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VALVES



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CRYOGENIC
BALL VALVES
FLOWING YOUR ENERGY

COMPANY



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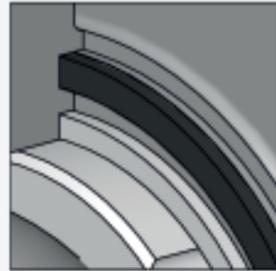
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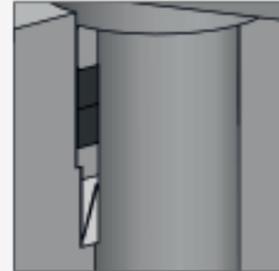
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- Lockable Handle
- Gear Box
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- Extensions acc. BS 6364
- Fire Fail Safe
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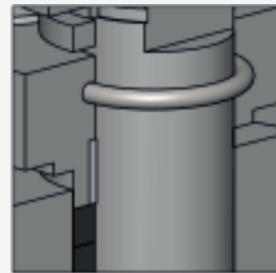
GENERAL FEATURES



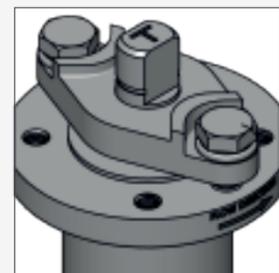
Double encapsulated body seals for extra resistance and tightness performance



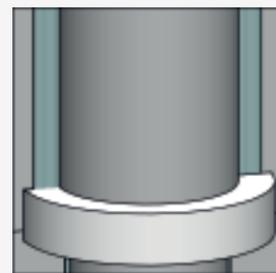
Self-adjust live loaded packing system ensures longer service without maintenance and spare parts replacement



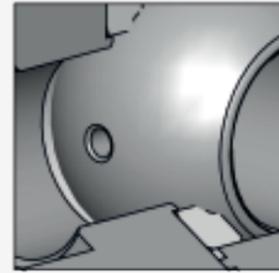
Anti-static device ensures the electrical conductivity between body, end, ball and stem according to European directive 2014/34/EU (ATEX)



Top flange fitted with ISO 5211 providing universal connection for automation

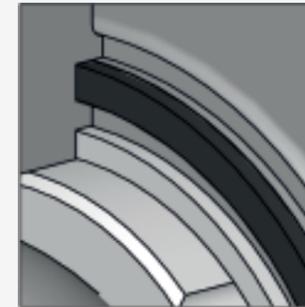


The expansion chamber allows the formation of a barrier or an insulation column of vapour between the liquefied gas and the packing increasing its performance and life cycle

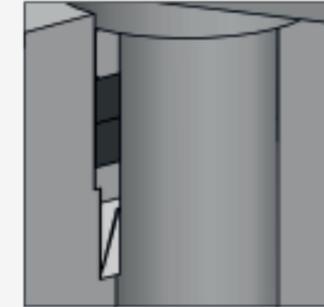


The upstream relief hole allows the relief of the excess pressure generated by a heating or a phase change ensuring the safety of the equipment

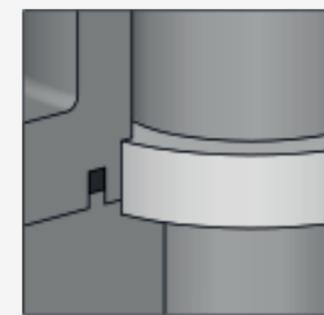
FIRESAFE AND FUGITIVE EMISSION DESIGN



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.



