

302A/303Q

Standard specification for 302A/303Q

Valve nominal size	80, 100, 125, 150, 200, 250, 300 mm ^{*1}		350, 400, 450, 500, 600 mm										
Aplicable flanges standard	JIS 10K/16K/20K ANSI 125/150Lb API 150Lb BS10 Table F BS 4504 NP 10/16 DIN PN10/16		JIS 5K/10K/16K/20K ANSI 125/150Lb API 150Lb BS 4504 NP 10/16 DIN PN10/16										
Face to face dimensions	API 609 (class 150Lb, category B)												
	Nominal size	80	100	125	150	200	250	300	350	400	450	500	600
Face to face dimensions	48	54	56	57	64	71	81	92	102	114	127	154	
	* 125 mm is as per JIS B 2002 (series 46)/ISO 5752 (series 20)												
Seat leakage	API 598-7th Edition ^{*2}												
Connection	Wafer type, Lugged type												
Pressure - Temperature rating	API 609 class 150Lb category B, ASME/ANSI B16.34 class 150Lb ^{*3}												
Fire safe	API 607 4th Edition												
Maximum working pressure	2.0 MPa ^{*3}												
Working temperature range	-29°C to 600°C ^{*3} (Ext. bonnet is required at 400°C and or over.)												
Flow direction	Bi-directional flow (Flow to disc side is recommended)												
	<input type="checkbox"/> Flow to disc side 2.0 MPa (20 kgf/cm ² G) <input type="checkbox"/> Flow to stem side 1.0 MPa (10 kgf/cm ² G)												
Pressure test	Body shell	3.14 MPa (32 kgf/cm ² G) (API 598 7th Edition) by Hydraulic											
	Seat leak	4 to 7 bar (API 598 7th Edition) by Air											
Standard materials ^{*4}	Body	SCPH ₂ /WCB, SCS 14A/CF8M					SCPH ₂ /WCB, SCS 13A/CF8, SCS 14A/CF8M						
	Disc	80 to 150 mm			200 to 300 mm			350 to 600 mm					
		SCS 16A/CF3M (Hard chrome plating)			SCS 14A/CF8M (Hard chrome plating)			SCS 13A/CF8 (Hard chrome plating), SCS 14A/CF8M (Hard chrome plating)					
	Stem	SUS 420J2, SUS 329J1, SUS 316, SUS 329J4L					SUS 420J2, SUS 304, SUS 630						
Seat ring	SUS 316L (Hard facing treatment)												
Painting	Silicon resin coating (Grey N7) for 200 degree C and lower.												
	Heat resistant silver coating for over 200 degree C. No painting for stainless steel												
Optional	Anti static device												

*1 50 mm and 65 mm are available on Fig. 302Y and 337Y.

*2 2.5 cc/mm at 4 to 7 bar Air pressure test. (1.25 cc/mm at $\Delta P \times 1.1$ hydrostatic pressure test as optional) in case of 200 mm.

*3 Refer to Pressure – Temperature rating chart .

*4 Contact us on special material.

302A/303Q Actuator selection chart

80 to 300 mm

*1 Specification Valve nominal size		1G		2M, 2S		3I, 3A			
		T ₁₀	T ₂₀	T ₁₀	T ₂₀	T ₁₀	T ₂₀		
80	3	Type 2		Type 2		Type 2			
100	4			Type 3		Type 3		Type 3	
125	5					Type 4		Type 4	
150	6	/		DGH2		Type 4			
200	8			DGH3		TGA-125			
250	10								
300	12								

*1 Specification Valve nominal size		3R, 3Q, 3T, 3S		4I *2		4E, 4L	
		T ₁₀	T ₂₀	T ₁₀	T ₂₀	T ₁₀	T ₂₀
80	3	3Q-3, 3R-3		Type 1		SRE-010	
100	4	3Q-4, 3R-4		Type 2		SRE-020	
125	5			Type 2.5		SRE-060	
150	6	AW-13S		Type 3		SRE-060	
200	8	AW-17S				SRE-060	
250	10	AW-20S				LTKD01+DGH3 *3	
300	12						

*1 Refer to Pressure – Temperature chart.

