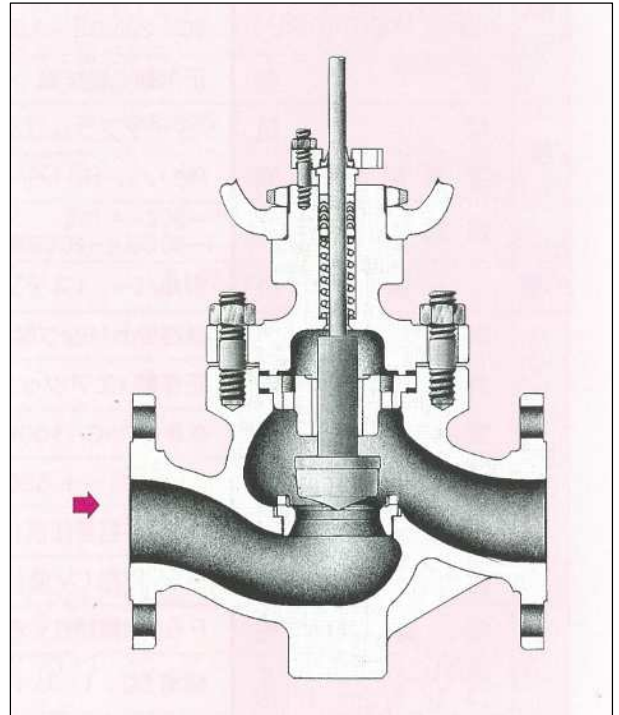
MOTOYAMA

General Specifications

Model 89 TOP-GUIDED AND SINGLE SEATED GLOBE VALVES

1. FEATURES

Model 89 globe valves provide top-guided and single seated structure with simple stream-lined body for high flow capacity and are designed to meet various service process control requirements such as high viscosity flow or slurry flow etc. in a wide range of related industries.



2. SPECIFICATIONS

1 Standard Specification

Valve Type		Diaphragm actuator operated control valve											
Valve Model No.		3889, 2889											
VALVE BODY	Body Type	Model 89 Globe type											
	Valve Sizes	(mm)	15	20	25	40	50	65	80	100	125	150	200
		(inch)	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8
	Pressure Rating	JIS 10K, 20K, 30K, 40K, ASME/JPI Class 150, 300, 400, 600											
	End Connections	Flanged end : RF											
	Body Materials	SCPH2 (A216 WCB), SCS13A (A351 CF8), SCS14A (A351 CF8M)											
	Trim Materials	SUS 316, SUS 304 (See our Engineering Handbook "Bulletin No.MCE-B1003" for the hardening treatment of the trim)											
	Bonnet Types	Plain Bonnet (- 17 < T ≤ 230 °C) Extension Type F (- 45 ≤ T < - 17 °C, 230 < T ≤ 550 °C) Extension Type H (- 196 ≤ T < - 45 °C)											
	Gland Type	Bolted gland											
	Packing	Braided packing, Molded packing.											
	Gaskets	Serrated gasket (Type MT)											
	Guiding	Top guide											
	Valve Plug Action	Push-down close											
	Seat Type	Single seated											
	Valve Plug Shapes	Contoured plug(P), Quick opening(Q)											
	Plug Characteristics	P: Equal percentage, Linear, Q: Quick opening											
	Flow Direction	FTO (Flow to open)											

VALVE CHARACTERISTICS & PERFORMANCE	Control Mode			Throttling control, On-Off								
	Valve Action			Direct action (Air-to close), Reverse action (Air-to open)								
	Available Max. Pressure			9.8MPaG (100kgf/cm ² G) or less (Pressure limit shall conform to the Standard and/or Code of material & pressure temperature rating)								
	Available Temperature			-196℃ ~ +550℃ (Temperature limit shall conform to the Standard and/or Code of material & pressure temperature rating)								
	Allowable Differential Pressure.			See page 6 “Allowable Shut-off Pressure”								
	Rated Cv Value			See page 5 “Rated Cv Value”								
	Flow Characteristics			See page 5 “Flow Characteristics”								
	Inherent Rangeability			See page 5 “Rated Cv Value & Inherent Rangeability”								
	Allowable Seat Leakage Rate	Metal Seat	Contoured Plug	0.01% of rated Cv (ANSI/FCI 70-2 Class IV)								
			Quick Opening	Valve size...% of rated Cv 25mm or less ...0.0001% 32mm to 100mm...0.001% 125mm or more ...0.002%								
Function Accuracy	Hysteresis Error (With positioner)		Max. 2 % F.S. (Note2)									
	Linearity (With positioner)		Max. ±2 % F.S. (Note2)									
ACTUATOR	Actuator Type			Model 3800 Multi-spring type single acting diaphragm actuator				Model 2800 Spring type single acting diaphragm actuator				
	Actuator Sizes			N24	N28	N33S	N40	500S	500L	650S	650L	
	Max. Stroke(mm)			25	38	38	65	65	100	65	130	
	Supply Air Press. kPaG (kgf/cm ² G)			120(1.2), 240(2.4), 280(2.8), 300(3.0), 400(4.0)				120(1.2), 240(2.4), 280(2.8), 300(3.0)				
	Spring Range kPaG (kgf/cm ² G)			20~100(0.2~1.0), 40~200(0.4~2.0) 80~200(0.8~2.0), 120~280(1.2~2.8)				20~100(0.2~1.0), 20~180(0.2~1.8), 40~200(0.4~2.0), 60~220(0.6~2.2), 80~240(0.8~2.4), 100~220(1.0~2.2), 120~240(1.2~2.4)				
	Action			Direct action, Reverse action								
	Materials			(Diaphragm) Cloth reinforced chloroprene rubber, (Yoke) FC200								
	Air Connection			Rc1/4							Rc3/8	
	Ambient Temperature			-20 ~ +70℃				-30 ~ +70℃				
Painting Color			Silver, No painting on stainless steel, glass or plastic product									

2 Special Specification (Note3)

VALVE BODY	End Connections		Flanged end (FF, RJ, Male and female, Tongue and groove), Welding end (SW, BW)							
	Body Materials		Metal materials except the Body Materials of 1 Standard Specification mentioned above							
	Trim Materials		Metal materials except the Trim Materials of 1 Standard Specification mentioned above, Special treatment to trim, Soft Disc Inserted Type							
	Bonnet Type		Bellows seal (Note4)							
	Gaskets		Spiral wound gasket, Soft sheet gasket							
	Valve Plug Shape		V Port (Port size:20mm to 150mm,Rangeability 50:1, Equal percentage or Linear)							
	Flow Direction		FTC (Flow to close)							
	Etc.		Drain plug, Jacketed body (Note5), Vacuum service, External exposure Bolts & Nuts S.S., Oil free, Water free, Sandproof, Fugitive emission (Note6), Functional Safety (Note7)							
VALVE CHARACTERISTICS & PERFORMANCE	Inherent Rangeability		See P5 (100:1, Port size: 8mm to 150mm)							
	Allowable Shut-off Pressure.		See page 7 & 8 (Soft disc inserted type)							
	Allowable Seat Leakage Rate	Metal Seat	Tight Shut Off : Valve size...% of rated Cv 25mm or less...0.0001% 100mm or less...0.001% 200mm or less...0.002%, or ANSI/FCI 70-2 Class V							
			Quick Opening ANSI/FCI 70-2 Class V							
	Soft Disc	Contoured Plug								
			Quick Opening ANSI/FCI 70-2 Class VI							

Actuator	Please refer to catalogue MCE-B5102 for the addition specifications of #3800 and catalogue MCE-B5101 for the addition specifications of #2800.
Accessories	Electro-pneumatic valve positioner (EA90A, EA91A, EA10S), Pneumatic valve positioner (PA92A), Air filter regulator (MR2000), Limit switch, Solenoid valve, Booster relay, Speed controller, Lock up valve, Pneumatic operated valve, Etc.
Painting Color	Anti-salt damage, Optional painting specifications and painting color

【Notes】 (1) Please refer to the globe valve basics selection flowchart of our Engineering Handbook (Bulletin No.MCE-B1003) for the model choice of Control Valves.

(2) The value of these Function Accuracy represents a case of our standard grand packing (PTFE yarn).

