

Innovation | Commitment

Vinco
VALVES

CRYOGENIC BALL VALVES

FLOWING YOUR ENERGY



COMPANY





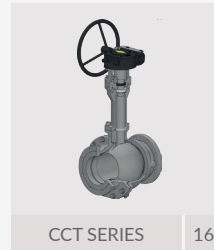


We are Vinco Valves, an European ball valve manufacturer with over 30 years of experience in the market, based near Porto, in the north of Portugal, with a 5.000m² modern facilities.

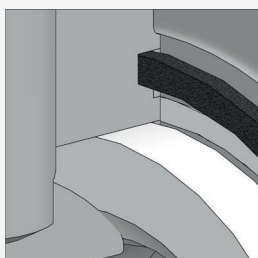
The focus on technological development and the strengthen of its know-how has allowed us to expand to new markets, being recognized for our ability to develop solutions that fulfill the market's demands. As a consequence we have developed in the past years a range of products for oil & gas, hydrogen, sanitary, chemical and cryogenic industries.

We have a dedicated team ready to respond to the most demanding requests, knowing that the key word here is the quality of all our products and services. We are responsible for the design, development, assembly and testing under the highest quality standards of all our products.



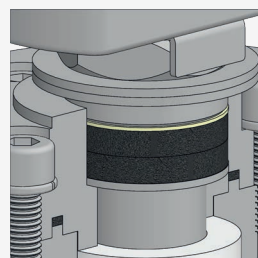
1	TECHNICAL INFORMATION	4-5
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GENERAL FEATURES



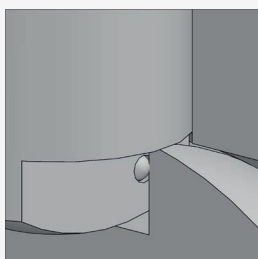
Double encapsulated body seals for extra resistance and tightness performance.

Firesafe design according to ISO 10497 and API 607 for critical services. Primary layer of TFE prevents graphite contamination into the media assuring the cleanliness of the processes. A Metal backseat system allows the sealing in the event of a fire ensuring the tightness of the process.

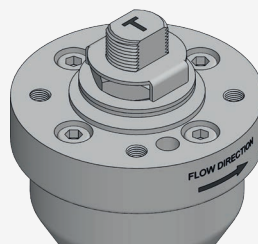


Self-adjust live loaded packing system ensures longer service without maintenance and spare parts replacement.

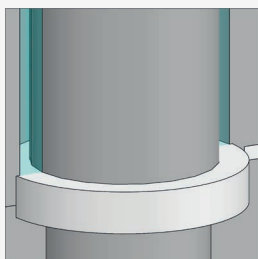
Fugitive emissions design according to ISO 15848 and TA LUFT / VDI 2440 reducing the potentially harmful emission to the environment. This design is also suitable for vacuum service up to 10^{-3} mm Hg.



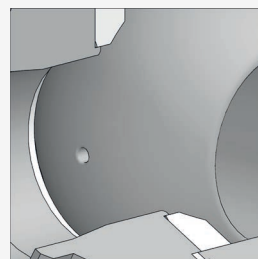
Anti-static device ensures the electrical conductivity between body, end, ball and stem according to European directive 2014/34/EU (ATEX).



Top flange fitted with ISO 5211 providing universal connection for automation.

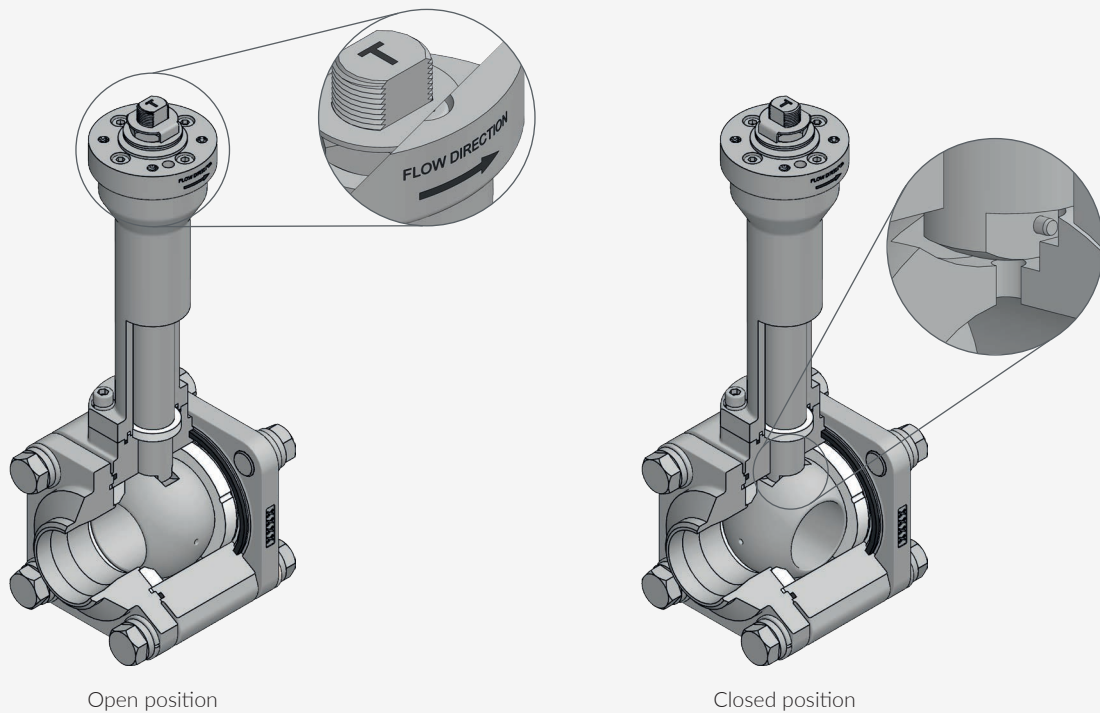


The expansion chamber allows the formation of a barrier or an insulation column of vapour between the liquefied gas and the packing increasing its performance and life cycle.



The upstream relief hole allows the relief of the excess pressure generated by a heating or a phase change ensuring the equipment's safety.