T₁₀: In case of working pressure less than 1.0 MPa.

T₂₀: In case of working pressure more than 1.0 MPa. (Max. working pressure is 2.0 MPa.)

*2 Including modulating service.

Selections for 4I with servo unit and MICOM unit are the same as 4I with ON-OFF operation.

*3 Selection of 4L

ON-OFF: LTRH01-0.2KW+DGH3

Control: LTKD01-0.2KW+DGH3

302A/303Q Actuator selection chart

350 to 600 mm

Valve nominal size		2S			3A		
mm	inch	A	B	C	A	B	C
350	14	Type 3			TGA125	TGA140	
400	16				Type 4		
450	18	Type 4+RG5					
500	20				Type 4+RG5		
600	24	Type 4, 5+RG5					

Valve nominal size		3T, 3S			4L		
mm	inch	A	B	C	A	B	C
350	14	AW20S			DGH3+LTKD01-0.2 kw		DGH4+LTKD02-0.4 kw
400	16				AW28S		
450	18	AW28S					
500	20				AW28S		
600	24	AW28S					

302A/303Q Basic torque chart

80 to 300 mm

(Unit: N·m)

Valve nominal size		Basic Torque		Required torque for actuator selection ^{*2}	
mm	inch	T ₁₀ ^{*1}	T ₂₀ ^{*1}	T ₁₀	T ₂₀
80	3	32	65	42	84
100	4	49	82	64	107
125	5	69	118	89	153
150	6	127	176	166	229
200	8	225	392	293	510
250	10	323	510	421	663
300	12	441	735	573	956

(Remarks) *1 T₁₀: In case of working pressure less than 1.0 MPa.

T₂₀: In case of working pressure more than 1.0 MPa. (Max. working pressure is 2.0 MPa.)

*2 Basic torque for actuator selection.

350 to 600 mm

(Unit: N·m)

Valve nominal size		Basic Torque		
mm	inch	Selection A	Selection B	Selection C
350	14	750	950	1100
400	16	900	1250	1500
450	18	1200	1600	1900
500	20	1800	2350	2550
600	24	2300	3000	3500

(Remarks) Selection A, B, C can be found on Pressure–Temperature rating chart.

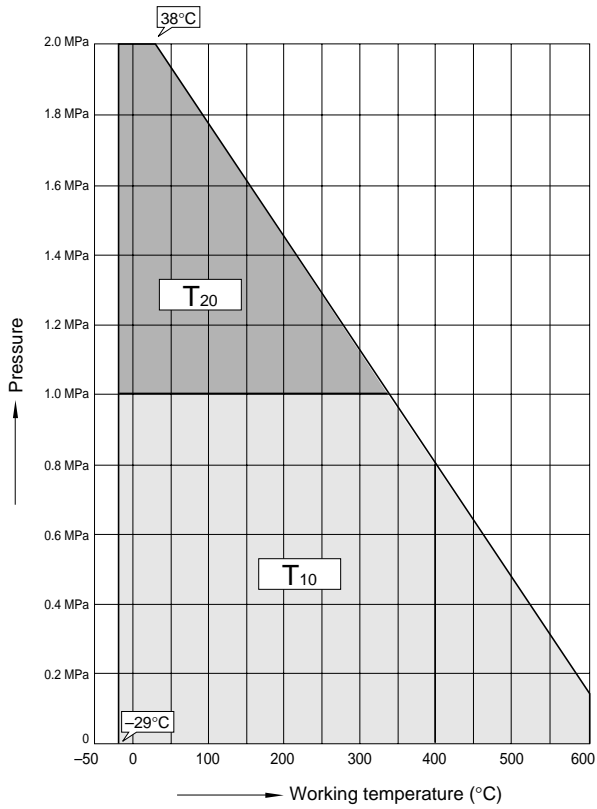
Actuators	Required torque for actuator selection
Manual operators	Basic Torque × 1.3
Pneumatic cylinder	Basic Torque × 1.5
Motorized	Basic Torque × 2.0

(Remarks) In case of pneumatic cylinder with manual operation unit, the selection of manual operation unit shall be based on basic torque × 1.5.

