

# Low-Temperature, Cryogenic Valves



- G**ATE VALVE
- G**LOBE VALVE
- C**HECK VALVE
- B**ALL VALVE



# Low-Temperature, Cryogenic Valves

GATE VALVE

GLOBE VALVE

CHECK VALVE

BALL VALVE

KITZ valves have been developed to meet the most advanced and demanding technological standards of Japan, the world's leading importer of environmentally friendly, clean-energy LNG (Liquefied Natural Gas). KITZ offers a series of cryogenic valves of proven high quality, as demonstrated by repeated testing.

We offer stainless steel and cast carbon steel gate, globe, check, and ball valves for processing, storage, shipment, and distribution of ethylene, LPG (Liquefied Petroleum Gas), LNG, and other low-temperature or cryogenic fluids, down to  $-196^{\circ}\text{C}$  ( $-321^{\circ}\text{F}$ ).

## Use applications

- LNG (Liquefied Natural Gas); Terminals/Gas production plants
- Ethylene plants
- Industrial low-temperature gases

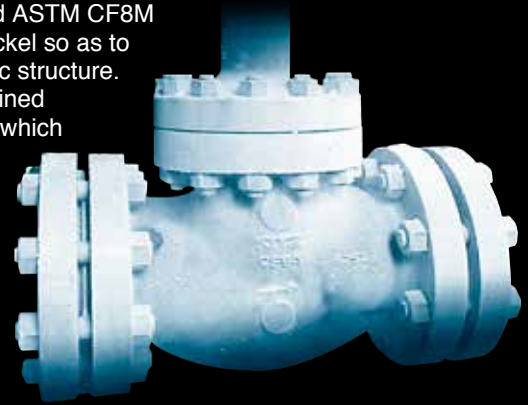
## CONTENTS

- 02 Range of operational temperatures
- 03 Product coding
- 04 Features of metal-seated gate valves
- 05 Features of soft-seated globe valves
- 06 Features of floating ball valves
- 07 Design comparison based on operational temperature
- 08 Features of trunnion mounted ball valves
- 09 Low emission service valves
- 10 Inspection tests
- 11  $-196^{\circ}\text{C}$  **C series** Gate Valves, Globe Valves, Check Valves
- 15  $-196^{\circ}\text{C}$  **A series** Gate Valves, Globe Valves, Check Valves
- 19  $-196^{\circ}\text{C}$  **C series** Globe Valves (Soft-Seated)
- 19  $-196^{\circ}\text{C}$  **A series** Globe Valves (Soft-Seated)
- 20  $-104^{\circ}\text{C}$  **A series** Gate Valves, Globe Valves, Check Valves
- 23  $-104^{\circ}\text{C}$  **C series** Globe Valves (Soft-Seated)
- 23  $-104^{\circ}\text{C}$  **A series** Globe Valves (Soft-Seated)
- 24  $-46^{\circ}\text{C}$  Gate Valves, Globe Valves, Check Valves
- 26  $-196^{\circ}\text{C}$  Ball Valves
- 28  $-104^{\circ}\text{C}$  Ball Valves
- 30  $-46^{\circ}\text{C}$  Ball Valves



## Casting technology

Our cryogenic service valve castings are typically made of modified ASTM CF8M austenitic stainless steel, which contains a higher percentage of nickel so as to minimize transformation of the austenitic structure to the martensitic structure. This undesirable transformation occurs when valve parts are machined during the production process (or subjected to mechanical stress), which makes them vulnerable to distortion when valve assemblies are exposed to extremely low temperatures in the field. This property must be prevented during production, because it results in subsequent degradation of seat face precision, and therefore, concerns about seat leakage. Additionally, a higher nickel content typically lowers the temperature at which the martensitic transformation begins (Martensitic Transformation Temperature or MTT below). For this reason, our foundries ensure proper adjustment of other chemicals such as carbon and chromium to reduce the MTT.



### Operational Temperature Range

Valve Type	Design	-196	-104	-80	-46	0°C		Page
Gate Valve	Metal-Seated	[Bar chart showing range from -196 to 0°C]					-196°C	11 to 18
Globe Valve		[Bar chart showing range from -104 to 0°C]					-104°C	20 to 22
Check Valve		[Bar chart showing range from -46 to 0°C]					-46°C	24, 25
Globe Valve	Soft-Seated	[Bar chart showing range from -196 to 0°C]					-196°C	19
		[Bar chart showing range from -104 to 0°C]					-104°C	23
Ball Valve	Floating Trunion	[Bar chart showing range from -196 to 0°C]					-196°C	26, 27
		[Bar chart showing range from -104 to 0°C]					-104°C	28, 29
		[Bar chart showing range from -46 to 0°C]					-46°C	30 to 32

Color tags corresponding to usage temperature are provided.

### KITZ Production Control

#### Order inflow

KITZ cryogenic valves are tailored to meet our clients' specifications. KITZ selects the most suitable valve types and analyzes the clients' needs before deciding on valve manufacturing specifications. These manufacturing specifications serve as the basis for unified control of every step of valve manufacture, from sales and design to production and shipping.

#### Design

KITZ's valve designs reflect know-how resulting from both a long record of achievement and proven, performance-tested technology.

#### Casting

Our high-quality stainless steels are manufactured from castings produced at KITZ's in-house foundry. Therefore, special materials that are required for low-temperature or cryogenic applications can be used.

#### Machining

We have established production technologies and performance tests based on many years of experience manufacturing valves for industrial use.

#### Assembly and Inspection

KITZ performs strict inspections of cryogenic valves on a dedicated assembly and inspection line. In addition to performing a variety of non-destructive tests, in house, KITZ can accommodate any type of special-method inspection that is requested by our customers.

# Range of operational temperatures

Operational temperature	Series	Class	End connection	Valve type	Nominal Size Code	Nominal Size																Page							
						A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400		450	500	600				
						B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24					
- 196°C	C series	150	Butt-weld *1	Gate	(T)W150UMCLMY							●	●	●	●	●	●	■	■	■	■	■	■	■	11				
				Globe	(T)W150UPCLMY								●	●	●	●	●	●	■								11		
				Swing check	(T)W150UOCLMY									●	●	●	●	●	●	●	●	●	●	●	●	●	●	12	
		300	Socket-weld *1	Gate	(T)SW300UMCLMY	●	●	●	●	●																	12		
				Globe	(T)SW300UPCLMY	●	●	●	●	●																		13	
				Swing check	(T)SW300UOCLMY									●														13	
				Lift check	(T)SW300UNCLMY	●	●	●	●																			13	
		300	Butt-weld *1	Gate	(T)W300UMCLMY								●	●	●	●	●	●	■	■	■	■	■	■	■	■	12		
				Globe	(T)W300UPCLMY								●	●	●	●	●	■	■									13	
				Swing check	(T)W300UOCLMY								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	13	
		600	Socket-weld *1	Gate	(T)SW600UMCLMY	●	●	●	●																		14		
				Globe	(T)SW600UPCLMY	●	●	●	●																			14	
	Lift check			(T)SW600UNCLMY	●	●	●	●																			15		
	600	Butt-weld *1	Gate	(T)W600UMCLMY								●	●	●	●	■	■	■	■	■	■	■	■	■	■	14			
			Globe	(T)W600UPCLMY								●		■	■		■	■									14		
			Swing check	(T)W600UOCLMY								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	15		
	A series	150	RF-flanged	Gate	150UMALMY	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■	■	■	15			
				Globe	150UPALMY	●	●	●	●	●	●	●	●	●	●	●	■	■										16	
				Swing check	150UOALMY								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16	
				Lift check	150UNALMY	●	●	●	●																			16	
		300	Socket-weld	Gate	SW300UMALMY	●	●	●	●																		17		
				Globe	SW300UPALMY	●	●	●	●																			17	
				Lift check	SW300UNALMY	●	●	●	●																			18	
		300	RF-flanged	Gate	300UMALMY	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■	■	■	■	17		
				Globe	300UPALMY	●	●	●	●	●	●	●	●	●	●	■	■											17	
				Swing check	300UOALMY									●	●	●	●	●	●	●	●	●	●	●	●	●	●	18	
				Lift check	300UNALMY	●	●	●	●																				18
Soft-seated		150	Butt-weld	Globe/Soft-seated	W150UPDCL							●	●	●	●											19			
	300	Socket-weld	Globe/Soft-seated	SW300UPDAL	●	●	●	●	●																19				
- 104°C	C series	150	Butt-weld *1	Gate	W150UMCX							●	●	●	●		●	●	●	●					*				
				Globe	W150UPCX								●	●	●	●		●	●	●	●						*		
				Swing check	W150UOCX									●	●	●	●		●	●	●	●						*	
		300	Butt-weld *1	Gate	W300UMCX								●	●	●	●	●	●	●	●	●						*		
				Globe	W300UPCX								●	●	●	●		●	●	●	●							*	
				Swing check	W300UOCX									●	●	●	●		●	●	●	●						*	
		600	Butt-weld *1	Gate	W600UMCX								●	●	●	●	●	●	●	●	●						*		
				Globe	W600UPCX								●	●	●	●		●	●	●	●							*	
				Swing check	W600UOCX									●	●	●	●		●	●	●	●						*	
		A series	150	RF-flanged	Gate	150UMAX	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■	■	20		
					Globe	150UPAX	●	●	●	●	●	●	●	●	●	●	●	■	■										20
					Swing check	150UOAX								●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	21
	Lift check				150UNAX	●	●	●	●																			21	
	300		Socket-weld	Gate	SW300UMAX	●	●	●	●																		21		
				Globe	SW300UPAX	●	●	●	●																			22	
				Lift check	SW300UNAX	●	●	●	●																			22	
	300		RF-flanged	Gate	300UMAX	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■	■	■	■	21		
				Globe	300UPAX	●	●	●	●	●	●	●	●	●	●	●	■	■										22	
				Swing check	300UOAX									●	●	●	●	●	●	●	●	●	●	●	●	●	●	22	
				Lift check	300UNAX	●	●	●	●																			22	
	Soft-seated		150	Butt-weld	Globe/Soft-seated	W150UPDCX							●	●	●	●											23		
		300	Socket-weld	Globe/Soft-seated	SW300UPDX	●	●	●	●	●																23			
	- 46°C	150	Butt-weld *1	Gate	W150SCLSXBL							●	●	●	●	●	●	●	●	●	●	■	■	■	■	24			
				Globe	W150SCLJSXBL								●	●	●	●		●	●	●	●	■	■	■	■	■	25		
				Swing check	W150SCOSXBL									●	●	●	●		●	●	●	●	●	●	●	●	●	25	
				Gate	W300SCLSXBL									●	●	●	●	●	●	●	●	●	■	■	■	■	■	24	
				Globe	W300SCLJSXBL									●	●	●	●		●	●	●	●	■	■	■	■	■	25	
Swing check				W300SCOSXBL									●	●	●	●		●	●	●	●	●	●	●	●	●	25		
300		Butt-weld *1	Gate	W600SCLSXBL								●	●	●	●		■	■	■	■	■	■	■	■	■	24			
			Globe	W600SCLJSXBL								●	●	●	●		■	■	■	■	■	■	■	■	■	25			
			Swing check	W600SCOSXBL									●	●	●	●		●	●	●	●	●	●	●	●	●	25		
			Gate	W600SCLJSXBL									●	●	●	●		■	■	■	■	■	■	■	■	■	24		
			Globe	W600SCLJSXBL									●	●	●	●		■	■	■	■	■	■	■	■	■	25		
			Swing check	W600SCOSXBL									●	●	●	●		●	●	●	●	●	●	●	●	●	25		

\*1 RF Flange connection available  
 ■: Gear operation  
 Class 900 are available. Please contact KITZ corporation.

## Range of operational temperatures

Operational temperature	Class	End connection	Valve type	Code	Nominal Size																Page				
					A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400		450	500	600	
					B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24		
-196°C	150	RF-flanged	Ball valve (1 piece)	150UTAZLM	●	●	●	●	●	●	●	●	●	●	■	■	■							26	
	300		Ball valve (1 piece)	300UTAZLM	●	●	●	●	●	●	●	●	●	■	■	■									26
	10K	RF-flanged	Ball valve	10UTDZL*	●	●	●	●	●	●	●	●	▲	■	■	■								27	
	20K		Ball valve	20UTDZL*	●	●	●	●	●	●	●	●	■	■	■	■								27	
	150		Ball valve	150UTDZL*	●	●	●	●	●	●	●	●	●	■	■	■	■							27	
	300		Ball valve	300UTDZL	●	●	●	●	●	●	●	●	■	■	■	■									27
-104°C	150	RF-flanged	Ball valve (1 piece)	150UTAZXLM	●	●	●	●	●	●	●	●	●	■	■	■								28	
	300		Ball valve (1 piece)	300UTAZXLM	●	●	●	●	●	●	●	●	■	■	■	■									28
	10K	RF-flanged	Ball valve	10UTDZXL*	●	●	●	●	●	●	●	●	■	■	■	■								29	
	20K		Ball valve	20UTDZXL*	●	●	●	●	●	●	●	●	■	■	■	■								29	
	150		Ball valve	150UTDZXL*	●	●	●	●	●	●	●	●	■	■	■	■								29	
	300		Ball valve	300UTDZXL	●	●	●	●	●	●	●	●	■	■	■	■									29
-46°C	150	RF-flanged	Ball valve (1 piece)	150SCTAZXCL	●	●	●	●	●	●	●	●	●	■	■	■								30	
	300		Ball valve (1 piece)	300SCTAZXCL	●	●	●	●	●	●	●	●	●	■	■	■									30
	150	RF-flanged	Ball valve	150SCTDZXCL	●	●	●	●	●	●	●	●	●	■	■	■									31
	300		Ball valve	300SCTDZXCL	●	●	●	●	●	●	●	●	■	■	■	■									31
	150		Ball valve	150SCTDZXBL	●	●	●	●	●	●	●	●	●	■	■	■									32
	300		Ball valve	300SCTDZXBL	●	●	●	●	●	●	●	●	●	■	■	■									32

▲ : Made to order. Please contact KITZ Corporation for details. ■ : Gear operation  
 ※ : 32A (DN32) - Please contact KITZ Corporation.

## Product coding

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
● Gate Valve	G	-	W	150	SC	L		X	BL	Y	
● Globe Valve	(T)	G	-	W	150	U	M	C	L	M	Y
● Soft-Seated Globe Valve			W	150	U	M	C	L	M	Y	
● Check Valve			W	300	U	O	C	X		Y	
● Ball Valve	G	-		150	U	TDZ		XL	M		

### ① T.T.O Guideline \*1

None -  
 (T) Apply

\*1: T.T.O. guidelines are specifications of the gas companies in Japan.