STEM ALIGNMENT SAFETY DESIGN



Rib and groove design between the ball and stem to guarantee the correct alignment of the upstream relief hole avoiding incorrect installations and possible malfunctions. Once the valve is installed, the position of the upstream relief hole can be checked at any time through the top stem marking of the current position of the ball. The valve has also a flow direction identification for full integrated information.

CERTIFICATION	CONSTRUCTION STANDARDS	TEST STANDARDS
CE Certification acc. to TPED 2010/35/EU	ASME B16.34	Test applied: Hydrostatic shell and seat test Pneumatic shell and seat test Cryogenic Test According to BS 6364 Available Upon Request EN 10204 type 3.1 certificate is available for each valve
Cryogenic design and type tested acc. ISO 28921-1/2	ASME B16.25 & B36.10M	
CE Certification acc. to PED 2014/68/EU	ASME B16.5	
Fire Safe Certification acc. to API 607 Ed.6 / ISO 10497	ASME B16.10	
CE Certification acc. to ATEX II 2GD 2014/34/EU	ASME B16.11	
Company Quality System Certified acc. to ISO 9001	ISO 17292-1	
	ISO 28921-1/2	
	DIN EN 1092-1	
	EN 558-1	

CRYOGENIC BALL VALVES

CXF Series

2 Way Floating
Investment Cast

The CXF Series is a cryogenic floating ball valve designed for cryogenic services down to -196°C.

Applications

It matches a large range of applications, including: LNG, LPG terminals, tanks and modules, as well as aerospace propulsion and trailers.

Features

- Soft seated | Unidirectional
- PED / TPED certified
- Fire safe | Anti-static
- Live loaded stem packing | Anti-blowout stem
- Double encapsulated body sealing
- ISO 5211 top works for automation
- Upstream pressure relief hole
- Degreased for oxygen

Optional Features

- V-Port for flow control applications

PED / TPED Certified
ISO 28921-1/2 Certified

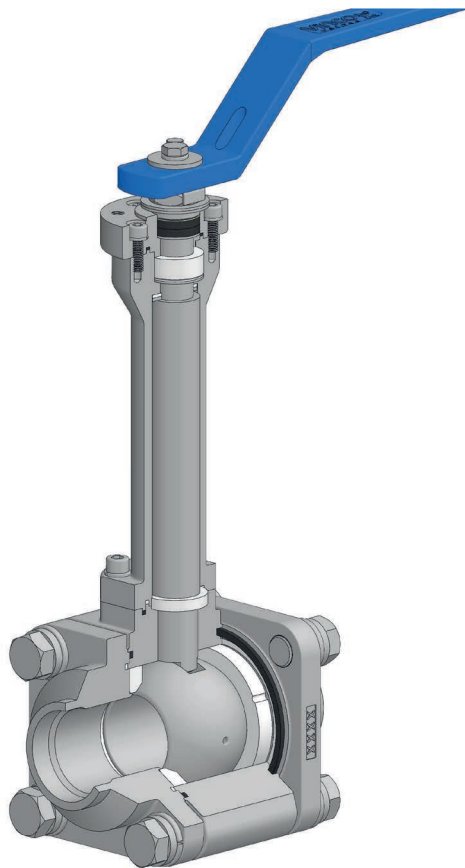
ASME CL 150 to 600

Full Bore: ½" - 6"

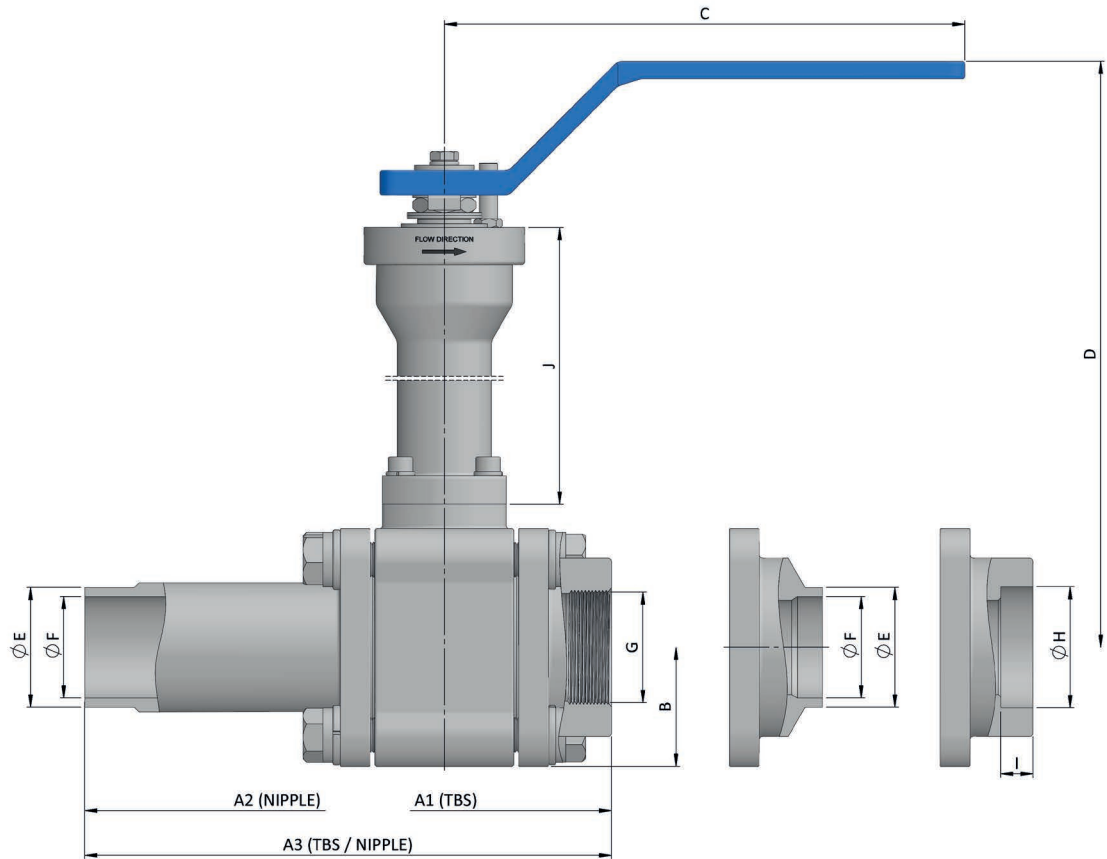
Reduced Bore: ¾" - 4"