(3) Manufactured and mounted as option on customer's request.

(4) Please refer to our Engineering Handbook (Bulletin No.MCE-B1003) for the range of pressure and temperature of Bellows Seal Bonnet.

(5) Jacketed body is available for body rating 300LB and less.

(6) About the Fugitive emission examination, MEW has the certificates according to the international standard ISO 15848-1, and please inquire for the details at the nearest office.

(7) MEW has certificates (Systematic Capac.: SC3, Random Capac.: Type-A, Route-2H) according to the international standard IEC 61508, and please ask the nearest office in the details.

3. MAIN MATERIALS

1 Typical Combination of Materials

Parts Name		Materials		
Body, Bonnet		SCPH2 (ASTM A216 WCB)	SCS13A (ASTM A351 CF8)	SCS14A (ASTM A351 CF8M)
Trim	Seat Ring Valve Plug	Valve size ≤ 80mm : SUS316 Valve size ≤ 100mm : SUS304		SUS316
	Valve Stem	SUS316		
	Guide Bushing	SUS630		SUS316

【Notes】 (1) This table shows typical combination of materials. The combination may be subject to change by pressure, temperature and kind of fluid.

(2) Trim materials may be used casting instead of bar materials.

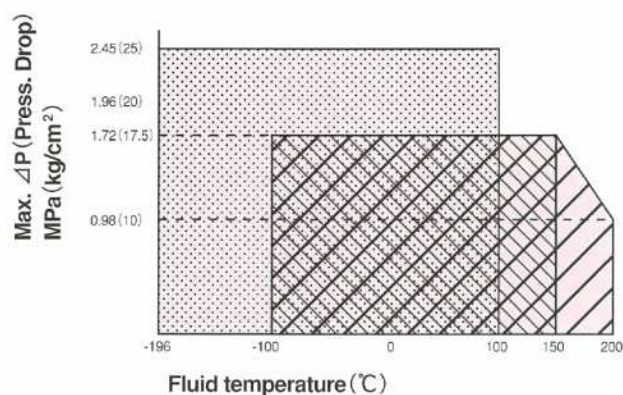
(3) Bonnet may be forged in some cases.

(4) Please refer to our Engineering Handbook (Bulletin No.MCE-B1003) for the hardening treatment of the trim.

2 Pressure and Temperature Range of Soft Disc (Option)

Disc Materials:

Disc Materials:	PTFE	(-100~150℃)
	Glass reinforced PTFE	(-100~200℃)
	PCTFE [Note]	(-196~100℃)



【Note】 PolyChloroTriFluoroEthylene

4. SCOPE OF PRODUCTION

1 Combination of Valve Body and Actuator

Valve Model		3889				2889			
Actuator Size		N24	N28	N33S	N40	500S	500L	650S	650L
Valve Size									
15(mm)	1/2 (inch)	●	●	●					
20	3/4	●	●	●					
25	1	●	●	●					
40	1 1/2	●	●	●	●	●			
50	2	●	●	●	●	●			
65	2 1/2		●	●	●	●			
80	3		●	●	●	●		●	
100	4		●	●	●	●		●	
125	5				●	●	(●)	●	(●)
150	6				●	●	(●)	●	(●)
200	8				●	●	(●)	●	(●)

【Notes】 Please refer to (6) - (10) of 【Notes】 of P8 for the combination of (●) condition.

2 Scope of Port Metal Seat · Contoured plug

【●: Full port, ◆: Reduced port】

Port Sizes		mm	Φ4	6	7	8	10	15	20	25	32	40	50	65	80	100	125	150	200
Rated Travel (mm)		inch	-	1/8	3/16	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
Valve Size			15								20		25	38			50		65
15(mm)	1/2(in.)		◆	◆	◆	◆	◆	◆	◆	◆									
20	3/4		◆	◆	◆	◆	◆	◆	◆	◆									
25	1		◆	◆	◆	◆	◆	◆	◆	◆									
40	1 1/2		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆						
50	2						◆	◆	◆	◆	◆	◆	◆	◆					
65	2 1/2									◆	◆	◆	◆	◆	◆				
80	3									◆	◆	◆	◆	◆	◆	◆			
100	4												◆	◆	◆	◆	◆		
125	5													◆	◆	◆	◆	◆	
150	6														◆	◆	◆	◆	◆
200	8															◆	◆	◆	◆

【Notes】 (1) Rated travel shall be determined in accordance with port size, irrespective of valve size.

(2) For quick-opening service, only full port is available for valve size 1 1/2 inch and over except 1 1/2 inch× 1 1/4 inch. For valve size 1 inch and less, reduced port up to 1/4 inch is available.

5. FLOW CHARACTERISTICS

1 Rated Cv Value & Inherent Rangeability(Eq%)

Port Size	(mm)	Cv=0.2	Cv=0.6	Cv=1.8	Cv=5.2	20	25	32	40	50	65	80	100	125	150	200
	(Inch)	—	—	—	—	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
Rated Travel (mm)		15				20				25	38				50	65
Rated Cv Value	Contoured	0.2	0.6	1.8	5.2	9	16	22	32	52	85	125	205	300	420	640
	Inherent Rangeability (Eq%)	100:1				50:1										

【Notes】 (1) Indication of port size less than 20A(3/4B) are indicated with Cv Value.

(2) Only for port size CV=0.1 and from 20 A(3/4B) to 150A(6B), High range (100: 1) of Inherent rangeability can be manufactured as special specification

(3) If micro-flow control Cv is required, Model 3306 (Bulletin No.MCE-B1601) is recommended.

2 Rated Cv Value & Inherent Rangeability(Liner,Quick opening)

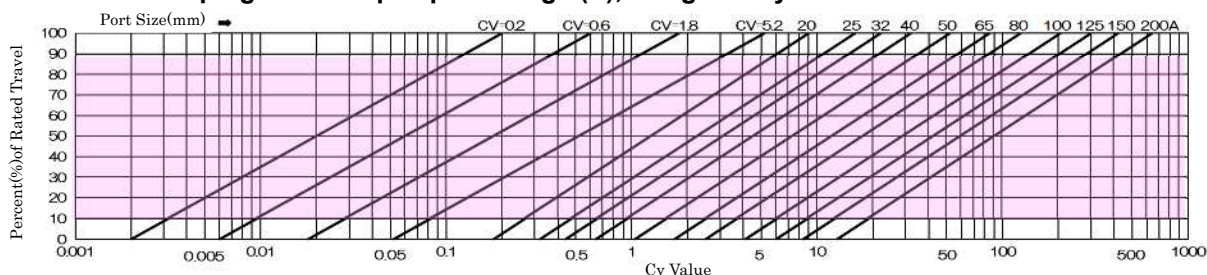
Port Size	(A)	4	6	7	8	10	15	20	25	32	40	50	65	80	100	125	150	200
	(B)	—	1/8	3/16	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
Rated Travel (mm)		15				20				25	38				50	65		
Rated Cv Value	Contoured	0.15	0.4	0.8	1.5	3.0	5.2	9	16	22	32	52	85	125	205	300	420	640
	Quick opening	—	—	—	2.0	3.5	6	10	18	25	40	60	90	135	220	350	460	800
Inherent Rangeability (Liner)		30:1	50:1															

【Note】 (1) If micro-flow control Cv is required, Model 3306 (Bulletin No.MCE-B1601) is recommended.

