

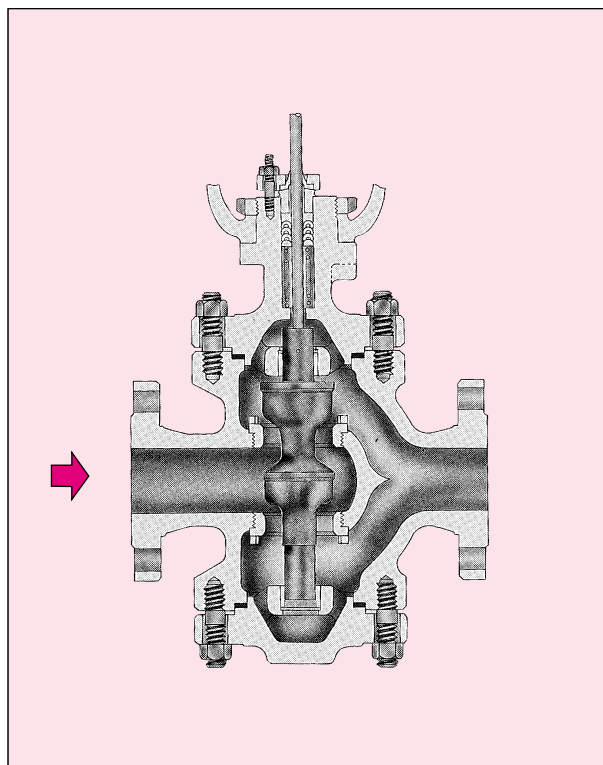
Model 05

GLOBE TYPE DOUBLE SEATED CONTROL VALVES

Model 05 double seated control valves provide high performance for general fluid service applications such as steam and gasses.

Model 05 control valves having with top and bottom guide, double seat design, various flow characteristics, conform to ANSI seat leakage classes and are applicable for various service conditions.

With compactly designed multi-spring diaphragm actuator, Model 05 provides stable control performance with high thrust power.



05

1. SPECIFICATIONS

Type			Diaphragm operated control valve											
Model No.			3805						2805					
VALVE BODY	Body Type		Model 05 Globe type											
	Sizes	(mm)	25	40	50	65	80	100	125	150	200	250	300	350
		(in.)	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
	Pressure Rating		JIS 10K, 20K, 30K, 40K, ASME/JPI Class 150, 300, 600											
	End Connections		Flanged end : FF, RF, RJ, Male and female, Tongue and groove (※ Welding end : SW, BW)											
	Body Materials		A48 Cl. 35, WCB, CF8, CF8M											
	Bonnet Types		Plain(－ 17℃ to ＋ 230℃), Fin(－ 20℃ to under － 17℃, over ＋ 230℃) Extension(Light type : － 100℃ to under － 20℃, Heavy type : － 196℃ to under － 100℃), Bellows seal(See page 3)											
	Gland Type		Bolted gland											
	Packing (Non Asbestos)		Braided packing, Molded packing											
	Gaskets (Non Asbestos)		Flat gasket, Serrated gasket, Spiral wound gasket											
	Guiding		Top and bottom guide											
	Valve Plug Action		Push-down close						Push-down close, Push-down open					
	Seat Type		Double seated											

VALVE BODY	Valve Plug Shapes		Contoured port (P)			V-Port (V)		Quick opening (Q)		
	Plug Characteristics		Equal percentage, Linear			Equal percentage		Quick opening		
	Trim Materials		SUS 304, SUS 316							
	Treatment of Trim		See page 3 "Main Materials"							
ACTUATOR	Actuator Type		Model 3800 Multi-spring type single acting diaphragm Actuator				Model 2800 Spring type single acting diaphragm Actuator			
	Actuator Size		N24	N28	N33S	N40	500S	500L	650S	650L
	Max. Stroke (mm)		25	38	38	65	65	100	65	130
	Supply Air Press. kPaG (kgf/cm²G)		120(1.2), 140(1.4), 240(2.4) 280(2.8), 300(3.0)				120(1.2), 140(1.4), 240(2.4), 280(2.8)			
	Spring Range kPaG (kgf/cm²G)		20 ~ 100(0.2 ~ 1.0), 40 ~ 200(0.4 ~ 2.0), 80 ~ 200(0.8 ~ 2.0)				20 ~ 100(0.2 ~ 1.0), 40 ~ 200(0.4 ~ 2.0), 60 ~ 220(0.6 ~ 2.2), 80 ~ 240(0.8 ~ 2.4)			
	Action		Direct action, Reverse action				Direct action			
	Materials		(Diaphragm) Cloth reinforced chloroprene rubber, (Yoke) FC 200							
	Air Connection		Rc 1/4, Rc 3/8 (only 650 ^S _L)							
	Ambient Temperature		- 20℃ ~ + 70℃ (※ - 50℃ ~ - 20℃, + 70℃ ~ + 100℃) ⁽³⁾				- 30℃ ~ + 70℃ (※ - 50℃ ~ - 30℃, + 70℃ ~ + 100℃) ⁽³⁾			
Painting Color			Silver, No painting on stainless steel							
VALVE CHARACTERISTICS AND PERFORMANCE ⁽¹⁾	Control Mode		Throttling control, On-off control							
	Valve Action		Direct action (Air-to close), Reverse action (Air-to open)							
	Applicable Press. Range		9.81MPaG(100kgf/cm²G) or less (Pressure limit conform to the standard of pressure-temperature rating)							
	Applicable Temp. Range		- 196℃ ~ + 550℃ (Temperature limit conform to the standard of pressure-temperature rating)							
	Allowable Differential Press.		See page 6 "Allowable Shut-off Pressure"							
	Rated Cv Value		See page 5 "Rated Cv Value"							
	Flow Characteristics		See page 5 "Flow Characteristics"							
	Inherent Range-ability		Contoured Port		30 : 1 (50 : 1※)					
			V-Port		50 : 1					
	Allowable Seat Leakage Rate		Metal Seat		Contoured Port, V-Port		0.5 % of rated Cv (ANSI/FCI Class II)			
					Quick Qpening		0.1 % of rated Cv (ANSI/FCI Class III)			
			Soft Seat		Contoured Port, Quick Qpening		0.1 % of rated Cv (ANSI /FCI Class III)			
					Action Accuracy		Hysteresis Error (with Positioner)		Max. 2 % F.S.	
					Linearity (with Positioner)		Max. 2 % F.S.			
OPTIONS [*]	Valve Body		Jacket type. Drain plug, Special treatment for trim							
	Actuator		Handwheel(Top-mounted handwheel, Side-mounted handwheel), Travel stop, Oil dash pot(only for Model 2800), Diaphragm material : Ethylene propylene rubber, Yoke material : SCPH2							
	Accessories		Pneumatic positioner(PA92A), Electro-pneumatic positioner(EA91A, EA90A, EA10S), Air filter regulator(MR2000), Limit switch, Solenoid valve, Booster relay, Speed controller, Lock up valve, Pneumatic operated valve							
	Others		The High Pressure Gas Safety Law Certification, Oil-free, Water-free, Sandproof, Dustproof, Anti-salt damage, Vacuum service, Cold district spec.Tropical district spec. External exposure bolt & nut S.S. Optional painting color							

