

Stainless Steel Valves



TOYO VALVE CO., LTD.

<http://www.toyovalve.co.jp/>



CLEAN ROOM

At the Chino factory of Toyo Valve Co., Ltd., from August 2002, the clean room started the production of hygienic valves, clean fittings and relative products with oil-free treatment for food and pharmacy. It will extend services from the ordinary market of the waterworks, building facilities and plant facilities to the new field of sanitary. It is also continued to offer high quality and value added goods satisfying customers by the installed facilities with ultrapure water equipment, ultrasonic rinsing equipment, a helium detector, etc.

Notes

- 1) Refer to individual specification sheet or the drawing for the details of a product.
- 2) Main units of this catalog are shown in SI (MPa, °C, millimeter) and psig., °F.
- 3) Refer to the attached P-T ratings about applicable pressure and temperature.
- 4) Legend
W: Net weight (Kg)
- 5) Teflon is Du Pont's tradename.

Products guarantee

Term of a guarantee: Within one year after the date of delivery from our factory to the original customer.

Contents of a guarantee: If the installations and the service conditions (such as pressure, temperature, fluid, etc.) are proper, necessary replacement and repair of our product will be carried out without charge.

Guarantee exceptions: Please keep in mind that the above articles of guarantee will not apply to the case owing to the following reasons:

- 1) Non-compliance of the customer with the technical instructions furnished by our catalog and specification sheet
- 2) Natural disaster incidents, such as a fire, flood damage, an earthquake, and falling stone
- 3) Reconstruction or repair by any third party other than Toyo Valve Co., Ltd.
- 4) Deterioration (such as shot rust, degradation, chemical changes, etc.)
- 5) Any other matter resulting from the damage not being regarded as manufacturer's responsibility

In addition, you will be required necessary charge for repair or exchange of parts on failure or damage by the guarantee exceptions. Please contact our sales staff or agency for the details.

The specification and the performance term of our product indicated in this catalog are based on the internationally governed standards and specifications, our products experience or the design calculation and our in-house examination.

When using the product beyond the service conditions mentioned in this catalog, users are required to consult Toyo Valve for further advice in advance, or to conduct the verification or evaluation for the performance under users' responsibility. We shall not be liable for any damages resulting from lack of aforementioned procedures by the customer.

Items mentioned in this catalog are subject to change without prior notice to the customers.

Design Specification

Series	Class	P-T ratings	F-F dimension	End connections	Shell thickness	Body material	Gland packing	Gasket	
U-Series	Ball	Toyo standard 100 max. water-0.98MPa	Toyo standard	JIS G3448 Pipe-End	Toyo standard	SCS13/CF8	IIR-O-ring	-	
	Gate Globe Check Strainer	Toyo standard 220 max. oil, gas, air, water- 0.98MPa	Screwed: Toyo standard	Screwed type: JIS B0203 Flanged type: JIS B2238			Non-asbestos	R-PTFE for strainer only	
	Ball	Toyo standard 38 oil, gas, air, water-5.52MPa Saturated steam 1.03MPa	Flanged: JIS B2002 (Strainer: Toyo standard)	JIS B0203			SCS14/CF8M	PTFE	-
V-Series	Gate Globe Check Strainer	10K	ASME B16.10 (Expect strainers)	JIS B2238	ASME B16.34	SCS13/SCS14 CF8/CF8M	Asbestos	Asbestos (Joint sheet)	
		20K		(Std. products 300 max.)				JIS B2238	Non-asbestos (Spiral wound)
		150		ASME B16.34				ASME B16.5	Asbestos (Joint sheet)
		300		(Std. products 300 max.)					Non-asbestos (Spiral wound)
Dual Plate Check Valves	Rubber seat (NBR EPDM FPM)	10K	API 594	Wafer type JIS B2238	ASME B16.34	SCS13/SCS14 CF8/CF8M	Non-asbestos for bypass valve	-	
		20K							NBR seat: 80 max. oil, air, water-2.55MPa
	Metal seat	10K		ASME B16.34	Wafer type ASME B16.5		API 600	-	-
		20K						-	-
Screwed	Ball	10K	Toyo standard	JIS B0203	ASME B16.34	SCS13/CF8	PTFE	PTFE seat	
		20K							Working temp.: -29 ~ 200 Water, oil, gas-1.37MPa (max.)
Flanged	Ball	10K	ASME B16.10	JIS B2238	ASME B16.34	SCS13/SCS14 CF8/CF8M	PTFE	PTFE seat	
		20K							JIS B2238
		150		ASME B16.5					
		300							ASME B16.34
Butterfly Valves	High perform- ance	10K	JIS B2032 Series 46	Wafer type JIS B2238 10K/16K/20K	Toyo standard	SCS13/CF8	PTFE	-	
		PTFE seat: 100 max. water, oil, gas- 0.98MPa(160 max)							
		Metal seat: 100 max. water, oil, gas-0.98MPa Saturated steam 1.25MPa (200 max)							

Notes:

- 1) Although the pressure-temperature ratings for the valve body of V-series are mentioned in the above table, the highest working temperature of the standard packing, made of asbestos, is 260 max. However, since it is necessary to consider separately about type of gland packing and gasket depending on an operating condition (fluid, pressure, and temperature), please consult our sales staff or agent for details.
- 2) The standard gasket of 10K and Class 150 V-series gate, globe and check (swing, lift) valves is P#5000AC (asbestos sheet). Moreover, V#7020 (Reinforced Teflon sheet/(R) sheet) is available upon request.
- 3) Gland packings and gaskets made of asbestos will not be furnished after end of year 2003.
- 4) The standard gasket of a strainer is V#7020 (Reinforced Teflon/(R) sheet).

Oil-Free Treatment

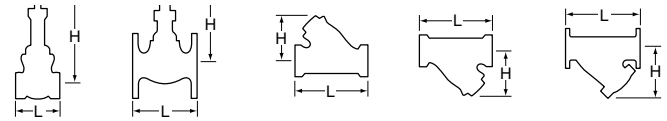
Valves made with oil-free treatment are used for oxygen line, medical devices, food, painting, etc.

Since there is no particular standard for oil-free treatment, we designate three grades with the following specifications.

Grade	Specification	Fluid used for
1	Carry out degreasing by the chlorine organic solvent, wash and rinse, take inspection by black light irradiation by sampling from every parts, take pressure test with compression nitrogen gas, conduct inspection for all quantity by black light irradiation, and ship out with special packing.	Oxygen, chlorine, explosive fluid, etc.
2	Carry out degreasing by the chlorine organic solvent, wash and rinse, take pressure test with compression nitrogen gas, conduct inspection by black light irradiation by sampling, and ship out with special packing.	Waterworks, food industry, clean room, etc.
3	With emphasis on a connection part or external surface, carry out degreasing with an oil solvent, carry out pressure test by air pressure, conduct inspection by black light irradiation by sampling, and ship out with special packing.	Machines, such as an oil free compressor, pre-treatment for paint, etc.

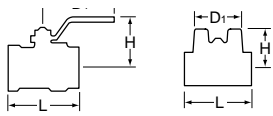
* Please contact our sales staff or agent for details.