3 Flow Characteristics

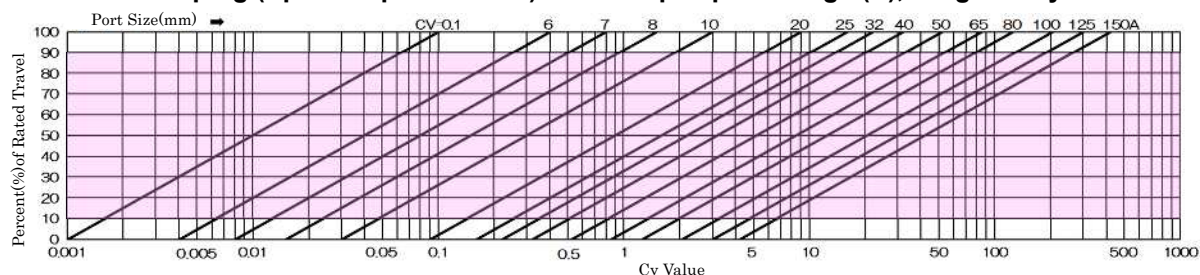
■ Contoured plug

Equal percentage (P), Rangeability



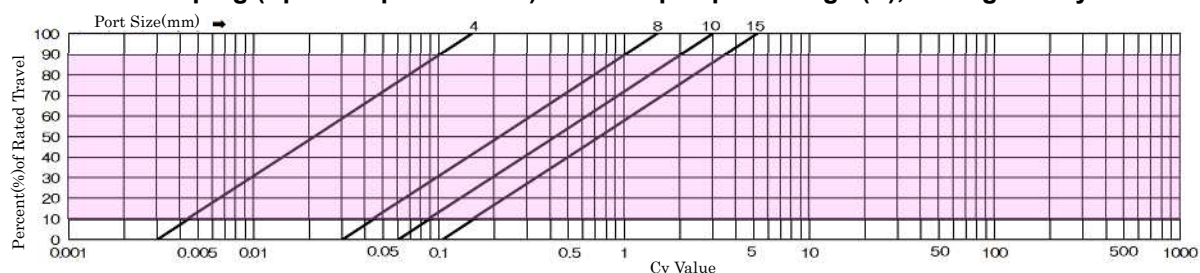
■ Contoured plug (Special specification)

Equal percentage (P), Rangeability 100:1



■ Contoured plug (Special specification)

Equal percentage (P), Rangeability 50:1



【Note】 Shaded zone represents proper throttling control range

6. ALLOWABLE DIFFERENTIAL PRESSURE

1 Allowable Shut-off Pressure

■ Metal Seat·Contoured Plug (See (1) - (11) of [Note] of P8)

Unit : MPa (kgf/cm²)

Port Size		≤6(mm)	7	8	10	15	20	25	32	40	50	65	80	100	125	150	200
Actuator size	Off-balance	≤1/8(inch)	3/16	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
N24	20 (0.2)	6.96 (71)		4.65 (47.5)	3.10 (31.7)	1.88 (19.2)	1.019 (10.4)	0.69 (7.1)	0.47 (4.8)	0.34 (3.5)	0.20 (2.1)						
	40 (0.4)			9.21 (94)	6.17 (63)	3.76 (38.4)	2.04 (20.9)	1.39 (14.2)	0.95 (9.7)	0.69 (7.1)	0.41 (4.2)						
	80 (0.8)	9.80 (100)		9.80 (100)		7.45 (76)	4.10 (41.9)	2.78 (28.4)	1.90 (19.4)	1.39 (14.2)	0.83 (8.5)						
	100 (1.0)					9.41 (96)	5.09 (52)	3.48 (35.5)	2.38 (24.3)	1.74 (17.8)	1.04 (10.7)						
N28	20 (0.2)	9.02 (92)	5.98 (61)	4.03 (41.1)	2.44 (24.9)	1.33 (13.6)	0.90 (9.2)	0.62 (6.3)	0.45 (4.6)	0.26 (2.7)	0.16 (1.7)	0.11 (1.2)	0.06 (0.7)				
	40 (0.4)			8.04 (82)	4.88 (49.8)	2.66 (27.2)	1.80 (18.4)	1.23 (12.6)	0.90 (9.2)	0.53 (5.5)	0.34 (3.5)	0.24 (2.5)	0.13 (1.4)				
	80 (0.8)			9.80 (100)		5.29 (54)	3.59 (36.7)	2.46 (25.2)	1.80 (18.4)	1.07 (11.0)	0.68 (7.0)	0.49 (5.0)	0.28 (2.9)				
	100 (1.0)					6.66 (68)	4.52 (46.1)	3.08 (31.5)	2.26 (23.1)	1.35 (13.8)	0.86 (8.8)	0.61 (6.3)	0.35 (3.6)				
N33S	20 (0.2)	9.80 (100)		5.88 (60)	3.58 (36.6)	1.96 (20.0)	1.32 (13.5)	0.90 (9.2)	0.66 (6.8)	0.39 (4.0)	0.24 (2.5)	0.17 (1.8)	0.09 (1.0)				
	40 (0.4)			7.15 (73)	3.92 (40.0)	2.65 (27.1)	1.81 (18.5)	1.33 (13.6)	0.79 (8.1)	0.50 (5.1)	0.36 (3.7)	0.20 (2.1)					
	80 (0.8)			7.84 (80)	5.29 (54)	3.63 (37.1)	2.66 (27.2)	1.59 (16.3)	1.01 (10.3)	0.72 (7.4)	0.42 (4.3)						
	100 (1.0)			9.80 (100)		6.57 (67)	4.54 (46.4)	3.33 (34.0)	2.00 (20.4)	1.26 (12.9)	0.91 (9.3)	0.52 (5.4)					
N40	20 (0.2)								1.27 (13.0)	0.93 (9.5)	0.55 (5.7)	0.35 (3.6)	0.25 (2.6)	0.14 (1.5)	0.08 (0.9)	0.05 (0.6)	0.03 (0.4)
	40 (0.4)								2.55 (26.1)	1.87 (19.1)	1.11 (11.4)	0.71 (7.3)	0.509 (5.2)	0.29 (3.0)	0.18 (1.9)	0.12 (1.3)	0.07 (0.8)
	80 (0.8)								5.09 (52)	3.74 (38.2)	2.24 (22.9)	1.43 (14.6)	0.92 (9.5)	0.59 (6.1)	0.38 (3.9)	0.26 (2.7)	0.15 (1.6)
	100 (1.0)								6.37 (65)	4.68 (47.8)	2.81 (28.7)	1.78 (18.2)	1.28 (13.1)	0.74 (7.6)	0.48 (4.9)	0.33 (3.4)	0.19 (2.0)
500S 500L	20 (0.2)								7.64 (78)	5.58 (57)	3.37 (34.4)	2.14 (21.9)	1.53 (15.7)	0.89 (9.1)	0.57 (5.9)	0.40 (4.1)	0.23 (2.4)
	40 (0.4)								2.13 (21.8)	1.55 (15.9)	0.93 (9.5)	0.59 (6.1)	0.42 (4.3)	0.24 (2.5)	0.15 (1.6)	0.10 (1.1)	0.05 (0.6)
	60 (0.6)								4.27 (43.6)	3.12 (31.9)	1.87 (19.1)	1.19 (12.2)	0.85 (8.7)	0.49 (5.0)	0.32 (3.3)	0.22 (2.3)	0.12 (1.3)
	80 (0.8)								6.37 (65)	4.69 (47.9)	2.81 (28.7)	1.79 (18.3)	1.28 (13.1)	0.74 (7.6)	0.48 (4.9)	0.33 (3.4)	0.19 (2.0)
650S 650L	20 (0.2)								8.53 (87)	6.17 (63)	3.75 (38.3)	2.39 (24.4)	1.71 (17.5)	0.99 (10.1)	0.64 (6.6)	0.45 (4.6)	0.26 (2.7)
	40 (0.4)								9.80 (100)	7.74 (79)	4.69 (47.9)	2.99 (30.5)	2.14 (21.9)	1.24 (12.7)	0.81 (8.3)	0.56 (5.8)	0.33 (3.4)
	60 (0.6)								9.80 (100)	9.39 (95.8)	5.63 (57.5)	3.58 (36.6)	2.57 (26.3)	1.49 (15.2)	0.97 (9.9)	0.67 (6.9)	0.40 (4.16)
	80 (0.8)																

■ Metal Seat·Quick Opening (See (1) - (10) of [Note] of P8)

Unit : MPa (kgf/cm²)