[Notes] (1) ※ Manufactured and attached as option according to customer's request.
 (2) For ambient temperature, denoted the extended temperature range as option.

2. MAIN MATERIALS

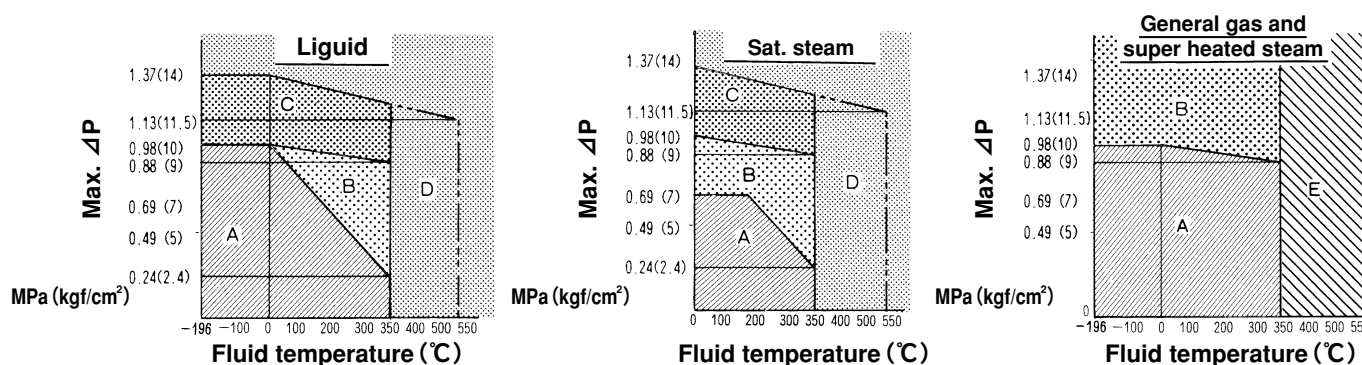
1 Typical Combination of Materials

Parts Name		Materials			
Body, Bonnet		A48 Cl. 35	WCB	CF8	CF8M
Trim	Seat Ring Valve Plug	Valve size $\leq 65\text{mm}$: SUS 316 Valve size $\geq 80\text{mm}$: SUS 304			SUS316
	Valve Stem	SUS316			
	Guide Bushing	SUS630			SUS316
Stud Bolts & Nuts		SS400	A193 GrB7/S45C(H) ○ Class 150 S45C(H)/S45C(N)	SUS 304 ○ Class 600 A193 GrB8 CL2/SUS304	

- [Notes] (1) This table shows typical combination of materials. The combination may be subject to change by pressure, temperature and kind of fluid.
 (2) Material designation is represented by new JIS (SI Unit). Please be noted that drawing for approval and other documents may be represented by old material designation.
 (3) Trim materials may be casting in stead of bar materials in some cases.

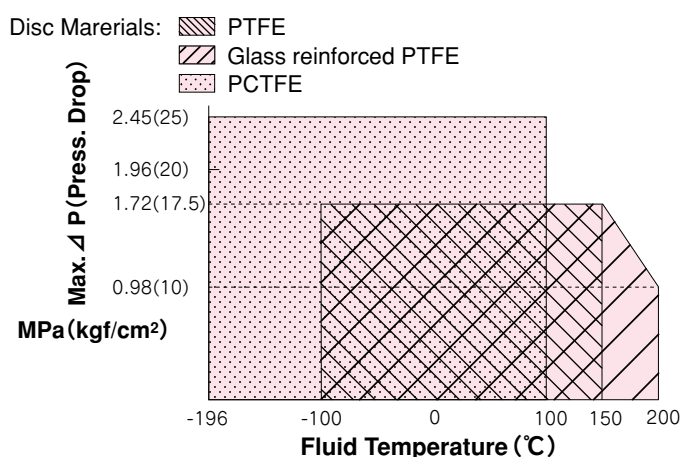
2 Pressure and Temperature Range for Hard Facing on Trim

A : CoCr Alloy is not required B : CoCr Alloy seat C : CoCr Alloy face
 D : CoCr Alloy face + CoCr Alloy on guide bushing and guide post.
 E : CoCr Alloy seat + CoCr Alloy on guide bushing and guide post.



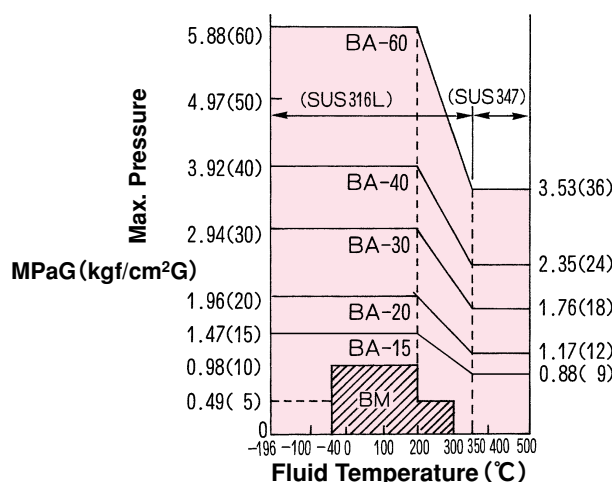
- (1) CoCr Alloy seat or higher surface treatment is required for On-Off and Tight-Shut-Off (T.S.O.) valves.
 (2) SUS440B Trim material is recommended for flashing or cavitation conditions or saturated steam in temperature range from -20°C to 400°C .
 (3) CoCr Alloy face or higher grade surface treatment is required for the flashing services.
 (4) Irrespective of service fluids, CoCr Alloy hard facing treatment is required on guide bushing and guide post.
 (5) On V-port trim, CoCr Alloy seat is the only applicable hard facing.
 (6) Pressure rating JIS 30k, ASME Class 400 or higher, CoCr Alloy seat is required as minimum.

