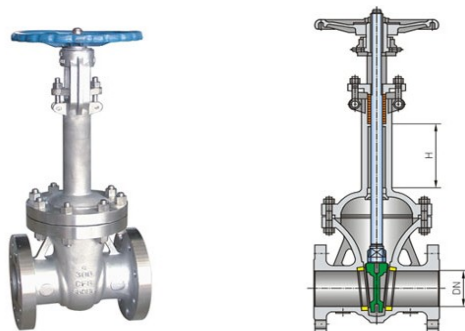
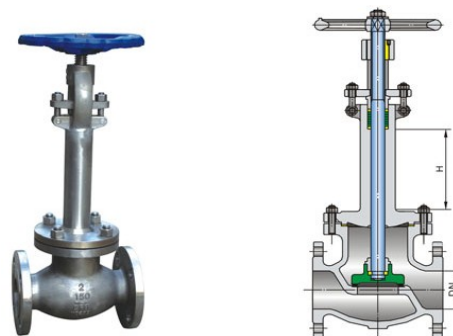
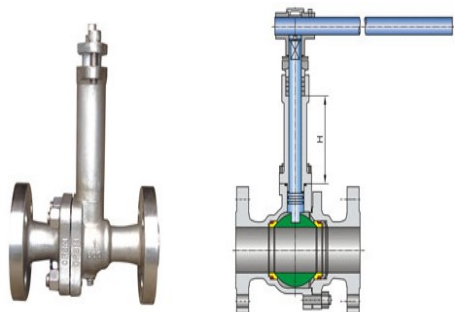
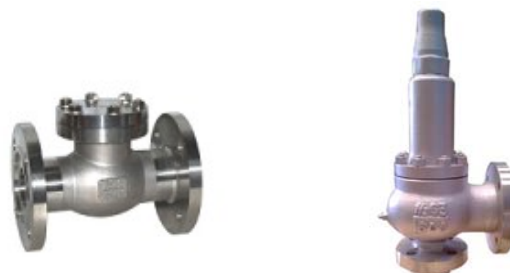


Gate, Globe, Ball valve, Check/Safety Valve

For Low Temperature Application

Cryogenic valves are mainly used for ethylene, natural gas LPG/LNG storage tanks, air separation plants, petrochemical exhaust gas separation equipment, liquid oxygen, liquid nitrogen, liquid argon, carbon dioxide cryogenic storage tanks.

Cryogenic Gate Valve**Cryogenic Globe Valve****Cryogenic Ball Valve****Cryogenic Check Valve Cryogenic Safety Valve****Standard and Scope:**

Size: NPS 1/2"~24" DN15~DN600

Pressure Rating: Class 150~900 PN2.5~PN160

Connection: Flanged, Weld, Screwed

Material: Carbon steel, Carbon Manganese steel, 2.5% or 3.5% Nickel steel, Austenitic stainless steel, and other special steel

Design and Manufacture: API 600, ISO10434, BS1414, ASME B16.34, API603, API602; JB/T7749; GB/T 24925

Test and Inspection: API600, API598, API6D; ISO 5208, BS6755, DIN3230, BS EN12569,

Pressure-temperature ratings: ASME B16.34

Face-to-Face: ASME B16.10, BS EN558

End Connection: ASME B16.5 (for NPS≤24) ; BS EN1092-1; GB/T9113 and other

BW End connection: ASME B16.25

Operation: Manual, worm gear, Electric actuator

Design feature

General requirements

All valves for low temperature application will apply relevant low temperature standards besides general valve standard for normal temperature.

Bonnet Extension

The cryogenic gate, globe, ball valve will have an extended bonnet, to protect packing box and avoid out leakage. The length of bonnet, please ref below table. The neck of valve can be casted or welded by seamless pipe depends on cost performance. Usually the bonnet of valves with size below DN50 will be welded by pipe. The best wall thickness of bonnet neck will be considered to strength heat conduction.

Low temperature impact test

All main parts of low temperature steel will be impact tested by each stove to guarantee material quality.

Austenitic stainless steel will executed as per clients requirement.

Cryogenic treatment

The body, disc, shaft, seat, bonnet these parts will be cryogenic treatment before fine machine for application below -101℃,

Seat

All metal seat will be weld connected to the body to avoid danger caused by temperature variation.

For cryogenic globe valve, ball type seal seat or cone sharp seal seat are adopted to guarantee seal performance.

For valve used in -101℃ or below temperature, before grinding and assembly, the seat welded by hard alloy will be cryogenic treated.

Weld

All weld process, weld material, post weld are specified for low temperature application.

Test

The low temperature test will be executed after successful room temperature test for each new type valve. Each valve will be carefully inspected before leaving factory.

Anti static, Special packing box(double seal, bellow seal), anti fire design and other special requirement is available if required.

Main low temperature material

Main material - Min. Temperature ℃						
Category	Cast material			Forged material		
	Code	Temp.	Ref	Code	Temp.	Ref
Carbon steel	LCA	-32	ASTM A352/A352M	LF2	-46	ASTM A350/A350M
	LCB	-46				
Carbon manganese steel	LCC	-46				
	LC1	-59				
2.5%Nickel steel	LC2	-73				
3.5%Nickel steel	LC3	-101	LF3	-101		

Austenitic stainless steel	ZG03Cr18Ni10	-196	GB/T12239	03Cr18Ni10	-196	GB/T12230
	ZG08Cr18Ni9			08Cr18Ni9		
	ZG12Cr18Ni12			12Cr18Ni12		
	ZG08Cr18Ni9Ti			08Cr18Ni9Ti		
	ZG12Cr18Ni9Ti			12Cr18Ni9Ti		
	ZG08Cr18Ni12M02Ti			08Cr18Ni12M02Ti		
	ZG12Cr18Ni12M02Ti			12Cr18Ni12M02Ti		
Austenitic stainless steel	CF8C	-198	ASTM A351/A351M	F316	-198	ASTM A182/A182M
	CF3	-254		F304	-254	
	CF3M			F304L		
	CF8			F316L		
	CF8M			F347		
Please note above material is just an normal used material for low temperature application, for other application, feel free contact us.						

Bonnet Extension for cryogenic application

Type	Temperature(°C)		-40	-101	-196	Ref.
	Size(mm)		Dimension(mm)			
	inch	DN	Bonnet extension H			
Gate, Globe, Ball valve 150/300/600/900	1/2	15	90	110	130	For flange, face to face, out look dimensions, please reference to relevant normal valves
	3/4	20	100	110	140	
	1	25	100	120	150	
	1 1/4	32	110	130	160	
	1 1/2	40	110	130	160	
	2	50	110	130	170	
	2 1/2	65	110	130	170	
	3	80	120	150	190	
	4	100	130	160	200	
	5	125	130	160	200	
	6	150	140	170	220	
	8	200	140	170	220	
	10	250	150	180	240	
	12	300	150	180	240	
	14	350	160	190	250	
16	400	160	190	250		
18	450	160	190	250		
20	500	170	200	260		
24	600	170	200	260		
check , Safety valve	N/A					

NOTE: The material in this catalog is for general information. For specific performance data, proper material selection and special design, consult us freely. Although every attempt has been made to ensure correct information, Sangong reserves the right to change designs, materials or specifications without notice.