DESIGN TEMPERATURE

-196°C to 200°C



PART		STANDARD	OPTIONAL
		STAINLESS STEEL	
Body / Ends		A351 CF3M	
TRIM	Ball	A351 CF8M	
	Stem	HS. ST. ST.	
Seats		TFM1600	PCTFE
Packing & Seals		TFM1600 & GRAPHITE	
Bolting		A193 Gr. B8M cl.2	



DN	CLASS	BORE	A1	A2	A3	B	C	D		E	F	G	H	I	J		ISO 5211	kg			
								STANDARD	ISO 28921-1						STANDARD	ISO 28921-1		STANDARD ISO 28921-1			
																		A1	A2	A1	A2
½"	600	15.1	75	250	162.5	27.5	180	240	320	NPT / BSPP / BSPT SW BW & BW Nipple					150	230	F04	2.3	2.6	2.6	2.9
¾"	600	20.6	90	260	175	32.5	180	245	325						150	230	F04	3.5	3.8	3.8	4.1
1"	600	25.4	100	270	185	37.5	180	250	330						150	230	F04	4	4.5	4.5	5
1¼"	600	31.8	115	280	197.5	42.5	210	295	405						175	285	F05	6.5	7.5	7.2	8.2
1½"	600	38.1	125	290	207.5	47.5	210	300	410						175	285	F05	8.3	8.8	9	8.5
2"	300	49	165	310	237.5	65	300	350	450						200	300	F07	14.6	15	15.9	16.3
2½"	300	62	190	330	260	80	GEARBOX		200						300	F10	30	31	31	32	
3"	300	75	215	350	282.5	95			250						360	F10	48	50	51	53	
4"	300	100	265	390	327.5	115			250						360	F10	73	80	75	82	
6"	150	150	365	450	407.5	162.5			300						430	F14	145	148	155	158	

CRYOGENIC BALL VALVES

CCF Series

2 Way Floating
Investment Cast

The CCF Series is a cryogenic floating ball valve designed for cryogenic services down to -196°C.

Applications

It matches a large range of applications, including: LNG, LPG terminals, tanks and modules, as well as aerospace propulsion.

Features

- Soft seated | Unidirectional
- PED / TPED certified
- Fire safe | Anti-static
- Live loaded stem packing | Anti-blowout stem
- Double encapsulated body sealing
- ISO 5211 top works for automation
- Upstream pressure relief hole
- Degreased for oxygen

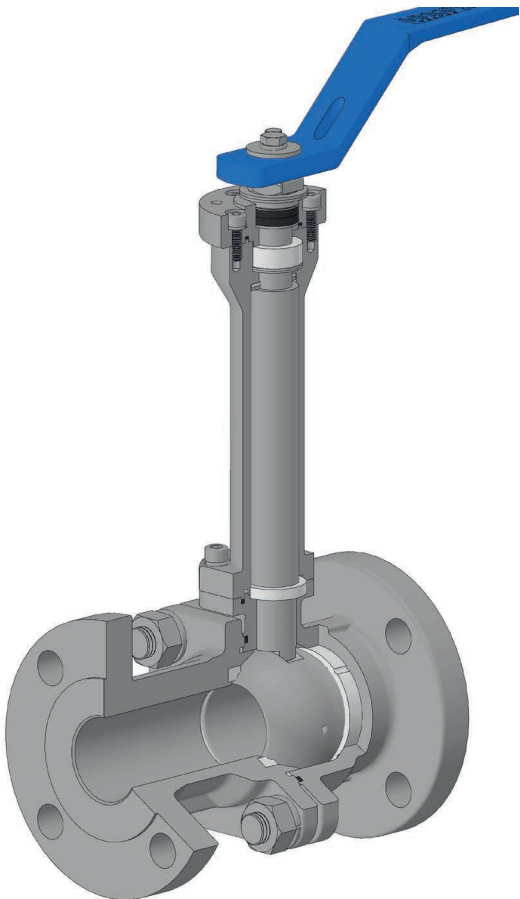
Optional Features

- V-Port for flow control applications

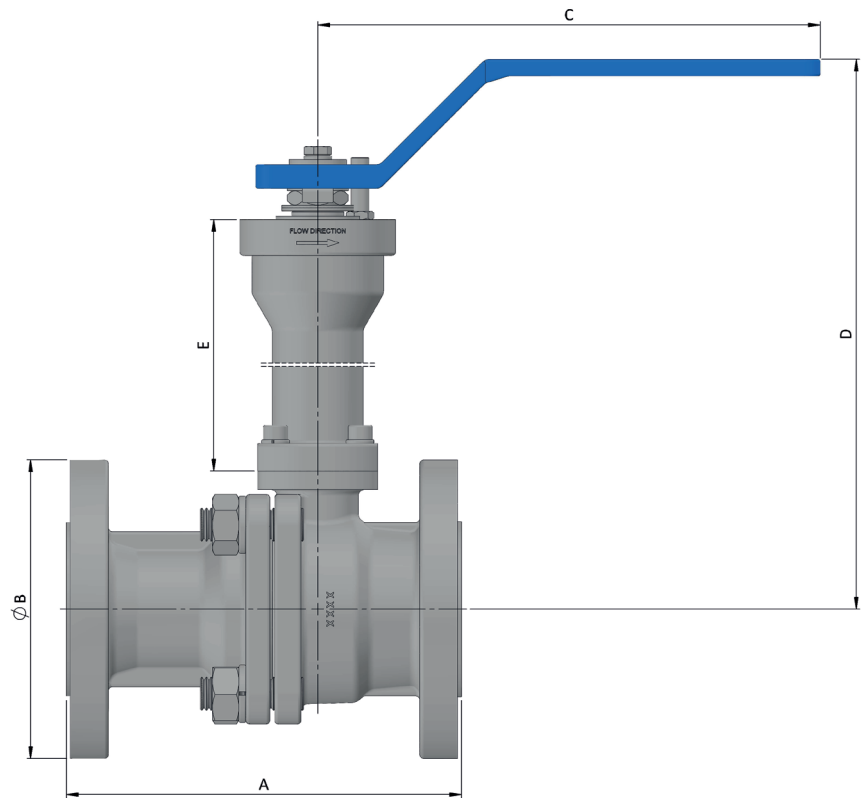
PED / TPED Certified
ISO 28921-1/2 Certified