3 Pressure and Temperature Range of Resilient Disc



[Note] Polychlorotrifluoroethylene

4 Pressure and Temperature Range of Bellows Seal Bonnet



BA shows the welding bellows and BM shows the formed bellows.
 BA : Welding Bellows
 BM : Formed Bellows

3. SCOPE OF PRODUCTION

1 Combination of Valve Body and Actuator

Valve Model No.		3805				2805			
Actuator Size		N24	N28	N33S	N40	500S	500L	650S	650L
Valve Size									
(mm)	(inch)								
25	1	●	●	●					
40	1½	●	●	●	●	●			
50	2	●	●	●	●	●			
65	2½	●	●	●	●	●			
80	3		●	●	●	●		●	
100	4		●	●	●	●		●	
125	5				●	●		●	
150	6				●	●		●	
200	8				●	●		●	
250	10					●		●	
300	12						●		●
350	14								●

2 Scope of Port

Port Size (mm)		25	32	40	50	65	80	100	125	150	200	250	300	350
Valve Size														
(mm)	(inch)													
25	1	●												
40	1½	◆	◆	●										
50	2	◆	◆	◆	●									
65	2½		◆	◆	◆	●								
80	3			◆	◆	◆	●							
100	4				◆	◆	◆	●						
125	5					◆	◆	◆	●					
150	6						◆	◆	◆	●				
200	8							◆	◆	◆	●			
250	10									◆	◆	●		
300	12										◆	◆	●	
350	14											◆	◆	●

● : Full port

◆ : Reduced port

[Note] Reduced port for V-port is not available.

4. FLOW CHARACTERISTICS

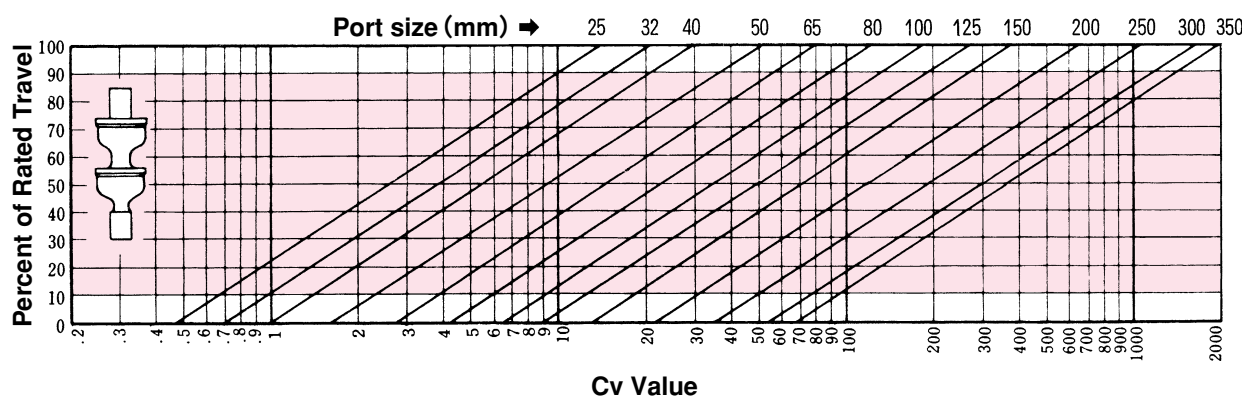
1 Rated Cv Value

Port Size		Rated Travel (mm)	Port Shapes		
(mm)	(in.)		Contoured (P)	V-Port (V)	Quick opening (Q)
25	1	15	14.5	12	15
32	1 1/4	20	21	18	24
40	1 1/2		30	28	33
50	2	25	52	48	60
65	2 1/2		81	72	90
80	3	38	125	100	140
100	4		192	165	250
125	5	50	275	250	360
150	6		390	360	540
200	8	65	675	640	980
250	10		1050	1000	1550
300	12	90	1620	1440	2200
350	14	100	2000	1960	3000
Inherent Rangeability			30 : 1	50 : 1	—

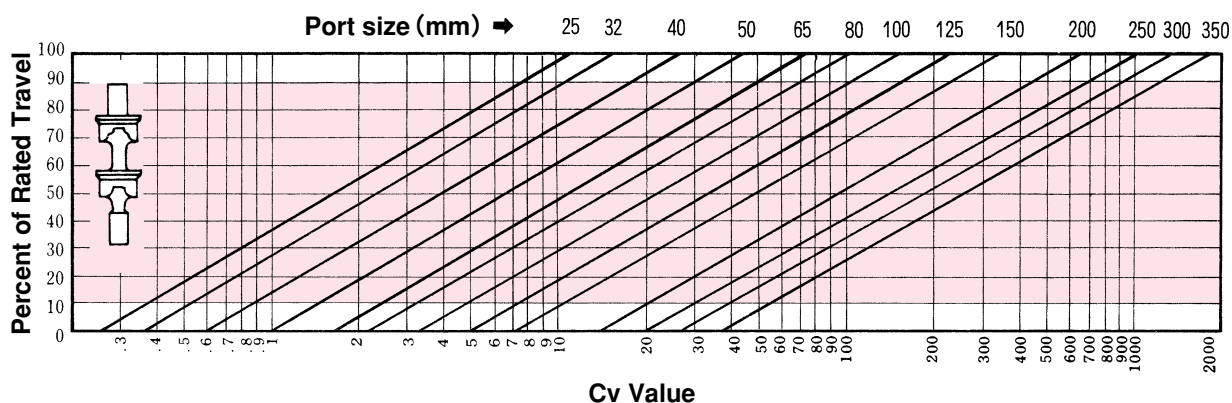
[Note] Rated travel is determined by the port size regardless of valve size.

2 Flow Characteristics

■ Contoured Port Equal percentage (P)



■ V- Port Equal percentage (V)



[Note] Colored zone represents proper control range.