### ② Operation

None Hand wheel or Lever  
 G Gear

### ③ End connection

None RF-flanged  
 W Butt-weld  
 SW Socket-weld

### ④ Pressure (Class)

10 10K JIS  
 20 20K JIS  
 150 Class 150 ASME  
 300 Class 300 ASME  
 600 Class 600 ASME

### ⑤ Material group

SC Carbon steel  
 U Stainless steel

### ⑥ Valve type

Code	Body material	Valve type
L	Carbon steel	Gate valve
J	Carbon steel	Globe valve
O	Carbon steel	Swing check
M	Stainless steel	Gate valve
P	Stainless steel	Globe valve
PD	Stainless steel	Soft-seated globe valve
O	Stainless steel	Swing check
N	Stainless steel	Lift check
TDZ	C/S, S/S Full bore, 2-piece body	Floating ball valve
TAZ	C/S, S/S Reduced bore, 1-piece body	Floating ball valve

### ⑦ Design standard \*2

A ASME B16.34  
 C JPI-7S-46/API 600

\*2: For stainless steel gate globe and check valve

### ⑧ Bonnet design

L Long bonnet design  
 X, XL Semi-long bonnet design

### ⑨ Body material

BL Carbon steel A352 LCB  
 CL Carbon steel A352 LCC  
 None SS A351 Gr. CF8  
 M SS A351 Gr. CF8M

### ⑩ Seat hard facing

Code Facing point  
 Y Body, disc and backseat



## Feature of KITZ metal-seated gate valves

### ● Extension bonnet

The extension bonnet provides efficient cold insulation, minimizing heat conduction and transfer from cryogenic flow, while preventing exposure of the valve packing to cryogenic media and providing a secure seal.

### ● Surface-hardening treatment with Stellite® alloy

Stellite® alloy is used to apply a surface-hardening treatment to the sliding portions of the body and disc seat assemblies, preventing wear and improving durability.

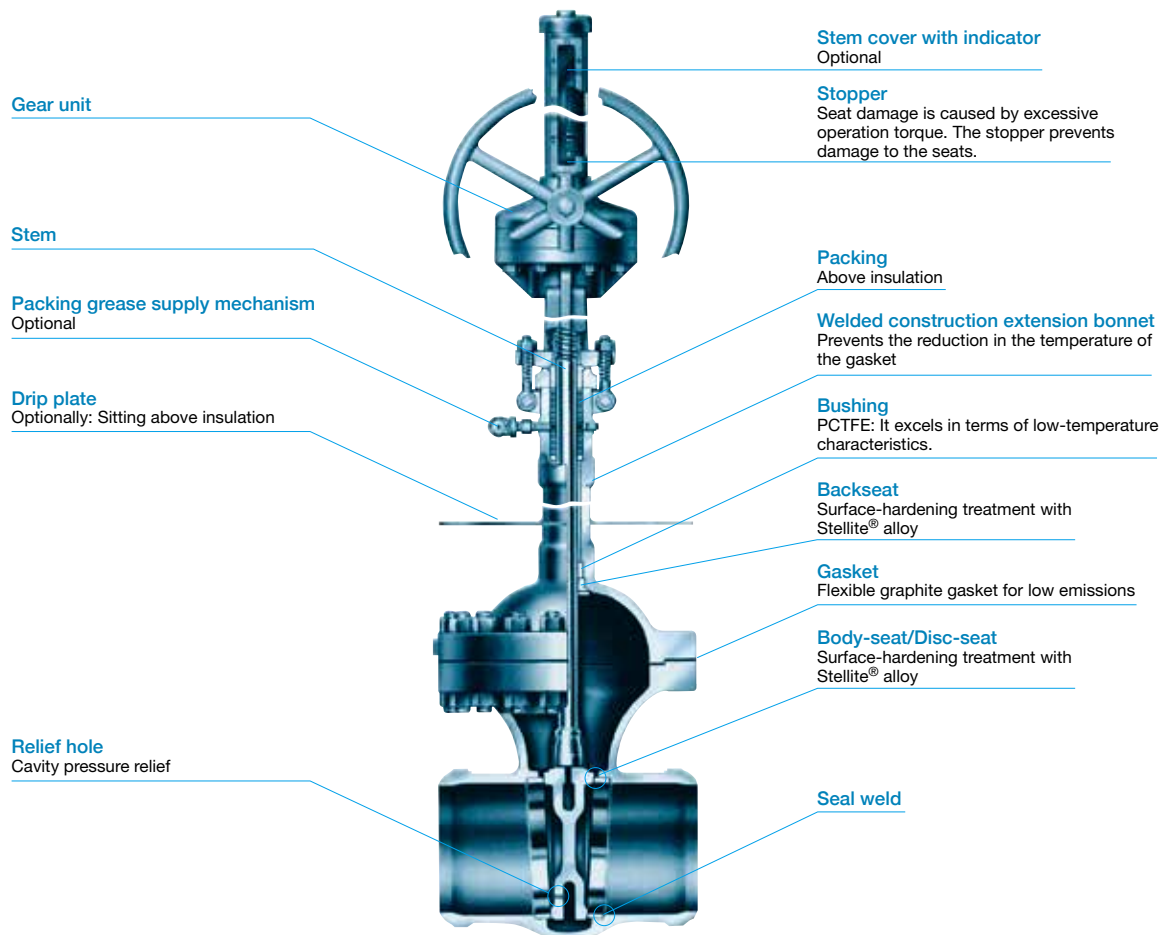
### ● Cavity pressure relief

A hole in the disc on the high-pressure side prevents any excessive rise in the cavity pressure. (Liquid trapped within the body cavity may evaporate, causing an excessive rise in the cavity pressure.)

### ● Seat lapping

We polish dry-lapped seat surfaces to compare the surface finish before and after polishing. Additionally, we compare the seat surface finish and the sealing performance of valve samples provided with only-lapped seats and lapped-and-polished seats.

Illustrated cross-section of a typical KITZ cryogenic service gate valve to show the basic design concept -196°C specification



## Features of KITZ soft-seat globe valves

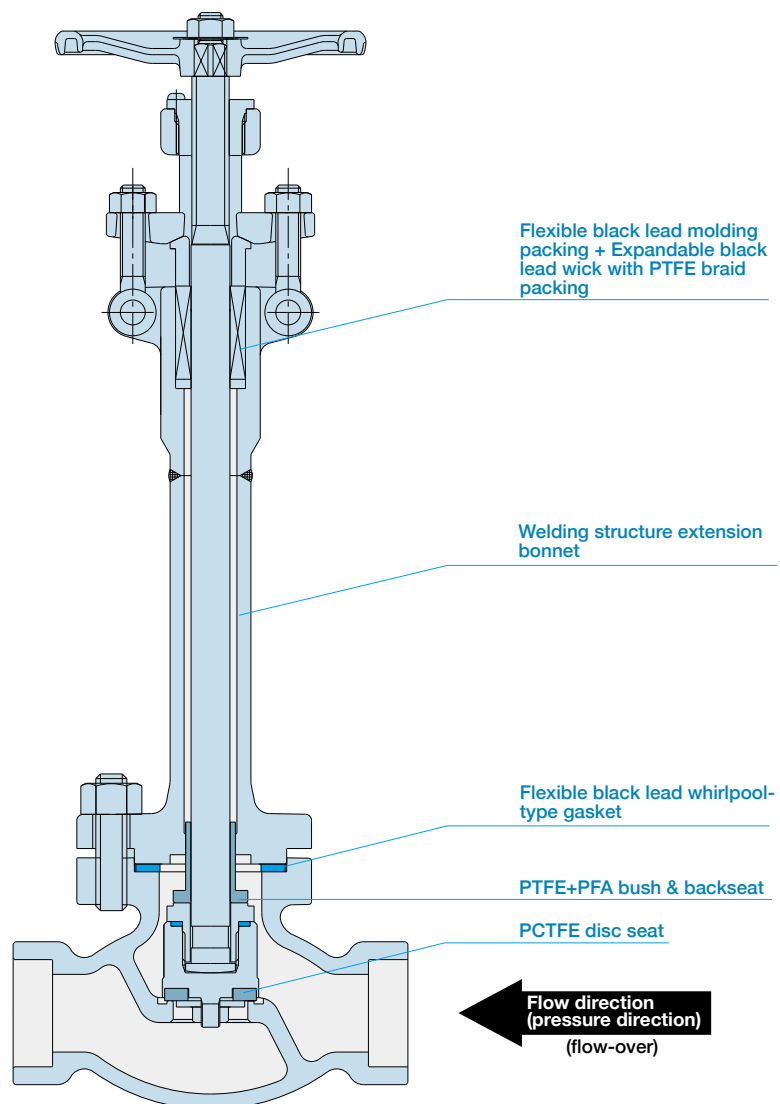
- A higher cost performance is achieved than for the disc seat structure.
- The flow direction (pressure direction) becomes flow over the disc. A low operation strength is enabled by flow-over.
- A PCTFE disc seat with excellent low-temperature characteristics and mechanical properties is used to achieve high durability and high sealant quality.
- Stem binding prevention is realized with back seat and all-in-one type PTFE+PFA construction bushing.
- The disc seats can only be replaced by removing the disc nut.
- This valve is the same low-emission type as in the metal seat structure used for the seal material of the packing/gasket. This cancels compression creep stress relief and ensures seal quality for extended periods.
- Improvement of maintenance and avoidance of binding are achieved through all-in-one design of backseat and bush PTFE+PFA.

\*1 Soft structure applicable only to globe valves

\*2 Even when valves are all closed with flow over, packing unit is always pressurized.

Representative structural assembly of soft-seat globe valve

-196°C specification



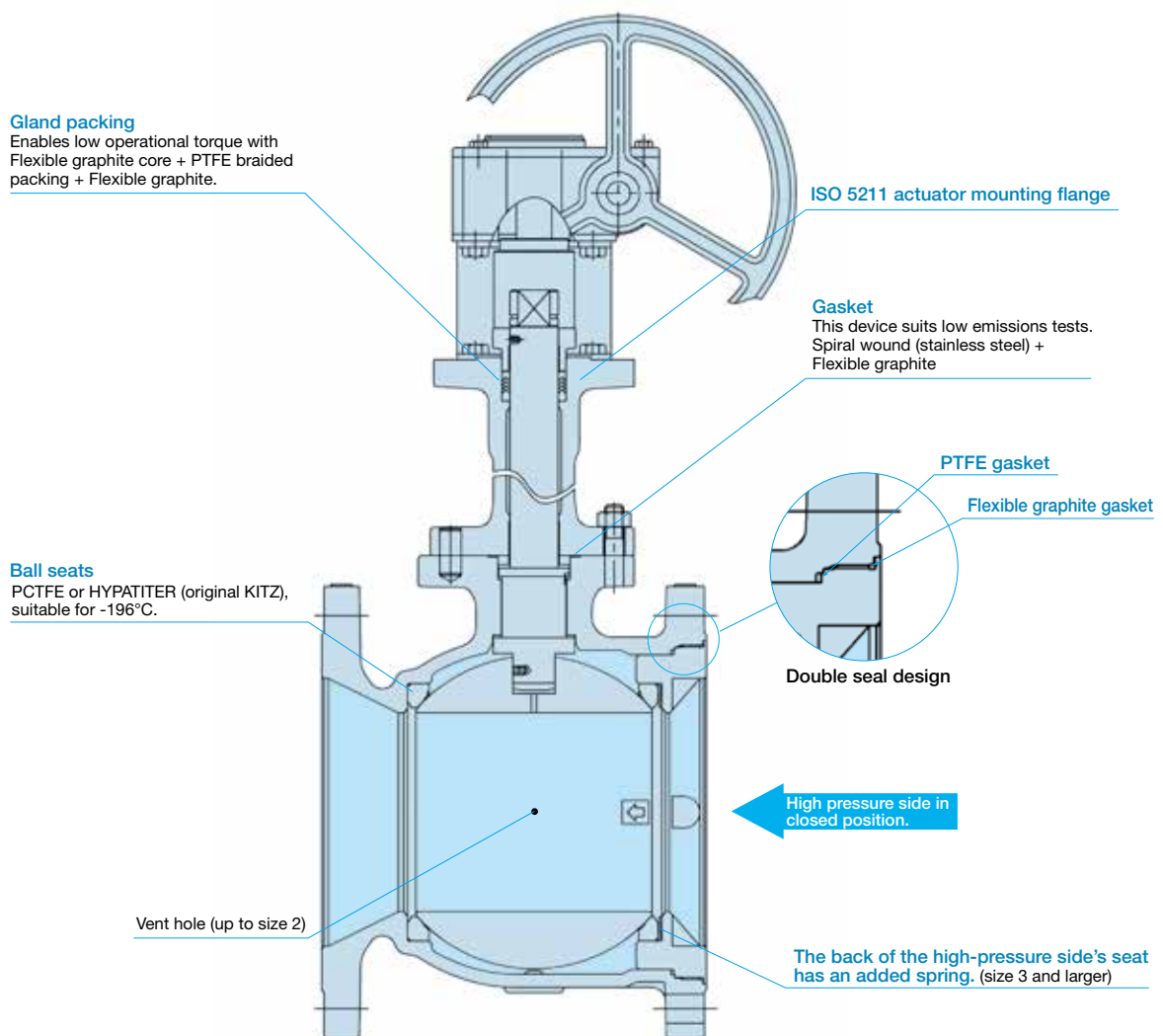
※This figure shows the valve in the closed position.

## Features of KITZ floating ball valves

### -196°C Specification

- Easy opening and closing, with 90° rotation.
- There is little pressure loss.
- Extension bonnet  
Thermal conduction and heat transmission from the low-temperature fluid is suppressed to a minimum while a cooling effect is provided. The packing is prevented from being exposed to the low-temperature liquid and a secure seal is realized.
- Packing/Gasket  
Flexible graphite with excellent resistance to low temperatures, sealing quality, and durability is used in the packing and gasket.
- Seat structure  
Size 3B and larger utilizes a seat spring and achieves a secure seal with a low operation torque.
- Prevention of abnormal pressure within cavity  
Sizes ½B to 2B have vent holes, and sizes 3B to 10B have upstream-side seat springs installed. These adjustments prevent abnormal pressure within the cavity.
- Fire-safe design

Illustrated cross-section of a KITZ cryogenic floating ball valve, with operational temperature of -196°C

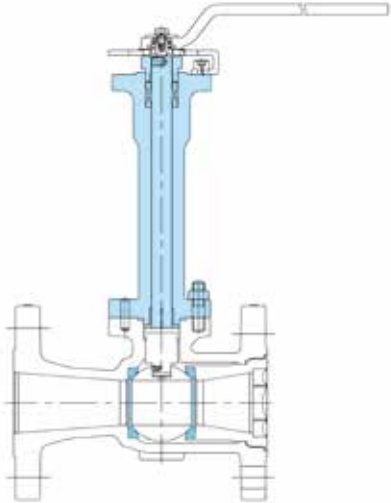




- The valve design that is appropriate for operational temperatures can be selected by combining an extension bonnet and ball seat.