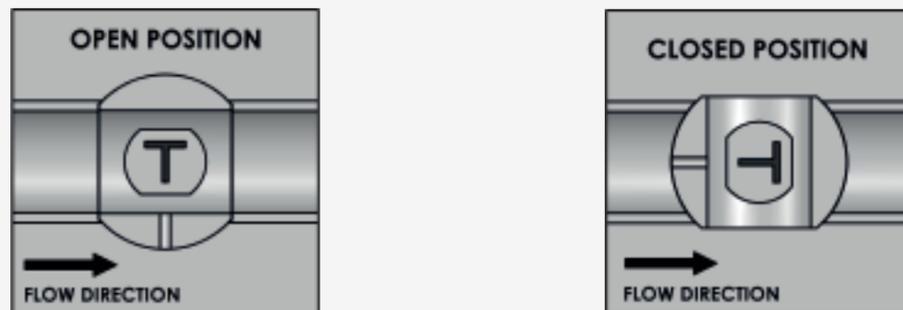
Fugitive emissions design according to ISO 15848 and TA LUFT / VDI 2440 reducing the potentially harmful emission to the environment. This design is also suitable for vacuum service up to 10⁻³ mm Hg.



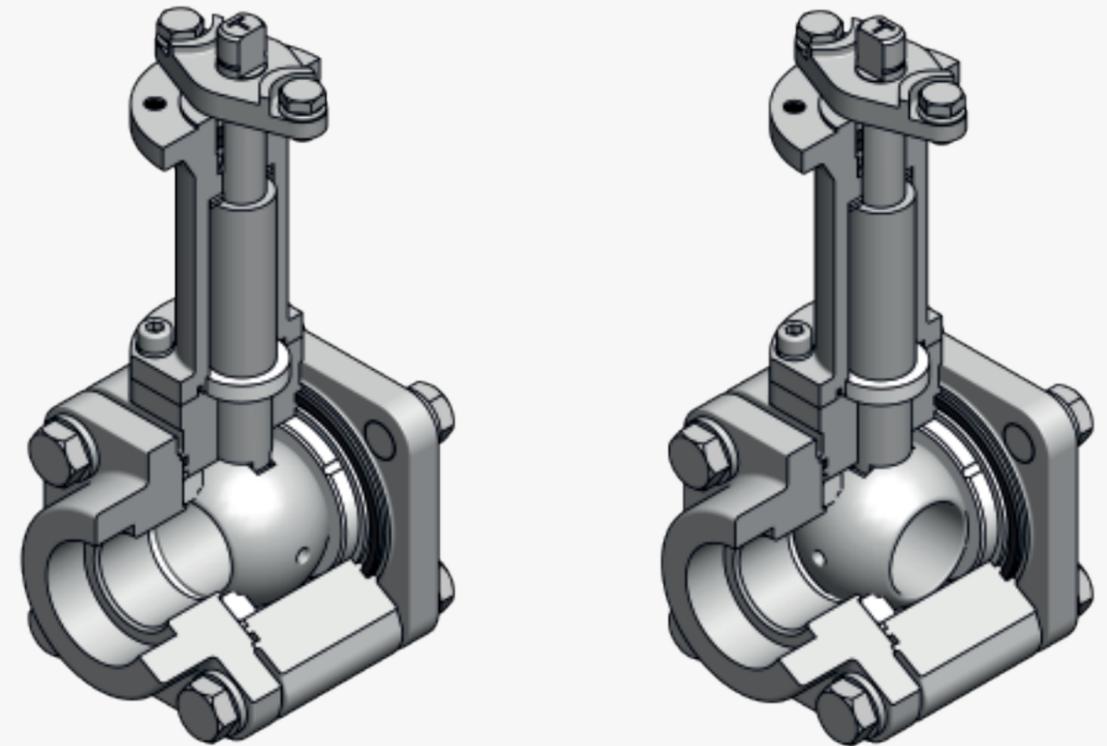
STEM ALIGNMENT SAFETY DESIGN



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 during the utilization. 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.