5. ALLOWABLE DIFFERENTIAL PRESSURE

1 Off-balance Classification

Unit : kPaG (kgf/cm²G)

Action			Spring Range		Supply Air Pressure	Off-balance	Positioner
			Actuator Size				
			N24 ~ N40	500, 650			
Contoured Port V-Port	Direct Action		20 ~ 100 (0.2 ~ 1.0)		120 (1.2)	20 (0.2)	without
			40 ~ 200 (0.4 ~ 2.0)		140 (1.4)	40 (0.4)	with
			—	60 ~ 220 (0.6 ~ 2.2)	240 (2.4)	60 (0.6)	
			40 ~ 200 (0.4 ~ 2.0)	40 ~ 200 (0.4 ~ 2.0)	280 (2.8)	80 (0.8)	without
	—		300 (3.0)	100 (1.0)			
	Reverse Action		20 ~ 100 (0.2 ~ 1.0)		120 (1.2)	20 (0.2)	with
			40 ~ 200 (0.4 ~ 2.0)		140 (1.4)	40 (0.4)	
			—	60 ~ 220 (0.6 ~ 2.2)	280 (2.8)	60 (0.6)	
80 ~ 200 (0.8 ~ 2.0)			80 ~ 240 (0.8 ~ 2.4)	280 (2.8)	80 (0.8)		
Quick Opening	Direct Action		40 ~ 200 (0.4 ~ 2.0)		240 (2.4)	40 (0.4)	without
			—	60 ~ 220 (0.6 ~ 2.2)	280 (2.8)	60 (0.6)	
			40 ~ 200 (0.4 ~ 2.0)	40 ~ 200 (0.4 ~ 2.0)	280 (2.8)	80 (0.8)	
			—		300 (3.0)	100 (1.0)	
	Reverse Action		40 ~ 200 (0.4 ~ 2.0)		240 (2.4)	40 (0.4)	without
			—	60 ~ 220 (0.6 ~ 2.2)	280 (2.8)	60 (0.6)	
			80 ~ 200 (0.8 ~ 2.0)	80 ~ 240 (0.8 ~ 2.4)	280 (2.8)	80 (0.8)	
			—		280 (2.8)	80 (0.8)	

2 Allowable Shut-off Pressure

(1) Contoured, V-port

The upper column : Allowable Shut-off press.
The lower column : Allowable intermediate diff. press.

Unit : MPa (kgf/cm²)

Port Size		25 (mm)	40	50	65	80	100	125	150	200	250	300	350
Actuator Size	Off-balance	1 (inch)	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
N24	20 (0.2)	2.45 (25)	1.47 (15)	1.07 (11)	0.88 (9.0)								
		0.41 (4.2)	0.17 (1.8)	0.10 (1.1)	0.08 (0.9)								
	40 (0.4)	5.00 (51)	2.94 (30)	2.15 (22)	1.76 (18)								
		1.66 (17)	0.73 (7.5)	0.43 (4.4)	0.35 (3.6)								
	80 (0.8)	9.80 (100)	5.88 (60)	4.31 (44)	3.53 (36)								
		1.17 (12)	0.54 (5.6)	0.32 (3.3)	0.26 (2.7)								
	100 (1.0)	9.80 (100)	7.35 (75)	5.49 (56)	4.41 (45)								
		1.66 (17)	0.73 (7.5)	0.43 (4.4)	0.35 (3.6)								
	20 (0.2)	3.23 (33)	1.86 (19)	1.37 (14)	1.07 (11)	0.83 (8.5)	0.62 (6.4)						
		0.53 (5.5)	0.31 (3.2)	0.23 (2.4)	0.18 (1.9)	0.08 (0.9)	0.06 (0.7)						
N28	40 (0.4)	6.47 (66)	3.72 (38)	2.84 (29)	2.25 (23)	1.66 (17)	1.17 (12)						
		2.15 (22)	1.17 (12)	0.94 (9.6)	0.76 (7.8)	0.36 (3.7)	0.27 (2.8)						
	80 (0.8)	9.80 (100)	7.55 (77)	5.68 (58)	4.51 (46)	3.33 (34)	2.45 (25)						
		1.57 (16)	0.95 (9.7)	0.70 (7.2)	0.56 (5.8)	0.27 (2.8)	0.20 (2.1)						
	100 (1.0)	9.80 (100)	9.51 (97)	7.06 (72)	5.68 (58)	4.11 (42)	3.13 (32)						
		2.15 (22)	1.17 (12)	0.94 (9.6)	0.76 (7.8)	0.36 (3.7)	0.27 (2.8)						
N33	20 (0.2)	4.80 (49)	2.74 (28)	2.05 (21)	1.66 (17)	1.17 (12)	0.92 (9.4)						
		0.79 (8.1)	0.46 (4.7)	0.34 (3.5)	0.26 (2.8)	0.19 (2.0)	0.14 (1.5)						
	40 (0.4)	9.61 (98)	5.58 (57)	4.11 (42)	3.33 (34)	2.45 (25)	1.76 (18)						
		3.14 (32)	1.86 (19)	1.37 (14)	1.07 (11)	0.81 (8.3)	0.61 (6.3)						
	80 (0.8)	9.80 (100)	9.80 (100)	8.33 (85)	6.76 (69)	4.90 (50)	3.62 (37)						
		2.35 (24)	1.37 (14)	0.98 (10)	0.84 (8.6)	0.60 (6.2)	0.46 (4.7)						
	100 (1.0)	9.80 (100)	9.80 (100)	9.80 (100)	8.43 (86)	6.08 (62)	4.60 (47)						
		3.13 (32)	1.86 (19)	1.37 (14)	1.07 (11)	0.81 (8.3)	0.61 (6.3)						

Contoured, V-port Continued from P. 6

Unit : MPa (kgf/cm²)