DIN PN 16 / 40
Full Bore: DN 15 - 150

DESIGN TEMPERATURE
-196°C to 200°C



PART		STANDARD	OPTIONAL
		STAINLESS STEEL	
Body / Ends		1.4408	
TRIM	Ball	1.4408	
	Stem	HS. ST. ST.	
Seats		TFM1600	PCTFE
Packing & Seals		TFM1600 & GRAPHITE	
Bolting		A4 CL.70	



DN	PN	BORE	A			B	C	D		E		ISO 5211	kg					
			F1	F4	F5			STANDARD	ISO 28921-1	STANDARD	ISO 28921-1		STANDARD			ISO 28921-1		
													F1	F4	F5	F1	F4	F5
65	16	62	290	170	-	185	GEARBOX			200	300	F10	28.3	25.6	-	29.3	26.6	-
80		75	310	180	-	200				250	360	F10	45.7	41.2	-	46.7	42.2	-
100		100	350	190	-	220				250	360	F10	58.1	51.8	-	59.1	52.8	-
150		150	-	-	350	285				300	430	F14	-	-	169	-	-	175

DN	PN	BORE	A		B	C	D		E		ISO 5211	kg			
			F1	F4			STANDARD	ISO 28921-1	STANDARD	ISO 28921-1		STANDARD		ISO 28921-1	
												F1	F4	F1	F4
15	40	15.1	130	115	95	180	240	320	150	230	F04	3.8	3.3	4.1	3.6
20		20.6	150	120	105	180	245	325	150	230	F04	4.9	4.4	5.5	5
25		25.4	160	125	115	180	250	330	150	230	F04	5.6	5.1	6.2	5.7
32		31.8	180	130	140	210	295	405	175	285	F05	8.7	8.2	9.5	9
40		38.1	200	140	150	210	300	410	175	285	F05	10.5	9.5	11.3	10.3
50		49	230	150	165	300	350	450	200	300	F07	17.6	16.3	18.1	16.8
65		62	290	170	185	GEARBOX			200	300	F10	29.6	27.4	30.6	28.4
80		75	310	180	200				250	360	F10	46.1	42.5	47.1	43.5
100		100	350	190	235				250	360	F10	62	54.9	63	55.9
150		150	403*		300				300	430	F14	204*		210*	

*FTF=CL300

CRYOGENIC BALL VALVES

CCF Series

2 Way Floating
Investment Cast

The CCF Series is a cryogenic floating ball valve designed for cryogenic services down to -196°C.

Applications

It matches a large range of applications, including: LNG, LPG terminals, tanks and modules, as well as aerospace propulsion.

Features

- Soft seated | Unidirectional
- PED / TPED certified
- Fire safe | Anti-static
- Live loaded stem packing | Anti-blowout stem
- Double encapsulated body sealing
- ISO 5211 top works for automation
- Upstream pressure relief hole
- Degreased for oxygen