OPEN AND CLOSED POSITION



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

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 as LNG, LPG or other applications. It is designed in an unidirectional way to safely release overpressure due to heating or suddenly phase change of the media. This is achieved by the introduction of an upstream relief hole that equalize the envelope pressure with the upstream line reducing the probability of bursting the valve housing. To ensure the correct mounting and operation of this safety feature the valve is equipped with a rib and groove system to guarantee the correct installation. Additionally, the valve is equipped with an expansion chamber to create a barrier / insulation column between the liquefied gas and the packing increasing the performance of the sealing system. It is available with welding connections, making this series the best solutions for compact and permanent systems.

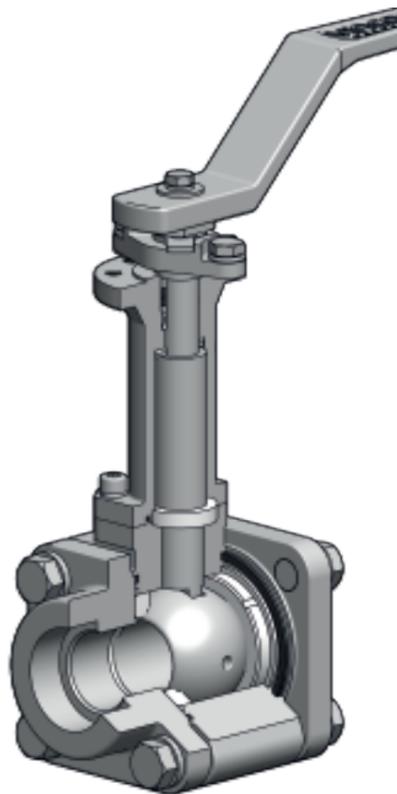
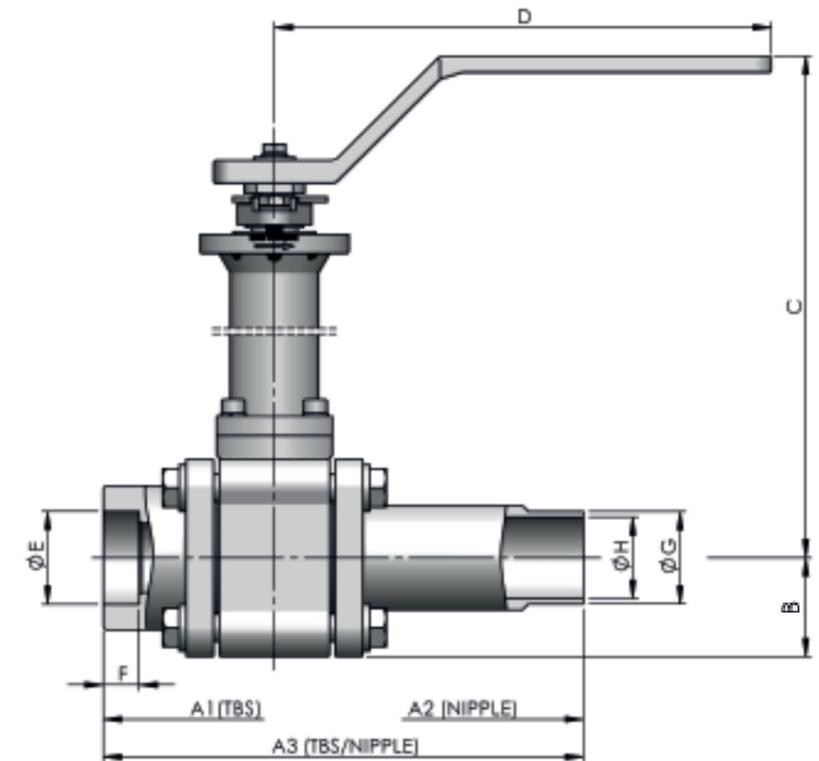
ASME CL 300-600

Full Bore: ½" - 4"