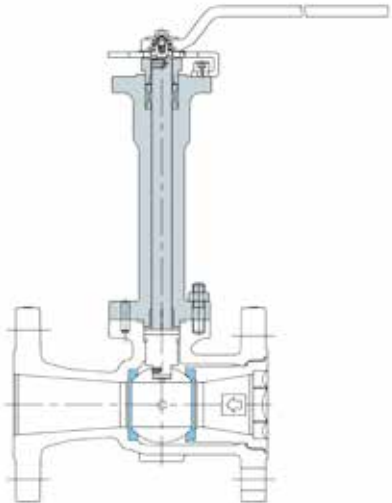
**Design comparison based on operational temperature**

**-46°C**      **-104°C**



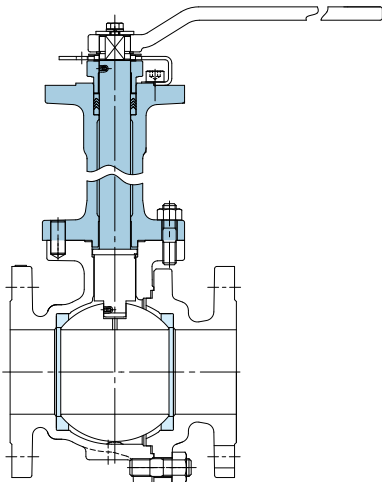
Operational Temperature	-46°C	-104°C
● Body material	A352 Gr. LCC	A351 Gr. CF8M
● Bore	Reduced bore	
● Body design	1-piece	
● Flow direction	Bi-directional flow	
● Gland packing	Flexible graphite	
● Gasket	PTFE + Flexible graphite	

**-196°C**



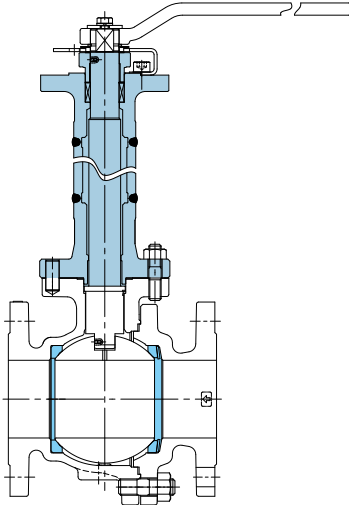
● Body material	A351 Gr. CF8
● Bore	Full bore
● Body design	2-piece
● Flow direction	Bi-directional flow
● Gland packing	Flexible graphite
● Gasket	Flexible graphite
● Seat spring	Size 2 and larger

**-46°C**      **-104°C**



Operational Temperature	-46°C	-104°C
● Body material	A352 Gr. LCC/LCB	A351 Gr. CF8
● Bore	Full bore	
● Body design	2-piece	
● Flow direction	Unidirectional flow	
● Gland packing	Flexible graphite	PTFE
● Gasket	Flexible graphite	PTFE

**-196°C**



● Body material	A351 Gr. CF8
● Bore	Full bore
● Body design	2-piece
● Flow direction	Bi-directional flow
● Gland packing	Flexible graphite
● Gasket	Flexible graphite
● Seat spring	Size 2 and larger

# Features of KITZ trunnion-mounted ball valves

## -196°C and -104°C specifications

### 1. Fire-safe design

#### (1) Internal leakage prevention:

If resilient sealing materials have decomposed or deteriorated because of a plant fire, the edge of the metal seat retainer preloaded by the seat spring comes into contact with the ball to shut off the line fluid to minimize internal leakage through the valve bore. The seat retainer also compresses KITZ-designed flexible graphite retainer packings to prevent fluid leakage between the valve body and the seat retainer.

#### (2) External leakage prevention

Perfect sealing and fire-safe features are provided by the sealing action of the flexible graphite gland packing and the gasket. Flexible graphite gaskets are used in all static joints of the body components.

### 2. Bi-directional flow sealing mechanism

A floating seat design is employed so that each of the upstream and downstream seats maintains adequate contact with the ball by means of a seat spring. Line pressure further assists this contact method. This method features excellent, independent sealing performance for both seats at the same time.

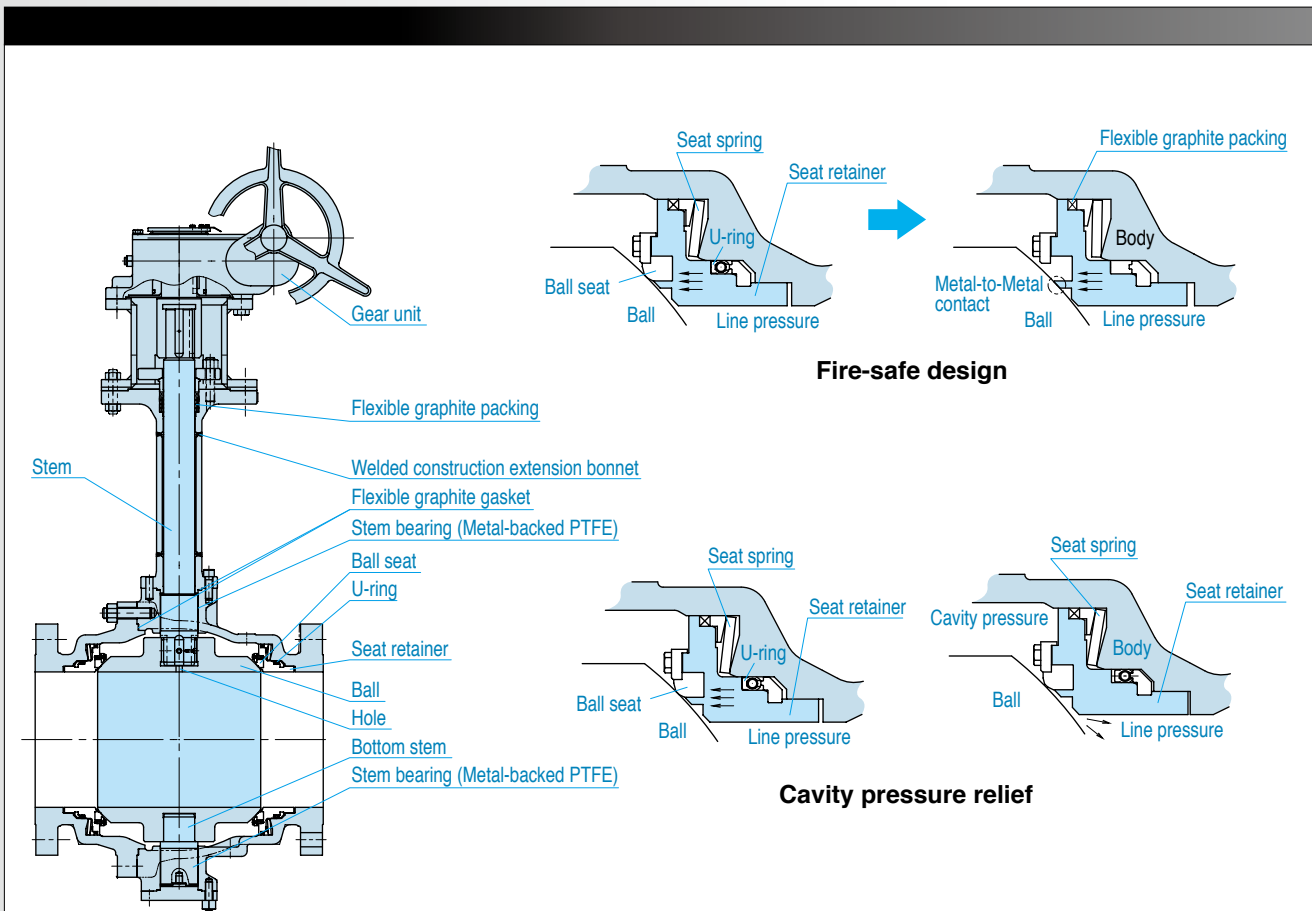
### 3. Cavity pressure relief

In case of an unusually high increase of operating or ambient temperature, liquefied gas or highly volatile liquid trapped within the body cavity may evaporate and cause an excessive rise in the cavity pressure. For safety, when the cavity pressure exceeds the line pressure and the cavity pressure is abnormal, the ball seat will move slightly away from the ball surface to relieve the excessive cavity pressure into the valve bore. A pressure relief hole is provided at the coupling area between ball and stem to relieve pressure trapped in the cavity when the valve is fully open.

### 4. Options

#### Uni-directional Seating Mechanism

Please contact your KITZ agent or distributor.



## KITZ low emission service valves

In the United States, the Federal Clean Air Act was amended in 1990 to realize a new environmental protection policy that stipulates a 95% reduction in fugitive emissions or leak levels of toxic gases and chemicals from plant equipment.

From April 1994, the new law requires all plants handling toxic gases (as specified by the Environmental Protection Agency), to periodically monitor their plant equipment to detect leaks exceeding 500 ppm, and repair or replace all defective parts immediately. California has gone further than the federal law with a state regulation requiring 100 ppm maximum leak levels, representing a 99% reduction of this kind of environmental pollution for the Northern California Region since 1997.

Our current low emission valves, the result of several years of trial and error at our laboratory, are designed, engineered, manufactured, and tested to meet the 100 ppm maximum emission level. This standard specification in North America is met by KITZ Class 150, 300, and 600 Series A and C stainless and high-alloy steel valves. In other markets, similar low emission valves are available as options. Major design considerations for upgrading our standard valves to have low emission performance are introduced below.

### **Gland packing <Gate valves, Globe valves>**

KITZ's original "SEALEVER\_" graphite packing set, with a pure carbon spacer bush for Class 300 and 600.

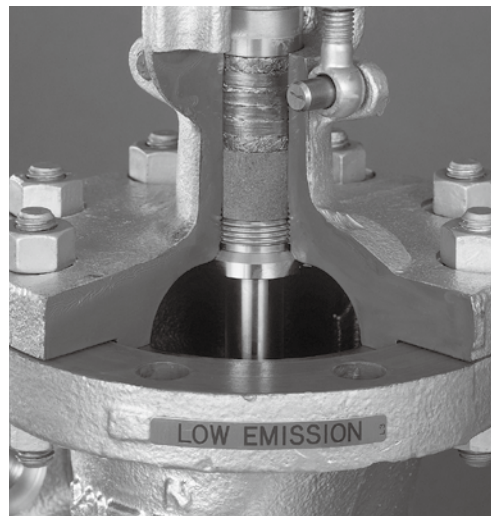
\*US Patent No. 5522603 and 5573253. Other patents registered or pending worldwide.

### **Bonnet gaskets and check valve cover gaskets <Gate valves, Globe valves, Swing check valves>**

**Class 150** : Flexible graphite sheet with stainless steel insert and permeation-protective barrier for low-emission applications or spiral wound

**Class 300** : Spiral wound (flexible graphite filler and stainless steel hoop) with a stainless steel inner ring

**Class 600** : Spiral wound

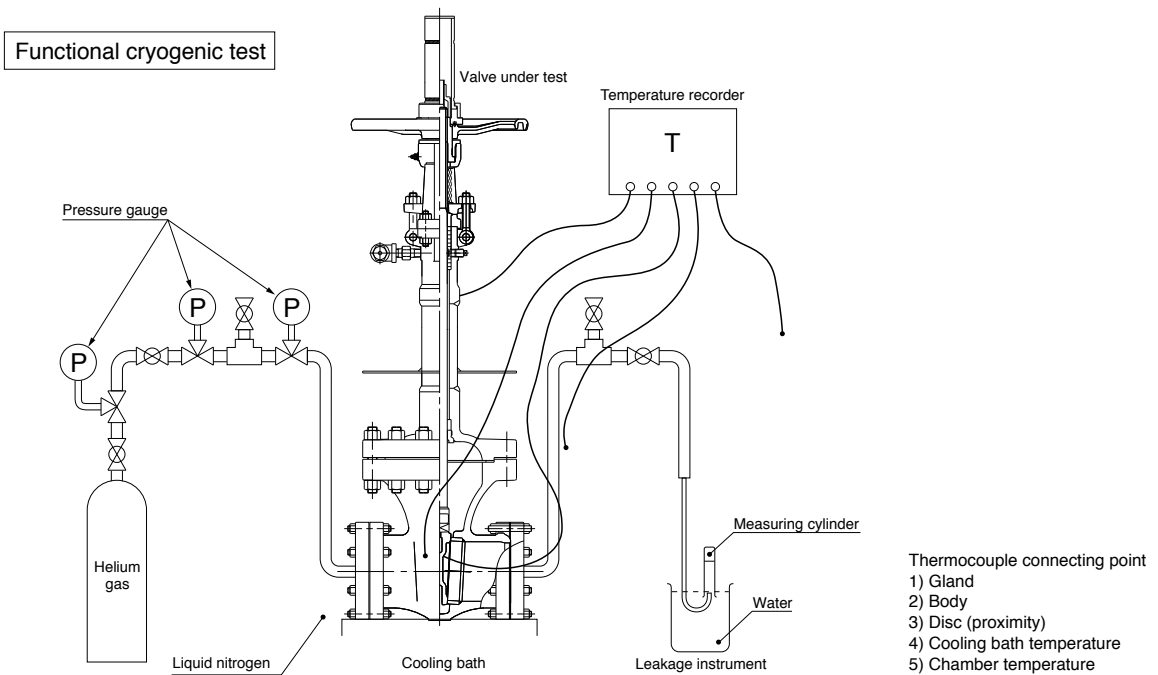


# Inspection tests

Test/Inspection Item	Method	Evaluation
Chemical composition analysis		Relevant ASTM Standards
Mechanical property test	ASTM A370	Relevant ASTM Standards
Pressure tests	API 598 or BS 6755 Part 1	API 598
Radiographic inspection	ASTM E142/E49	ASME B16.34
Wet magnetic particle inspection	ASTM E 138	
Liquid penetrant inspection	ASTM E165	
Low-temperature impact test	ASTM E23	ASTM A352
Dimension inspection		Relevant Valve Standards
Visual inspection		MSS SP-55
Emission test	EPA Method 21 and KITZ Std	KITZ Std.
Cryogenic test	BS 6364	BS 6364

\* The test requirements such as test items, methods, and criteria must be agreed upon by both the customer and KITZ.