U-Series Stainless Steel Valves



Design	TOYO Standard																				
Type	Gate Valves								Globe Valves												
Class	10K																				
Fig.	802				802J				800				800J				830				
Size	L	H	D ₁	W	L	H	D ₁	W	L	H	D ₁	W	L	H	D ₁	W	L	H	D ₁	W	
8 (mm)	1/4"								44	78	55	0.3									
10	3/8"								45	79	55	0.4					55	93	55	0.38	
15	1/2"	50	85	55	0.4	80	87	55	1.8	52	80	55	0.5	85	84	55	1.8	65	99	63	0.47
20	3/4"	55	95	63	0.5	90	98	63	2.3	58	86	63	0.7	95	92	63	2.2	80	110	70	0.72
25	1"	62	103	70	0.8	100	106	70	3.3	70	93	70	1.1	110	103	70	3.5	90	131	80	1.09
32	1 1/4"	70	122	80	1.1	110	125	80	4.3	78	105	80	1.3	130	122	80	4.5	105	145	90	1.65
40	1 1/2"	75	136	80	1.7	125	139	80	5.2	86	124	90	2.2	150	135	90	5.4	120	165	100	2.30
50	2"	85	158	90	2.6	140	163	90	6.8	100	138	100	3.4	180	158	100	7.5	140	182	110	3.50
Material	Body	SCS13				SCS13				SCS13				SCS13				SCS13			
	Stem	SUS304/Chrome plated				SUS304/Chrome plated				SUS304/Chrome plated				SUS304/Chrome plated				SUS304/Chrome plated			
	Disc	SCS13				SCS13				SUS304				SUS304				R-PTFE			
Service conditions	1.37MPa (200psi) WOG non-shock 0.71MPa (100psi) Saturated steam See P-T rating on page 12								1.37MPa (200psi) WOG non-shock 0.98MPa (143psi) Saturated steam See P-T rating on page 12												
Remarks																R-PTFE seat					

Design	TOYO Standard																			
Type	Globe Valves				Swing Check Valves								Strainers							
Class	10K																			
Fig.	830J				804				804J				809				809J			
Size	L	H	D ₁	W	L	H	W	L	H	W	L	H	W	L	H	W				
8 (mm)	1/4"																			
10	3/8"																			
15	1/2"	85	100	63	1.8	56	41.6	0.3	85	43.5	1.8	78	50.5	0.4	120	54.0	1.6			
20	3/4"	95	111	70	2.2	70	49.5	0.4	95	49.0	2.2	93	60.5	0.6	130	66.0	2.0			
25	1"	110	132	80	3.5	80	58.0	0.6	110	58.0	3.3	108	71.0	0.8	150	78.0	3.1			
32	1 1/4"	130	145	90	4.5	96	68.7	1.0	130	64.5	4.1	128	82.0	1.1	170	90.5	4.2			
40	1 1/2"	150	166	100	5.4	110	80.5	1.4	150	73.5	5.0	143	93.0	1.6	190	104.0	4.8			
50	2"	180	182	110	7.5	128	97.5	2.0	180	86.0	6.5	173	119.0	2.6	220	133.5	6.2			
Material	Body	SCS13				Body	SCS13								Body	SCS13				
	Stem	SUS304/Chrome plated				Pin	SUS304/Chrome plated								Screen	SUS304				
	Disc	R-PTFE				Disc	SCS13													
Service conditions	1.37MPa (200psi) WOG non-shock 0.98MPa (143psi) Saturated steam See P-T rating on page 12																			
Remarks	R-PTFE seat								40 meshes screen											

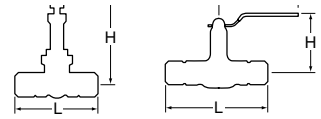


U-Series Stainless Steel Valves

Design	TOYO Standard																									
Type	Ball Valves																									
Class	800																									
	Reduced bore					Reduced bore					Reduced bore					Reduced bore					Std. bore					
Fig.	3550					3550W					4550A					4550W					4580					
Size	d	L	H	D ₁	W	d	L	H	D ₁	W	d	L	H	D ₁	W	d	L	H	D ₁	W	d	L	H	D ₁	W	
8 (mm)	1/4"	5.0	39.0	35	62.5	0.08	5.0	39.0	21.5	40	0.11	5.0	39.0	35	62.5	0.08	5.0	39.0	21.5	40	0.11					
10	3/8"	7.0	45.0	37	71.0	0.12	7.0	45.0	24.0	40	0.14	7.0	45.0	37	71.0	0.12	7.0	45.0	24.0	40	0.14					
15	1/2"	9.1	57.5	43	87.5	0.19	9.1	57.5	30.5	60	0.18	9.1	57.5	43	87.5	0.19	9.1	57.5	30.5	60	0.18	10	60	50	100	0.28
20	3/4"	12.5	59.0	46	87.5	0.27	12.5	59.0	33.5	60	0.26	12.5	59.0	46	87.5	0.27	12.5	59.0	33.5	60	0.26	15	70	55	100	0.40
25	1"	15.0	71.0	50	104.5	0.43						15.0	71.0	50	104.5	0.43						20	80	60	130	0.64
32	1 1/4"	20.0	78.0	54	104.5	0.70						20.0	78.0	54	104.5	0.70						25	95	64	130	0.99
40	1 1/2"	24.5	83.0	65	125.5	0.86						24.5	83.0	65	125.5	0.86						32	108	73	150	1.53
50	2"	32.0	100.0	72	125.5	1.37						32.0	100.0	72	125.5	1.37						38	124	79	150	2.36
Material	Body	SCS13A					SCS13A					SCS14A					SCS14A					SCS14A				
	Stem	SUS304/Chrome plated					SUS304/Chrome plated					SUS316/Chrome plated					SUS316/Chrome plated					SUS316/Chrome plated				
	Ball	SUS316					SUS316					SUS316					SUS316					SUS316				
	Seat	R-PTFE					R-PTFE					R-PTFE					R-PTFE					R-PTFE				
Service conditions	5.52MPa (800psi) WOG, non-shock 1.03MPa (150psi) Saturated steam																									
Remarks																										

Design	TOYO Standard															
Type	Ball Valves															
Class	800										10K					
	Std. bore					Full bore					Full bore					
Fig.	3380					4760A					3060					
Size	d	L	H	D ₁	W	d	L	H	D ₁	W	d	L	H	D ₁	W	
8 (mm)	1/4"										10	60	53	115	0.62	
10	3/8"															
15	1/2"	10	60	69	100	0.31	15	67	55	100	0.39	13	70	55	115	0.83
20	3/4"	15	70	72	100	0.42	20	74	60	130	0.60	19	80	59	115	1.03
25	1"	20	80	77	120	0.65	25	89	63	130	0.91	25	90	71	150	1.61
32	1 1/4"	25	90	90	130	1.03	32	106	72	150	1.56	32	105	76	150	1.98
40	1 1/2"	32	100	95	130	1.42	38	118	78	150	2.14	38	115	100	200	3.25
50	2"	40	120	103	150	2.33	50	129	105	200	3.42	51	135	108	200	4.55
Material	Body	SCS13A					SCS14A					SCS13				
	Stem	SUS304/Chrome plated					SUS316/Chrome plated					SUS304				
	Ball	SUS304					SUS316					SUS304				
	Seat	R-PTFE					R-PTFE					PTFE				
Service conditions	5.52MPa (800psi) WOG, non-shock 1.03MPa (150psi) Saturated steam					5.52MPa (800psi) WOG, non-shock 0.5MPa (70psi) Saturated steam					1.37MPa (200psi) WOG, non-shock 0.5MPa (70psi) Saturated steam					
Remarks																