302A/303Q Pressure – Temperature rating chart

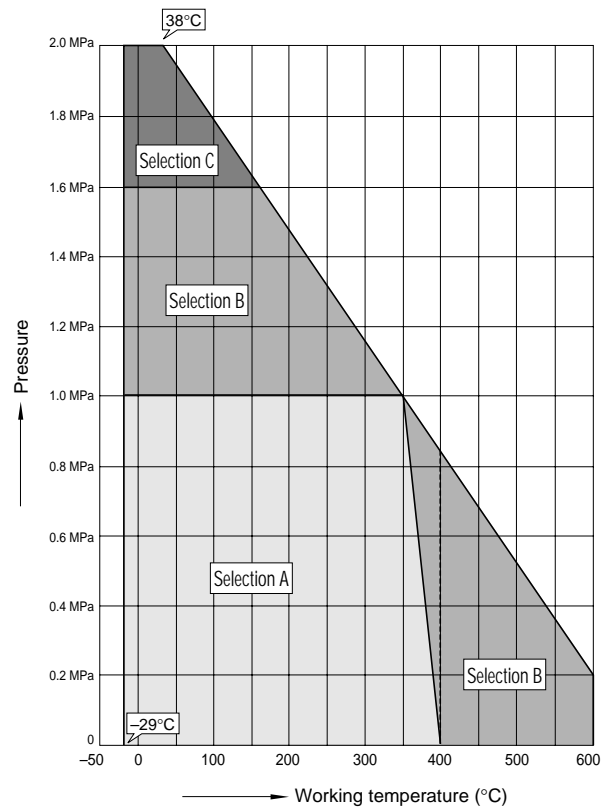
80 to 300 mm

Maximum working temperature for SCPH₂ body shall be 400°C



350 to 600 mm

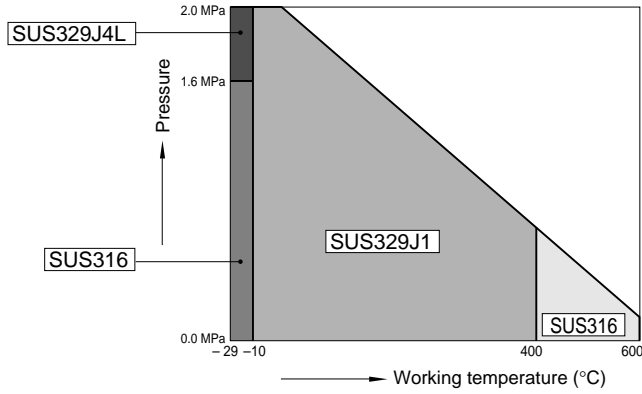
Maximum working temperature for SCPH₂ body shall be 400°C



302A/303Q Standard stem material

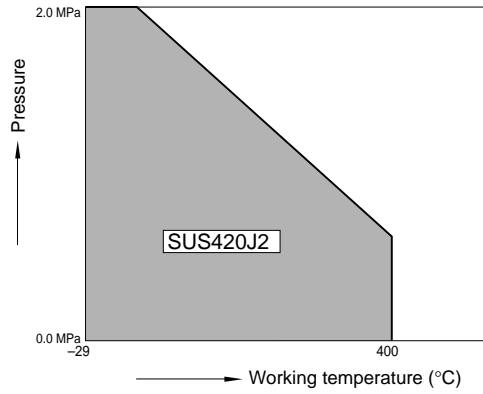
80 to 300 mm

In case of SCS 14A/CF8M body



Pressure	Temp.	-29 to -10°C	-10 to 400°C	400 to 538°C
0 to 1.6 MPa		SUS 316	SUS 329J1	SUS 316
1.6 to 2.0 MPa		SUS 329J4L		