## Cryogenic Valves Test

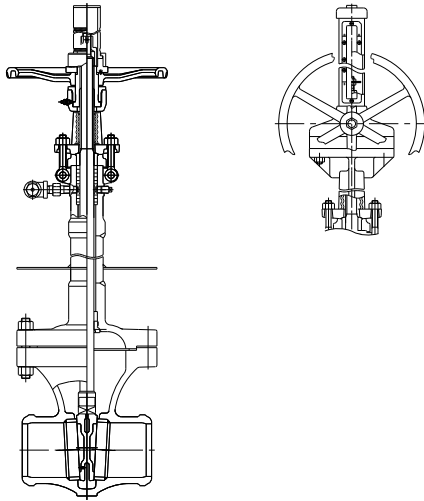


Before test



After test

## Class 150 Stainless Steel Gate Valves



Butt-weld

## Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

## Materials

Name of parts	Materials	
Body	1½B and smaller	SCS14A+HF*
	2B and larger	SCS14A
Bonnet	1B and smaller	SCS14A+HF*
	1½B and larger	SCS14A
Stem	SUS316+HF*	
Disc	SCS14A+HF*	
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing	
Gasket	Flexible graphite spiral wound	
Body seat ring (2B and larger)	SUS316+HF*	
Bonnet bolt	A320 Gr. B8 CL2	
Bonnet nut	A194 Gr. 8	

\*Co-Cr-W Alloy

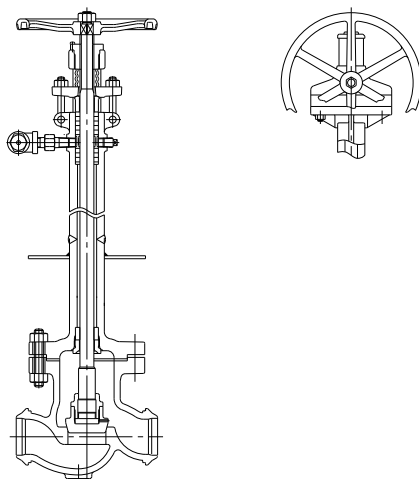
## Range

mm

Nominal size	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
	B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Butt-weld (T)W150UMCLMY						●	●	●	●	●	●	■	■	■	■	■	■	■	■	■
RF-flanged 150UMCLMY		●	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■	■	■	■

● : Handle operation ■ : Gear operation

## Class 150 Stainless Steel Globe Valves



Butt-weld

## Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

## Materials

Name of parts	Materials	
Body	1½B and smaller	SCS14A+HF*
	2B and larger	SCS14A+HF*
Bonnet	1B and smaller	SCS14A
	1½B and larger	SUS316+HF*
Stem	SUS316+HF*	
Disc	SCS14A+HF*	
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing	
Gasket	Flexible graphite spiral wound	
Bonnet bolt	A320 Gr. B8 CL2	
Bonnet nut	A194 Gr. 8	

\*Co-Cr-W Alloy

## Range

mm

Nominal size	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
	B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Butt-weld (T)W150UPCLMY						●	●	●	●	●	●	■								
RF-flanged 150UPCLMY		●	●	●	●	●	●	●	●		●	■								

● : Handle operation ■ : Gear operation



Class 150

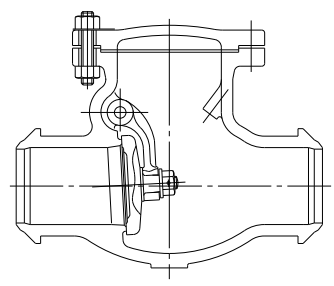
C series

Class 300

C series

C series

### Class 150 Stainless Steel Swing Check Valves



Butt-weld

#### Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

#### Materials

Name of parts	Materials
Body	SCS14A+HF*
Cover	SCS14A
Disc	SCS14A+HF*
Gasket	Flexible graphite spiral wound
Cover bolt	A320 Gr. B8 CL2
Cover nut	A194 Gr. 8

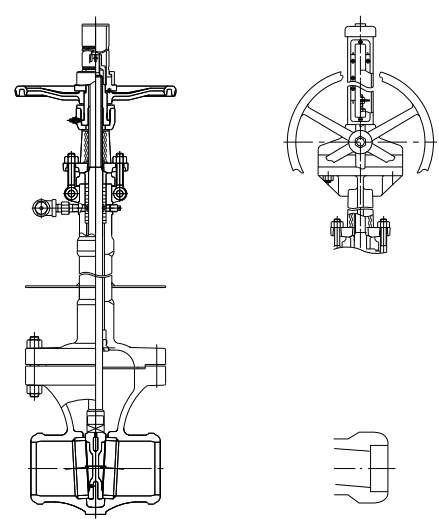
\*Co-Cr-W Alloy

#### Range

Nominal size	A	B	mm																		
			15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
Butt-weld (T)W150UOCLMY							●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RF-flanged 150UOCLMY			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

C series

### Class 300 Stainless Steel Gate Valves



Butt-weld

Socket-weld

#### Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

#### Materials

Name of parts	Materials
Body	1½B and smaller SCS14A+HF* 2B and larger SCS14A
Bonnet	1B and smaller SCS14A+HF* 1½B and larger SCS14A
Stem	SUS316+HF*
Disc	SCS14A+HF*
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing
Gasket	Flexible graphite spiral wound
Body seat ring (2B and larger)	SUS316+HF*
Bonnet bolt	A320 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

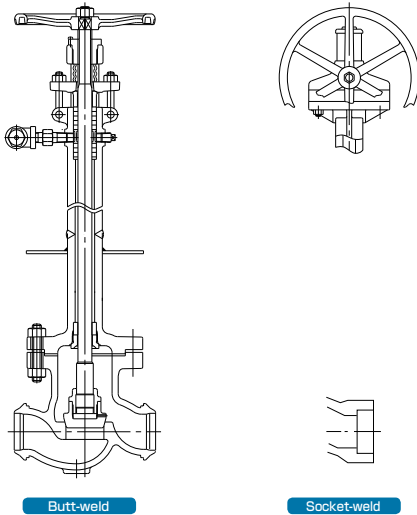
#### Range

Nominal size	A	B	mm																		
			15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
Socket-weld (T)SW300UMCLMY			●	●	●	●	●														
Butt-weld (T)W300UMCLMY							●	●	●	●	●	■	■	■	■	■	■	■	■	■	■
RF-flanged 300UMCLMY			●	●	●	●	●	●	●	●	●	■	■	■	■	■	■	■	■	■	■

● : Handle operation ■ : Gear operation

## C series

## Class 300 Stainless Steel Globe Valves



## Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

## Materials

Name of parts	Materials	
Body	1½B and smaller	SCS14A+HF*
	2B and larger	SCS14A+HF*
Bonnet	1B and smaller	SCS14A
	1½B and larger	SUS316+HF*
Stem	SUS316+HF*	
Disc	SCS14A+HF*	
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing	
Gasket	Flexible graphite spiral wound	
Bonnet bolt	A320 Gr. B8 CL2	
Bonnet nut	A194 Gr. 8	

\*Co-Cr-W Alloy

## Range

mm

Nominal size	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Socket-weld (T)SW300UPCLMY		●	●	●	●	●														
Butt-weld (T)W300UPCLMY						●	●	●	●			■	■							
RF-flanged 300UPCLMY		●	●	●	●	●	●	●	●			■	■							

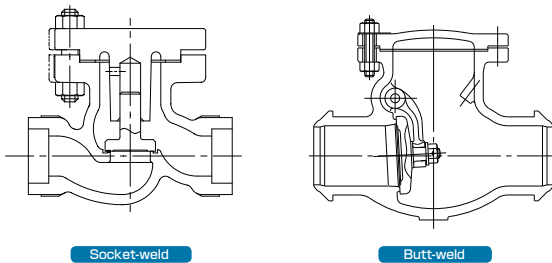
● : Handle operation ■ : Gear operation

## C series

## Class 300 Stainless Steel Lift Check / Swing Check Valves

## Lift Check Valves

## Swing Check Valves



## Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

## Materials

Name of parts	Materials
Body	SCS14A+HF*
Cover	SCS14A
Disc	SCS14A+HF*
Gasket	Flexible graphite spiral wound
Cover bolt	A320 Gr. B8 CL2
Cover nut	A194 Gr. 8

\*Co-Cr-W Alloy

## Range

mm

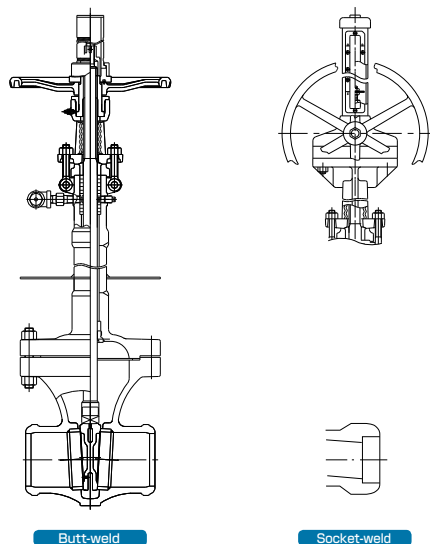
Nominal size	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
Socket-weld (Lift check) (T)SW300UNCLMY		●	●	●	●															
Socket-weld (Swing check) (T)SW300UOCLMY						●														
Butt-weld (Swing check) (T)W300UOCLMY						●	●	●	●		●	●	●	●	●	●	●	●	●	●
RF-flanged (Swing check) 300UOCLMY						●	●	●	●		●	●	●	●	●	●	●	●	●	●

Class 600

C series

C series

### Class 600 Stainless Steel Gate Valves



#### Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

#### Materials

Name of parts	Materials
Body	1½B and smaller SCS14A+HF*
	2B and larger SCS14A
Bonnet	1B and smaller SCS14A+HF*
	1½B and larger SCS14A
Stem	SUS316+HF*
Disc	SCS14A+HF*
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing
Gasket	Flexible graphite spiral wound
Body seat ring (2B and larger)	SUS316+HF*
Bonnet bolt	A320 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

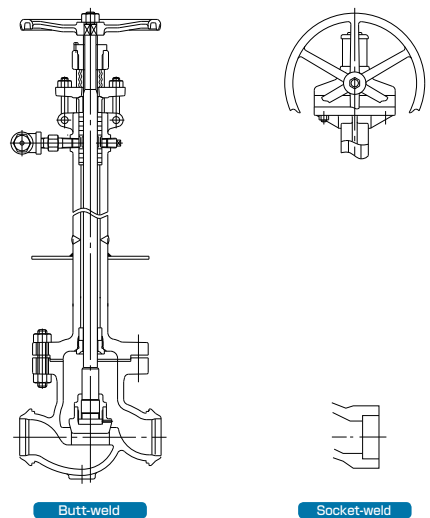
#### Range

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld	(T)SW600UMCLMY		●	●	●	●															
Butt-weld	(T)W600UMCLMY						●	●	●	●	■	■	■	■	■	■	■	■	■	■	■
RF-flanged	600UMCLMY		●	●	●	●	●	●	●	●		■	■	■	■	■	■	■	■	■	■

● : Handle operation ■ : Gear operation

C series

### Class 600 Stainless Steel Globe Valves



#### Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

#### Materials

Name of parts	Materials
Body	1½B and smaller SCS14A+HF*
	2B and larger SCS14A+HF*
Bonnet	1B and smaller SCS14A
	1½B and larger SUS316+HF*
Stem	SUS316+HF*
Disc	SCS14A+HF*
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing
Gasket	Flexible graphite spiral wound
Bonnet bolt	A320 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

#### Range

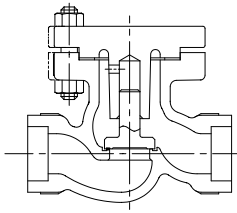
Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld	(T)SW600UPCLMY		●	●	●	●															
Butt-weld	(T)W600UPCLMY						●		■	■		■	■								
RF-flanged	600UPCLMY		●	●	●	●	●		■	■		■	■								

● : Handle operation ■ : Gear operation

## C series

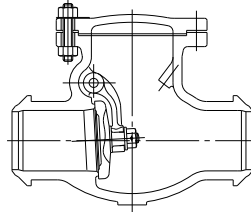
## Class 600 Stainless Steel Lift Check / Swing Check Valves

## Lift Check Valves



Socket-weld

## Swing Check Valves



Butt-weld

## Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-67 / ASME B16.25

## Materials

Name of parts	Materials
Body	SCS14A+HF*
Cover	SCS14A
Disc	SCS14A+HF*
Gasket	Flexible graphite spiral wound
Cover bolt	A320 Gr. B8 CL2
Cover nut	A194 Gr. 8

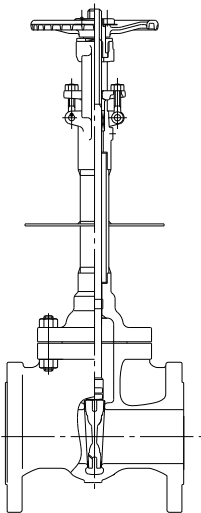
\*Co-Cr-W Alloy

## Range

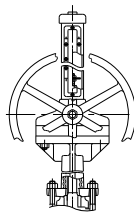
Nominal size	A	mm																		
		15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
Socket-weld (Lift check) (T)SW600UNCLMY	B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	
Butt-weld (Swing check) (T)W600UOCLMY						●		●	●			●	●	●	●					
RF-flanged (Swing check) 600UOCLMY		●	●	●	●	●		●	●			●	●	●	●					

## A series

## Class 150 Stainless Steel Gate Valves



RF-flanged



## Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Socket-weld JIS B2316

## Materials

Name of parts	Materials
Body	SCS14A+HF*
Bonnet	SCS14A
Stem	SUS304
Disc	SCS14A+HF*
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing
Gasket	Flexible graphite spiral wound
Bonnet bolt	A193 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

## Range

Nominal size	A	mm																		
		15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
RF-flanged 150UMALMY	B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	
		●	●	●	●	●	●	●	●	●	●	●	●	●	●	■				

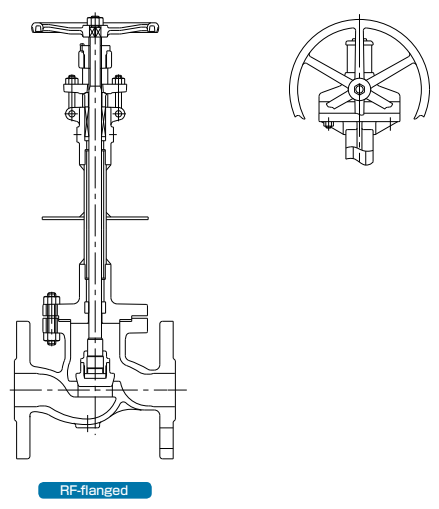
● : Handle operation ■ : Gear operation

**Class 150**

**A series**

**A series**

**Class 150 Stainless Steel Globe Valves**



**Design Specifications**

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Socket-weld JIS B2316

**Materials**

Name of parts	Materials
Body	SCS14A+HF*
Bonnet	SCS14A
Stem	SUS304
Disc	1½B and smaller SUS316+HF* 2B and larger SCS14A+HF*
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing
Gasket	Flexible graphite seat
Bonnet bolt	A193 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

**Range**

Nominal size	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
RF-flanged 150UPALMY		●	●	●	●	●	●	●	●	●	■	■								

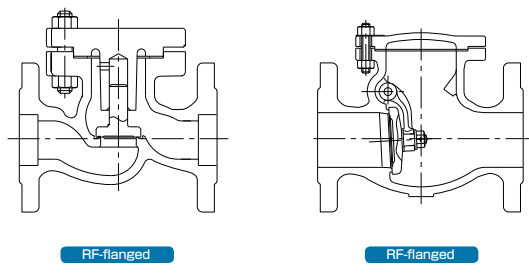
● : Handle operation ■ : Gear operation

**A series**

**Class 150 Stainless Steel Lift Check / Swing Check Valves**

**Lift Check Valves**

**Swing Check Valves**



**Design Specifications**

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Socket-weld JIS B2316

**Materials**

Name of parts	Materials
Body	SCS14A+HF*
Bonnet	SCS14A
Disc	Lift Check Valves: SUS316+HF* Swing Check Valves: SCS14A+HF*
Gasket	Flexible graphite seat
Cover bolt	A193 Gr. B8 CL2
Cover nut	A194 Gr. 8

\*Co-Cr-W Alloy

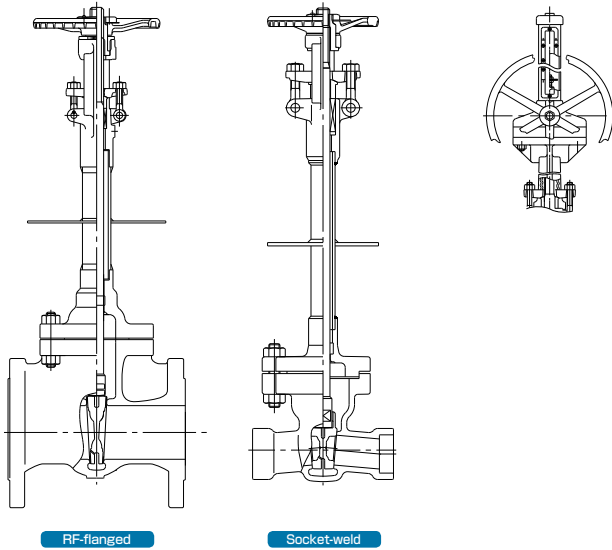
**Range**

Nominal size	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
RF-flanged (Lift check) 150UNALMY		●	●	●	●															
RF-flanged (Swing check) 150UOALMY					●	●	●	●	●	●	●	●	●	●	●	●				