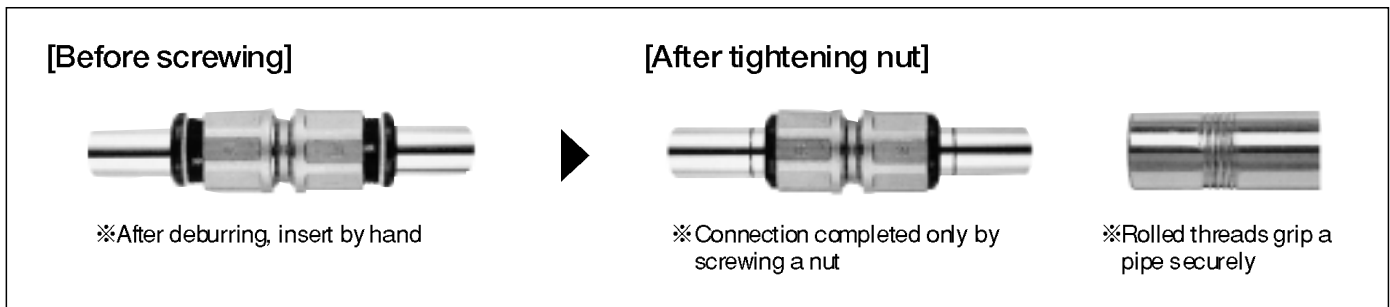
ABACUS® Pipe-Joint Stainless Steel Valves



Design	TOYO Standard																								
Type	Gate Valve					Ball Valves										Swing Check Valve			Strainer						
Class	10K																								
						Std. bore 					Full bore 														
Fig.	842					3086					3066					844			847						
Size	L	H	D ₁	W		d	L	H	D ₁	W	d	L	H	D ₁	W	L	H	W			L	H	W		
13Su × 1/2"	107	85	55	0.46		10	113	69	100	0.51	14	121	72	100	0.61	108	44	0.41			133	50.5	0.35		
20Su × 3/4"	112	95	63	0.57		15	121	72	100	0.61	20	130	77	120	0.88	118	49	0.60			144	60.5	0.50		
25Su × 1"	119	103	70	0.74		20	130	77	120	0.88	25	135	90	130	1.52	124	58	0.77			156	71.0	0.72		
30Su × 1 1/4"	133	122	80	1.27		25	141	90	130	1.52	32	155	95	130	2.00	140	65	1.37			176	82.0	1.23		
40Su × 1 1/2"	143	136	80	1.70		32	155	95	130	1.98	40	170	103	150	3.05	151	74	1.79			188	93.0	1.69		
50Su × 2"	149	158	90	2.32		40	170	103	150	3.05	46	183	134	200	4.08	171	86	2.76			219	119.0	2.70		
Material	Body SCS13A					Body SCS13A					Body SCS13A					Body SCS13A			Body SCS13A						
	Stem SUS304/Chrome plated					Stem SUS304/Chrome plated					Stem SUS304/Chrome plated					Pin SUS304/Chrome plated			Screen SUS304						
	Disc SCS13A					Ball SUS304					Ball SUS304					Disc SCS13A									
						Seat PTFE					Seat PTFE														
Service conditions	100 water 1.0MPa																								
Remarks																									

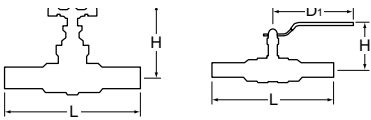
Leak proof, Pull-out resistant, No special tools required

■ First in the World, Abacus beads rolled thread method





■ Features

1. Connection completes in 30 seconds with a pipe wrench only — **Low material and installation cost**
2. Pull-out force to leakage is 4 times the specified value — **High pull-out resistance**
3. Free adjustment of alignment suitable for pre-fab piping — **Fast and convenient installation**
4. No magnetism change by plastic deformation — **High corrosion resistance**
5. Product of high precision stainless steel casting — **light weight and recyclable — Ecology friendly**



U-Series Pipe End Valves

Design	TOYO Standard											
Type	Gate Valves					Ball Valves						
Class	10K											
												
	Std. bore											
Fig.	843					3087						
Size	L	H	D ₁	W		d	L	H	D ₁	W		
13Su x 1/2"	203	85	55	0.45		10	177	68	100	0.32		
20Su x 3/4"	184	95	63	0.50		15	194	72	100	0.46		
25Su x 1"	215	103	70	0.73		20	228	76	120	0.77		
30Su x 1 1/4"						25	295	90	130	1.30		
40Su x 1 1/2"						32	344	95	130	1.80		
50Su x 2"						40	434	103	150	3.10		
Material	Body	SCS13					Body	SCS13				
	Stem	SUS304/Chrome plated					Stem	SUS304/Chrome plated				
	Disc	SCS13					Ball	SUS304				
						Seat	PTFE					
Service conditions	100 water 1.0MPa											
Remarks	Pipe material: SUS304TPD					Long neck for thermal insulation T-Handle available						

Toyo's Pipe-End Valves

(Stainless steel valve with short pipes)

Conventionally, valves sizes 50mm and smaller which are used for the construction facility mostly have screwed ends, and they are connected to the stainless steel pipe for general piping through the screw adapter in this case.

Toyo's Pipe-End Valves are greatly contributed to simplification of installation, reduction of cost, and shortening of construction period while being able to respond to various junction systems and achieving unification of the junction system in a piping system, since it has a short pipe to connect both ends of a valve body.

●The connection system of the unified piping system is possible

It is adapted for the following junction system.

- 1) Molco-joint (SAS 352 Press type)
- 2) MIE-Grip (SAS 356 Grip type)
- 3) MR-Joint (SAS 353 Press type)
- 4) Butt welding type

●The display of the insertion length to a mechanical insertion joint

The line marks which show the proper insertion length of the short pipe to Molco-Joint and a MIE-Grip are printed in order to prevent the omission of the outside leak depending on the shortage of an insertion or piping.

●A reliable connection system

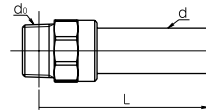
Combination of a valve body and a short pipe has adopted the original rubber bulge method of construction developed by our company which met all the pipe joint performance requirements (SAS322) of the stainless steel pipe for general piping.

■A screw adapter with a short pipe (SCS13 + SUS304)



●The following items can be subjected to screw adapters.

- 10K Gate Valves (Fig. 802)
- 10K Globe Valves (Fig. 800)
- 10K Swing Check Valves (Fig. 804)
- 10K Y-Strainer (Fig. 809)



●Dimension for an adapter (mm)

Size d×d0	L
13Su x 1/2"	83
20Su x 3/4"	90
25Su x 1"	107
30Su x 1 1/4"	138
40Su x 1 1/2"	159
50Su x 2"	200

Please consult us for the following combinations.
• 30Su x 1, 40Su x 1 1/4, 50Su x 1 1/2, 60Su x 2

The stainless steel pipe for general piping

■Features

The stainless steel pipe for general piping (JIS G3448) and the stainless steel pipe for water service (JWWA G115) which are used for stainless steel piping for a construction facility have the following features.

- Tensile strength is 3 times the copper tube, and twice the steel pipe.
- At the outstanding mechanical intensity and anti-corrosive material, wall thickness is as lightweight as 1/3 - 1/2 of a steel pipe.
- Since there is no reduction of the flow area by tubercule and cavitation-proof ability is excellent in the smooth inside, the flow velocity is also mentioned.
- Since thermal expansion coefficient is almost the same as a copper tube and 1.5 times the steel pipe, when using it for hot-water supply piping, the consideration to expansion and contraction is required for pipe selection.
- Since the rate of heat conductivity is as bad as 1/24 of a copper tube, and 1/4 of steel pipes, in the case of welding or soldering piping, cautions are required for it.
- The heat loss is a grade which is less than a steel pipe a little.