In case of SCPH₂/WCB body

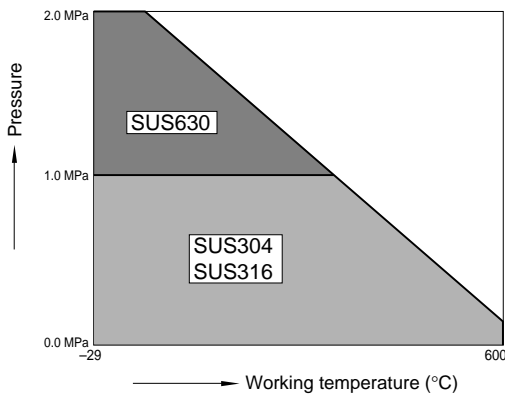


Pressure	Temp.	-29 to 400°C
0 to 2.0 MPa		SUS 420J2

- *1 Framed description shows stem material.
- *2 Refer to Pressure – Temperature chart.
- *3 Consult us in case of other materials.

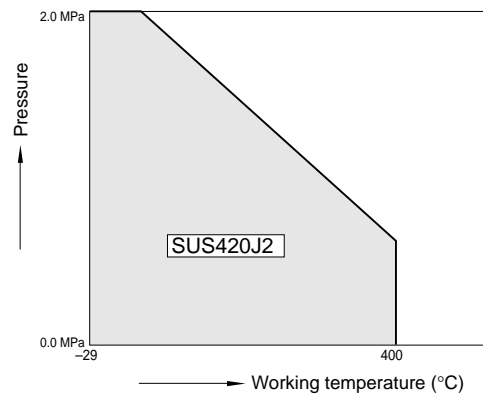
350 to 600 mm

In case of SCS 13A/CF8, 14A/CF8M body



Pressure	Temp.	-29 to 600°C
0 to 1.0 MPa		SCS 13A/CF8 body: SUS 304 SCS 14A/CF8M body: SUS 316
1.0 to 2.0 MPa		SUS 630

In case of SCPH₂/WCB body



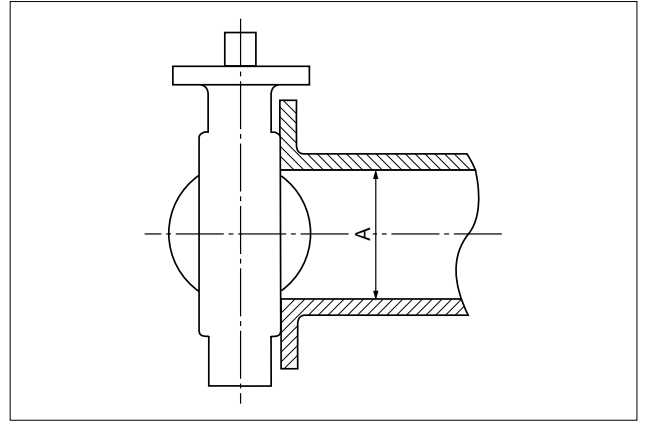
Pressure	Temp.	-29 to 400°C
0 to 2.0 MPa		SUS 420J2

- *1 Framed description shows stem material.
- *2 Refer to Pressure – Temperature chart.
- *3 Consult us in case of other materials.

Minimum internal piping diameter for 302A/303Q

(Unit: mm)

Size		Minimum diameter A
mm	inch	
80	3	73
100	4	94
125	5	119
150	6	148
200	8	198
250	10	248
300	12	298
350	14	330
400	16	377
450	18	424
500	20	470
600	24	564



302A/303Q Actuator mounting finish by temperature

Valve size	Type of Actuator
80 to 150 mm	1G, 3R, 3Q
80 to 300 mm	2M, 2S
80 to 200 mm	3I, 4E
350 to 600 mm	2S (See→)

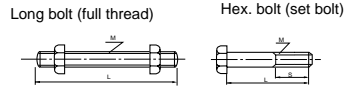
Valve size	Type of Actuator
80 to 300 mm	4I
150 to 300 mm	3T, 3S
250 mm	4E
250, 300 mm	3I, 4L (DGH-4)
400 mm	2S (DGH-4)
600 mm	2S (DGH4 $\frac{1}{2}$ +RG5)
350 to 600 mm	3A, 3T, 3S, 4L