## A series

## Class 300 Stainless Steel Gate Valves



## Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Socket-weld JIS B2316

## Materials

Name of parts	Materials
Body	SCS14A+HF*
Bonnet	SCS14A
Stem	SUS304
Disc	SCS14A+HF*
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing
Gasket	Flexible graphite spiral wound
Bonnet bolt	A193 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

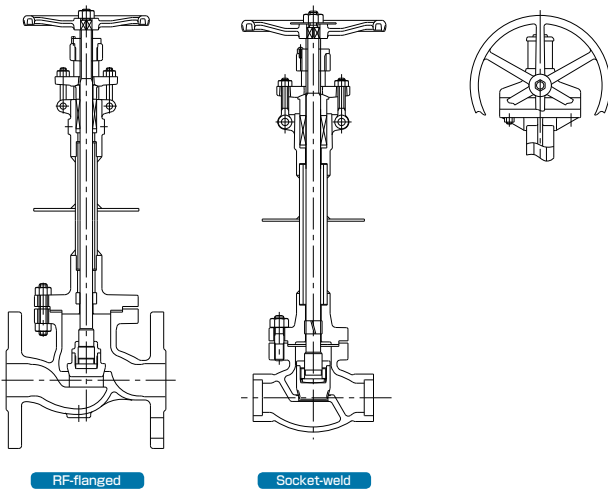
## Range

Nominal size		mm																			
		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld	SW300UMALMY		●	●	●	●															
RF-flanged	300UMALMY		●	●	●	●	●	●	●	●	●	●	●	●	●	■	■				

● : Handle operation ■ : Gear operation

## A series

## Class 300 Stainless Steel Globe Valves



## Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Socket-weld JIS B2316

## Materials

Name of parts	Materials
Body	SCS14A+HF*
Bonnet	SCS14A
Stem	SUS304
Disc	1½B and smaller SUS316+HF* 2B and larger SCS14A+HF*
Gland packing	Flexible graphite braided packing + Flexible graphite die mold packing
Gasket	Flexible graphite seat
Bonnet bolt	A193 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

## Range

Nominal size		mm																			
		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld	SW300UPALMY		●	●	●	●															
RF-flanged	300UPALMY		●	●	●	●	●	●	●	●	●	■	■								

● : Handle operation ■ : Gear operation

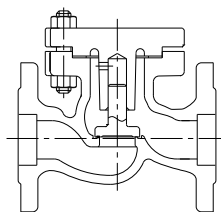
# Class 300 Stainless Steel Lift Check / Swing Check Valves

Lift Check Valves

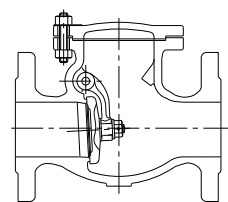
Swing Check Valves



Socket-weld



RF-flanged



RF-flanged

Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Socket-weld JIS B2316

Materials

Name of parts	Materials
Body	SCS14A+HF*
Bonnet	SCS14A
Disc	Lift Check Valves: SUS316+HF* Swing Check Valves: SCS14A+HF*
Gasket	Flexible graphite seat
Cover bolt	A193 Gr. B8 CL2
Cover nut	A194 Gr. 8

\*Co-Cr-W Alloy

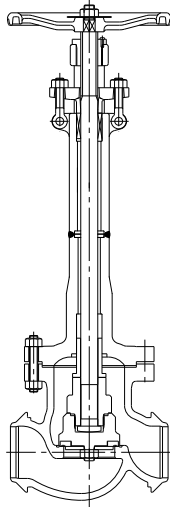
Range

Nominal size	A	B	mm																	
			15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Socket-weld (Lift check) SW300UNALMY			●	●	●	●														
RF-flanged (Lift check) 300UNALMY			●	●	●	●														
RF-flanged (Swing check) 300UOALMY						●	●	●	●	●	●	●	●	●	●	●				

Memo

A large grid of dotted lines for taking notes.

## Class 150 Stainless Steel Globe Valves (Soft-Seated)



### Design Specifications

Wall thickness	JPI-7S-46
Pressure-temperature ratings	ASME B16.34
Face to face dimensions	JPI-7S-67
End connection dimensions	JPI-7S-67

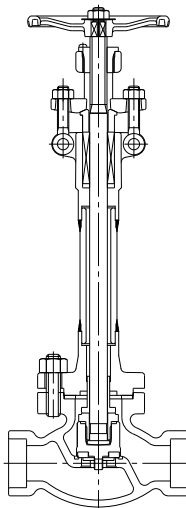
### Materials

Name of parts	Materials
Body	SCS13A
Bonnet	SCS13A
Stem	SUS304
Valve holding	SUS304 or SCS13A
Gland	SUS304
Gland packing	Flexible graphite cored PTFE braided packing + Flexible graphite die mold packing
Handle	FCD400
Gasket	Flexible graphite spiral wound
Bonnet bolt	A320 2Gr. B8
Bonnet nut	A194 Gr. 8

### Range C series

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	mm
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Butt-weld	W150UPDCL						●	●	●	●											

## Class 300 Stainless Steel Globe Valves (Soft-Seated)



### Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	ASME B16.34
Face to face dimensions	JPI-7S-36-96
End connection dimensions	JIS B 2316

### Materials

Name of parts	Materials
Body	SCS13A
Bonnet	SCS13A
Stem	SUS304
Valve holder	SUS304
Gland	SUS304
Gland packing	Flexible graphite cored PTFE braided packing + Flexible graphite die mold packing
Handle	FCD400
Gasket	Flexible graphite spiral wound
Bonnet bolt	A320 Gr. B8
Bonnet nut	A194 Gr. 8
seat	PCTFE

### Range A series

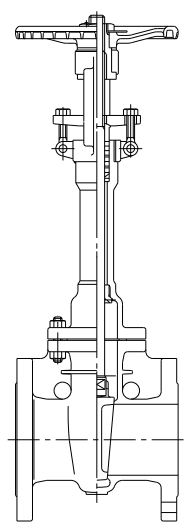
Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	mm
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld	SW300UPDAL		●	●	●	●	●														

Class 150

A series

A series

### Class 150 Stainless Steel Gate Valves



RF-flanged

#### Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-15 / ASME B16.5

#### Materials

Name of parts	Materials
Body	SCS13A+HF*
Bonnet	SCS13A
Stem	SUS304
Disc	SCS13A+HF*
Gland packing	Flexible graphite+PTFE braided
Handle	FCD400
Gasket	Ceramic PTFE
Bonnet bolt	A193 Gr. B8 CL2
Bonnet nut	A194 Gr. 8
York sleep	C6782BE

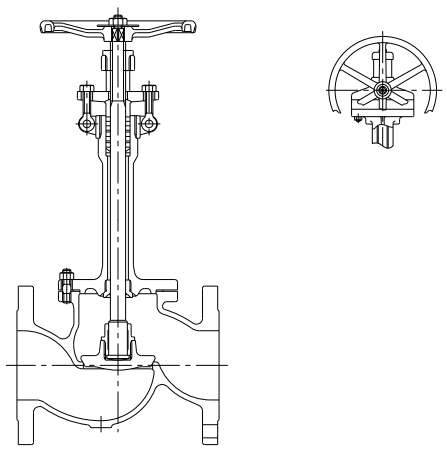
\*Co-Cr-W Alloy

#### Range

Nominal size	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24
RF-flanged	150UMAXY	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				

A series

### Class 150 Stainless Steel Globe Valves



RF-flanged

#### Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-15 / ASME B16.5

#### Materials

Name of parts	Materials
Body	SCS13A+HF*
Bonnet	SCS13A
Stem	SUS304
Disc	1 1/2B and smaller SUS304+HF* 2B and larger SCS13A+HF*
Gland packing	Flexible graphite+PTFE braided
Gasket	Ceramic PTFE
Bonnet bolt	A193 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

#### Range

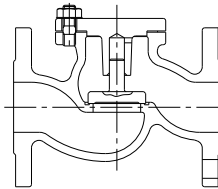
Nominal size	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
		B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20
RF-flanged	150UPAXY	●	●	●	●	●	●	●	●	●	■	■		■					

● : Handle operation ■ : Gear operation

## A series

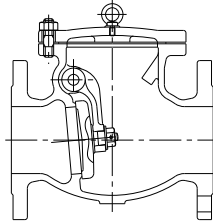
## Class 150 Stainless Steel Lift Check / Swing Check Valves

## Lift Check Valves



RF-flanged

## Swing Check Valves



RF-flanged

## Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-15 / ASME B16.5

## Materials

Name of parts	Materials
Body	SCS13A+HF*
Bonnet	SCS13A
Disc	Lift Check Valves: SUS304+HF* Swing Check Valves: SCS13A+HF*
Gasket	Ceramic PTFE
Cover bolt	A193 Gr. B8 CL2
Cover nut	A194 Gr. 8

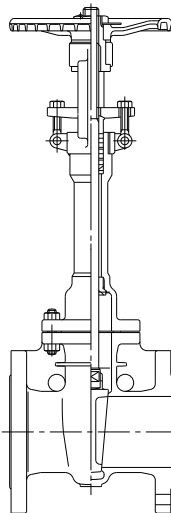
\*Co-Cr-W Alloy

## Range

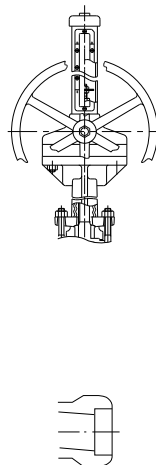
Nominal size		mm																		
		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
	B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	
RF-flanged (Lift check)	150UNAXY	●	●	●	●															
RF-flanged (Swing check)	150UOAXY				●	●	●	●	●	●	●	●	●	●	●	●				

## A series

## Class 300 Stainless Steel Gate Valves



RF-flanged



Socket-weld

## Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-15 / ASME B16.5

## Materials

Name of parts	Materials
Body	SCS13A+HF*
Bonnet	SCS13A
Stem	SUS304
Disc	SCS13A+HF*
Gland packing	Flexible graphite+PTFE braided
Handle	FCD400
Gasket	PTFE spiral wound
Bonnet bolt	A193 Gr. B8 CL2
Bonnet nut	A194 Gr. 8
York sleeve	C6782BE

\*Co-Cr-W Alloy

## Range

Nominal size		mm																		
		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
	B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld	SW300UMXY	●	●	●	●															
RF-flanged	300UMAXY	●	●	●	●	●	●	●	●	●	●	■	■	■	■	■				■

● : Handle operation ■ : Gear operation

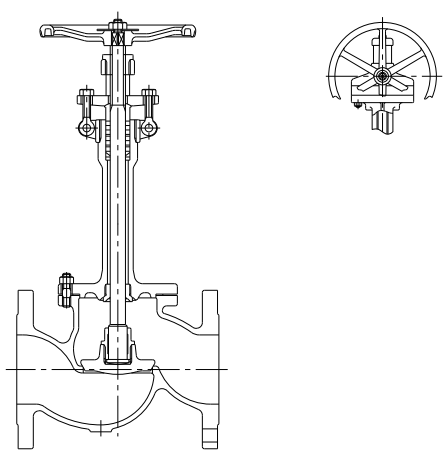


**Class 300**

**A series**

**A series**

**Class 300 Stainless Steel Globe Valves**



RF-flanged

**Design Specifications**

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-15 / ASME B16.5

**Materials**

Name of parts	Materials
Body	SCS13A+HF*
Bonnet	SCS13A
Stem	SUS304
Disc	1½B and smaller SUS304+HF* 2B and larger SCS13A+HF*
Gland packing	Flexible graphite+PTFE braided
Gasket	PTFE spiral wound
Bonnet bolt	A193 Gr. B8 CL2
Bonnet nut	A194 Gr. 8

\*Co-Cr-W Alloy

**Range**

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld	SW300UPXY		●	●	●	●															
RF-flanged	300UPAXY		●	●	●	●	●	●	●	●	●	●	■								

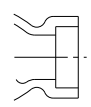
● : Handle operation ■ : Gear operation

**A series**

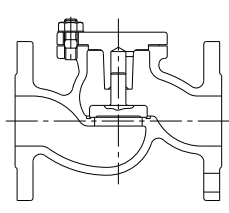
**Class 300 Stainless Steel Lift Check / Swing Check Valves**

**Lift Check Valves**

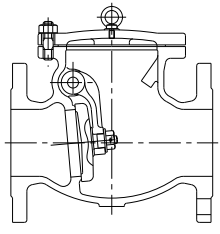
**Swing Check Valves**



Socket-weld



RF-flanged



RF-flanged

**Design Specifications**

Wall thickness	ASME B16.34
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	JPI-7S-15 / ASME B16.5

**Materials**

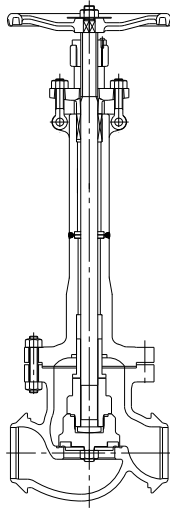
Name of parts	Materials
Body	SCS13A+HF*
Bonnet	SCS13A
Disc	Lift Check Valves: SUS304+HF* Swing Check Valves: SCS13A+HF*
Gasket	PTFE spiral wound
Cover bolt	A193 Gr. B8 CL2
Cover nut	A194 Gr. 8

\*Co-Cr-W Alloy

**Range**

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld (Lift check)	SW300UNXY		●	●	●	●															
RF-flanged (Lift check)	300UNAXY		●	●	●	●															
RF-flanged (Swing check)	300UOAXY					●	●	●	●	●	●	●	●	●	●	●	●				

## Class 150 Stainless Steel Globe Valves (Soft-Seated)



### Design Specifications

Wall thickness	JPI-7S-46
Pressure-temperature ratings	ASME B16.34
Face to face dimensions	JPI-7S-67
End connection dimensions	JPI-7S-67

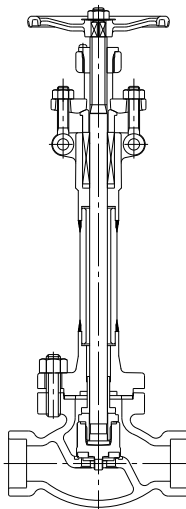
### Materials

Name of parts	Materials
Body	SCS13A
Bonnet	SCS13A
Stem	SUS304
Valve holding	SUS304 or SCS13A
Gland	SUS304
Gland packing	Flexible graphite cored PTFE braided packing + Flexible graphite die mold packing
Handle	FCD400
Gasket	Flexible graphite spiral wound
Bonnet bolt	A320 2Gr. B8
Bonnet nut	A194 Gr. 8

### Range C series

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	mm
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Butt-weld	W150UPDCX						●	●	●	●											

## Class 300 Stainless Steel Globe Valves (Soft-Seated)



### Design Specifications

Wall thickness	ASME B16.34
Pressure-temperature ratings	ASME B16.34
Face to face dimensions	JPI-7S-36-96
End connection dimensions	JIS B 2316

### Materials

Name of parts	Materials
Body	SCS13A
Bonnet	SCS13A
Stem	SUS304
Valve holding	SUS304
Gland	SUS304
Gland packing	Flexible graphite cored PTFE braided packing + Flexible graphite die mold packing
Handle	FCD400
Gasket	Flexible graphite spiral wound
Bonnet bolt	A320 Gr. B8
Bonnet nut	A194 Gr. 8
Seat	PCTFE

### Range A series

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	mm
		B	½	¾	1	1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	
Socket-weld	SW300UPDX		●	●	●	●	●														

Cast Carbon steel / Low alloy for low-temperature Valves

Body / Bonnet		Trim Materials *1				Bonnet bolt / Nut *1		Operating temperature *2	
Material	Code	Body seat	Disc seat	Stem	Bonnet bush	Bolt	Nut	Min	Max
SCPL1 (LCB)	BL	SUS304	SUS304 or 308	SUS304	SUS316	— (Gr. L7)	— (Gr. 4)	350°C (343°C)	-45°C (-46°C)
— (LCC)	CL							343°C	— (-46°C)
SCPL11 (LC1)	1L							350°C (343°C)	-60°C (-59°C)
SCPL21 (LC2)	2L							200°C (343°C)	-80°C (-73°C)
SCPL31 (LC3)	3L							200°C (343°C)	-100°C (-101°C)

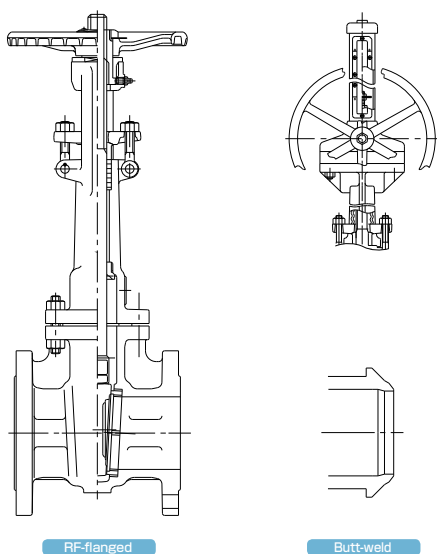
The materials in parentheses indicate the material standards from ASTM standard.