Port Size		8(mm)	10	15	20	25	32	40	50	65	80	100	125	150	200
Actuator size	Off-balance	1/4(inch)	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
N24	40(0.4)	7.74(79)	5.09(52)	3.17(32.0)	1.70(17.4)	1.15(11.8)	0.79(8.1)	0.57(5.9)	0.34(3.5)						
	80(0.8)		9.80(100)	6.27(64)	3.42(34.9)	2.32(23.7)	1.58(16.2)	1.15(11.8)	0.69(7.1)						
	100(1.0)			7.84(80)	4.28(43.7)	2.90(29.6)	1.98(20.3)	1.45(14.8)	0.87(8.9)						
N28	40(0.4)	9.80(100)	6.66(68)	4.06(41.5)	2.21(22.6)	1.50(15.3)	0.99(10.5)	0.75(7.7)	0.45(4.6)	0.28(2.9)	0.20(2.1)	0.11(1.2)			
	80(0.8)			8.13(83)	4.44(45.3)	3.01(30.7)	2.06(21.0)	1.50(15.4)	0.90(9.2)	0.56(5.8)	0.41(4.2)	0.23(2.4)			
	100(1.0)			9.80(100)	5.58(57)	3.76(38.4)	2.57(26.3)	1.68(17.2)	1.12(11.5)	0.71(7.3)	0.509(5.2)	0.29(3.0)			
N33S	40(0.4)		9.80(100)	5.98(61)	3.26(33.3)	2.21(22.6)	1.50(15.4)	1.10(11.3)	0.66(6.8)	0.42(4.3)	0.30(3.1)	0.17(1.8)			
	80(0.8)			6.47(66)	4.43(45.2)	3.02(30.9)	2.21(22.6)	1.33(13.6)	0.84(8.6)	0.60(6.2)	0.35(3.6)				
	100(1.0)			9.80(100)	8.13(83)	5.49(56)	3.79(38.7)	2.77(28.3)	1.66(17.0)	1.05(10.8)	0.75(7.7)	0.44(4.5)			
N40	40(0.4)						2.13(21.0)	1.55(15.9)	0.93(9.5)	0.58(6.0)	0.42(4.3)	0.24(2.5)	0.15(1.6)	0.10(1.1)	0.05(0.6)
	80(0.8)						4.27(43.6)	3.12(31.9)	1.86(19.0)	1.18(12.1)	0.85(8.7)	0.49(5.0)	0.32(3.3)	0.22(2.3)	0.12(1.3)
	100(1.0)						5.29(54)	3.90(39.8)	2.34(23.9)	1.49(15.2)	1.06(10.9)	0.61(6.3)	0.40(4.1)	0.28(2.9)	0.16(1.7)

500S 500L	40(0.4)							3.56(36.4)	2.60(26.6)	1.55(15.9)	0.99(10.1)	0.71(7.3)	0.41(4.2)	0.26(2.7)	0.18(1.9)	0.10(1.1)
	60(0.6)							5.29(54)	3.91(39.9)	2.34(23.9)	1.49(15.2)	1.06(10.9)	0.61(6.3)	0.40(4.1)	0.28(2.9)	0.16(1.7)
	80(0.8)							7.06(72)	5.19(53)	3.12(31.9)	1.99(20.3)	1.43(14.6)	0.82(8.4)	0.53(5.5)	0.37(3.8)	0.22(2.3)
	100(1.0)							8.92(91)	6.47(66)	3.91(39.9)	2.49(25.4)	1.78(18.2)	1.03(10.6)	0.67(6.9)	0.47(4.8)	0.27(2.8)
	120(1.2)							9.80(100)	7.83(79.9)	4.69(47.9)	2.99(30.5)	2.14(21.9)	1.24(12.7)	0.81(8.3)	0.56(5.8)	0.32(3.4)
650S 650L	40(0.4)											1.24(12.7)	0.71(7.3)	0.47(4.8)	0.32(3.3)	0.19(2.0)
	60(0.6)											1.86(19.0)	1.07(11.0)	0.70(7.2)	0.49(5.0)	0.29(3.0)
	80(0.8)											2.49(25.4)	1.44(14.7)	0.94(9.6)	0.65(6.7)	0.39(4.0)
	100(1.0)											3.10(31.7)	1.80(18.4)	1.17(12)	0.82(8.4)	0.49(5.0)
	120(1.2)											3.73(38.1)	2.15(22.0)	1.41(14.4)	0.98(10.0)	0.58(6.0)

■Soft Seat (PTFE) (See (1) - (8) of [Note] of P8)

Unit : MPa (kgf/cm²)

Port Size		4~8(mm)	10	15	20	25	32	40	50	65	80	100	125	150	200
Actuator size	Off-balance	$\frac{1}{4}$ (inch)	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	4	5	6	8
N24	40(0.4)	-	-	1.71(17.5)	1.16(11.9)	0.85(8.7)	0.59(6.0)	0.45(4.6)	0.29(3.0)						
	80(0.8)	-	-	-	-	-	1.18(12.1)	0.91(9.3)	0.58(6.0)						
	100(1.0)	-	-	-	-	-	1.47(15.1)	1.13(11.6)	0.73(7.5)						
N28	20(0.2)	-	1.71(17.5)	1.22(12.5)	0.75(7.7)	0.54(5.6)	0.38(3.9)	0.29(3.0)	0.18(1.9)	0.12(1.3)	0.08(0.9)	0.05(0.6)			
	40(0.4)	-	-	-	1.52(15.5)	1.10(11.3)	0.76(7.8)	0.58(6.0)	0.38(3.9)	0.25(2.6)	0.18(1.9)	0.11(1.2)			
	80(0.8)	-	-	-	-	-	1.53(15.7)	1.18(12.1)	0.76(7.8)	0.51(5.3)	0.38(3.9)	0.23(2.4)			
	100(1.0)	-	-	-	-	-	-	-	0.96(9.8)	0.64(6.6)	0.48(4.9)	0.29(3.0)			
N33S	20(0.2)			1.71(17.5)	1.11(11.4)	0.81(8.3)	0.56(5.7)	0.43(4.4)	0.27(2.8)	0.18(1.9)	0.13(1.4)	0.07(0.8)			
	40(0.4)			-	-	1.62(16.6)	1.12(11.5)	0.87(8.9)	0.55(5.7)	0.38(3.9)	0.28(2.9)	0.16(1.7)			
	80(0.8)			-	-	-	-	-	1.12(11.5)	0.76(7.8)	0.56(5.8)	0.34(3.5)			
	100(1.0)			-	-	-	-	-	-	0.95(9.7)	0.70(7.2)	0.43(4.4)			
	120(1.2)			-	-	-	-	-	-	0.85(8.7)	0.51(5.3)				
N40	20(0.2)						0.79(8.1)	0.60(6.2)	0.39(4.0)	0.26(2.7)	0.19(2.0)	0.11(1.2)	0.07(0.8)	0.05(0.6)	0.02(0.3)
	40(0.4)						-	1.22(12.5)	0.79(8.1)	0.52(5.4)	0.40(4.1)	0.24(2.5)	0.15(1.6)	0.11(1.2)	0.06(0.7)
	80(0.8)						-	-	-	-	0.80(8.2)	0.49(5.0)	0.32(3.3)	0.23(2.4)	[0.13(1.4)]
	100(1.0)						-	-	-	-	-	0.60(6.2)	0.41(4.2)	0.29(3.0)	0.17(1.8)
	120(1.2)						-	-	-	-	-	0.73(7.5)	0.49(5.0)	0.35(3.6)	0.21(2.2)
500S 500L	40(0.4)									-	0.66(6.8)	0.40(4.1)	0.27(2.8)	0.19(2.0)	0.11(1.2)
	60(0.6)									-	-	0.60(6.2)	0.41(4.2)	0.29(3.0)	0.17(1.8)
	80(0.8)									-	-	-	0.54(5.6)	0.39(4.0)	0.23(2.4)
	100(1.0)									-	-	-	-	0.50(5.1)	0.29(3.0)
650S 650L	40(0.4)												0.48(4.9)	0.34(3.5)	0.20(2.1)
	60(0.6)												-	0.51(5.3)	0.31(3.2)
	80(0.8)												-	-	0.41(4.2)
	100(1.0)												-	-	-

■Soft Seat (GL-PTFE: Glass reinforced PTFE) (See (1) - (8) of [Note] of P8)

Unit : MPa (kgf/cm²)