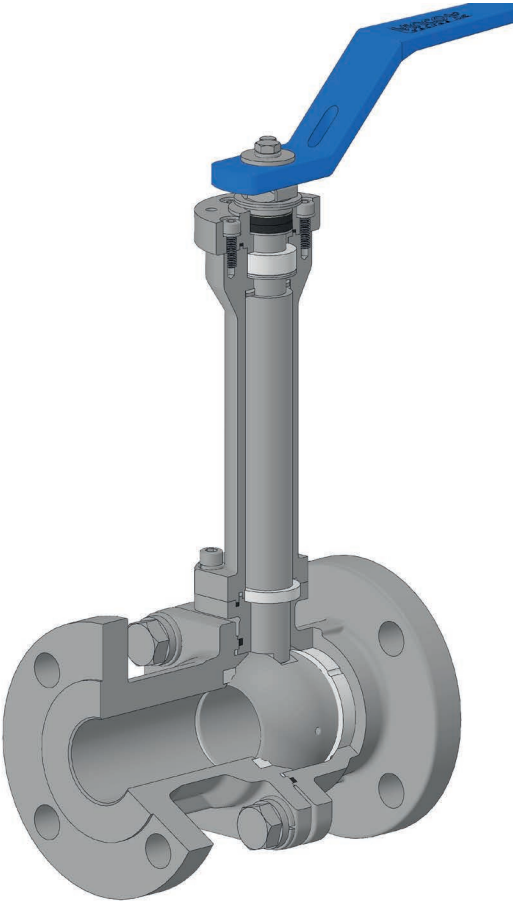
Optional Features

- V-Port for flow control applications

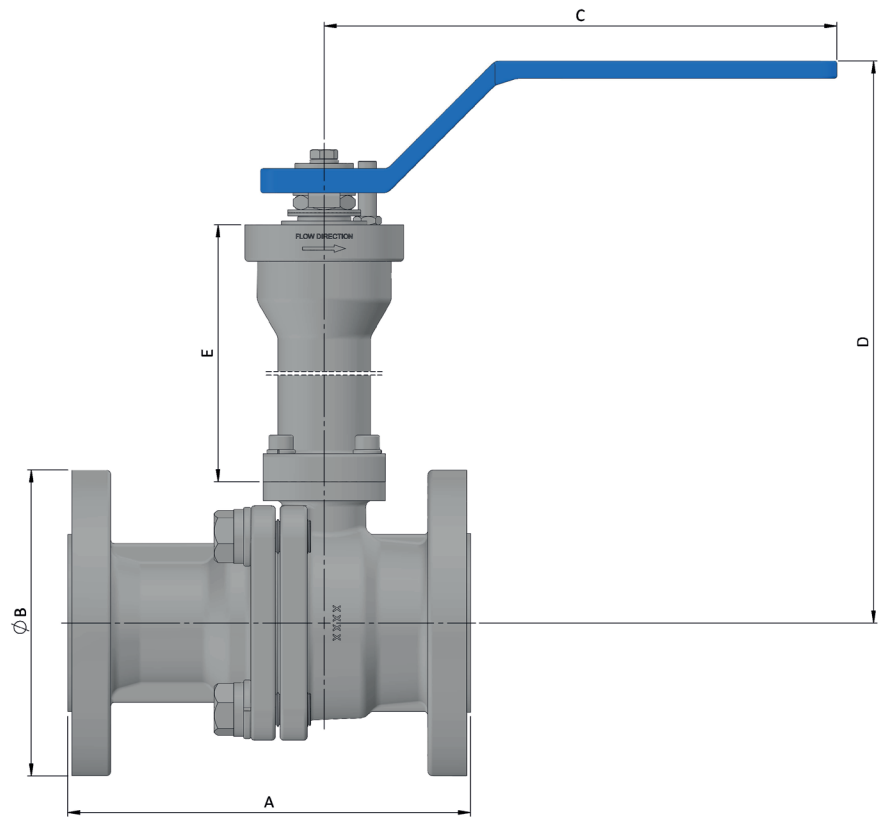
PED / TPED Certified
ISO 28921-1/2 Certified

ASME CL 150 to 600
Full Bore: ½" - 6"

DESIGN TEMPERATURE
-196°C to 200°C



PART		STANDARD	OPTIONAL
		STAINLESS STEEL	
Body / Ends		A351 CF8M	
TRIM	Ball	A351 CF8M	
	Stem	HS. ST. ST.	
Seats		TFM1600	PCTFE
Packing & Seals		TFM1600 & GRAPHITE	
Bolting		A193 Gr. B8M cl.2	



DN	CLASS	BORE	A		B		C	D		E		ISO 5211	kg			
			CL150	CL300	CL150	CL300		STANDARD	ISO 28921-1	STANDARD	ISO 28921-1		STANDARD		ISO 28921-1	
													CL150	CL300	CL150	CL300
½"	150 - 300	15.1	108	140	90	95	180	240	320	150	230	F04	2.7	3.2	3	3.5
¾"		20.6	117	152	100	115	180	245	325	150	230	F04	3.7	4.7	4.3	5.3
1"		25.4	127	165	110	125	180	250	330	150	230	F04	4.5	5.8	5.1	6.4
1½"		38.1	165	178	125	155	210	300	410	175	285	F05	8.4	11	9.2	11.8
2"		49	178	190	150	165	300	350	450	200	300	F07	15.6	17.9	16.1	18.4
2½"		62	190	241	180	190	GEARBOX			200	300	F10	27.7	30.6	28.7	31.6
3"		75	203	282	190	210				250	360	F10	42.4	48.8	43.4	49.8
4"		100	229	305	230	255				250	360	F10	57.5	69.7	58.5	70.7
6"		150	394	-	280	-				300	430	F14	183.4	-	189.4	-

DN	CLASS	BORE	A	B	C	D		E		ISO 5211	kg	
						STANDARD	ISO 28921-1	STANDARD	ISO 28921-1		STANDARD	ISO 28921-1
½"	600	15.1	165	95	180	240	320	150	230	F04	3.5	3.8
¾"		20.6	190	115	180	245	325	150	230	F04	5	5.6
1"		25.4	216	125	180	250	330	150	230	F04	6.3	6.9
1½"		38.1	241	155	155	300	410	175	285	F05	12.1	12.9
2"		49	292	165	165	350	450	200	300	F07	19.2	19.7

CRYOGENIC BALL VALVES

CQF Series

Multiway Floating
Investment Cast

The CQF Series is a cryogenic multiway floating ball valve designed for cryogenic services down to -196°C.

Applications

The CQF is a solution for complex and compact piping systems where the space availability is key, matching applications such as: LNG, LPG and vaporizers.

Features

- Multiport | Soft seated | L/T/X Port
- Fire safe design | Anti-static design
- Low emission packing | Live loaded stem packing
- Double encapsulated body sealing
- ISO 5211 top works for automation
- Anti-blowout stem design
- Self relieving seats | Pressure equalizing hole
- Degreased for oxygen

ISO 28921-1 Design

ASME CL 300* to 600*

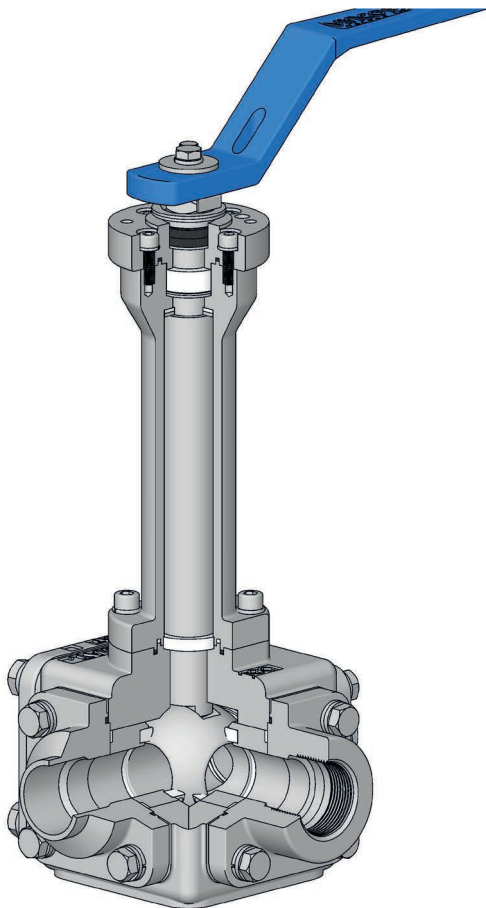
Full Bore: ½" - 4"

Reduced Bore: ¾" - 4"