The figures in parentheses indicate temperature from ASTM standard.

\*1 : The trim material and bonnet bolt/nut material shown is a representative example. The appropriate material will be selected according to the temperature.

\*2 : The usage temperature is the temperature for the body/bonnet material ; and the temperature for the valve (with consideration for the bonnet shape) will be selected separately.

Class 150 / 300 / 600 Cast Carbon Steel / Low Alloy Gate Valves



Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Butt-weld JPI-7S-67 / ASME B16.25

Materials

Name of parts	Materials
Body	※
Bonnet	※
Stem	SUS304
Disc	4B and smaller SUS304+HF* 6B and larger ※
Gland packing	Flexible graphite
Gasket	Flexible graphite spiral wound
Body seat ring (2B and larger)	SUS304+HF*
Bonnet bolt	A320 Gr. L7
Bonnet nut	A194 Gr. 8

※ The minimum working temperatures are dependent on the material. (See table above.)

Class150: Flexible graphite seat spiral wound

Class300: Flexible graphite seat spiral wound

Class600: Soft iron

\*Co-Cr-W Alloy

Range

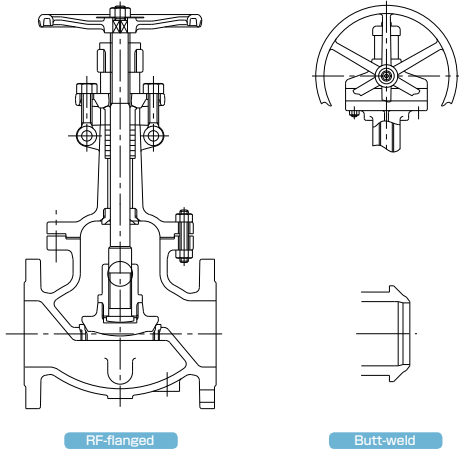
Nominal size	A	B	mm																	
			15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Butt-weld	W150SCLSXBLE					●	●	●	●	●	●	●	●	●	●	●	●	■	■	■
RF-flanged	150SCLSXBLE				●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■
Butt-weld	W300SCLSXBLE					●	●	●	●	●	●	●	■	■	■	■	■	■	■	■
RF-flanged	300SCLSXBLE					●	●	●	●	●	●	●	■	■	■	■	■	■	■	■
Butt-weld	W600SCLSXBLE					●	●	●	●	●	●	■	■	■	■	■	■			
RF-flanged	600SCLSXBLE					●	●	●	●	●	●	■	■	■	■	■				

● : Handle operation ■ : Gear operation

Memo

Grid area for notes.

### Class 150 / 300 / 600 Cast Carbon Steel / Low Alloy Globe Valves



#### Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Butt-weld JPI-7S-67 / ASME B16.25

#### Materials

Name of parts	Materials
Body	※
Bonnet	※
Stem	SUS304
Disc	4B and smaller SUS304+HF* 6B and larger ※
Gland packing	Flexible graphite
Gasket	Flexible graphite spiral wound
Body seat ring (2B and larger)	SUS304+HF*
Bonnet bolt	A320 Gr. L7
Bonnet nut	A194 Gr. 8

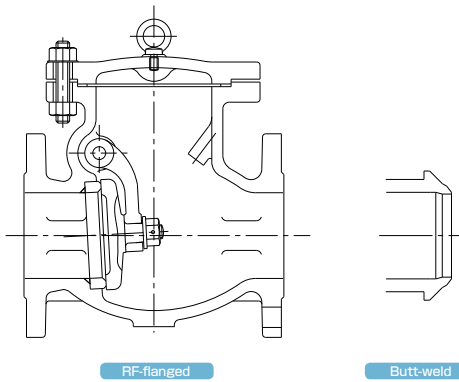
※ The minimum working temperatures are dependent on the material. (See page 25.)  
 Class150: Flexible graphite seat    Class300: Flexible graphite seat  
 Class600: Soft iron  
 \*Co-Cr-W Alloy

#### Range

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	
Butt-weld	W150SCJSXBLY						●	●	●	●		●	●		■						
RF-flanged	150SCJSXBLY						●	●	●	●		●	●		■						
Butt-weld	W300SCJSXBLY						●	●	●	●		■	■								
RF-flanged	300SCJSXBLY						●	●	●	●		■	■								
Butt-weld	W600SCJSXBLY						●	●	●	■		■	■	■							
RF-flanged	600SCJSXBLY						●	●	●	■		■	■	■							

● : Handle operation    ■ : Gear operation

### Class 150 / 300 / 600 Cast Carbon Steel / Low Alloy Swing Check Valves



#### Design Specifications

Wall thickness	JPI-7S-46 / API600
Pressure-temperature ratings	JPI-7S-65 / ASME B16.34
Face to face dimensions	JPI-7S-67 / ASME B16.10
End connection dimensions	RF-flanged JPI-7S-15 / ASME B16.5 Butt-weld JPI-7S-67 / ASME B16.25

#### Materials

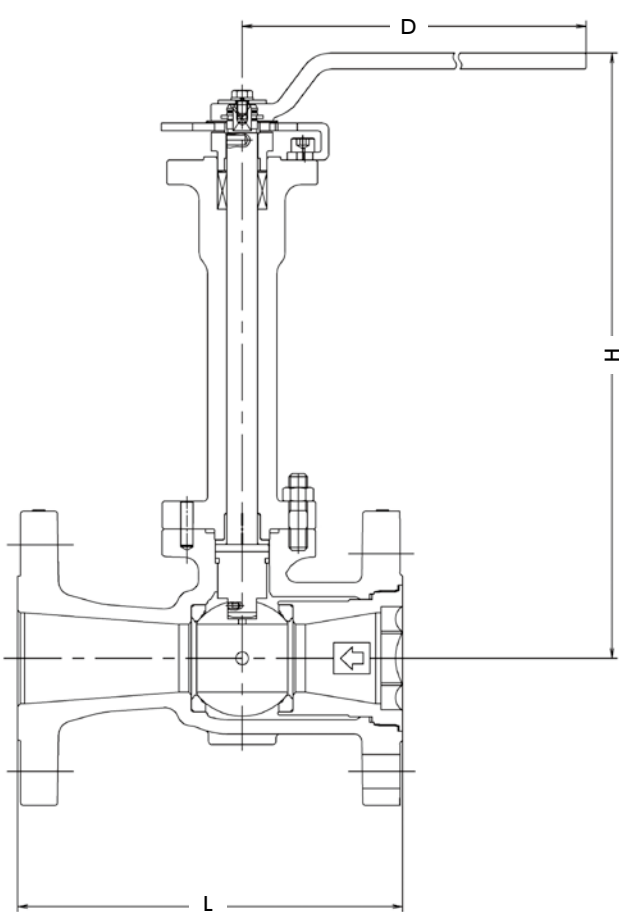
Name of parts	Materials
Body	※
Cover	※
Disc	4B and smaller SUS304+HF* 6B and larger ※
Gasket	Flexible graphite spiral wound
Body seat ring (2B and larger)	SUS304+HF*
Bonnet bolt	A320 Gr. L7
Bonnet nut	A194 Gr. 8

※ The minimum working temperatures are dependent on the material. (See page 25.)  
 Class150: Flexible graphite seat    Class300: Flexible graphite seat  
 Class600: Soft iron  
 \*Co-Cr-W Alloy

#### Range

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	
		B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	
Butt-weld	W150SCOSXBLY						●	●	●	●		●	●	●	●	●	●	●	●	●	●
RF-flanged	150SCOSXBLY						●	●	●	●		●	●	●	●	●	●	●	●	●	●
Butt-weld	W300SCOSXBLY						●	●	●	●		●	●	●	●	●	●	●	●	●	●
RF-flanged	300SCOSXBLY						●	●	●	●		●	●	●	●	●	●	●	●	●	●
Butt-weld	W600SCOSXBLY						●	●	●	●		●	●	●	●	●	●	●	●	●	●
RF-flanged	600SCOSXBLY						●	●	●	●		●	●	●	●	●	●	●	●	●	●

Class 150 / 300 Stainless Steel Floating Ball Design, Reduced Bore



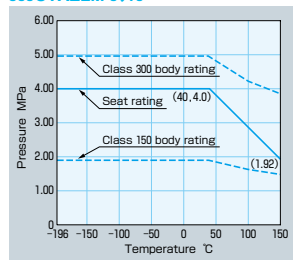
Design Specifications

Wall thickness	ASME B16.34
Face to face dimensions	ASME B16.10
Flange specifications	ASME B16.5

Materials

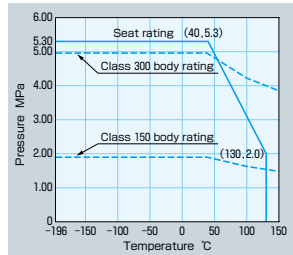
Name of parts	Materials
Body	SCS14A
Bonnet	SUS316
Insert	SCS14A
Stem	SUS660
Seat spring	SUS304CSP (Size 3B and larger)
Ball	SCS14A
Gland	SCS14A
Gland packing	Flexible graphite
Ball seat (Insert side)	HYPATITE PTFE
Ball seat (Body side)	HYPATITE PTFE
	PCTFE (Size 2B and Smaller)
Handle	FCD450-10
Gasket	Flexible graphite
	PTFE
Bonnet bolt	A320 Gr. B8M
Bonnet nut	A194 Gr. 8M

150UTAZLM 8, 10  
300UTAZLM 8, 10

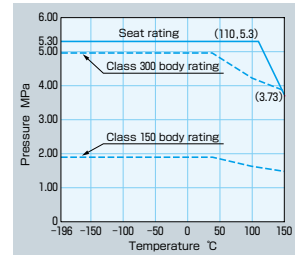


● Pressure-Temperature Rating (Seat Rating)

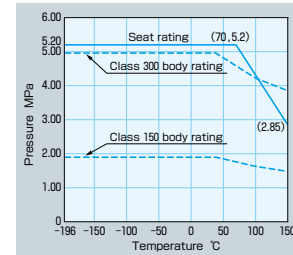
150UTAZLM 1/2 to 1 1/2  
300UTAZLM 1/2 to 1 1/2



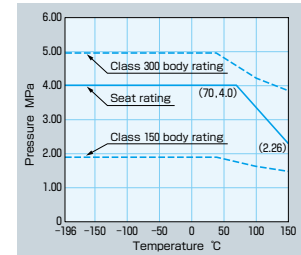
150UTAZLM 2, 2 1/2  
300UTAZLM 2, 2 1/2



150UTAZLM 3, 4  
300UTAZLM 3, 4



150UTAZLM 6  
300UTAZLM 6



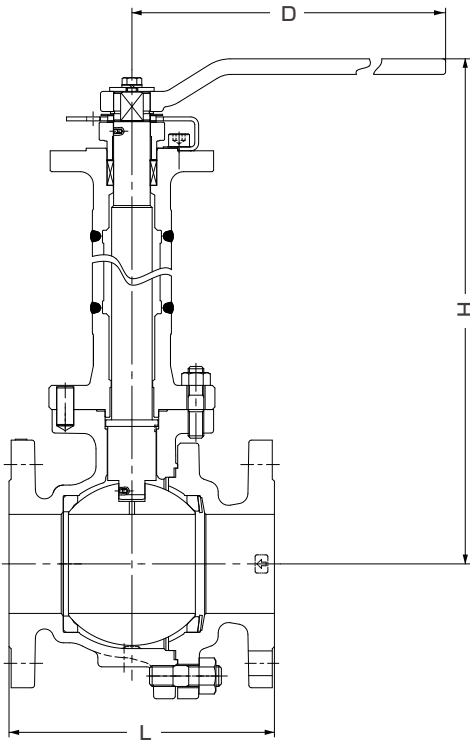
Range

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	mm	
		B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16		
Class 150	RF-flanged	150UTAZLM	L (flanged)	108	117	127	165	178	—	203	229	—	267	292	330	—	—	—	
			H	307	309	331.7	405	421	—	549.6	565.6	—	※	※	※	—	—	—	
			D	130	130	130	160	230	—	700	700	—	※	※	※	—	—	—	
Class 300	RF-flanged	300UTAZLM	L (flanged)	140	152	165	190	216	—	283	229	—	267	292	330	—	—	—	
			H	307	309	331.7	405	421	—	549.6	※	—	※	※	※	—	—	—	
			D	130	130	130	160	400	—	700	※	—	※	※	※	—	—	—	

※ Gear operation only. Please contact KITZ Corporation for details.