■Connection type

Threaded connection cannot be made up due to thin wall thickness.

- In small sizes: a mechanical joint and butt welding.
- In middle and larger sizes: flange, welding and Victaulic type joint.

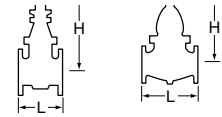
■Combination of pipe size and valve size



Conventionally, although nominal valve sizes belong with a carbon steel pipe (Gas pipe) and they have been manufactured on the basis of the major diameter, the stainless steel pipes for general piping are on the basis of a bore standard (the minor diameter). The combination of a pipe and valve sizes is as follows.




However, since cavitation-proof ability is more superior to a copper tube, and there is no pressure loss decreasing flow area by tubercule generated with a carbon steel pipe, the flow velocity can be raised. The combination marked with ⊙ is recommended.

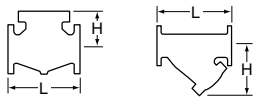
Size	Internal dia. (mm)	Nominal size					
		1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
		20mm	25	25	32	40	50
13Su	14.28	⊙					
20Su	20.22		⊙				
25Su	26.58			⊙			
30Su	31.6			⊙	⊙		
40Su	40.3				⊙	⊙	
50Su	46.2					⊙	⊙
60Su	57.5						⊙

V-Series Stainless Steel Valves



Design	API 603																													
Type	Gate Valves																													
Class	10K					10K/150								20K/300																
																														
Fig.	803J					803				853J/853				813J/813				863J/863												
Size	L	H	D ₁	W		L	H	D ₁	W		L	H	D ₁	W		L	H	D ₁	W		L	H	D ₁	W						
15 (mm)	1/2"	108	206	100	3.5	108	214	100	3.2		108	214	100	3.2		140	216	100	5.2		140	216	100	5.2		140	216	100	5.2	
20	3/4"	117	212	100	4.0	117	214	100	4.0		117	214	100	4.0		152	225	100	6.5		152	225	100	6.5		152	225	100	6.5	
25	1"	127	232	100	5.0	127	227	100	4.8		127	227	100	4.8		165	250	140	9.0		165	250	140	9.0		165	250	140	9.0	
32	1 1/4"	140	259	140	7.0	140	257	140	6.7		140	257	140	6.7		178	300	160	11.7		178	300	160	11.7		178	300	160	11.7	
40	1 1/2"	165	277	140	8.0	165	264	140	8.0		165	264	140	8.0		190	308	160	14.5		190	308	160	14.5		190	308	160	14.5	
50	2"	178	312	160	10.5	178	308	160	11.0		178	308	160	11.0		216	333	200	20.0		216	333	200	20.0		216	333	200	20.0	
65	2 1/2"	190	366	180	14.0	190	357	180	18.0		190	357	180	18.0		241	378	200	28.0		241	378	200	28.0		241	378	200	28.0	
80	3"	203	433	200	18.5	203	417	200	21.5		203	417	200	21.5		283	433	250	42.0		283	433	250	42.0		283	433	250	42.0	
100	4"	229	510	230	25.5	229	508	224	31.5		229	508	224	31.5		305	537	300	60.2		305	537	300	60.2		305	537	300	60.2	
125	5"	254	620	250	40.0	254	619	280	46.0		254	619	280	46.0		381	658	355	90.0		381	658	355	90.0		381	658	355	90.0	
150	6"	267	709	250	46.0	267	728	300	58.0		267	728	300	58.0		403	758	400	110.0		403	758	400	110.0		403	758	400	110.0	
200	8"	292	915	300	75.0	292	923	355	92.0		292	923	355	92.0		419	950	450	170.0		419	950	450	170.0		419	950	450	170.0	
250	10"	330	1109	360	124.0	330	1117	400	162.0		330	1117	400	162.0		457	1138	560	290.0		457	1138	560	290.0		457	1138	560	290.0	
300	12"					356	1317	450	245.0		356	1317	450	245.0		502	1329	600	445.0		502	1329	600	445.0		502	1329	600	445.0	
350	14"					381	1650	550	360.0		381	1650	550	360.0																
Material	Body	SCS13A					SCS13/CF8				SCS14/CF8M				SCS13/CF8				SCS14/CF8M											
	Stem	SUS304					SUS304/F304				SUS316/F316				SUS304/F304				SUS316/F316											
	Disc	SCS13A					SCS13/CF8				SCS14/CF8M				SCS13/CF8				SCS14/CF8M											
Service conditions	10K/20K: See P-T rating for JIS flanged valves on page 13 Class 150/300: See P-T rating for ASME flanged valves on page 13																													
Remarks																														

Design	JPI-7S-58 / API 603										AIP 603								TOYO Standard											
Type	Globe Valves																													
Class	10K/150										20K/300								10K											
																														
Fig.	801J/801					851J/851					811J/811				861J/861				831J/881J											
Size	L	H	D ₁	W		L	H	D ₁	W		L	H	D ₁	W		L	H	D ₁	W		L	H	D ₁	W						
15 (mm)	1/2"	108	176	100	2.6	108	176	100	2.6		152	181	100	4.0		152	181	100	4.0		108	176	100	2.6		108	176	100	2.6	
20	3/4"	117	178	100	3.0	117	178	100	3.0		178	208	140	7.0		178	208	140	7.0		117	178	100	4.0		117	178	100	4.0	
25	1"	127	180	100	3.5	127	180	100	3.5		203	208	140	8.0		203	208	140	8.0		127	180	100	4.5		127	180	100	4.5	
32	1 1/4"	140	206	140	5.6	140	206	140	5.6		216	237	160	12.2		216	237	160	12.2		140	211	140	7.0		140	211	140	7.0	
40	1 1/2"	165	206	140	7.0	165	206	140	7.0		229	237	160	15.0		229	237	160	15.0		165	211	140	7.5		165	211	140	7.5	
50	2"	203	237	160	10.5	203	237	160	10.5		267	285	180	18.0		267	285	180	18.0		203	237	160	10.5		203	237	160	10.5	
65	2 1/2"	216	280	180	15.5	216	280	180	15.5		292	328	224	26.5		292	328	224	26.5		216	280	180	14.3		216	280	180	14.3	
80	3"	241	321	200	23.0	241	321	200	23.0		318	370	250	36.5		318	370	250	36.5		241	321	200	21.5		241	321	200	21.5	
100	4"	292	365	250	36.5	292	365	250	36.5		356	445	355	54.0		356	445	355	54.0		292	365	250	32.5		292	365	250	32.5	
125	5"	356	414	250	50.0	356	414	250	50.0		400	495	400	81.0		400	495	400	81.0		356	414	250	46.5		356	414	250	46.5	
150	6"	406	488	355	69.0	406	488	355	69.0		444	554	450	111.0		444	554	450	111.0		406	488	355	66.0		406	488	355	66.0	
200	8"	495	610	450	128.0	495	610	450	128.0		559	630	450	197.0		559	630	450	197.0		495	610	450	116.0		495	610	450	116.0	
Material	Body	SCS13/CF8					SCS14/CF8M					SCS13/CF8				SCS14/CF8M				SCS13/SCS14										
	Stem	SUS304/F304					SUS316/F316					SUS304/F304				SUS316/F316				SUS304/SUS316										
	Disc	SUS304/F304					SUS316/F316					SUS304/F304				SUS316/F316				PTFE										
Service conditions	10K/20K: See P-T rating for JIS flanged valves on page 13 Class 150/300: See P-T rating for ASME flanged valves on page 13																													
Remarks																							Class 150 available							