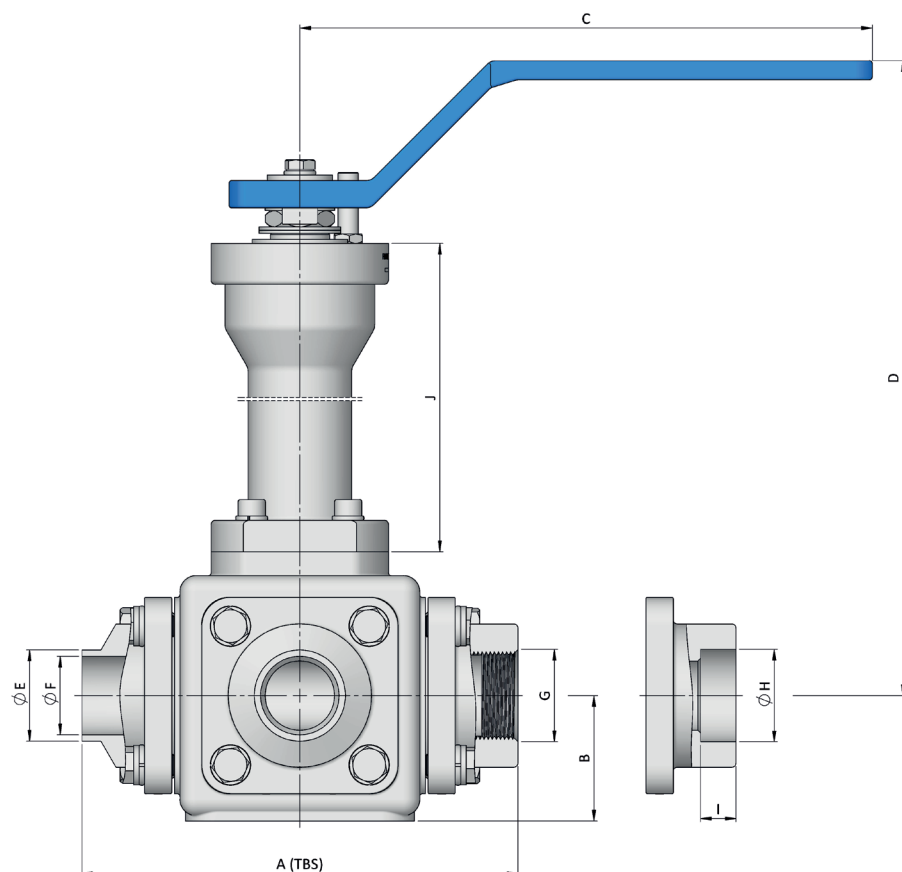
*The working pressure is limited to 20 bar to ensure a good tightness performance since the design of this kind of valve is to direct the fluid through different ports, which reduces the tightness capabilities of the valve.

DESIGN TEMPERATURE

-196°C to 200°C



PART		STANDARD	OPTIONAL
		STAINLESS STEEL	
Body / Ends		A351 CF8M / A351 CF3M	
TRIM	Ball	A351 CF3M	
	Stem	HS. ST. ST.	
Seats		TFM1600	PCTFE
Packing & Seals		PTFE & GRAPHITE	
Bolting		A193 Gr. B8M cl.2	



DN	CLASS	BORE	A	B	C	D		E	F	G	H	I	J		ISO 5211	kg	
						STANDARD	ISO 28921-1						STANDARD	ISO 28921-1		STANDARD	ISO 28921-1
½"	600	15.8	115	35	180	245	325	NPT / BSPP / BSPT	SW BW	150	230	F04	4.9	5.5			
¾"		22.1	145	45	210	295	405			175	285	F05	9.5	10.3			
1"		25.4	150	45	210	295	405			175	285	F05	9.9	10.7			
1¼"		34.8	180	60	210	310	420			175	285	F05	17	17.8			
1½"		38	185	60	210	310	420			175	285	F05	17.3	18.1			
2"	300	47.5	265	85	300	365	465			200	300	F07	46.5	47			
2½"	150	62	320	88.5	GEARBOX		250			360	F10	62	65				
3"		75	330	88.5			250			360	F10	70	73				
4"		100	390	114			250			360	F10	116	120				

CRYOGENIC BALL VALVES

CHF Series

2 Way Floating
Barstock

The CHF Series is a cryogenic floating ball valve designed for cryogenic services down to -196°C.

Applications

This is a top-of-the-line solution for high pressure systems, matching applications such as aerospace, liquefaction/pressurization systems.

Features

- Soft seated | Unidirectional
- Fire safe design | Anti-static design
- Live loaded stem packing
- Double encapsulated body sealing
- ISO 5211 top works for automation
- Anti-blowout stem design
- Self relieving seats | Pressure equalizing hole
- Upstream pressure relief hole
- Degreased for oxygen

Optional Features

- Low emission packing

ISO 28921-1 Design

CHF5 Series

ASME CL 1500

Full Bore: ½" - 2"
Reduced Bore: ¾" - 2"