10K / 20K Class 150 / 300 Stainless Steel Floating Ball Design, Full Bore



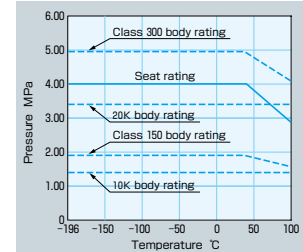
Design Specifications

Wall thickness	ASME B16.34
Face to face dimensions	ASME B16.10
Flange specifications	JIS B 2220 (10K / 20K) ASME B16.5 (150 / 300)

Materials

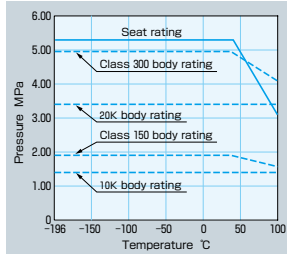
Name of parts	Materials
Body	SCS13A
Body cap	SCS13A
Bonnet	SUS304
Stem	SUS304
Seat spring	SUS304CSP (Size 2B and larger)
Ball	SUS304 or SCS13A
Ball seat A	HYPATITE PTFE
Ball seat B	HYPATITE PTFE PCTFE (Size 1 1/2 B and smaller)
Gasket	Flexible graphite spiral wound Flexible graphite seat
Bonnet bolt	SUS304 (B8)
Bonnet nut	SUS304 (8)
Gland packing	Flexible graphite die mold packing

10UTDZL 200, 250 150UTDZL 8, 10  
20UTDZL 200 300UTDZL 8

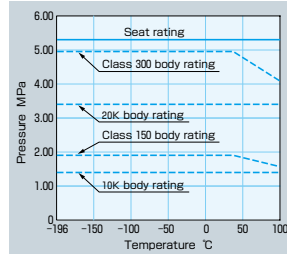


● Pressure-Temperature Rating (Seat Rating)

10UTDZL 15 to 40 150UTDZL 1/2 to 1 1/2  
20UTDZL 15 to 40 300UTDZL 1/2 to 1 1/2



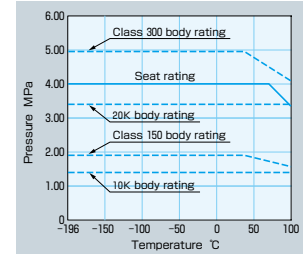
10UTDZL 50, 65 150UTDZL 2, 2 1/2  
20UTDZL 50, 65 300UTDZL 2, 2 1/2



10UTDZL 80, 100 150UTDZL 3, 4  
20UTDZL 80, 100 300UTDZL 3, 4



10UTDZL 125, 150 150UTDZL 5, 6  
20UTDZL 125, 150 300UTDZL 5, 6

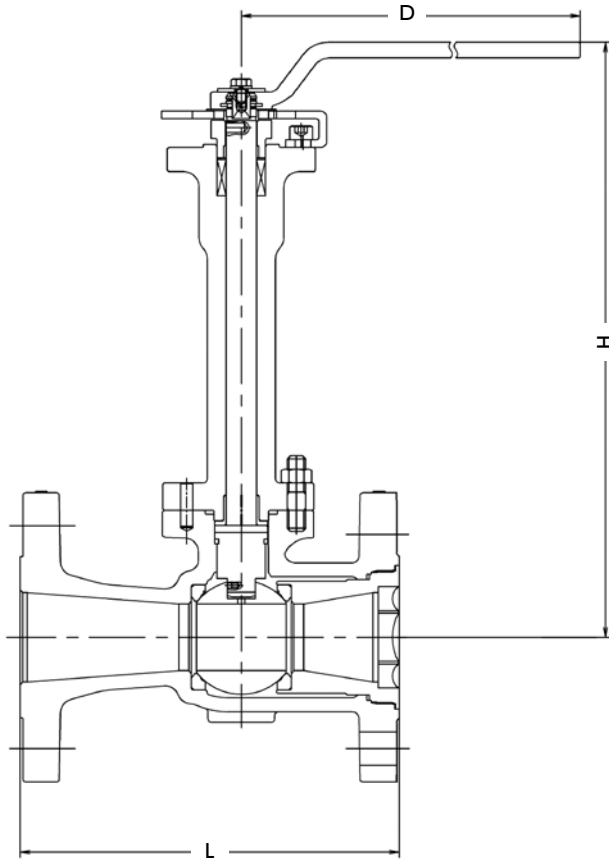


Range

Nominal size			A	mm															
				B	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
10K	RF-flanged	10UTDZL	L (flanged)	108	117	127	140	165	178	190	203	229	356	394	457	533	—	—	—
			H (full open)	330	333	354	358	421	430	526	536	619	635	758	841	937	—	—	—
			D	130	130	160	160	230	230	400	400	*	*	*	*	*	—	—	—
20K	RF-flanged	20UTDZL	L (flanged)	140	152	165	178	190	216	241	283	305	381	403	502	—	—	—	—
			H (full open)	330	333	354	358	421	435	557	557	619	663	755	849	—	—	—	—
			D	130	130	160	160	230	300	600	*	*	*	*	*	—	—	—	—
Class 150	RF-flanged	150UTDZL	L (flanged)	108	117	127	140	165	178	190	203	229	356	394	457	533	—	—	—
			H (full open)	330	333	354	358	421	430	526	536	619	635	758	849	937	—	—	—
			D	130	130	160	160	230	230	400	400	*	*	*	*	*	—	—	—
Class 300	RF-flanged	300UTDZL	L (flanged)	140	152	165	—	190	216	241	283	305	—	403	502	—	—	—	—
			H (full open)	330	333	354	—	421	435	557	557	619	—	755	849	—	—	—	—
			D	130	130	160	—	230	300	600	*	*	—	*	*	*	—	—	—

\* Gear operation only. Please contact KITZ Corporation for details.

Class 150 / 300 Stainless Steel Floating Ball Design, Reduced Bore



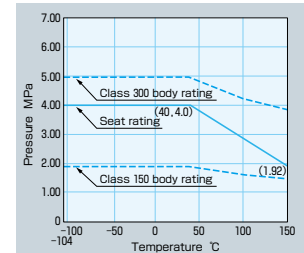
Design Specifications

Wall thickness	ASME B16.34
Face to face dimensions	ASME B16.10
Flange specifications	ASME B16.5

Materials

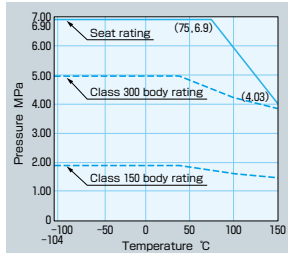
Name of parts	Materials
Body	SCS14A
Bonnet	SCS14A
Insert	SCS14A
Stem	SUS316 / XM-19HS
Ball	SCS14A
Gland	SCS14A
Gland packing	Flexible graphite
Ball seat	HYPATITE PTFE
Handle	FCD450-10
Gasket	Flexible graphite seat PTFE
Bonnet bolt	A320 Gr. B8M
Bonnet nut	A194 Gr. 8M

150UTAZXLM 8, 10  
300UTAZXLM 8, 10

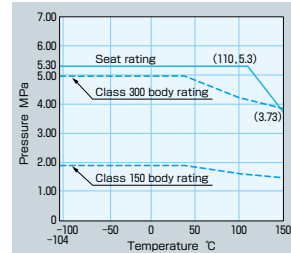


● Pressure-Temperature Rating (Seat Rating)

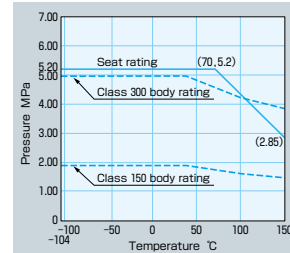
150UTAZXLM 1/8, 3/4  
300UTAZXLM 1/8, 3/4



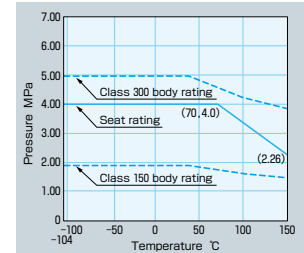
150UTAZXLM 1 to 2  
300UTAZXLM 1 to 2



150UTAZXLM 3, 4  
300UTAZXLM 3, 4



150UTAZXLM 6  
300UTAZXLM 6

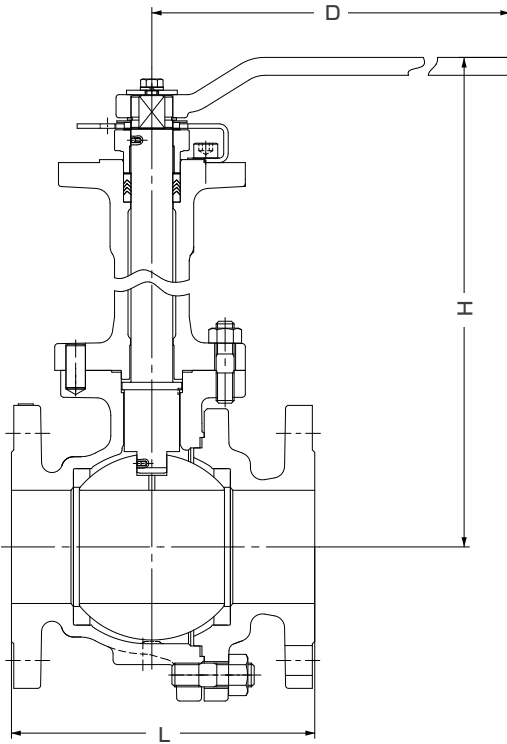


Range

Nominal size				mm															
Class	Type	Model	A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	
				B	1/8	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16
Class 150	RF-flanged	150UTAZXLM	L (flanged)	108	117	127	165	178	—	203	229	—	267	292	330	—	—	—	
			H	213	215	230	280	300	—	366	413	—	※	※	※	—	—	—	
			D	130	130	130	160	230	—	400	700	—	※	※	※	—	—	—	
Class 300	RF-flanged	300UTAZXLM	L (flanged)	140	152	165	190	216	—	283	305	—	403	419	457	—	—	—	
			H	213	215	230	280	300	—	396	413	—	※	※	※	—	—	—	
			D	130	130	130	160	230	—	700	750	—	※	※	※	—	—	—	

※ Gear operation only. Please contact KITZ Corporation for details.

10K / 20K Class 150 / 300 Stainless Steel Floating Ball Design, Full Bore



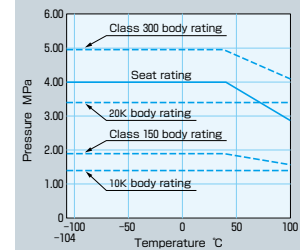
Design Specifications

Wall thickness	ASME B16.34
Face to face dimensions	ASME B16.10
Flange specifications	JIS B 2220 (10K / 20K) ASME B16.5 (150 / 300)

Materials

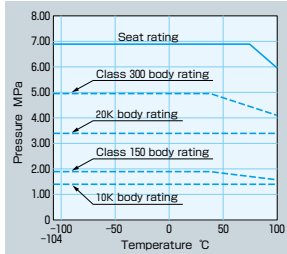
Name of parts	Materials
Body	SCS13A
Body cap	SCS13A
Bonnet	SCS13A
Stem	SUS304
Ball	SUS304 or SCS13A
Ball seat	HYPATITE PTFE
Gasket	Ceramic PTFE Flexible graphite spiral wound
Bonnet bolt	SUS304(B8)
Bonnet nut	SUS304(B)
Gland packing	PTFE

10UTDZXL 200, 250 150UTDZXL 8, 10  
20UTDZXL 200 300UTDZXL 8

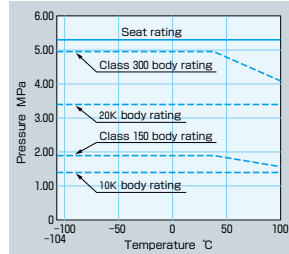


● Pressure-Temperature Rating (Seat Rating)

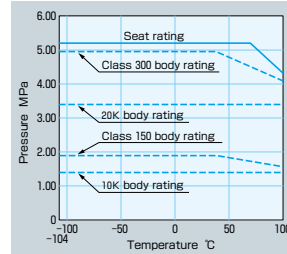
10UTDZXL 15 to 20 150UTDZXL 1/2 to 3/4  
20UTDZXL 15 to 20 300UTDZXL 1/2 to 3/4



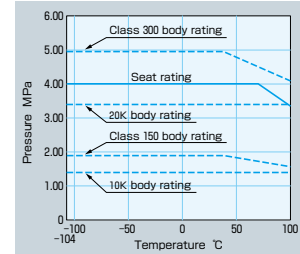
10UTDZXL 25 to 65 150UTDZXL 1 to 2 1/2  
20UTDZXL 25 to 65 300UTDZXL 1 to 2 1/2



10UTDZXL 80, 100 150UTDZXL 3, 4  
20UTDZXL 80, 100 300UTDZXL 3, 4



10UTDZXL 125, 150 150UTDZXL 5, 6  
20UTDZXL 125, 150 300UTDZXL 5, 6



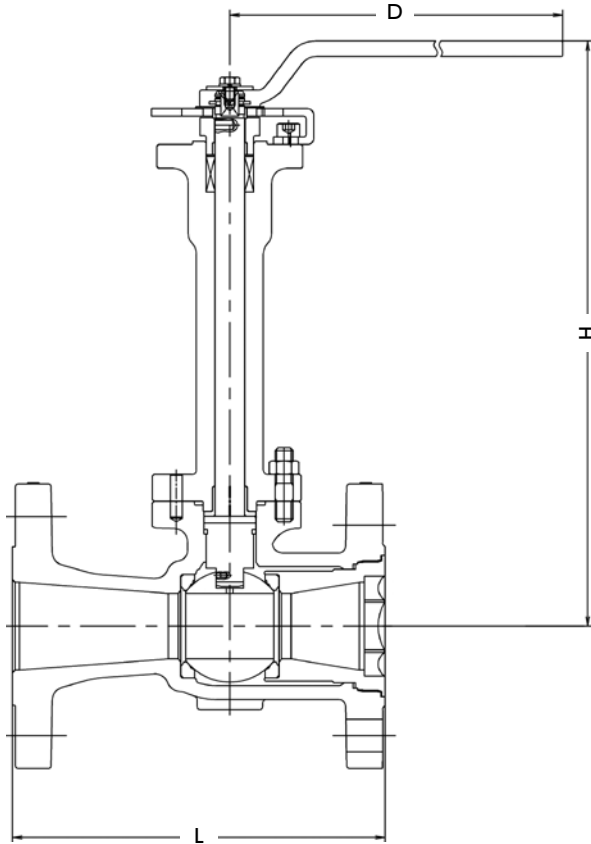
Range

Nominal size			mm																
			A	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
			B	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16
10K	RF-flanged	10UTDZXL	L (flanged)	108	117	127	140	165	178	190	203	229	356	394	457	533	—	—	—
			H (full open)	228	231	268	272	300	309	373	383	458	482	572	677	724	—	—	—
			D	130	130	160	160	230	230	400	400	750	*	*	*	*	—	—	—
20K	RF-flanged	20UTDZXL	L (flanged)	140	152	165	178	190	216	241	283	305	381	403	502	—	—	—	—
			H (full open)	228	231	268	272	300	309	373	383	466	510	569	685	—	—	—	—
			D	130	130	160	160	230	230	400	400	*	*	*	*	—	—	—	—
Class 150	RF-flanged	150UTDZXL	L (flanged)	108	117	127	140	165	178	190	203	229	356	394	457	533	—	—	—
			H (full open)	228	231	268	272	300	309	373	383	458	482	572	685	724	—	—	—
			D	130	130	160	160	230	230	400	400	750	*	*	*	*	—	—	—
Class 300	RF-flanged	300UTDZXL	L (flanged)	140	152	165	—	190	216	241	283	305	—	403	502	—	—	—	—
			H (full open)	228	231	268	—	300	309	373	383	466	—	569	685	—	—	—	—
			D	130	130	160	—	230	230	400	400	*	—	*	*	*	—	—	—

\* Gear operation only. Please contact KITZ Corporation for details.