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	

ASME	CLASS	BORE	A1	A2	A3	B	C	D	E	F	G	H	kg	ISO 5211
½"	600	15.1	75	250	162.5	26.5	245	150	SW BW BW Nipple				2 / 2.5	F04
¾"	600	20.6	90	260	175	32.5	255	180					3.2 / 3.5	F04
1"	600	25.4	100	270	185	36	260	180					3.8 / 4.2	F04
1¼"	600	31.8	115	280	197.5	43	305	210					6.3 / 7	F05
1½"	600	38.1	125	290	207.5	48	310	210					7.8 / 8.2	F05
2"	300	49	165	310	237.5	72	360	300					13.7 / 14	F07
2½"	300	62	190	330	260	87	Gear	28 / 28.5					F10	
3"	300	75	215	350	282.5	97		44.5 / 45					F10	
4"	300	100	265	390	327.5	122		63.5 / 64					F10	

CRYOGENIC BALL VALVES

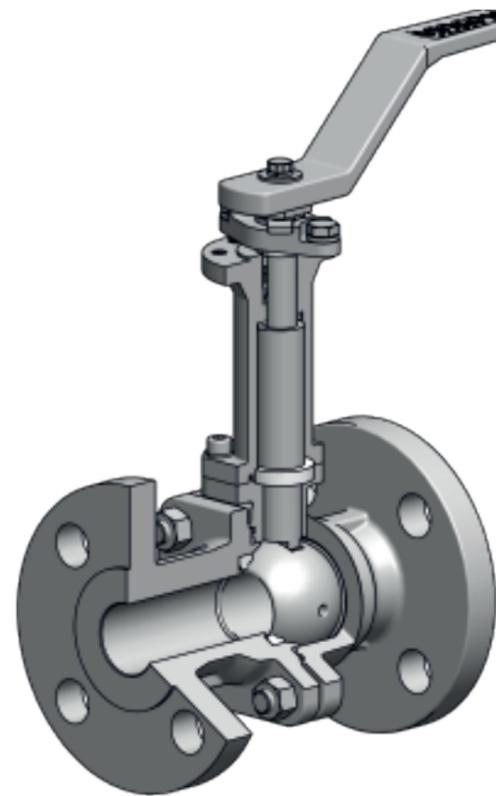
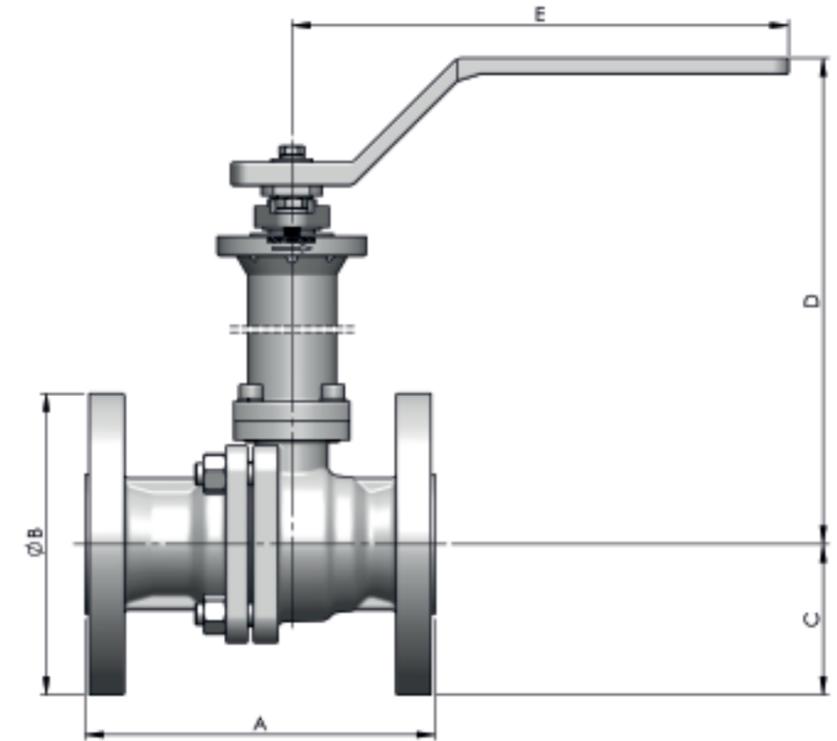
CCF Series