Body	Temp. range			Body	Temp. range		
	80 to 300 mm	350 to 600 mm	Temp. range		80 to 300 mm	350 to 600 mm	Temp. range
80 to 300 mm	SCS 14A/CF8M SCPH ₂ /WCB	SCS 14A/CF8M	-29 to 250°C	80 to 300 mm	SCS 14A/CF8M SCPH ₂ /WCB	SCS 14A/CF8M	-29 to 400°C
			250 to 400°C				400 to 600°C
350 to 600 mm	SCS 13A/CF8 SCPH ₂ /WCB	SCS 13A/CF8	-29 to 250°C	350 to 600 mm	SCS 13A/CF8 SCPH ₂ /WCB	SCS 13A/CF8	-29 to 400°C
			250 to 400°C				400 to 600°C

302A/303Q Dimensions for piping bolts & nuts

Long bolt (full thread)

Size		JIS 10K			JIS 16K, 20K			ANSI 125/150Lb		
mm	inch	Qty	M	L	Qty	M	L	Qty	M	L
80	3	8	M16	145	8	M20	170	4	U 5/8	155
100	4	8	M16	145	8	M20	170	8	U 5/8	155
125	5	8	M20	170	8	M22	190	8	U 3/4	175
150	6	8	M20	170	12	M22	190	8	U 3/4	175
200	8	12	M20	170	12	M22	190	8	U 3/4	205
250	10	12	M22	190	12	M24	210	12	U 7/8	215
300	12	16	M22	190	16	M24	225	12	U 7/8	215



Size		JIS 5K			JIS 10K				JIS 16K			JIS 20K			ANSI 125/150Lb		
mm	inch	Qty	M	L	Qty	M	L	Qty	M	L	Qty	M	L	Qty	M	L	
350	14	12	M22	210	16	M22	210	16	M30×3	245	16	M30×3	260	12	U1-8UNC	240	
400	16	16	M22	220	16	M24	235	16	M30×3	265	16	M30×3	280	16	U1-8UNC	255	
450	18	16	M22	230	16	M24	250	16	M30×3	280	16	M30×3	300	16	U1(1/8)-8UN	280	
500	20	16	M22	245	16	M24	260	16	M30×3	300	16	M30×3	315	16	U1(1/8)-8UN	295	
600	24	16	M24	280	20	M30×3	300	20	M36×3	345	20	M36×3	360	16	U1(1/4)-8UN	340	

* Use heavy nut.
 * Bolt lengths are in accordance with thickness of steel flanges.
 * Use SNB7/S45C (A193 B7/A, 194 2H) in case of spiral gasket.

Hex. bolt (set bolt)

• Hex. bolt (set bolt) is required in case of 450 mm and over.

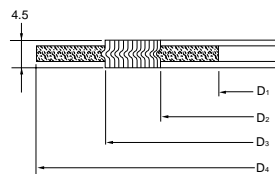
Size		JIS 5K				JIS 10K				JIS 16K				JIS 20K				ANSI 125/150Lb			
mm	inch	Qty	M	L	S	Qty	M	L	S	Qty	M	L	S	Qty	M	L	S	Qty	M	L	S
450	18					4	M24	84	60	4	M30×3	95	65	4	M30×3	105	65				
						4	M24	58	50	4	M30×3	73	50	4	M30×3	81	50				
500	20	4	M22	80	50	4	M24	90	60	4	M30×3	105	65	4	M30×3	110	60	4	U1(1/8)-8UN	105	50
		4	M22	60	50	4	M24	70	60	4	M30×3	81	50	4	M30×3	90	65	4	U1(1/8)-8UN	80	50
600	24	4	M24	84	60	4	M30×3	81	50	4	M36×3	100	60	4	M36×3	108	60	4	U1(1/4)-8UN	100	50
		4	M24	65	50	4	M30×3	65	50	4	M36×3	82	50	4	M36×3	90	50	4	U1(1/4)-8UN	90	50

Dimensions of piping gasket for 302A/303Q

- In case of sheet gasket Any standard can be used.
- In case of spiral gasket
 For API, JPI, ANSI flange Any standard gaskets with inner/outer ring can be used.
 For JIS flange Use special spiral gasket shown below.