## Class 150 / 300 Cast Carbon Steel Floating Ball Design, Reduced Bore



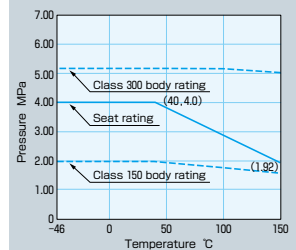
### Design Specifications

Wall thickness	ASME B16.34
Face to face dimensions	ASME B16.10
Flange	ASME B16.5

### Materials

Name of parts	Materials
Body	LCC
Bonnet	LF2
Insert	LCC
Stem	SUS316
Ball	SCS14A
Gland packing	Flexible graphite
Ball seat	HYPATITE PTFE
Handle	FCD450-10
Gasket	Flexible graphite PTFE
Bonnet bolt	A320 Gr. L7M
Bonnet nut	A194 Gr. 7M

150SCTAZXCL 8, 10  
300SCTAZXCL 8, 10



### Pressure-Temperature Rating (Seat Rating)

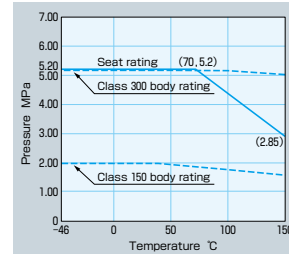
150SCTAZXCL 1/2, 3/4  
300SCTAZXCL 1/2, 3/4



150SCTAZXCL 1 to 2  
300SCTAZXCL 1 to 2



150SCTAZXCL 3, 4  
300SCTAZXCL 3, 4



150SCTAZXCL 6  
300SCTAZXCL 6

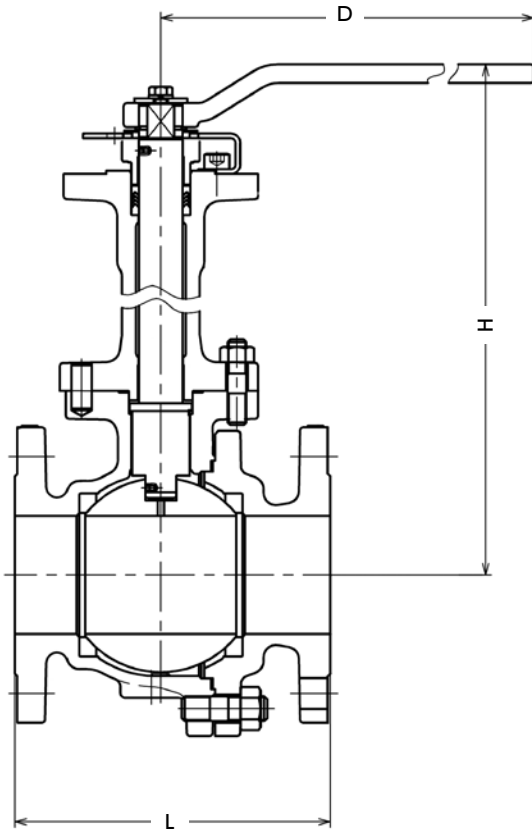


### Range

Nominal size		A	mm															
			15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	
		B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	
Class 150	RF-flanged	150SCTAZXCL	L (flanged)	108	117	127	165	178	—	203	229	—	267	292	330	—	—	—
			H (full open)	213	215	230	270	298	—	366	383	—	※	※	※	—	—	—
			D	130	130	130	160	230	—	400	400	—	※	※	※	—	—	—
Class 300	RF-flanged	300SCTAZXCL	L (flanged)	140	152	165	190	216	—	283	305	—	403	419	457	—	—	—
			H (full open)	213	215	230	270	298	—	396	413	—	※	※	※	—	—	—
			D	130	130	130	160	230	—	700	700	—	※	※	※	—	—	—

※ Gear operation only. Please contact KITZ Corporation for details.

# Class 150 / 300 Cast Carbon Steel Floating Ball Design, Full Bore



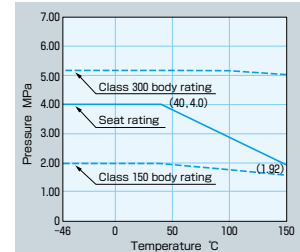
### Design Specifications

Wall thickness	ASME B16.34
Face to face dimensions	ASME B16.10
Flange	ASME B16.5

### Materials

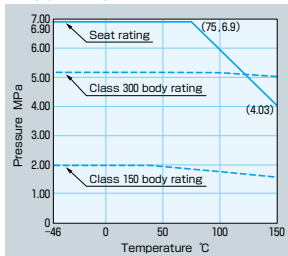
Name of parts	Materials
Body	LCC
Body cap	LCC
Bonnet	A350 Gr. LF2
Stem	SUS316 / XM-19HS
Ball	SUS316·SCS14A
Ball seat	HYPATITE PTFE
Gasket	Flexible graphite spiral wound Flexible graphite
Bonnet bolt	A320 Gr. L7M
Bonnet nut	A194 Gr. 7M
Gland packing	Flexible graphite

150SCTDZXCL 8, 10  
300SCTDZXCL 8, 10

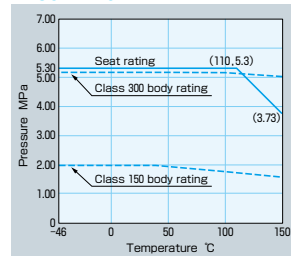


### Pressure-Temperature Rating (Seat Rating)

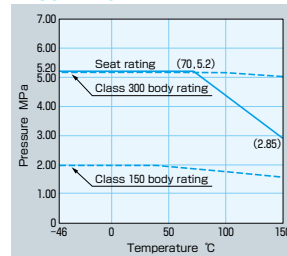
150SCTDZXCL 1/2, 3/4  
300SCTDZXCL 1/2, 3/4



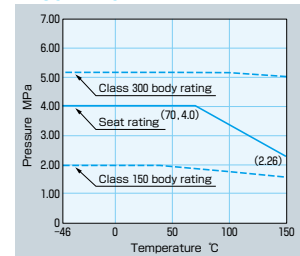
150SCTDZXCL 1 to 2  
300SCTDZXCL 1 to 2



150SCTDZXCL 3, 4  
300SCTDZXCL 3, 4



150SCTDZXCL 6  
300SCTDZXCL 6



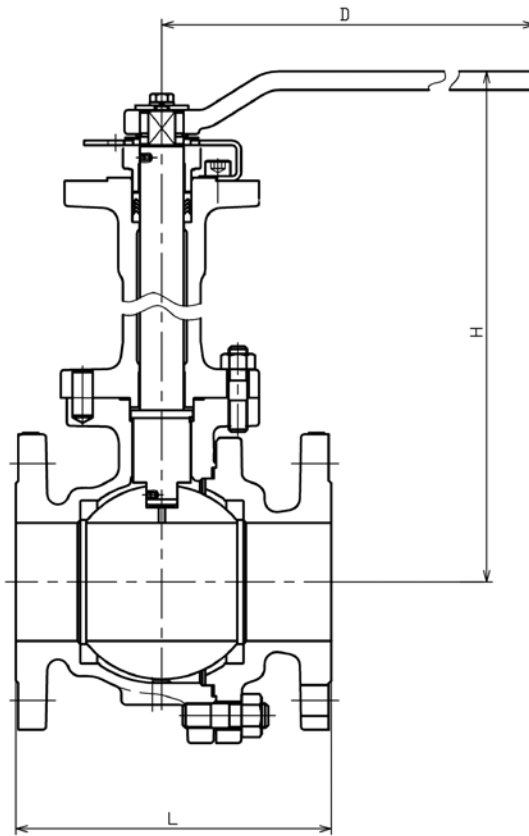
### Range

Nominal size			mm															
			A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400
Class 150	RF-flanged	150SCTDZXCL	B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16
			L (flanged)	108	117	127	165	178	—	203	229	—	394	457	533	—	—	—
			H (full open)	228	231	268	300	309	—	383	458	—	※	※	※	—	—	—
Class 300	RF-flanged	300SCTDZXCL	B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16
			L (flanged)	140	152	165	190	216	—	283	305	—	403	502	—	—	—	—
			H (full open)	228	231	268	300	309	—	383	※	—	※	※	—	—	—	—
			D	130	130	160	230	230	—	400	750	—	※	※	※	—	—	—

※ Gear operation only. Please contact KITZ Corporation for details.



## Class 150 / 300 Cast Carbon Steel Floating Ball Design, Full Bore



### Design Specifications

Wall thickness	ASME B16.34
Face to face dimensions	ASME B16.10
Flange	ASME B16.5

### Materials

Name of parts	Materials
Body	LCB
Body cap	LCB
Bonnet	A350 Gr. LF2
Stem	SUS316 / XM-19HS
Ball	SUS316-SCS14A
Ball seat	HYPATITE PTFE
Gasket	Flexible graphite spiral wound Flexible graphite
Bonnet bolt	A320 Gr. L7M
Bonnet nut	A194 Gr. 7M
Gland packing	Flexible graphite

150SCTDZXBL 8, 10  
300SCTDZXBL 8, 10

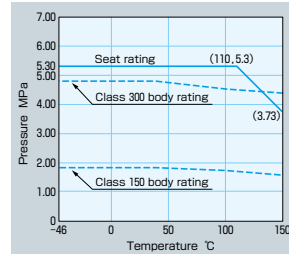


### Pressure-Temperature Rating (Seat Rating)

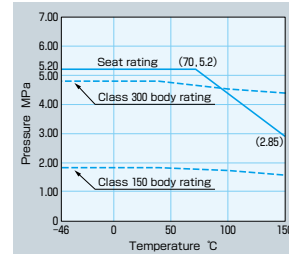
150SCTDZXBL 1/2, 3/4  
300SCTDZXBL 1/2, 3/4



150SCTDZXBL 1 to 2  
300SCTDZXBL 1 to 2



150SCTDZXBL 3, 4  
300SCTDZXBL 3, 4



150SCTDZXBL 6  
300SCTDZXBL 6



### Range

Nominal size		A	15	20	25	40	50	65	80	100	125	150	200	250	300	350	400	
		B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	
Class 150	RF-flanged	150SCTDZXBL	L (flanged)	108	117	127	165	178	—	203	229	—	394	457	533	—	—	—
			H (full open)	228	231	268	300	309	—	383	458	—	※	※	※	—	—	—
			D	130	130	160	230	230	—	400	750	—	※	※	※	—	—	—
Class 300	RF-flanged	300SCTDZXBL	L (flanged)	140	152	165	190	216	—	283	305	—	403	502	—	—	—	—
			H (full open)	228	231	268	300	309	—	383	※	—	※	※	—	—	—	—
			D	130	130	160	230	400	—	700	※	—	※	※	—	—	—	—

※ Gear operation only. Please contact KITZ Corporation for details.

## ● Considerations when selecting a product

- The products described in this catalog are designed and produced specifically for low temperatures. Please have the person deciding on the design and specifications of the equipment and facilities determine the suitability of these valves.
- The range of usage of the products described in this catalog is based on official standards and specifications, and our internal company standards. Please confirm each product's specifications and fluid, temperature, and pressure usage conditions when selecting the appropriate product.
- When using our products in an environment in which there are legal restrictions, or voluntary specifications for standards and regulations of use have been established, please select the appropriate product after confirming all regulations and restrictions.
- Please ensure all necessary safety precautions are carried out (after confirming them with our company) when using our products in association with nuclear power, railways, aircraft, vehicles, ships, medical equipment, food processing equipment, safety equipment, and amusement park machinery.
- Our products use fluorine resin and rubber are not designed and manufactured for use in transplants into the human body or for use in medical equipment that will come into contact with bodily fluids or biological tissue. Usage for such purposes is not possible.
- The corrosion resistance of different materials used in the composition of these products can be different. Please select a product after confirming the required corrosion resistance under the conditions of usage for each material (fluid, temperature, and pressure).
- Even when used within the pressure and temperature standards for usage of the product, please confirm suitability with us when usage is close to the limitations or when used with frequent opening and closing for prolonged periods.
- Be sure to confirm with us when using these devices in a corrosive environment. Precautions must be taken when handling these products.
- Our product has oil and grease coated on the inside, outside, sliding areas, and areas contacting with fluids to prevent rust and to increase lubrication. When safety, hygiene, and functional problems arise because of oil or grease spillage, please take appropriate measures such as washing.
- Removal of foreign matter is not part of the design of our products. If the product is to be used for equipment processing beverages, food, etc., please take the appropriate measures to remove any foreign matter.
- Please use gate valves in either the completely open or the completely closed position. Using the valve partially open or closed may damage the valve or the surface of the valve seat.
- Swing check valves can be used for horizontal and vertical piping. However, the upward fluid flow is limited when used in vertical piping. Lift check valves cannot be used for vertical piping.
- Ball valves must be used in the fully open or fully closed positions. The ball seats may become deformed if the valve is not in the fully open or fully closed position during use.
- When in operation, the check valve may generate noise caused by chattering and water hammer. Please take these phenomena into consideration in the design of your pipe layout for prevention of chattering and water hammer when selecting the appropriate size of valve.
- If our product is to be exported, it is necessary to acquire export permission from the Ministry of Economy, Trade and Industry, in accordance with regulations of the Export Trade Control Ordinance for foreign currency exchange and Foreign Trade Law. Please consult our company if you require additional information.
- The figures in this catalog show representative sizes. Please access our company homepage to submit a request if detailed illustrations of the selected product are required. (Our company homepages: [www.kitz.com](http://www.kitz.com))

## ● Precautions when handling products

- Precautions when handling products introduced in this catalog are not described in the catalog. Make sure to obtain the applicable instruction manual for the product and observe the warnings and precautions to ensure correct, safe use of the product.

### Liability Disclaimer

Our company does not assume any responsibility for damage caused by natural disasters, acts by third parties, other accidents, deliberate damage by customers, misuse, usage under abnormal conditions, or other conditions outside our responsibility. Our company does not assume any responsibility for damage when the purchaser of our product does not observe the restrictions described in the catalog,

instruction manual included with the product, or any damage caused by usage outside the specifications, either during installation or during use of the product. Our company does not assume any responsibility for damage caused by modifications to the product that are done by a company other than our own, including damage caused to other equipment.



## CAUTION

Pressure-temperature ratings and other performance data published in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers and/or published official standards or specifications. They are good only to cover typical applications as a general guideline to users of KITZ products introduced in this catalog.

For any specific application, users are kindly requested to contact KITZ Corporation for technical advice, or to carry out their own study and evaluation for proving the suitability of these products to such an application. Failure to follow this request could result in property damage and/or personal injury, for which we shall not be liable.

While this catalog has been compiled with the utmost care, we assume no responsibility for errors, impropriety, or inadequacy. Any information provided in this catalog is subject to from-time-to-time change without notice for error rectification, product discontinuation, design modification, new product introduction or any other cause that KITZ Corporation considers necessary. This edition cancels all previous issues.

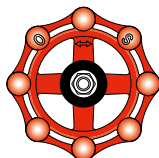
Read the instruction manual carefully before use.

## NOTICE

If any products designated as strategic material in the Foreign Exchange and Foreign Trade Law, Cabinet Order Concerning Control of Export Trade, Cabinet order Concerning Control of Foreign Exchange and other related laws and ordinances ("Foreign Exchange Laws") are exported to any foreign country or countries, an export license issued by the Japanese Government will be required under the Foreign Exchange Laws.

Further, there may be cases where an export license issued by the government of the United States or other country will be required under the applicable export-related laws and ordinances in such relevant countries.

The contract shall become effective subject to the fact that a relevant export license is obtained from the Japanese Government.



*A chrysanthemum-handle is a symbol of KITZ,  
the brand of valve reliability*

ISO 9001 certified since 1989

**KITZ**  
KITZ CORPORATION

1-10-1 Nakase, Mihama-ku, Chiba 261-8577, Japan  
International Sales Dept.

Phone : 81-43-299-1730, 1732 and 1733

Fax : 81-43-299-0121

— Distributed by —