Port Size		4~8(mm)	10	15	20	25	32	40	50	65	80	100	125	150	200
Actuator size	Off-balance	$\frac{1}{4}$ (inch)	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	4	5	6	8
N24	40(0.4)	-	-	1.89(19.3)	1.16(11.9)	0.85(8.7)	0.59(6.0)	0.45(4.6)	0.29(3.0)						
	80(0.8)	-	-	-	-	1.70(17.4)	1.18(12.1)	0.91(9.3)	0.58(6.0)						
	100(1.0)	-	-	-	-	-	1.47(15.1)	1.13(11.6)	0.73(7.5)						
N28	20(0.2)	-	1.79(18.3)	1.22(12.5)	0.75(7.7)	0.54(5.6)	0.38(3.9)	0.29(3.0)	0.18(1.9)	0.12(1.3)	0.08(0.9)	0.05(0.6)			
	40(0.4)	-	-	-	1.52(15.5)	1.10(11.3)	0.76(7.8)	0.58(6.0)	0.38(3.9)	0.25(2.6)	0.18(1.9)	0.11(1.2)			
	80(0.8)	-	-	-	-	-	1.53(15.7)	1.18(12.1)	0.76(7.8)	0.51(5.3)	0.38(3.9)	0.23(2.4)			
	100(1.0)	-	-	-	-	-	-	1.48(15.1)	0.96(9.8)	0.64(6.6)	0.48(4.9)	0.29(3.0)			
N33S	20(0.2)			1.80(18.4)	1.11(11.4)	0.81(8.3)	0.56(5.7)	0.43(4.4)	0.27(2.8)	0.18(1.9)	0.13(1.4)	0.07(0.8)			
	40(0.4)			-	-	1.62(16.6)	1.12(11.5)	0.87(8.9)	0.55(5.7)	0.38(3.9)	0.28(2.9)	0.16(1.7)			
	80(0.8)			-	-	-	-	-	1.12(11.5)	0.76(7.8)	0.56(5.8)	0.34(3.5)			
	100(1.0)			-	-	-	-	-	-	0.95(9.7)	0.70(7.2)	0.43(4.4)			
	120(1.2)			-	-	-	-	-	-	0.85(8.7)	0.51(5.3)				
N40	20(0.2)						0.79(8.1)	0.60(6.2)	0.39(4.0)	0.26(2.7)	0.19(2.0)	0.11(1.2)	0.07(0.8)	0.05(0.6)	0.02(0.3)
	40(0.4)						1.58(16.2)	1.22(12.5)	0.79(8.1)	0.52(5.4)	0.40(4.1)	0.24(2.5)	0.15(1.6)	0.11(1.2)	0.06(0.7)
	80(0.8)						-	-	-	1.06(10.9)	0.80(8.2)	0.49(5.0)	0.32(3.3)	0.23(2.4)	[0.13(1.4)]
	100(1.0)						-	-	-	-	1.00(10.2)	0.60(6.2)	0.41(4.2)	0.29(3.0)	0.17(1.8)
	120(1.2)						-	-	-	-	-	0.73(7.5)	0.49(5.0)	0.35(3.6)	0.21(2.2)
500S 500L	40(0.4)								1.32(13.5)	0.89(9.1)	0.66(6.8)	0.40(4.1)	0.27(2.8)	0.19(2.0)	0.11(1.2)
	60(0.6)								-	-	1.00(10.2)	0.60(6.2)	0.41(4.2)	0.29(3.0)	0.17(1.8)
	80(0.8)								-	-	-	0.81(8.3)	0.54(5.6)	0.39(4.0)	0.23(2.4)
	100(1.0)								-	-	-	-	-	0.50(5.1)	0.29(3.0)

650S 650L	40(0.4)											0.70(7.2)	0.48(4.9)	0.34(3.5)	0.20(2.1)
	60(0.6)											-	-	0.51(5.3)	0.31(3.2)
	80(0.8)											-	-	-	0.41(4.2)
	100(1.0)											-	-	-	0.51(5.3)

■Soft Seat (PCTFE) (See (1) - (8) of [Note] of P8)

Unit : MPa (kgf/cm²)

Port Size	4~ 8(mm)	10	15	20	25	32	40	50	65	80	100	125	150	200	
Actuator size	Off-balance	≤ 1/4(inch)	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
N24	40(0.4)	2.45(25.0)	2.45(25.0)	1.89(19.3)	1.16(11.9)	0.85(8.7)	0.59(6.0)	0.45(4.6)	0.29(3.0)						
	80(0.8)	-		2.34(23.9)	1.70(17.4)	1.18(12.1)	0.91(9.3)	0.58(6.0)							
	100(1.0)	-		2.45(25.0)	2.13(21.8)	1.47(15.1)	1.13(11.6)	0.73(7.5)							
N28	20(0.2)	2.28(23.3)	1.79(18.3)	1.22(12.5)	0.75(7.7)	0.54(5.6)	0.38(3.9)	0.29(3.0)	0.18(1.9)	0.12(1.3)	0.08(0.9)	0.05(0.6)			
	40(0.4)	2.45(25.0)	2.45(25.0)	1.52(15.5)	1.10(11.3)	0.76(7.8)	0.58(6.0)	0.38(3.9)	0.25(2.6)	0.18(1.9)	0.11(1.2)				
	80(0.8)	-		2.21(22.6)	1.53(15.7)	1.18(12.1)	0.76(7.8)	0.51(5.3)	0.38(3.9)	0.23(2.4)					
100(1.0)	-	2.45(25.0)		1.92(19.6)	1.48(15.1)	0.96(9.8)	0.64(6.6)	0.48(4.9)	0.29(3.0)						
N33S	20(0.2)			1.80(18.4)	1.11(11.4)	0.81(8.3)	0.56(5.7)	0.43(4.4)	0.27(2.8)	0.18(1.9)	0.13(1.4)	0.07(0.8)			
	40(0.4)		2.45(25.0)	2.23(22.8)	1.62(16.6)	1.12(11.5)	0.87(8.9)	0.55(5.7)	0.38(3.9)	0.28(2.9)	0.16(1.7)				
	80(0.8)			2.45(25.0)	2.26(23.1)	1.74(17.8)	1.12(11.5)	0.76(7.8)	0.56(5.8)	0.34(3.5)					
	100(1.0)				2.18(22.3)	1.41(14.4)	0.95(9.7)	0.70(7.2)	0.43(4.4)						
	120(1.2)		-			2.45(25.0)	2.45(25.0)	1.69(17.3)	1.14(11.7)	0.85(8.7)	0.51(5.3)				
N40	20(0.2)						0.79(8.1)	0.60(6.2)	0.39(4.0)	0.26(2.7)	0.19(2.0)	0.11(1.2)	0.07(0.8)	0.05(0.6)	0.02(0.3)
	40(0.4)						1.58(16.2)	1.22(12.5)	0.79(8.1)	0.52(5.4)	0.40(4.1)	0.24(2.5)	0.15(1.6)	0.11(1.2)	0.06(0.7)
	80(0.8)						2.45(25.0)	1.58(16.2)	1.06(10.9)	0.80(8.2)	0.49(5.0)	0.32(3.3)	0.23(2.4)	0.13(1.4)	
	100(1.0)					1.99(20.3)		1.34(13.7)	1.00(10.2)	0.60(6.2)	0.41(4.2)	0.29(3.0)	0.17(1.8)		
	120(1.2)					2.39(24.4)		1.60(16.4)	1.20(12.3)	0.73(7.5)	0.49(5.0)	0.35(3.6)	0.21(2.2)		
500S	40(0.4)						2.45(25.0)	2.04(20.9)	1.32(13.5)	0.89(9.1)	0.66(6.8)	0.40(4.1)	0.27(2.8)	0.19(2.0)	0.11(1.2)
	60(0.6)							1.99(20.3)	1.34(13.7)	1.00(10.2)	0.60(6.2)	0.41(4.2)	0.29(3.0)	0.17(1.8)	
500L	80(0.8)							2.45(25.0)	2.45(25.0)	1.79(18.3)	1.33(13.6)	0.81(8.3)	0.54(5.6)	0.39(4.0)	0.23(2.4)
	100(1.0)						2.24(22.9)			1.67(17.1)	1.01(10.4)	0.68(7.0)	0.50(5.1)	0.29(3.0)	
650S	40(0.4)										1.15(11.8)	0.70(7.2)	0.48(4.9)	0.34(3.5)	0.20(2.1)
	60(0.6)										1.74(17.8)	1.05(10.8)	0.71(7.3)	0.51(5.3)	0.31(3.2)
650L	80(0.8)										2.32(23.7)	1.42(14.5)	0.96(9.8)	0.68(7.0)	0.41(4.2)
	100(1.0)										2.45(25.0)	1.77(18.1)	1.19(12.2)	0.86(8.8)	0.51(5.3)