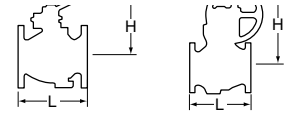



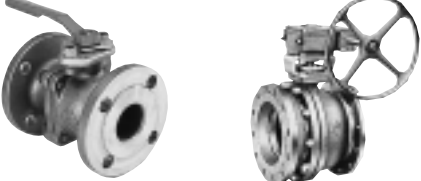
V-Series Stainless Steel Valves



Design	JPI-7S-58						TOYO Standard						TOYO Standard											
Type	Swing Check Valves																		Strainers					
Class	10K/150						20K/300						10K/150											
Fig.	805J/805			855J/855			815J/815			865J/865			807J/807			857J/857								
Size	L	H	W	L	H	W	L	H	W	L	H	W	L	H	W	L	H	W						
15 (mm)	1/2"												125	66	2.0	125	66	2.0						
20	3/4"												140	80	3.1	140	80	3.1						
25	1"												160	80	4.1	160	80	4.1						
32	1 1/4"												180	110	6.5	180	110	6.5						
40	1 1/2"	165	117	7.4	165	117	7.4	241	162	16.5	241	162	16.5	190	110	6.8	190	110	6.8					
50	2"	203	117	10.2	203	117	10.2	267	167	22.2	267	167	22.2	220	135	9.0	220	135	9.0					
65	2 1/2"	216	138	14.5	216	138	14.5	292	175	32.0	292	175	32.0	270	195	16.5	270	195	16.5					
80	3"	241	144	19.0	241	144	19.0	318	180	38.5	318	180	38.5	298	220	19.0	298	220	19.0					
100	4"	292	165	33.0	292	165	33.0	356	214	60.0	356	214	60.0	350	260	29.5	350	260	29.5					
125	5"	330	186	46.0	330	186	46.0	400	235	78.7	400	235	78.7	390	265	44.0	390	265	44.0					
150	6"	356	209	67.0	356	209	67.0	444	278	118.0	444	278	118.0	440	315	54.5	440	315	54.5					
200	8"	495	266	133.0	495	266	133.0	533	325	207.0	533	325	207.0	540	375	77.0	540	375	77.0					
250	10"	622	303	170.0	622	303	170.0	622	395	320.0	622	395	320.0	680	490	98.0	680	490	98.0					
300	12"	698	356	260.0	698	356	260.0	711	494	500.0	711	494	500.0											
Material	Body	SCS13/CF8			SCS14/CF8M			SCS13/CF8			SCS14/CF8M			Body	SCS13/CF8			SCS14/CF8M						
	Pin	SUS304/F304			SUS316/F316			SUS304/F304			SUS316/F316			Screen	SUS304/F304			SUS316/F316						
	Disc	SUS304/F304			SUS316/F316			SUS304/F304			SUS316/F316													
Service conditions	10K/20K: See P-T rating for JIS flanged valves on page 13 Class 150/300: See P-T rating for ASME flanged valves on page 13																							
Remarks																								

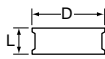
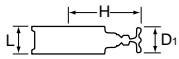
Design	JPI-7S-58						TOYO Standard						
Type	Lift Check Valves												
Class	10K/150						20K/300						
Fig.	824J/824			874J/874			834J/834			884J/884			
Size	L	H	W	L	H	W	L	H	W	L	H	W	
15 (mm)	1/2"	108	64	1.8	108	64	1.8	152	73	3.2	152	73	3.2
20	3/4"	117	66	2.3	117	66	2.3	178	84	5.1	178	84	5.1
25	1"	127	67	2.8	127	67	2.8	203	84	6.2	203	84	6.2
32	1 1/4"	140	82	4.7	140	82	4.7	216	103	8.5	216	103	8.5
40	1 1/2"	165	82	6.5	165	82	6.5	229	103	11.8	229	103	11.8
50	2"	203	95	8.0	203	95	8.0						
Material	Body	SCS13/CF8			SCS14/CF8M			SCS13/CF8			SCS14/CF8M		
	Disc	SUS304/F304			SUS316/F316			SUS304/F304			SUS316/F316		
Service conditions	10K/20K: See P-T rating for JIS flanged valves on page 13 Class 150/300: See P-T rating for ASME flanged valves on page 13												
Remarks													

Flanged Ball Valves



Design	TOYO Standard																					
Type	Ball Valves																					
Class	10K										10K/150											
																						
Fig.	3011L/4011L					3031L/3131L					4031L/4131L											
Size	d	L	H	D ₁	W	d	L	H	D ₁	W	H	D ₁	W	d	L	H	D ₁	W	H	D ₁	W	
15 (mm)	1/2"	15	108	81	130	2.2	13	108	74	115	2.2				13	108	74	115	2.2			
20	3/4"	20	117	84	130	2.6	19	117	78	115	2.8				19	117	78	115	2.8			
25	1"	25	127	93	160	4.5	25	127	95	150	4.3				25	127	95	150	4.3			
32	1 1/4"	32	140	97	160	5.9	32	140	100	150	5.5				32	140	100	150	5.5			
40	1 1/2"	40	165	113	230	7.5	38	165	126	200	5.8				38	165	126	200	5.8			
50	2"	50	178	120	230	9.2	51	178	134	200	8.7				51	178	134	200	8.7			
65	2 1/2"	65	190	150	400	14.6	65	190	164	320	16.0				65	190	164	320	16.0			
80	3"	80	203	161	400	19.8	76	203	173	320	21.4				76	203	173	320	21.4			
100	4"	100	229	189	460	28.1	102	229	210	450	37.2	(Gear:3031G/3131G)		102	229	210	450	37.2	(Gear:4031G/4131G)			
125	5"	125	356	209	460	53.7	127	356	269	800	50.0	293	300	74.0	127	356	269	800	50.0	293	300	74.0
150	6"	150	394	262	980	72.2	152	394	288	800	76.4	312	300	90.0	152	394	288	800	76.4	312	300	90.0
200	8"	200	457	317	1970	156.9	203	457	374	1120	137.0	383	300	145.0	203	457	374	1120	137.0	383	300	145.0
Material	Body	SCS13/SCS14					SCS13/CF8					SCS14/CF8M										
	Stem	SUS304/SUS316					SUS304/F304					SUS316/F316										
	Ball	SCS13/SCS14					SUS304 or SCS13/F304 or CF8					SUS316 or SCS14/F316 or CF8M										
	Seat	R-PTFE					R-PTFE					R-PTFE										
Service conditions	See P-T rating on page 14																					
Remarks																						

Design	TOYO Standard																	
Type	Ball Valves																	
Class	20K/300																	
																		