Dimensions for special spiral gasket for JIS flange

Size		For JIS flange					
		5K, 10K, 16K, 20K			5K	10K	16K, 20K
mm	inch	D ₁	D ₂	D ₃	D ₄	D ₄	D ₄
80	3	89	97	120	×	134	140
100	4	115	124	146	×	159	165
125	5	140	151	177	×	190	202
150	6	166	178	207	×	220	237
200	8	217	227	257	×	270	282
250	10	268	282	318	×	332	354
300	12	319	311	362	×	377	404
350	14	356	369	399	412	422	450
400	16	406	420	457	472	484	508
450	18	458	472	517	532	539	573
500	20	508	532	567	582	594	628
600	24	610	626	672	689	700	734



Applicable standard for spiral gasket

Size		Tomoe special			Standard gasket		
mm	inch	JIS 10K	JIS 16K JIS 20K	ANSI 125/150Lb	JIS 10K	JIS 16K JIS 20K	ANSI 125/150Lb
80	3	○	○	○	×	×	○
100	4	○	○	○	×	×	○
125	5	○	○	○	×	×	○
150	6	○	○	○	×	×	○
200	8	○	○	○	×	×	○
250	10	○	○	○	×	×	○
300	12	○	○	○	×	×	○
350	14	○	○	○	×	×	○
400	16	○	○	○	×	×	○
450	18	○	○	○	×	×	○
500	20	○	○	○	×	×	○
600	24	○	○	○	×	×	○

○ = Applicable × = Not applicable

Applicable standard for standard piping gaskets

Size		Max. allowable inside diameter (D)	Asbestos joint sheet or PTFE solid gasket (t ≤ 2 mm)					PTFE mold type gasket VALQUA or NICHASU				
mm	inch		JIS 5K	JIS 10K	JIS 16K JIS 20K	ANSI 125/150Lb	API 150Lb	JIS 5K	JIS 10K	JIS 16K JIS 20K	ANSI 125/150Lb	API 150Lb
80	3	97	×	○	○	○	○	×	○	○	○	○
100	4	124	×	○	○	○	○	×	○	○	○	○
125	5	151	×	○	○	○	○	×	○	○	○	○
150	6	178	×	○	○	○	○	×	○	○	○	○
200	8	227	×	○	○	○	○	×	○	○	○	○
250	10	282	×	○	○	○	○	×	○	○	○	○
300	12	331	×	○	○	○	○	×	○	○	○	○
350	14	362	○	○	○	○	○	○	○	○	○	○
400	16	414	○	○	○	○	○	○	○	○	○	○
450	18	468	○	○	○	○	○	○	○	○	○	○
500	20	518	○	○	○	○	○	○	○	○	○	○
600	24	619	○	○	○	○	○	○	○	○	○	○

* Because of dimensional reason, only Nippon Valqua's Gasket (TYPE 7030/7031/7035) as well as Nichiasu Gasket (TYPE 9010/9011) can be used in case of PTFE molded gasket.