- [Notes] (1) The value of these allowable shut-off pressure table represents a case of our standard grand packing (PTFE yarn).
(2) Unit of off-balance is kPaG (kgf/cm²G)
(3) Off-balance 100kPaG (1.0kgf/cm²G) is applied only to direct action for the actuator size N24, N28, N33S and N40.
(4) When Off-balance 120kPaG (1.2kgf/cm²G) is chosen, please refer to our nearest office for the specifications of Oil free, Bellows Seal Bonnet and/or special gland packing.
(5) When port size 8 inch (200mm), actuator size N40 and Off-balance 80kPaG (0.8kgf/cm²G), above allowable shut-off pressure tables are not applicable for reverse action valve with 65mm rated travel.
(6) As for reverse action of rated travel 65mm, actuator size 500 with Off-balance 100kPaG (1.0kgf/cm²G) selects 500 L.
(7) As for reverse action of rated travel 65mm, actuator size 650 with Off-balance 100kPaG (1.0kgf/cm²G) selects 650 L.
(8) About the control specifications that the valve action is Reverse Action and Off-balance 120kPaG (1.2kgf/cm²G) are required, mounting of our Intelligent valve positioner EA10S is necessary to keep Function Accuracy.
(9) As for reverse action of rated travel 50 or 65mm, actuator size 500 with Off-balance 120kPaG (1.2kgf/cm²G) selects 500 L.
(10) As for reverse action of rated travel 65mm, actuator size 650 with Off-balance 120kPaG (1.2kgf/cm²G) selects 650 L.
(11) If TSO (Tight Shut-Off) is required for contoured plug, available shut-off pressure must be obtained with multiplying the value in the column by 1/1.2(only applicable to metal-seat). For ANSI/FCI 70-2 Class V requirement, multiply 1/1.5.

2 Limit of Operating ΔP at intermediate opening

State of Fluid	Port Size 20 mm and less	Port Size 25 mm~ 200 mm
GAS, STEAM	Less than ΔP 6.0MPa	Less than ΔP 2.5MPa
LIQ. (NO CAVITATION OR FLASHING)		Less than ΔP 1.5MPa

[Note] It is recommended to select Model #83B cage valves for the services bigger than above ΔP.

7. MAIN DIMENSIONS AND WEIGHTS

1 Face-to-face Dimensions of Valve Body

Unit: mm

Valve Size		Press. Rating	Face-to-face Dimension F				
			JIS 10K RF ASME 150 RF	JIS 20K RF ASME 300 RF	JIS 30K 40KRF ASME 300 RJ ASME 600 RF	ASME 600 RJ	SW(≤50 mm) BW(≥65 mm)
(mm)	(inch)						
15	1/2		184	190	203		206
20	3/4			194	206		
25	1		184	197	210		220
40	1 1/2		222	235	251		270
50	2		254	267	286	289	320
65	2 1/2		276	292	311	314	380
80	3		298	317	337	340	430
100	4		352	368	394	397	490
125	5		403	425	457	460	580
150	6		451	473	508	511	630
200	8		543	568	610	613	800

[Notes] (1) Face-to-Face dimension in shaded zone conform to IEC 60534-3-1 (JIS B2005-3-1) and ISA 75.08.01.

(2) Face-to-Face dimension of male and female, tongue and groove flange for JIS 10K - 30K (ASME 150, ASME 300) is coincident with JIS30K RF.

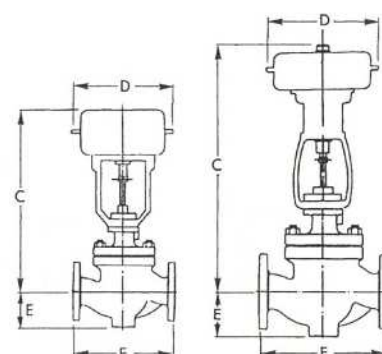
2 Standard Dimensions

Unit : mm

Valve Size		Actuator Size	D	E	C			C _R	S	
					Plain Bonnet Type	Extension Bonnet Type				
(mm)	(inch)					Type-F	Type-H			
15	1½	N24	240	60 65	430 425	530 525	995 985	C+30	200	
		N28	280		470 465	570 565	1035 1025		220	
		N33S	330		525 520	625 620	1090 1080		240	
20	¾	N24	240	65	430 435	530 535	995		200	
		N28	280		470 465	570 565	1035 1025		220	
		N33S	330		525 520	625 620	1090 1080		240	
25	1	N24	240	70 65	435	535	1000		200	
		N28	280		475	575	1035		220	
		N33S	330		530	630	1090		240	
40	1½	N24	240	85	450 490	600 640	1015 1055		200	
		N28	280		490 545	640 695	1055 1110		220	
		N33S	330		545 700	695 850	1110 1260		240	
		N40	400		700 920	850 1070	1260 1480		350	
		500S	500		920 470	1070 620	1480 1035		C+150	370
50	2	N24	240	95	470 510	620 660	1035 1070		C+30	200
		N28	280		510 565	660 715	1070 1125			220
		N33S	330		565 720	715 870	1125 1320	240		
		N40	400		720 935	870 1085	1320 1535	350		
		500S	500		935 555	1085 705	1535 1090	C+150	370	
65	2½	N28	280	110	555 610	705 760	1090 1145	C+30	220	
		N33S	330		610 765	760 915	1145 1365		240	
		N40	400		765 985	915 1135	1365 1585	350		
		500S	500		985 555	1135 705	1585 1145	C+150	370	
80	3	N28	280	130 135	555 610	705 760	1145 1200	C+30	220	
		N33S	330		610 765	760 915	1200 1390		240	
		N40	400		765 985	915 1135	1390 1610	350		
		500S	500		985 1280	1135 1430	1610 1905	C+150	370	
		650S	650		1280 595	1430 745	1905 1185	C+240	380	
100	4	N28	280	145	595 650	745 800	1185 1240	C+30	220	
		N33S	330		650 805	800 955	1240 1430		240	
		N40	400		805 1020	955 1170	1430 1645		350	
		500S	500		1020 650	1170 650	1645 1945	C+150	370	
		650S	650		650 830	1945 980	1480 1455	C+240	380	
125	5	N40	400	180	830 1050	980 1200	1455 1675	C+30	350	
		500S	500		1050 1135	1200 1285	1675 1760	C+150	370	
		500L	500		1135 1345	1285 1495	1760 1970	C+135	370	
		650S	650		1345 1480	1495 1600	1970 2075	C+240	380	
		650L	650		1480 1480	1600 1600	2075 2075	C+295	410	

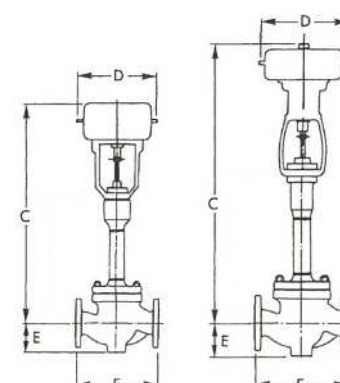
Plain Bonnet Type Actuator Size

N24 - N40 500, 650



Extension Bonnet Type Type-F, Type-H Actuator Size

N24 - N40 500, 650



150	6	N40	400	205	860	1010	1485	C+30	350
		500S	500		1080	1230	1705	C+150	370
		500L	500		1165	1315	1790	C+135	370
		650S	650		1375	1525	2000	C+240	380
		650L	650		1475	1625	2100	C+295	410
200	8	N40	400	225	965	1115	1665	C+30	350
		500S	500		1185	1335	1885	C+150	370
		500L	500		1270	1420	1970	C+135	370
		650S	650		1480	1630	2180	C+240	380
		650L	650		1580	1730	2285	C+295	410

【Notes】 (1) This table shows the outline dimensions of a control valve, and therefore the dimensions of attached accessories are not included.