Fig.	3331L/3231L								4331L/4231L									
Size	d	L	H	D ₁	W	H	D ₁	W	d	L	H	D ₁	W	H	D ₁	W		
15 (mm)	1/2"	13	140	74	115	2.5			13	140	74	115	2.5					
20	3/4"	19	152	78	115	3.1			19	152	78	115	3.1					
25	1"	25	165	95	150	5.1			25	165	95	150	5.1					
32	1 1/4"																	
40	1 1/2"	38	190	126	200	10.5			38	190	126	200	10.5					
50	2"	51	216	134	200	14.0			51	216	134	200	14.0					
65	2 1/2"	65	241	164	320	22.5			65	241	164	320	22.5					
80	3"	76	283	173	320	30.5			76	283	173	320	30.5					
100	4"	102	305	210	600	53.0	(Gear:3331G/3231G)		102	305	210	600	53.0	(Gear:4331G/4231G)				
125	5"	127	381	269	800	70.0	293	300	93.0	127	381	269	800	70.0	293	300	93.0	
150	6"	152	403	336	1120	99.0	346	300	138.0	152	403	336	1120	99.0	346	300	138.0	
200	8"	203	502	385	1400	164.0	393	400	203.0	203	502	385	1400	164.0	393	400	203.0	
Material	Body	SCS13/CF8								SCS14/CF8M								
	Stem	SUS304/F304								SUS316/F316								
	Ball	SUS304 or SCS13/F304 or CF8								SUS316 or SCS14/F316 or CF8M								
	Seat	R-PTFE								R-PTFE								
Service conditions	See P-T rating on page 14																	
Remarks																		



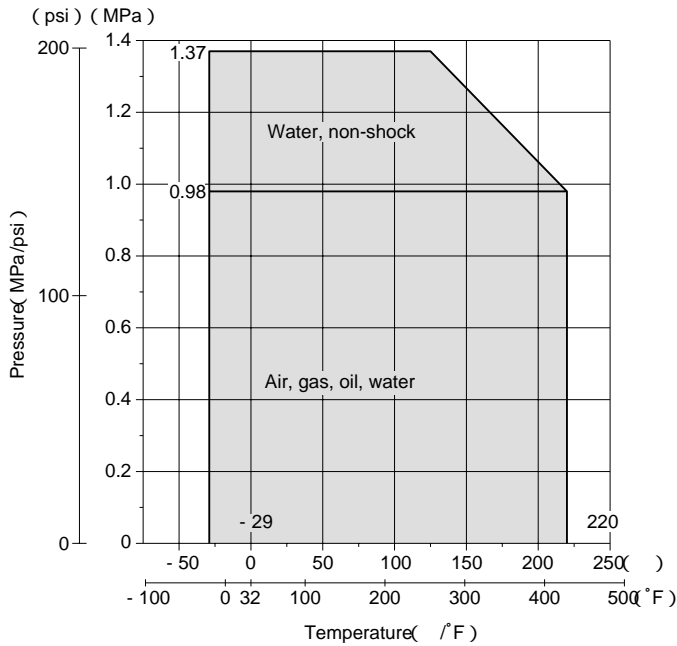
Dual Plate Check Valves

Design	TOYO Standard																		
Type	Dual Plate Check Valves																		
Class	10K				20K				10K/150				20K/300						
Fig.	806					816					806M/806MW				816M/816MW				
Size	L	H	D ₁	W		L	H	D ₁	W		L	D	W		L	D	W		
40 (mm) 1 1/2"	54	118	63	1.7		54	118	63	1.7		60	85	2.5						
50 2"	60	126	63	2.3		60	126	63	2.3		60	105	3		60	111	3		
65 2 1/2"	67	134	63	3.0		67	134	63	3.0		67	124	4		67	130	4		
80 3"	73	138	63	4.0		73	138	63	4.1		73	137	6		73	149	7		
100 4"	73	151	63	5.5		73	151	63	5.8		73	175	8		73	181	8		
125 5"	86	174	70	8.0		86	174	70	8.5		86	197	10		86	216	14		
150 6"	98	188	70	12.0		98	188	70	14.0		98	222	16		98	251	19		
200 8"	127	215	70	22.0		127	215	70	25.0		127	279	32		127	308	36		
250 10"	146	254	80	35.0		146	254	80	39.0		146	340	47		146	362	51		
300 12"	181	282	80	45.0		181	282	80	50.5		181	410	84		181	422	88		
350 14"											184	451	97		222	486	176		
400 16"											191	514	160		232	540	227		
450 18"											203	549	185		264	597	300		
500 20"											219	606	243		292	654	373		
Material	Body	SCS13				SCS13				SCS13/CF8				SCS13/CF8					
	Plate	SCS13				SCS13				SCS13/CF8				SCS13/CF8					
	Seat	NBR				NBR				SCS13/CF8 (Matal)				SCS13/CF8 (Matal)					
Service conditions	See P-T rating on page 13																		
Remarks	SCS14/CF8M body available upon request																		

Pressure-Temperature Ratings

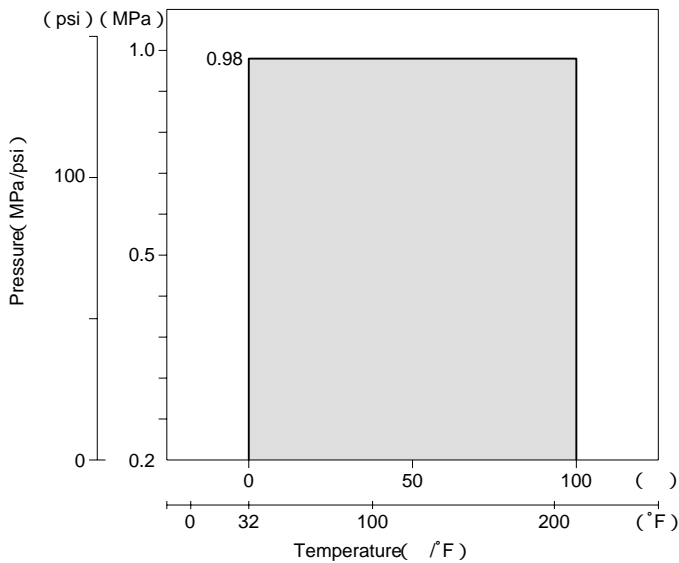
U-Series Stainless Steel Valves

Gate, Globe, Check Valves & Strainers / screwed & flanged ends



Service conditions		Class	800WOG	
			MPa	psi
Static water	Less than 120		1.37	200
	220		0.98	143
Air, gas, oil,	Less than 220		0.98	143
Saturated steam			0.98	143
Test pressure	shell	water	2.10	300
	seat	air	0.55	80

Pipe-End Valves / Abacus Joint End Valves

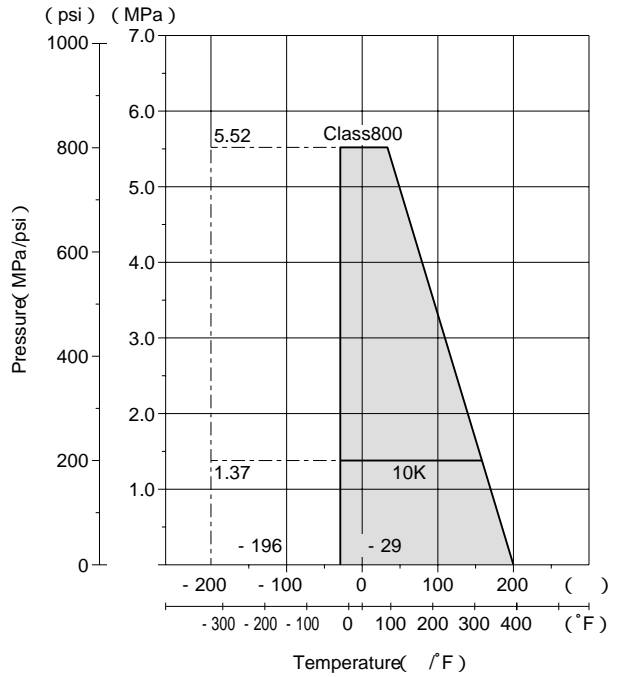


Service conditions		MPa	psi	
Less than 100	water	0.98	143	
Test pressure	shell	water	1.50	215
	seat	air	0.55	80