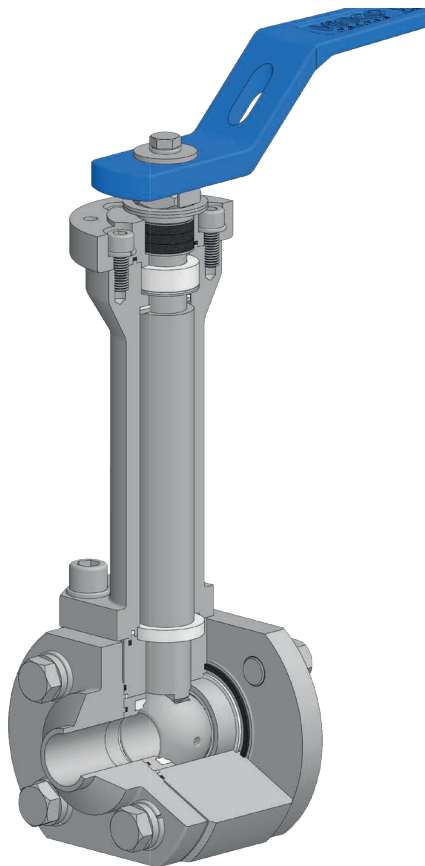
CHF6 Series

ASME CL 2500

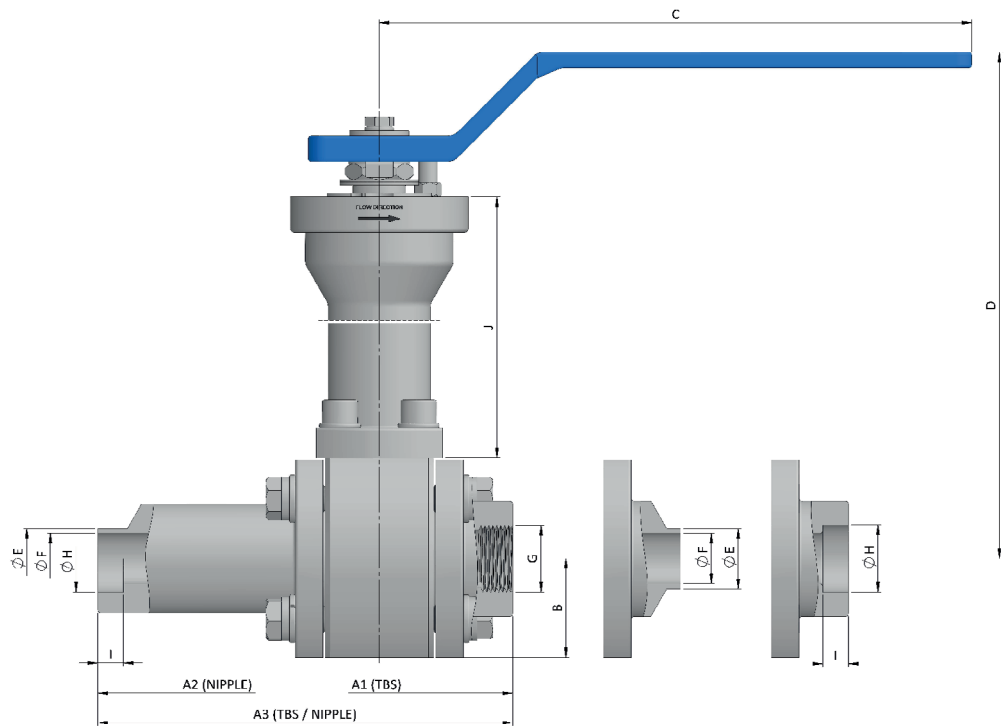
Standard Bore: ½" - 1"

DESIGN TEMPERATURE

-196°C to 150°C



PART		STANDARD
		STAINLESS STEEL
Body / Ends		A479 316/L
TRIM	Ball	HS. ST. ST.
	Stem	HS. ST. ST.
Seats		PCTFE
Packing & Seals		PTFE & GRAPHITE
Bolting		A193 Gr. B8M cl.2



DN	CLASS	BORE	A1	A2	A3	B	C	D		E	F	G	H	I	J		ISO 5211	kg			
								STANDARD	ISO 28921-1						STANDARD	ISO 28921-1		STANDARD		ISO 28921-1	
																		A1	A2	A1	A2
½"	1500	15.1	95	265	180	33.5	180	245	320	NPT / BSPP / BSPT SW & SW Nipple BW & BW Nipple				150	230	F04	4.7	6	5.2	6.5	
¾"		20.6	110	275	192.5	41	210	285	385					175	285	F05	8	9.9	8.8	10.7	
1"		25.4	125	285	205	50	300	325	425					200	300	F07	13.4	16.2	14.4	17.2	
1½"		38.1	145	310	227.5	70	GEARBOX							200	300	F07	30.5	35	32	36.5	
2"		49	170	335	252.5	97								200	300	F10	55	58	60	63	

DN	CLASS	BORE	A1	A2	A3	B	C	D		E	F	G	H	I	J		ISO 5211	kg			
								STANDARD	ISO 28921-1						STANDARD	ISO 28921-1		STANDARD		ISO 28921-1	
																		A1	A2	A1	A2
½"	2500	11.9	95	265	180	34.5	180	240	320	NPT / BSPP / BSPT					150	230	F04	4.6	6	5.1	6.5
¾"		15.1	110	275	192.5	41	180	250	330	SW & SW Nipple					150	230	F04	7.1	7.7	9	9.6
1"		20.6	125	285	205	48.5	210	295	395	BW & BW Nipple					175	285	F05	11.7	14.7	12.9	15.9

CRYOGENIC BALL VALVES

CCT Series

2 Way Trunnion
Investment Cast

The CCT Series is a cryogenic trunnion ball valve designed for cryogenic services down to -196°C.

Applications

The CCT is a solution for high flow rates and strength integrity systems, matching applications such as: LNG and aerospace.

Features

- Soft seated | Unidirectional
- Fire safe design | Anti-static design
- Live loaded stem packing | Anti-blowout stem design
- Double encapsulated body sealing
- ISO 5211 top works for automation
- Upstream pressure relief hole
- Degreased for oxygen