(2) Dimension C represents actuator for direct action. For actuator of reverse action, use the dimension C_R.

(3) The upper case character of E and/or C dimensions is for class 150 - 300, and the lower case character is for class 400 - 600.

(4) "S" is a dimension necessary to remove actuator from a valve at the time of maintenance.

3 Weights

Unit: kg

Valve Size		(mm)	15			20			25			40			50			65			80			100		
		(inch)	1/2			3/4			1			1 1/2			2			2 1/2			3			4		
Rating			10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600
Bonnet Type	Actuator Size																									
Plain Type	N24		22	22	24	23	23	24	24	24	26	31	32	33	38	38	41									
	N28		25	25	27	26	26	27	27	27	29	34	35	36	41	41	44	52	53	57	62	65	69	91	95	102
	N33S		34	34	36	35	35	36	36	36	38	43	44	45	50	50	53	61	62	66	71	74	78	100	104	111
	N40											77	78	79	85	85	88	96	97	101	106	109	113	136	140	147
	500S											121	122	123	129	129	132	140	141	145	150	153	157	180	184	191
	650S																				330	333	337	360	364	371
Extension	Type-F	N24	24	24	26	25	25	26	26	26	28	33	34	35	40	40	43									
		N28	27	27	29	28	28	29	29	29	31	36	37	38	43	43	46	55	56	60	65	68	72	95	99	106
		N33S	36	36	38	37	37	38	38	38	40	45	46	47	52	52	55	64	65	69	74	77	81	104	108	115
		N40										81	82	83	89	89	92	100	101	105	110	113	117	141	145	152
		500S										125	126	127	133	133	136	144	145	149	154	157	161	185	189	196
		650S																			337	340	344	368	372	379
	Type-H	N24	25	25	27	26	26	27	27	27	29	34	35	36	41	41	44									
		N28	28	28	30	29	29	30	30	30	32	37	38	39	44	44	47	57	58	62	68	71	75	98	102	109
		N33S	37	37	39	38	38	39	39	39	41	46	47	48	53	53	56	66	67	71	77	80	84	107	111	118
		N40										84	85	86	92	92	95	103	104	108	113	116	120	145	149	156
		500S										128	129	130	136	136	139	147	148	152	157	160	164	189	193	200
		650S																			343	346	350	375	379	386

Valve Size		(mm)	125			150			200		
		(inch)	5			6			8		
Rating			10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600	10K ASME 150	20K ASME 300	30K ASME 600
Bonnet Type	Actuator Size										
Plain Type	N40		165	172	182	226	235	250	336	363	462
	500S		209	216	226	270	279	294	380	407	506
	500L		219	226	236	280	289	304	390	417	516
	650S		389	396	406	450	459	474	560	587	686
	650L		404	411	421	465	474	489	575	602	701
Extension	Type-F	N40	170	177	187	232	241	256	350	377	476
		500S	214	221	231	276	285	300	394	421	520
		500L	224	231	241	286	295	310	404	431	530
		650S	397	404	414	459	468	483	574	601	700
		650L	412	419	429	474	483	498	589	616	715
	Type-H	N40	175	182	192	237	246	261	364	391	490
		500S	219	226	236	281	290	305	408	435	534
		500L	229	236	246	291	300	315	418	445	544
		650S	404	411	421	466	475	490	588	615	714
		650L	419	426	436	481	490	505	603	630	729

【Notes】 (1) This table shows approximate weight for valve body assembly completed with actuator except accessories.

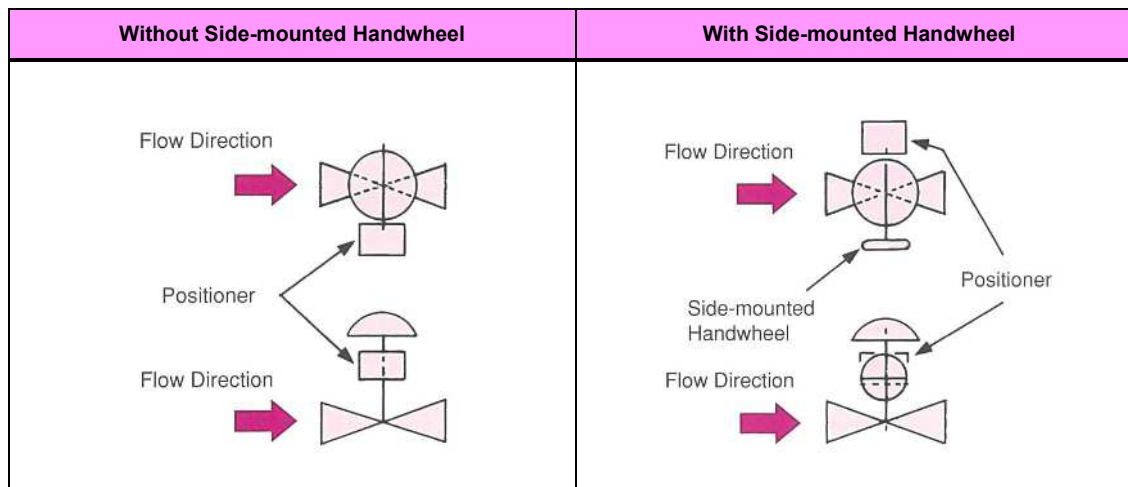
(2) For the case actuator size N24 - N40, the weight of Direct action (DA) and/or Reverse action (RA) is equal.

(3) The value of actuator size 500S - 650L shows a case of the Direct action (DA).

(4) As to the weight not shown in this table, contact your nearest MOTOYAMA's sales office or agent in the region.

8. MOUNTING ORIENTATIONS

Standard mounting orientations are as follows.



9. SPECIAL SPECIFICATIONS

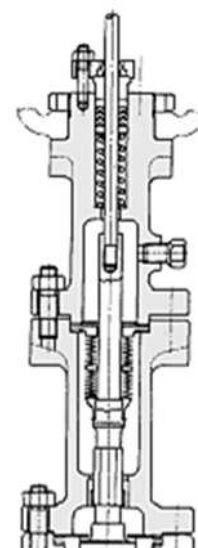
1 Bellows Seal Bonnet

This is the structure that attached bellows to a bonnet and is used for the fluid service that leaks to the valve outside are not permitted. Please refer to our Engineering Handbook (Bulletin No.MCE-B1003) for the range of pressure and temperature of Bellows Seal Bonnet.