Port Size		25(mm)	40	50	65	80	100	125	150	200	250	300	350
Actuator Size	Off-balance	1 (inch)	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
N40	20 (0.2)		3.92 (40)	2.94 (30)	2.35 (24)	1.66 (17)	1.27 (13)	0.91 (9.3)	0.76 (7.8)	0.50 (5.2)			
			0.65 (6.7)	0.49 (5.0)	0.39 (4.0)	0.28 (2.9)	0.21 (2.2)	0.14 (1.5)	0.12 (1.3)	0.05 (0.6)			
	40 (0.4)		7.84 (80)	5.88 (60)	4.70 (48)	3.43 (35)	2.54 (26)	1.76 (18)	1.47 (15)	0.98 (10)			
			2.54 (26)	1.96 (20)	1.56 (16)	1.07 (11)	0.87 (8.9)	0.60 (6.2)	0.50 (5.2)	0.25 (2.6)			
	80 (0.8)		9.80 (100)		9.51 (97)	6.86 (70)	5.19 (53)	3.62 (37)	3.04 (31)	[1.96 (20)]			
			1.96 (20)	1.47 (15)	1.17 (12)	0.86 (8.8)	0.64 (6.6)	0.45 (4.6)	0.38 (3.9)	0.18 (1.9)			
500	100 (1.0)		9.80 (100)			8.62 (88)	6.47 (66)	4.51 (46)	3.83 (39)	2.45 (25)			
			2.54 (26)	1.96 (20)	1.56 (16)	1.07 (11)	0.87 (8.9)	0.60 (6.2)	0.50 (5.2)	0.25 (2.6)			
	20 (0.2)				3.92 (40)	2.84 (29)	2.15 (22)	1.47 (15)	1.27 (13)	0.84 (8.6)	0.66 (6.8)	0.48 (4.9)	
					0.65 (6.7)	0.48 (4.9)	0.36 (3.7)	0.25 (2.6)	0.20 (2.1)	0.13 (1.4)	0.10 (1.1)	0.07 (0.8)	
	40 (0.4)				7.94 (81)	5.68 (58)	4.31 (44)	3.04 (31)	2.54 (26)	1.66 (17)	1.27 (13)	0.96 (9.8)	
					2.64 (27)	1.86 (19)	1.37 (14)	0.98 (10)	0.85 (8.7)	0.55 (5.7)	0.44 (4.5)	0.31 (3.2)	
650	60 (0.6)				9.80 (100)	8.62 (88)	6.47 (66)	4.51 (46)	3.82 (39)	2.45 (25)	1.96 (20)	1.37 (14)	
					2.64 (27)	1.86 (19)	1.37 (14)	0.98 (10)	0.85 (8.7)	0.55 (5.7)	0.44 (4.5)	0.31 (3.2)	
	80 (0.8)				9.80 (100)		8.72 (89)	6.08 (62)	5.09 (52)	3.33 (34)	2.64 (27)	1.86 (19)	
					2.64 (27)	1.86 (19)	1.37 (14)	0.98 (10)	0.85 (8.7)	0.55 (5.7)	0.44 (4.5)	0.31 (3.2)	
	20 (0.2)							—	—	—	—	—	—
								—	—	—	—	—	—
650	40 (0.4)							5.29 (54)	4.41 (45)	2.84 (29)	2.25 (23)	1.66 (17)	1.27 (13)
								1.76 (18)	1.47 (15)	0.97 (9.9)	0.77 (7.9)	0.55 (5.7)	0.43 (4.4)
	60 (0.6)							7.94 (81)	6.57 (67)	4.31 (44)	3.43 (35)	2.45 (25)	1.86 (19)
								1.76 (18)	1.47 (15)	0.97 (9.9)	0.77 (7.9)	0.55 (5.7)	0.43 (4.4)
	80 (0.8)							9.80 (100)	8.82 (90)	5.78 (59)	4.60 (47)	3.33 (34)	2.54 (26)
								1.76 (18)	1.47 (15)	0.97 (9.9)	0.77 (7.9)	0.55 (5.7)	0.43 (4.4)

(2) Quick Opening

Unit : MPa (kgf/cm²)

Port Size		25(mm)	40	50	65	80	100	125	150	200	250	300
Actuator Size	Off-balance	1 (inch)	1 1/2	2	2 1/2	3	4	5	6	8	10	12
N24	40 (0.4)	2.45 (25)	1.66 (17)	0.98 (10)	0.78 (8.0)							
	80 (0.8)	5.00 (51)	3.43 (35)	1.96 (20)	1.56 (15)							
	100 (1.0)	6.17 (63)	4.21 (43)	2.45 (25)	1.96 (20)							
N28	40 (0.4)		2.15 (22)	1.27 (13)	0.98 (10)	0.67 (6.9)	0.52 (5.4)					
	80 (0.8)		4.41 (45)	2.54 (26)	1.96 (20)	1.27 (13)	0.98 (10)					
	100 (1.0)		5.49 (56)	3.13 (32)	2.54 (26)	1.66 (17)	1.27 (13)					
N33	40 (0.4)					0.98 (10)	0.77 (7.9)					
	80 (0.8)					1.96 (20)	1.47 (15)					
	100 (1.0)					2.45 (25)	1.86 (19)					
N40	40 (0.4)							0.87 (8.9)	0.73 (7.5)	0.46 (4.7)		
	80 (0.8)							1.66 (17)	1.47 (15)	[0.92 (9.4)]		
	100 (1.0)							2.15 (22)	1.76 (18)	1.07 (11)		
500	40 (0.4)									0.77 (7.9)	0.61 (6.3)	0.44 (4.5)
	60 (0.6)									1.07 (11)	0.93 (9.5)	0.66 (6.8)
	80 (0.8)									1.47 (15)	1.17 (12)	0.89 (9.1)
650	40 (0.4)											0.77 (7.9)
	60 (0.6)											1.07 (11)
	80 (0.8)											1.47 (15)

- [Notes] (1) Frame represents standard combination of body size at full port and actuator size.
(2) Unit of off-balance is kPaG (kgf/cm²G).
(3) Off-balance 100kPaG (1.0kgf/cm²G) is available only for direct action control.
(4) On Contoured and V-port plug table, upper column shut-off pressure applies to both plugs and lower column applies only for Contoured plugs. (There is no limitations for intermediate differential pressure on V-port plug)
(5) Allowable intermediate differential pressure shall be applied for fluid of liquid a not steam.
(6) Allowable shut-off pressure in [] on the table on actuator size N40, off-balance 80kPaG (0.8kgf/cm²G), is only applicable for direct action, not for reverse action.
(7) This table shows available shut-off pressure only for combination with standard gland packing (P4519 + V7010)
(8) Allowable shut-off pressure for bellows seal bonnet valve differs from the blue above.