Optional Features

- V-Port for flow control applications

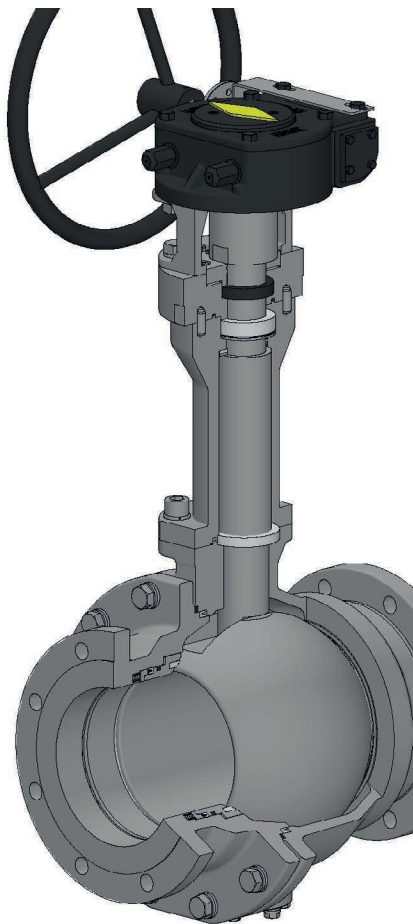
ISO 28921-1 Design

ASME CL 150 to 300

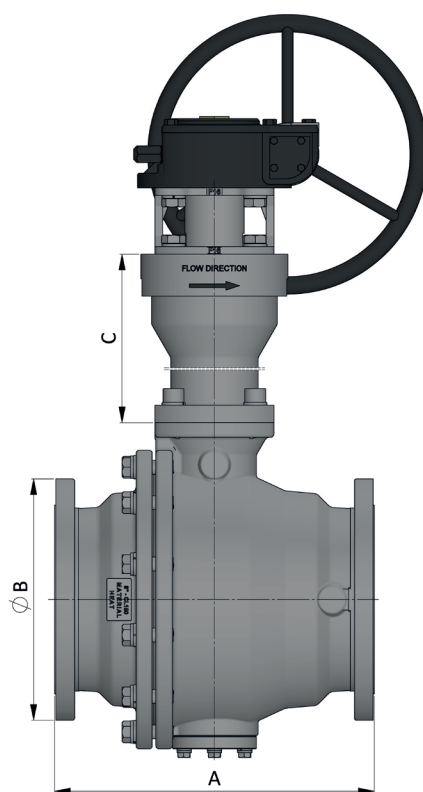
Full Bore: 6" - 12"

DESIGN TEMPERATURE

-196°C to 200°C

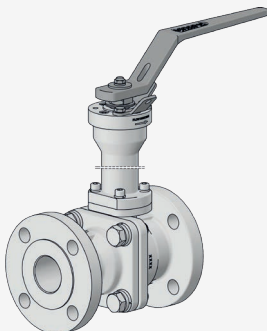


PART		STANDARD	OPTIONAL
		STAINLESS STEEL	
Body / Ends		A351 CF8M	
TRIM	Ball	A351 CF8M	
	Stem	HS. ST. ST.	
Seats		TFM 1600	PCTFE
Packing & Seals		PTFE + ELGILOY & GRAPHITE	
Bolting		A193 Gr. B8M cl.2	



DN	CLASS	BORE	A		B		C		ISO 5211
			CL150	CL300	CL150	CL300	STANDARD	ISO 28921-1	
6"	150 - 300	150	394	403	280	320	300	430	F14
8"		201	457	502	345	380	350	480	F16
10"		252	533	568	405	445	350	480	F16
12"		303	610	648	485	520	400	600	F25

MANUAL OPERATION

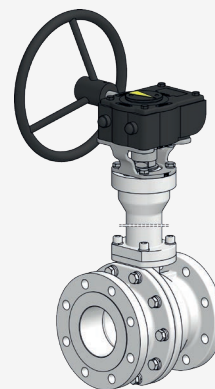


LOCKABLE HANDLE

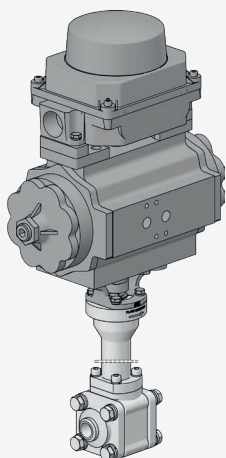
The lockable handle is a safety device that prevents the unintended rotation of the obturator due to vibrations, turbulent flows or unauthorized actions leading to potentially severe malfunctions in the process. This occurrence can be prevented by the application of a lockable mechanism to prevent the valve from closing or opening. Small sizes are equipped with a trigger that allows to lock the position of the handle in closed or open position without the need of a padlock. Nevertheless, all sizes can be equipped with a padlock.

GEARBOX

Extreme cryogenic services can sometimes lead to high handling torques which decreases the fluidity of the processes. Additionally, in some situations it is not possible to use electric or pneumatic actuators due to the explosive risks associated. On these particular services the installation of a Gearbox may be the solution to allow a smooth operation of the valves increasing the reliability of the system operation.



AUTOMATIC OPERATION



COMPLETE AUTOMATION

Automation of the processes is a growing and necessary investment to reduce the manual interventions, which will prevent the eventual mistakes by a manual operation and enhance the processes to better performances. Following these requirements, the valves can also be fully automated.

For instance, the valve can be equipped with a pneumatic actuator, a solenoid valve and a limit switch. These accessories will allow the remote actuation of the valve and the control of its position.



EMERGENCY SHUT OFF SYSTEMS

FIREBLOCK SYSTEM

This automatic safety system is engineered for emergency response, ensuring a rapid shutdown in the event of a fire on the filling line. When exposed to high temperatures, the fusible link system breaks, closing the valve and preventing fluid exposure to heat sources.

Additionally, this valve is equipped with a secondary system to allow manual operation without system triggering, by overriding the fusible link system. This manual operation offers the operator the ability to control the system and close the valve if some anomaly is detected, without compromising the automatic mechanism.

Key Features

- Pressure Ratings: suitable for all pressure classes (working deltaP varies based on service conditions).
- Temperature Range: fusible link set point at 72°C (can be adapted to suit the customer's needs).
- Size Range: available in all sizes to meet your specific requirements.

Applicability

Fireblock valves are used for a variety of industrial applications such as liquefied gas transportation in a cryogenic temperature, refineries and power stations. Most of the service fluids used in these industrial environments present challenges such as extreme flammability. Therefore, it is necessary to isolate these substances in the event of a fire using emergency shutdown systems. Fireblock System is essential to reduce the risk of hazardous conditions and ensure safe and reliable operation in service fields.



OVERPRESSURE PROTECTION SYSTEM

Where fitted, the OPP (Overpressure Protection) helps to protect the cryogenic vessel from being overpressurised by the cryogenic delivery tanker pump output. If a pre-set trip pressure (based on cryogenic vessel design pressure) is reached, the OPP valve will close to prevent the delivery tanker pump from continuing to fill the vessel however does not provide tight shut off, this is to prevent liquid lock should the module trip.

Advantages

- Fast and easy reset of the system (one person only) after an overfill shut off;
- Automatic, completely mechanical and fast shut off;
- Fast and easy reset - no special tool needed to rearm;
- Spring return system with high performance and free of damage during shut off without compromising the closing time;
- Valve is not tripping due to vibrations of the pump;
- Floating ball valve improves the flow capacity;
- Bronze availability for flammable fluids as oxygen or hydrogen.



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