2 Way Floating
Investment Cast

The CCF Series is a cryogenic floating ball valve designed for cryogenic services down to -196°C as LNG, LPG or other applications. It is designed in an unidirectional way to safely release overpressure due to heating or suddenly phase change of the media. This is achieved by the introduction of an upstream relief hole that equalize the envelope pressure with the upstream line reducing the probability of bursting the valve housing. To ensure the correct mounting and operation of this safety feature the valve is equipped with a rib and groove system to guarantee the correct installation. Additionally, the valve is equipped with an expansion chamber to create a barrier / insulation column between the liquefied gas and the packing increasing the performance of the sealing system. It is available with flanged connections, making this series the best solutions for transportable/filling systems where the transfer and replacement are regular or constant.

ASME CL 150 / 300
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	

ASME	CLASS	BORE	A	B	C	D	E	ISO 5211
½"	150	15.1	108	90	45	245	150	F04
¾"	150	20.6	117	100	50	255	180	F04
1"	150	25.4	127	110	55	260	180	F04
1½"	150	38.1	165	125	62.5	310	210	F05
2"	150	49	178	150	75	360	300	F07
2½"	150	62	190	180	90	Gear		F10
3"	150	75	203	190	95		F10	
4"	150	100	229	230	115		F10	
6"	150	150	394	280	140			F14

ASME	CLASS	BORE	A	B	C	D	E	ISO 5211
½"	300	15.1	140	95	47.5	245	150	F04
¾"	300	20.6	152	115	57.5	255	180	F04
1"	300	25.4	165	125	62.5	260	180	F04
1½"	300	38.1	190	155	77.5	310	210	F05
2"	300	49	216	165	82.5	360	300	F07
2½"	300	62	241	190	95	Gear		F10
3"	300	75	282	210	105		F10	
4"	300	100	305	255	127.5		F10	

CRYOGENIC BALL VALVES

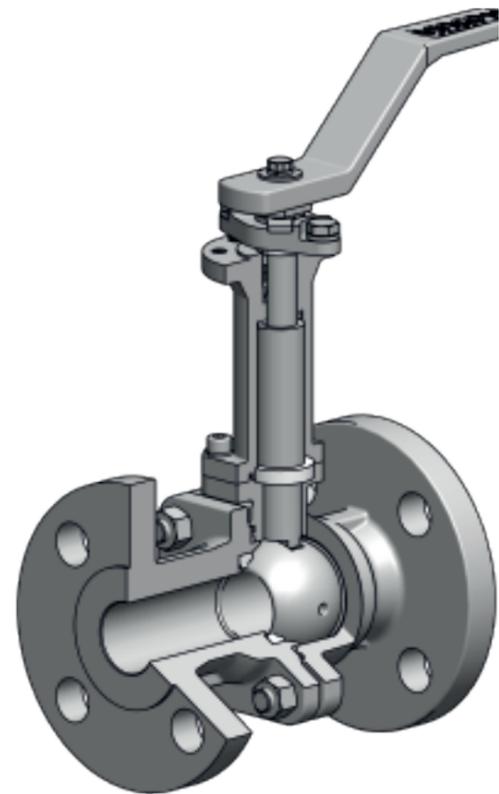
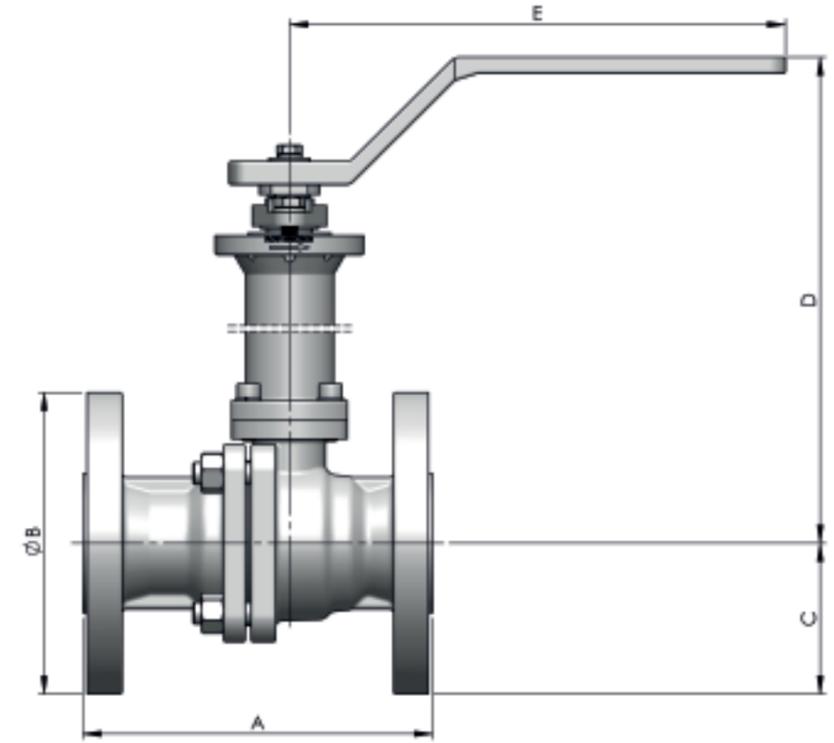
CCF Series