U-Series Stainless Steel Valves

Ball Valves / screwed end type

Fig. 3550, 4550A, 4580, 3380, 4760A or 3060



Service conditions		Class	800WOG		10K	
			MPa	psi	MPa	psi
Water, oil, air	WOG 38 (3°F)		5.52	800	1.37	200
			1.03	150	1.03	150
Saturated steam			1.03	150	1.03	150
Test pressure	shell	water	8.30	1200	2.10	300
	seat	air	0.55	80	0.55	80

V-Series Stainless Steel Valves

JIS Flanged Valves

(Extracted from JIS B2238, General rules for steel pipe flanges)

Nominal pressure		10K		20K		
		Body material				
Service conditions		SCS13 / SCS14				
		MPa	psi	MPa	psi	
Static water	below 120	1.37	200	3.33	483	
	below 220	1.18	170	3.04	441	
Steam, air, gas, oil, water	below 220	1.18	170	3.04	441	
	300	0.98	143	2.84	412	
	350			2.55	370	
Steam, air, gas, oil	400			2.26	328	
	425			1.96	285	
	450					
Test pressure	shell	water	2.10	300	5.00	726
	seat	air	0.55	80	0.55	80

Notes:

- Due to no standard for SCS13 & SCS14 on JIS standard, it applies as follows.
 - 10K flange type: The value of SCPH1 is applied.
 - 20K flange type: The value of SCPH2 is applied.
- The max. working temperature for standard products is restricted to 260 by PTFE gland packing, gasket or seat.
- In case of use at 260 and above, applicable selection for gland packing & gasket is required.

Pressure-Temperature Ratings

V-Series Stainless Steel Valves

ASME B16.34 Table 2-2.1A & 2-2.2A

Service temperature		Class 150				Class 300			
		A351 Gr. CF8(SCS13)		A351 Gr. CF8M(SCS14)		A351 Gr. CF8(SCS13)		A351 Gr. CF8M(SCS14)	
()	(°F)	MPa	psi	MPa	psi	MPa	psi	MPa	psi
-29	-38	1.90	275	1.90	275	4.96	720	4.96	720
93	200	1.62	230	1.65	235	4.14	600	4.27	620
149	300	1.41	205	1.48	215	3.65	540	3.86	560
204	400	1.24	190	1.34	195	3.24	495	3.55	515
260	500	1.17	170	1.90	170	3.00	465	3.31	480
316	600	0.965	140	0.965	140	2.86	435	3.10	450
343	650	0.862	125	0.862	125	2.83	430	3.07	445
371	700	0.758	110	0.758	110	2.79	425	2.96	430
399	750	0.655	95	0.655	95	2.76	415	2.93	425
427	800	0.552	80	0.552	80	2.72	405	2.86	420
454	850	0.448	65	0.448	65	2.69	395	2.79	420
482	900	0.345	50	0.345	50	2.65	390	2.72	415
510	950	0.241	35	0.241	35	2.59	380	2.65	385
538	1000	0.138	20	0.138	20	2.24	320	2.52	350
566	1050	0.138(1)	20(1)	0.138(1)	20(1)	2.14		2.48	345
593	1100	0.138(1)	20(1)	0.138(1)	20(1)	1.79	255	2.24	305
621	1150	0.138(1)	20(1)	0.138(1)	20(1)	1.34	200	1.90	235
649	1200	0.138(1)	20(1)	0.138(1)	20(1)	1.07	155	1.41	185
677	1250	0.138(1)	20(1)	0.138(1)	20(1)	0.758	115	1.240	145
704	1300	0.138(1)	20(1)	0.138(1)	20(1)	0.586	85	0.965	115
732	1350	0.138(1)	20(1)	0.138(1)	20(1)	0.414	60	0.724	95
760	1400	0.138(1)	20(1)	0.138(1)	20(1)	0.345	50	0.517	75
788	1450	0.103(1)	15(1)	0.138(1)	20(1)	0.241	35	0.414	60
816	1500	0.069(1)	10(1)	0.138(1)	20(1)	0.172	25	0.276	40
Test pressure	shell(water)	2.93	425	2.93	425	7.58	1100	7.58	1100
	seat(air)	0.55	80	0.55	80	0.55	80	0.55	80

Note:

(1) For welding end valves only. Flanged ends ratings terminate at 1000 °F.

Dual Plate Check Valves

Rubber Seat(With Bypass-Valve)

Metal Seat(Without Bypass-Valve)

Fig. 806, 10K

Seat material		NBR		FPM		EPDM	
		MPa	psi	MPa	psi	MPa	psi
Service conditions	below 80	1.37	200	1.37	200	1.37	200
	above 120					1.37	200
Static water	below 80	1.18	170	1.18	170	1.18	170
	above 120			1.18	170	1.18	170
Oil,gas, water,air	below 80	2.10	300	2.10	300	2.10	300
	above 120	0.55	80	0.55	80	0.55	80
Test pressure	shell water	2.10	300	2.10	300	2.10	300
	seat air	0.55	80	0.55	80	0.55	80

Note:An EPDM seat shall not be used for all oil application.

Fig. 806M(10K)and 816M(20K)

Service conditions		Ratings		10K		20K	
		MPa	psi	MPa	psi	MPa	psi
Static water	below 120	1.37	200	3.33	483		
	above 220	1.18	170	3.04	441		
Oil,gas,water,air	below 220	1.18	170	3.04	441		
	above 300	0.98	143	2.84	412		
Steam,air,gas,oil	below 400			2.55	370		
	above 425			2.26	328		
Test pressure	shell water	2.10	300	5.00	725		
	seat air	0.55	80	0.55	80		

Note:

- 1)Standard products are designed up to 150 .
- 2)In case of use at 150 & above, please consult us.

Fig. 806MW(150) and 816MW(300)

Please refer to table for ASME B16.34.

Note:

- 1)Standard products are designed up to 150 .
- 2)In case of use at 150 & above, please consult us.