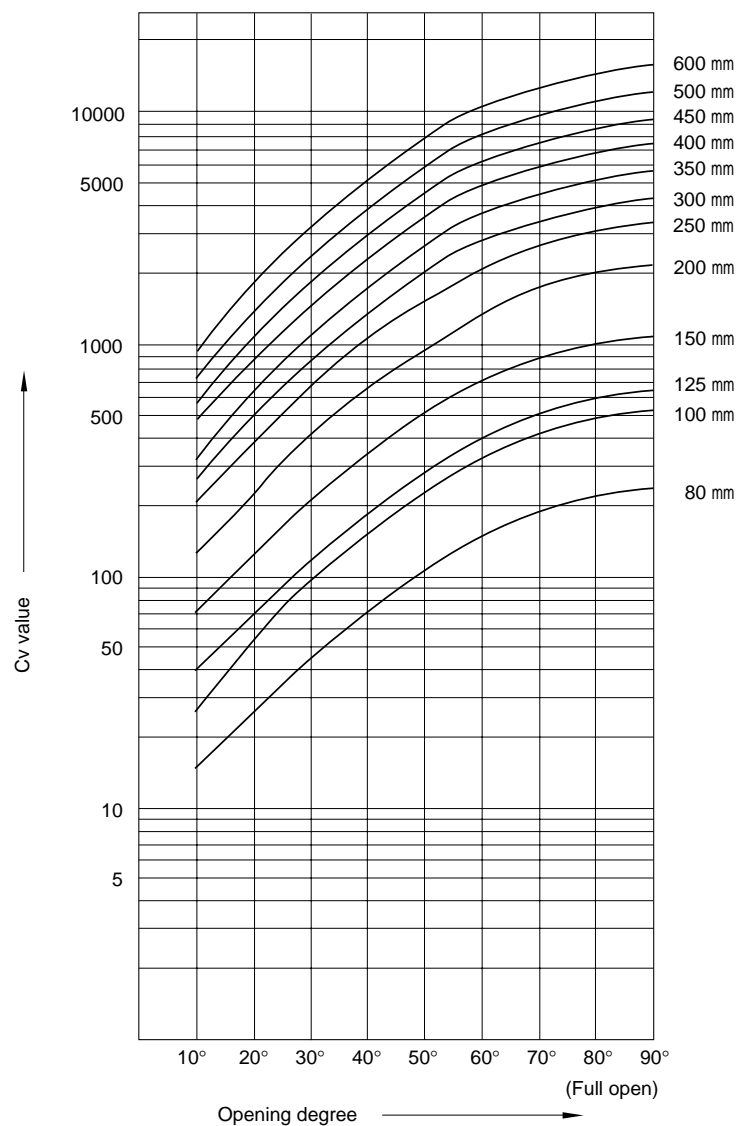
* ○ = Applicable × = Not applicable

302A/303Q

302A/303Q Cv value

Cv value is defined as follows:

The flow rate expressed as US gal./min. at which a fresh water of 60°F flows when the pressure difference across the valve is maintained at 1 psi.



302A/303Q Cv value chart

Size		Opening degree							
mm	inch	20°	30°	40°	50°	60°	70°	80°	90°
80	3	29	52	85	122	162	207	243	252
100	4	49	88	144	207	279	351	414	432
125	5	77	140	230	333	441	549	648	684
150	6	126	225	369	531	720	900	1080	1116
200	8	234	423	693	990	1350	1710	1980	2070
250	10	390	703	1148	1648	2240	2857	3300	3443
300	12	492	888	1454	2081	2838	3612	4172	4354
350	14	648	1170	1915	2741	3739	4758	5496	5736
400	16	829	1496	2449	3505	4780	6084	7027	7334
450	18	1041	1879	3076	4403	6004	7642	8827	9212
500	20	1323	2387	3909	5595	7630	9710	11216	11705
600	24	1929	3481	5700	8159	11126	14161	16356	17070

Cv value · Pressure
loss coefficient

302A/303Q Pressure loss coefficient

Size		Opening degree							
mm	inch	20°	30°	40°	50°	60°	70°	80°	90°
80	3	94.6	29.4	11.0	5.34	3.03	1.86	1.35	1.25
100	4	97.5	30.2	11.3	5.46	3.01	1.90	1.37	1.25
125	5	92.6	28.0	10.4	4.95	2.82	1.82	1.31	1.17
150	6	70.0	22.0	8.16	3.94	2.14	1.37	0.95	0.89
200	8	62.4	19.1	7.11	3.48	1.87	1.17	0.87	0.80
250	10	53.9	16.6	6.22	3.02	1.63	1.00	0.75	0.69
300	12	69.6	21.4	7.96	3.89	2.09	1.29	0.97	0.89
350	14	62.9	19.3	7.20	3.52	1.89	1.17	0.875	0.803
400	16	65.6	20.1	7.51	3.67	1.97	1.22	0.912	0.838
450	18	66.6	20.4	7.63	3.72	2.00	1.24	0.926	0.850
500	20	63.7	19.6	7.29	3.56	1.91	1.18	0.886	0.813
600	24	62.6	19.2	7.17	3.50	1.88	1.16	0.871	0.800