6. MAIN DIMENSIONS AND WEIGHT

1 Face-to-face Dimensions of Valve Body

Unit : mm

Valve Size	Press. Rating	Face-to-face Dimension F			
		JIS 10K ASME 150RF	JIS 20K ASME 300RF	JIS 30K 40KRF ASME 300RJ 600RF	ASME 600RJ
	(mm) (in.)				
25	1	184	197	210	210
40	1½	222	235	251	251
50	2	254	267	286	289
65	2½	276	292	311	314
80	3	298	317	337	340
100	4	352	368	394	397
125	5	403	425	457	460
150	6	451	473	508	511
200	8	543	568	610	613
250	10	673	708	752	755
300	12	737	775	819	822
350	14	889	927	972	975

- (Notes) (1) Face-to-face dimension in shaded zone conform to IEC60534-3-1 (JIS B2005-3-1) and ANSI/ISA-S75.08.01.
 (2) Face-to-face dimension of male and female, tongue and groove flange for JIS 10K-30K (ASME 150, ASME 300) is coincident with JIS 30K RF.

2 Weight

Following table shows standard weights for complete valve assembly (Body A'ssy + Actuator) without accessories. Please contact Motoyama or Representative sales office on special valves.

Unit : kg

Valve Size	(mm)	25		40		50		65		80		100		125		150		200			250			300			350		
	(in.)	1		1 1/2		2		2 1/2		3		4		5		6		8			10			12			14		
	Press. Rating	10K ASME 150	20,30 40K ASME 300,600	10K ASME 150	20,30 40K ASME 300,600	10K ASME 150	20,30 40K ASME 300,600	10K ASME 150	20,30 40K ASME 300,600	10K ASME 150	20,30 40K ASME 300,600	10K ASME 150	20,30 40K ASME 300,600	10K ASME 150	20,30 40K ASME 300,600	10K ASME 150	20K ASME 300	30, 40K ASME 600	10K ASME 150	20K ASME 300	30, 40K ASME 600	10K ASME 150	20K ASME 300	30, 40K ASME 600	10K ASME 150	20K ASME 300	30, 40K ASME 600		
Actuator Size																													
N24	24	30	30	36	36	42	42	49																					
N28	27	33	33	39	39	45	45	52	53	72	85	104																	
N33S	36	42	42	48	48	54	54	61	62	81	94	113																	
N40									87	106	119	139	149	169	184	209	284	329	497										
500S																	320	365	535	440	510	810							
500L																	—	—	—	—	—	—	660	840	1095				
650S																	505	550	720	625	695	995	—	—	—				
650L																							850	1030	1285	1005	1220	1530	

[Note] The weight of actuator size 500S/L, 650S/L shows for direct action.

3 Standard Dimensions

Unit : mm

Valve Size		Actuator Size	D	E	Plain Bonnet		Finned Bonnet				Extension Bonnet				Bellows Seal Bonnet			
					G	C	10K		20K and over		Light Type		Heavy Type		Formed		Welded	
							G	C	G	C	G	C	G	C	G	C	G	C
25	1	N24	240	105	139	440		480		495		745		1005		625		695
		N28	280			480	183	520	196	535	444	780	704	1040	326	665	398	735
		N33S	330			530		575		590		840		1100		720		790
40	1 1/2	N24	240	125	161	460		510		530		760		1025		700		745
		N28	280			500	213	550	229	570	461	800	728	1065	399	740	445	785
		N33S	330			555		605		620		855		1120		790		840
50	2	N24	240	140	176	475		525		545		775		1040		710		790
		N28	280			515	228	565	244	580	476	815	739	1080	410	750	489	830
		N33S	330			570		620		640		879		1130		805		880
65	2 1/2	N24	240	150	187	485		540		555		785		1050		720		800
		N28	280			525	239	580	255	595	487	825	750	1090	421	760	500	840
		N33S	330			580		630		650		880		1145		815		895
80	3	N28	280	185	222	560		615		640		905		1150		910		945
		N33S	330			615	277	670	303	695	565	960	814	1210	574	970	606	1000
		N40	400		250	770	292	810	316	835	749	1265	905	1420	664	1180	686	1205
100	4	N28	280	215	252	590		645		670		930		1180		940		970
		N33S	330			645	307	700	333	725	592	985	841	1235	601	995	633	1025
		N40	400		280	800	322	840	346	865	776	1295	932	1450	691	1210	713	1030
125	5	N40	400	275	338	855		890		920		1320		1475		1320		1380
		500S	500			1075	375	1110	402	1140	800	1535	956	1690	802	1540	863	1600
150	6	N40	400	290	351	870		905		930		1340		1495		1330		1395
		500S	500			1090	388	1125	415	1150	820	1555	976	1710	815	1550	876	1610
200	8	N40	400	360	421	940		980		1010		1490		1640		1490		1575
		500S	500			1160	463	1200	493	1230	973	1710	1123	1860	975	1710	1059	1795
		650S	650	375		1455	493	1525	498	1525								
250	10	500S	500	390	451	1190		1260		1260		1740		1890		1740		1825
		650S	650	405		1485	523	1555	523	1555	1003	2035	1153	2185	1030	2065	1114	2145
300	12	500L	500	525	587	1410		1490		1490		—		—		—		—
		650L	650			1720	667	1800	658	1800		—		—		—		—
350	14	650L	650	575	641	1775		1845		1845		—		—		—		—
						1795	712	1870	735	1870		—		—		—		—

- [Notes] (1) Dimension C represents in case of direct action. The dimension C of actuator size N24-N40 for reverse action is to be added 25mm to the numerical value of above table.
(2) Lower column dimensions in this table with ※ mark, only applies for JIS 40k (ASME Class 600).
(3) Bellows seal Bennet Type with body size 300mm shall be equipped with actuator 650L or more.