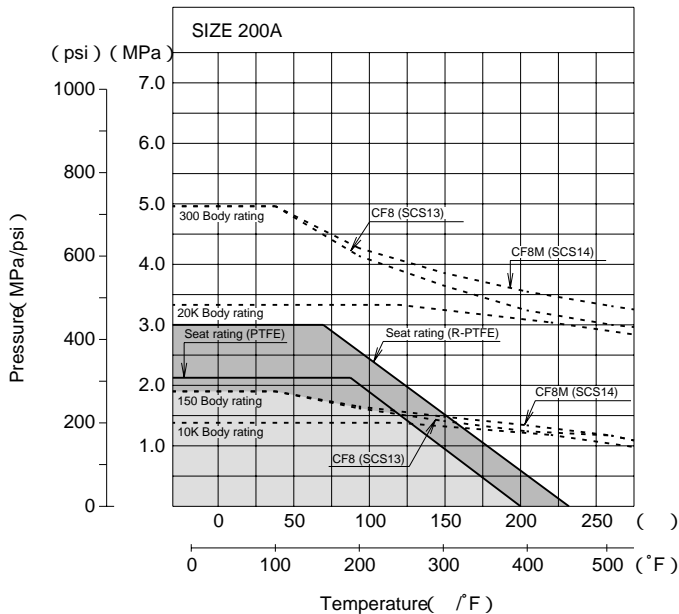
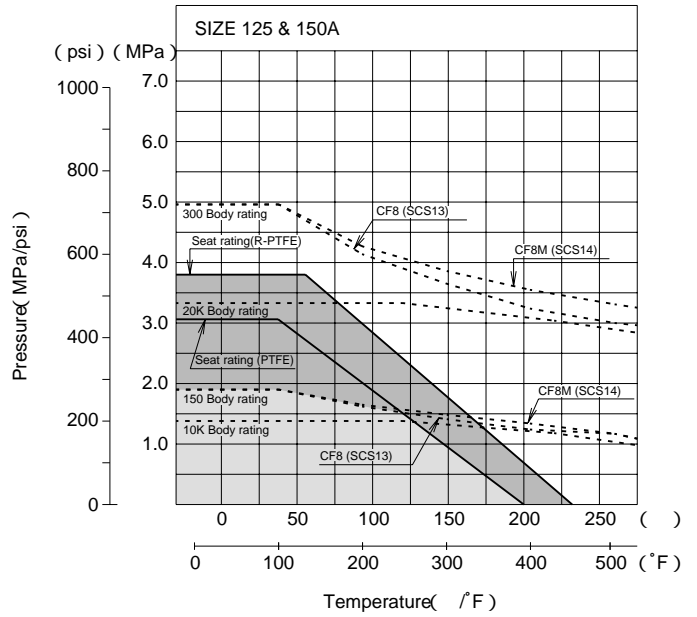
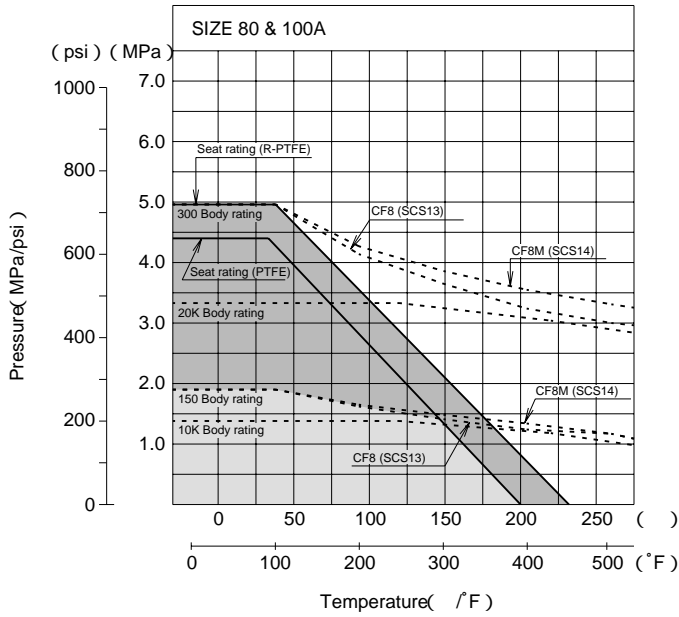
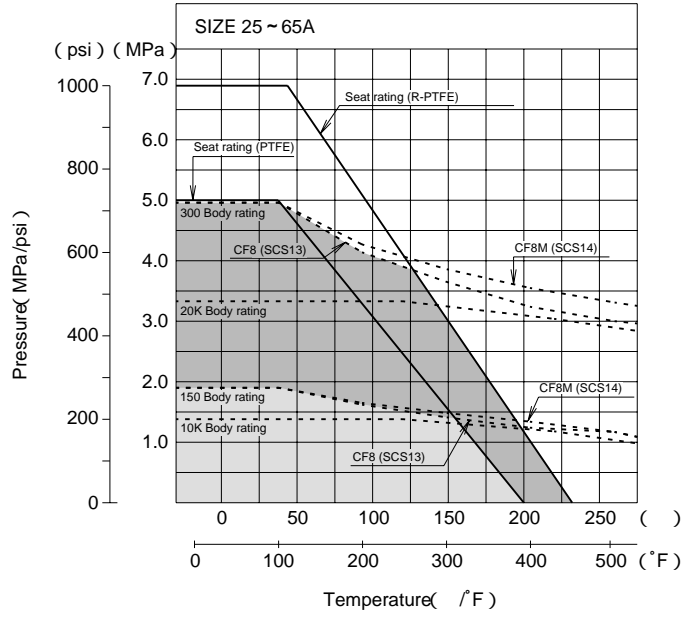
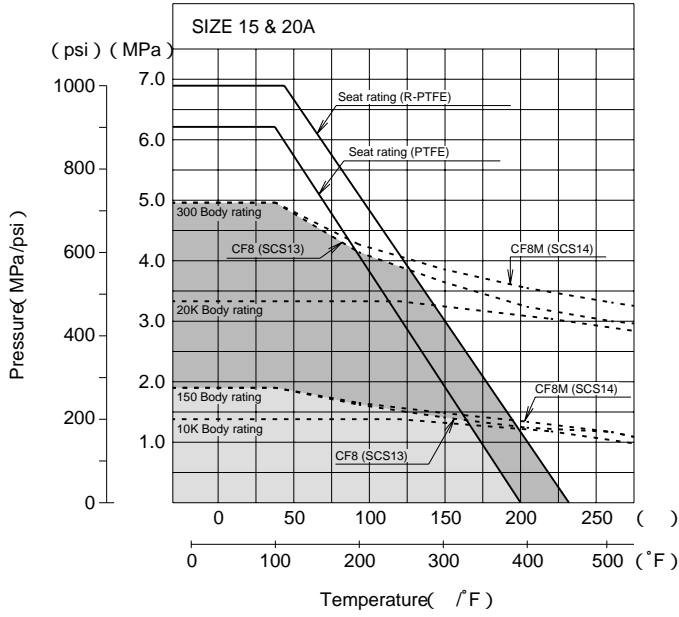
Fig. 816, 20K

Seat material		NBR		FPM		EPDM	
		MPa	psi	MPa	psi	MPa	psi
Service conditions	below 80	3.33	483	3.33	483	3.33	483
	above 120					3.33	483
Static water	below 80	2.55	370	2.55	370	2.55	370
	above 120			1.96	285	1.96	285
Oil,gas, water,air	below 80	5.00	725	5.00	725	5.00	725
	above 120	0.55	80	0.55	80	0.55	80
Test pressure	shell water	5.00	725	5.00	725	5.00	725
	seat air	0.55	80	0.55	80	0.55	80

Note:An EPDM seat shall not be used for all oil applications.

Pressure-Temperature Ratings

10/20K, Class 150/300 Stainless Steel Valves



ISO9001 and 14001 authorized

Toyo Valve Co., Ltd. has been approved by Lloyd's Register Quality Assurance Limited (LRQA) to the following quality management system of "ISO 9001" and environmental management system of "ISO 14001".

ISO9001



ISO14001



Distributed by:

RED-WHITE



Toyo Valve Co., Ltd.

5-7, 1-CHOME, N HONBASHI-MUROMACHI, CHUO-KU, TOKYO 103-0022, JAPAN

TEL: +81-3-3242-3320 FAX: +81-3-3242-3295

E-mail: tvho@toyovalve.co.jp

<http://www.toyovalve.co.jp>

NO. 450	
---------	--

T030703A (SE)