■ Dimensions

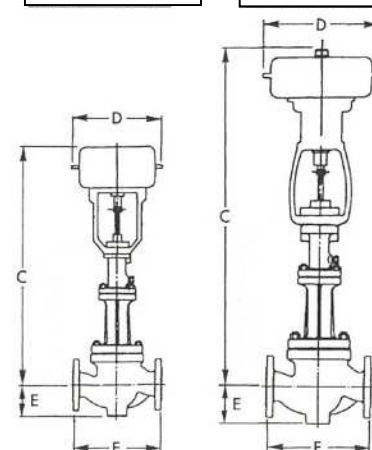
Unit: mm

Valve Size		Actuat or Size	D	E	C			C _R	S
					Bellows Seal Bonnet				
(mm)	(inch)				BA-10, 20	BA-30	BA-40		
15	1½	N24	240	60 65	665 655	665 655	695 685	C+30	200
		N28	280		705 695	705 695	735 725		220
		N33S	330		760 750	760 750	790 780		240
		N24	240		665 705	665 705	695 735		200 220
20	¾	N28	280	65	760 750	760 750	790 780		240
		N33S	330		760 750	760 750	790 780		240
25	1	N24	240	70 65	665 705	665 705	695 735		200 220
		N28	280		760 750	760 750	790 780		240
		N33S	330		760 750	760 750	790 780		240
40	1½	N24	240	85	660 735	700 735	740 780		200 220
		N28	280		790 1015	790 1020	835 1060		240 350
		N33S	330		1235 740	1235 740	1280 795		C+150
		N40	400		780 835	780 835	835 890		C+30
		500S	500		1040 1260	1040 1260	1095 1315	350 370	
50	2	N24	240	95	740 780	740 780	795 835	200 220	
		N28	280		835 1040	835 1040	890 1095	240 350	
		N33S	330		1260 885	1260 890	1315 960	C+150	
		N40	400		940 1145	945 1150	1015 1220	C+30	
65	2½	N40	400	110	1145 1365	1150 1365	1220 1440	350 370	
		500S	500		1365 890	1365 890	1440 960	C+150	
		N28	280		885 940	890 945	960 1015	C+30	
		N33S	330		940 1145	945 1150	1015 1220	C+30	
80	3	N40	400	130 135	1145 1365	1150 1370	1225 1440	350 370	
		500S	500		1365 1675	1370 1675	1440 1750	C+150	
		650S	650		1675 925	1675 925	1750 1000	C+240	
		N28	280		890 945	890 945	960 1015	C+30	
		N33S	330		945 1145	945 1150	1015 1225	C+30	
100	4	N40	400	145	1145 1365	1150 1370	1225 1440	350 370	
		500S	500		1365 1675	1370 1675	1440 1750	C+150	
		650S	650		1675 925	1675 925	1750 1000	C+240	
		N28	280		890 980	890 980	960 1055	C+30	
		N33S	330		945 1185	945 1185	1015 1260	C+30	



N24 to N40

500, 650



125	5	N40	400	180	1275	1275	1385	C+30	350
		500S	500		1495	1495	1605	C+150	370
		500L	500		1580	1580	1690	C+135	370
		650S	650		1795	1795	1905	C+240	380
		650L	650		1900	1900	2010	C+295	410
150	6	N40	400	205	1305	1305	1415	C+30	350
		500S	500		1525	1525	1635	C+150	370
		500L	500		1610	1610	1720	C+135	370
		650S	650		1825	1825	1935	C+240	380
		650L	650		1925	1930	2035	C+295	410
200	8	N40	400	225	1535	1535	1680	C+30	350
		500S	500		1755	1755	1900	C+150	370
		500L	500		1840	1840	1985	C+135	370
		650S	650		2075	2220	2220	C+240	380
		650L	650		2180	2325	2325	C+295	410

- 【Notes】 (1) This table shows the outline dimensions of a control valve, and therefore the dimensions of attached accessories are not included.
 (2) Dimension C represents actuator for direct action. For actuator of reverse action, use the dimension C_R.
 (3) The upper case character of E and/or C dimensions is for class 150 - 300, and the lower case character is for class 400 - 600.
 (4) Please refer to the face-to-face dimensions of valve body of P.8 for the F dimension.
 (5) When bellows material is not SUS316L, please refer to a value of "BA-30" for the C dimensions of "BA-10, 20", if valve size is 150 mm or less.
 (6) "S" is a dimension necessary to remove actuator from a valve at the time of maintenance.

2 Jacketed Body

Jacketed valve body is most suitable for high viscous fluid service in the room temperature. The jacketed body is able to manufacture until the rating pressure (ASME Class 600, JIS40K) of the valve body. In the case of 3800 actuator with the hand-operated steering wheel, the side handle is not available to interfere the jacketed body.

As for materials such as covers and/or attached pipe to use for the jacketed body, carbon steel is normal choice. When fabrication except the carbon steel is requested about these materials, please point out it. In addition, jacketed body may not be produced when valve body material is special metal.

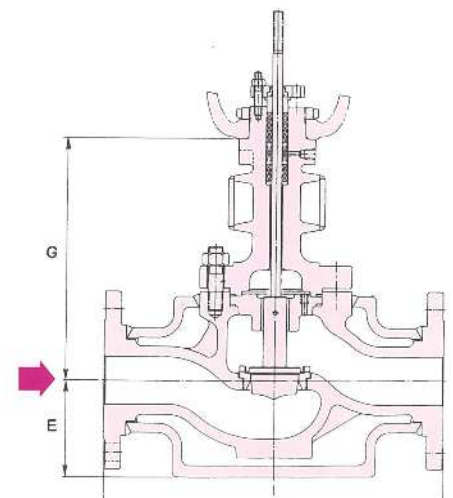
Full Jacket (Type B)

Where double pipe is used in piping, connection flange is two size larger than the valve size. In this design, full jacket is employed.

Dimensions Unit: mm

Valve size		Flange size		F	E	G		
						Actuator size		
(mm)	(inch)	(mm)	(inch)			N24 to N33S	N40, 500	650
15	1/2	40	1 1/2	240	70	201		
20	3/4	40	1 1/2	240	70	201		
25	1	50	2	260	75	204		
40	1 1/2	65	2 1/2	320	100	226	262	
50	2	80	3	360	100	253	289	
65	2 1/2	100	4	380	110	280	316	
80	3	125	5	410	135	321	350	350
100	4	150	6	460	155	370	404	404
125	5	200	8	580	230		406	406
150	6	200	8	630	265		428	428
200	8	250	10	800	290		518	518

【Note】 Face to face dimension "F" is available for JIS10K RF, 20K RF, ASME/JPI 150 RF and 300 RF Flange Rating.



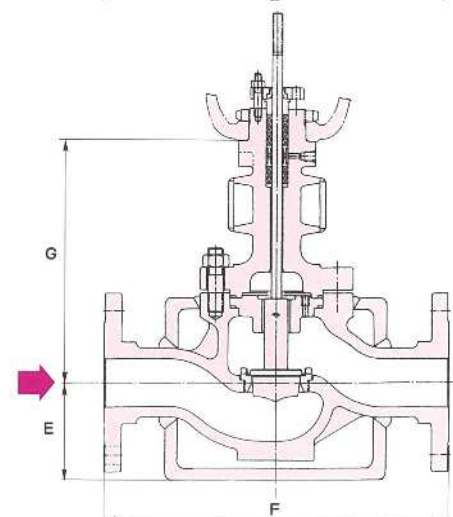
Semi Jacket (Type G)

Semi-Jacket is employed if pipe flange size is equal to the valve size

Dimensions Unit: mm

Valve size (Flange size)		F	E	G		
				Actuator size		
(mm)	(inch)			N24 to N33S	N40, 500	650
15	1/2	240	70	201	-	-
20	3/4	240	70	201	-	-
25	1	260	75	204	-	-
40	1 1/2	320	100	226	262	-
50	2	360	100	253	289	-
65	2 1/2	380	117	280	316	-
80	3	410	142	321	350	350
100	4	460	157	370	404	404
125	5	580	230	-	406	406
150	6	630	265	-	428	428
200	8	800	290	-	518	518

【Note】 Face-to-face dimension "F" is available for JIS 10K RF, 20K RF, ANSI/JPI 150 RF and 300 RF Flange Rating.



■ Piping Specifications

MOTOYAMA assemble the piping between the valve body and bonnet.
The standard connection to customer's jacket piping is as follows.

(1) Heating with Hot Water or Steam

Inlet and Outlet Connection: Rc¹/₂ Screwed

Piping system on Valve: JIS STPG 370, JIS 10K RF 15mm

(2) Heating with Heating medium

Inlet and Outlet Connection: Flange, JIS 20K RF, 15mm

Piping system on Valve: JIS STPG 370, JIS 20K RF, 15mm

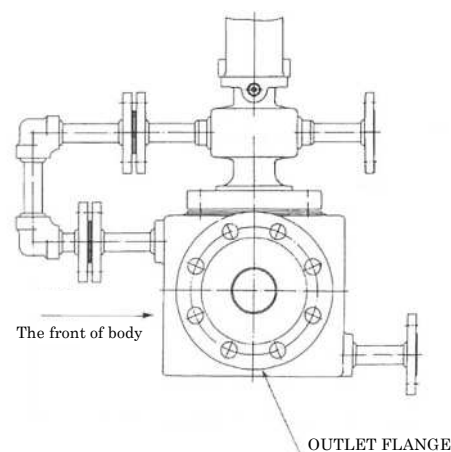
(3) Option

Inlet and Outlet Connection:

20mm Flange (JIS10k, 20k, ASME/JPI Class150, 300)

15mm Flange (JIS10k, 20k, ASME/JPI Class150, 300)

Rc³/₄, NPT¹/₂, NPT³/₄





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