Plain Bonnet Type Fin Bonnet Type

Extension Bonnet Type

Bellows seal Bonnet Type

Actuator Size

N24 ~ N40

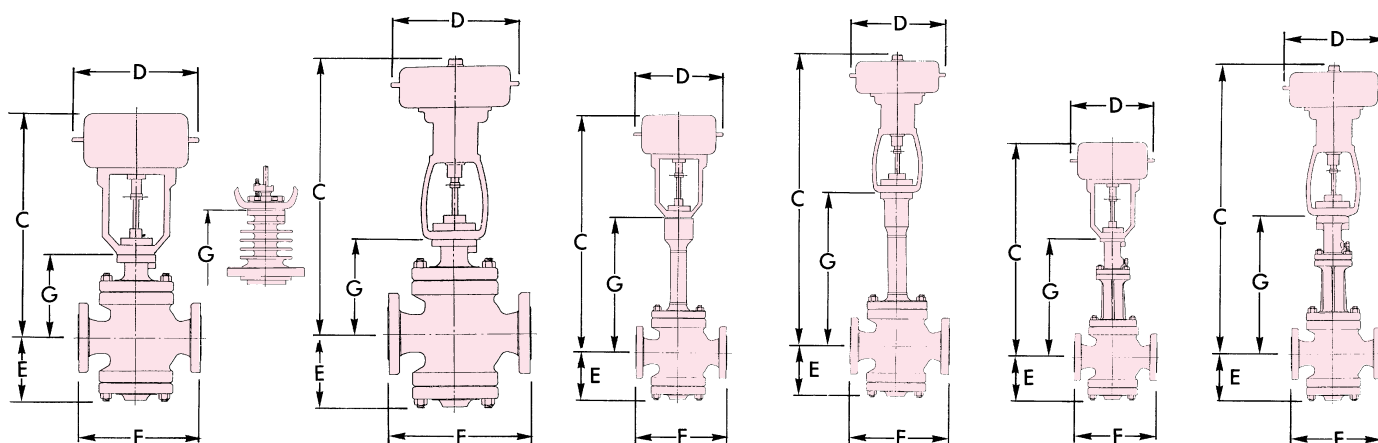
500, 650

N24 ~ N40

500, 650

N24 ~ N40

500, 650



7. JACKET BODY (option)

Jacketed valve body is most suitable for high viscous fluid services.
Jacketed valve body is available for pressure rating up to JIS 40k or ASME 600 and lower.
To mount series 3800 diaphragm actuator with hand wheel, only top handle is applicable.

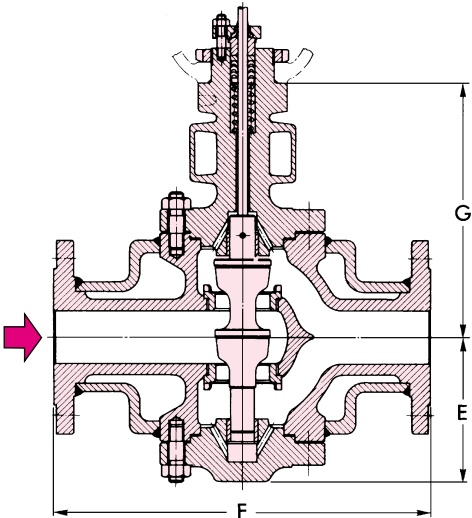
1 Full Jacket Type B

Connection flange size is two size larger than valve body size for full jacket body.
Valve body and bonnet is covered by Jacket except bottom cover.

Standard Dimensions

Unit : mm

Valve Size		Flange Size		F	E	G
(mm)	(in.)	(mm)	(in.)			
80	3	125	5	410	185	303
100	4	150	6	460	215	333
125	5	150	6	520	275	402
150	6	200	8	615	290	415
200	8	250	10	700	360	493



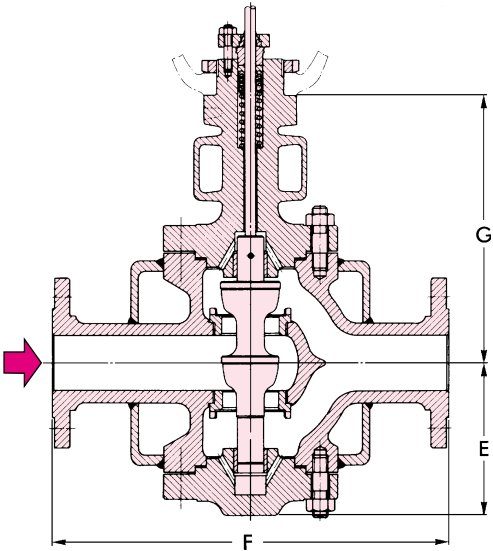
2 Semi-Jacket Type G

Connection flange size is the same as valve body size.

Standard Dimensions

Unit : mm

Valve Size		Flange Size		F	E	G
(mm)	(in.)	(mm)	(in.)			
80	3	80	3	410	185	303
100	4	100	4	460	215	333
125	5	125	5	520	275	402
150	6	150	6	615	290	415
200	8	200	8	700	360	493



3 Piping Specifications

MOTOYAMA assembles the piping between the valve body and bonnet.
Standard connection to the customer's jacket piping is as follows.

(1) Heating by Hot Water or Steam

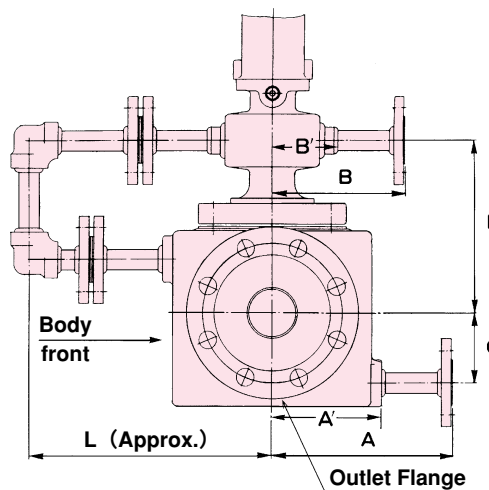
Inlet and Outlet Connection : Rc 1/2 Screwed
Piping on Valve : STPG 370, 15 mm, JIS 10 KRF

(2) Heating by Heating medium

Inlet and Outlet Connection : Flange,
JIS 20 K, 15 mm
Piping on Valve : STPG 370, 15 mm, JIS 20 KRF

(3) Option

Inlet and Outlet Connection : 20 mm flange
(JIS, ASME, JPI)
Piping within Valve : 15 mm
(JIS, ASME, JPI)
10 K, 20 K, Class 150,
300, Rc 3/4, NPT 1/2,
NPT 3/4

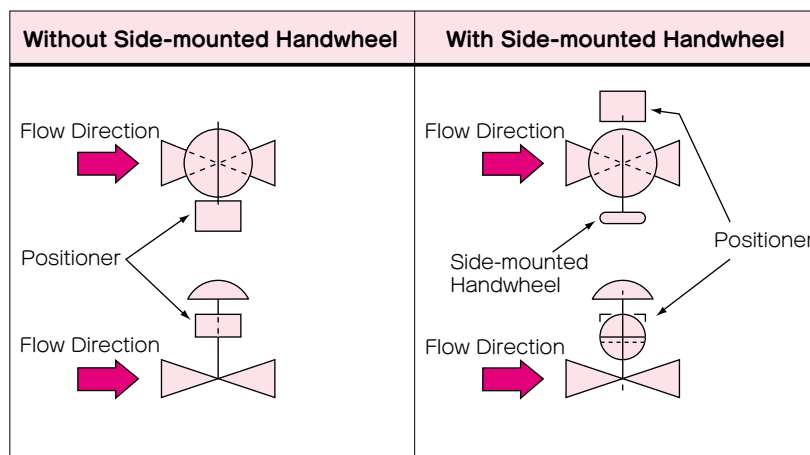


Top		A	A'	~ N33S		N40, 500		C	~ N33S	N40	L (Approx.)
Valve Size (mm)	(in.)			B	B'	B	B'		D	D	
80	3	226	146	150	69	175	95	91	237	245	276
100	4	251	171	162	82	175	95	117	269	285	300
125	5	295	215			175	95	150		326	345
150	6	321	241			188	107	165		337	370
200	8	372	292			226	146	215		404	422

[Notes] (1) Table shows the dimensions when 1/2inch JIS10KRF flange is applied as jacket piping.
(2) A' and B' means dimensions when Rc1/2" (NPT1/2") connection is applied.

8. MOUNTING ORIENTATIONS

Standard mounting orientations are as follows.





株式会社 本山製作所

MOTOYAMA ENG. WORKS, LTD.

http://www.motoyama-cp.co.jp

本 社 工 場 〒981-3697 宮城県黒川郡大衡村大衡字亀岡5-2 TEL(022)344-4511(代表) / FAX(022)344-4522
E-mail : info@motoyama-cp.co.jp

Main Office & Factory 5-2, Ohira Aza Kameoka, Ohira-mura, Kurokawa-gun, Miyagi, 981-3697, Japan
TEL +81-22-344-4511 / FAX +81-22-344-4522
E-mail : info-overseas@motoyama-cp.co.jp

●販売・サービスネットワーク

東 京 支 店	〒210-0007 神奈川県川崎市川崎区駅前本町 10-5 クリエ川崎 11F	TEL (044) 381-8770(代表)	FAX (044) 381-8772
大 阪 支 店	〒550-0014 大阪市西区北堀江 1 丁目 12-19 クリモビル 3F	TEL (06) 6535-8111(代表)	FAX (06) 6535-8655
国 際 営 業 部	〒210-0007 神奈川県川崎市川崎区駅前本町 10-5 クリエ川崎 11F	TEL (044) 381-8771	FAX (044) 381-8773
札 幌 営 業 所	〒001-0912 札幌市北区新琴似 12条7丁目 1-47 リバティタウンP棟 101号	TEL (011) 766-1520	FAX (011) 766-1521
東 北 営 業 所 大 衡 サービスセンター	〒981-3697 宮城県黒川郡大衡村大衡字亀岡 5-2	TEL (022) 344-1761	FAX (022) 344-1762
上 越 営 業 所 上 越 サービスセンター	〒942-0036 新潟県上越市大字東中島 2393番地	TEL (025) 542-5151	FAX (025) 542-5152
関 東 営 業 所 千 葉 サービスセンター	〒290-0046 千葉県市原市岩崎西 1 丁目 5-19	TEL (0436) 21-4400	FAX (0436) 21-3540
静 岡 営 業 所	〒422-8033 静岡県駿河区登呂 4 丁目 28-5	TEL (054) 269-5377	FAX (054) 237-5855
名 古 屋 営 業 所 中 部 サービスセンター	〒481-0012 愛知県北名古屋市久地野安田 36番地	TEL (0568) 26-6681	FAX (0568) 26-6631
水 島 営 業 所	〒710-0042 岡山県倉敷市二日市 358	TEL (086) 486-3381	FAX (086) 486-3382
阪 神 サービスセンター	〒560-0894 大阪府豊中市勝部 2 丁目 18-3	TEL (06) 6854-7511	FAX (06) 6854-7512
姫 路 出 張 所	〒672-8014 兵庫県姫路市東山 276番地 1	TEL (079) 263-8640	FAX (079) 246-2130
徳 山 営 業 所 周 南 サービスセンター	〒745-0861 山口県周南市新地 1 丁目 6-11	TEL (0834) 21-5012	FAX (0834) 31-0450
四 国 営 業 所 新 居 浜 サービスセンター	〒792-0896 愛媛県新居浜市阿島 1 丁目 6-26	TEL (0897) 47-8993	FAX (0897) 47-8995
大 分 営 業 所 大 分 サービスセンター	〒870-0141 大分県大分市三川新町 1 丁目 3-23	TEL (097) 576-7032	FAX (097) 576-7033

●海外関連会社

本山閥門(大連)有限公司 〒116601 中国 遼寧省大連市金州新区港興大街 39 号 14-7 TEL +86-411-6589-1277 FAX +86-411-6589-1278

●海外販売代理店

中国、韓国、台湾、シンガポール、インドネシア、マレーシア、サウジアラビア

●SALES AND SUPPORT NETWORK

Overseas Marketing & Sales Dept. : 11th Floor, Clie Kawasaki, 10-5, Ekimae-honcho, Kawasaki-ku, Kawasaki-city, Kanagawa, 210-0007 Japan

TEL: +81-44-381-8771 FAX : +81-44-381-8773

Domestic Sales Branches : Tokyo, Osaka, Sapporo, Tohoku, Joetsu, Kanto, Shizuoka, Nagoya, Hanshin, Tokuyama, Shikoku, Oita

●OVERSEAS AFFILIATED COMPANY

MOTOYAMA VALVE (DALIAN) CO., LTD

Gangxing Street 39-14-7, Jinzhou New District, Dalian-city, 116601 China

TEL: +86-411-6589-1277

FAX: +86-411-6589-1278

●OVERSEAS NETWORK

China, Korea, Taiwan, Singapore, Indonesia, Malaysia, Saudi Arabia

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