2 Way Floating
Investment Cast

The CCF Series is a cryogenic floating ball valve designed for cryogenic services down to -196°C as LNG, LPG or other applications. It is designed in an unidirectional way to safely release overpressure due to heating or suddenly phase change of the media. This is achieved by the introduction of an upstream relief hole that equalize the envelope pressure with the upstream line reducing the probability of bursting the valve housing. To ensure the correct mounting and operation of this safety feature the valve is equipped with rib and groove system to guarantee the correct installation. Additionally, the valve is equipped with an expansion chamber to create a barrier / insulation column between the liquefied gas and the packing increasing the performance of the sealing system. It is available with flanged connections, making this series the best solutions for transportable/filling systems where the transfer and replacement are regular or constant.

DIN PN 16 / 40
Full Bore: ½" - 6"

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	A193 Gr. B8M cl.2	

DIN	PN	BORE	A			B	C	D	E	ISO 5211
			F1	F4	F5					
65	16	62	290	170	-	185	92.5	Gear		F10
80	16	75	310	180	-	200	100			F10
100	16	100	350	190	-	220	110			F10
150	16	150	-	-	350	285	142.5			F14

DIN	PN	BORE	A		B	C	D	E	ISO 5211
			F1	F4					
15	40	15.1	130	115	95	47.5	245	150	F04
20	40	20.6	150	120	105	52.5	255	180	F04
25	40	25.4	160	125	115	57.5	260	180	F04
32	40	31.8	180	130	140	70	305	210	F05
40	40	38.1	200	140	150	75	310	210	F05
50	40	49	230	150	165	82.5	360	300	F07
65	40	62	290	170	185	92.5	Gear		F10
80	40	75	310	180	200	100			F10
100	40	100	350	190	235	117.5			F10

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.

Gear Box

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.



SPECIFIC APPLICATIONS

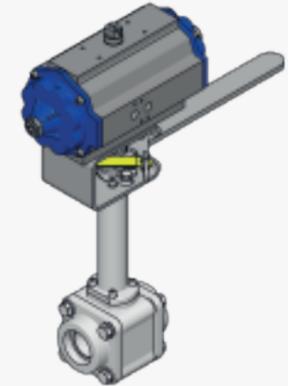


Extension acc. BS 6364

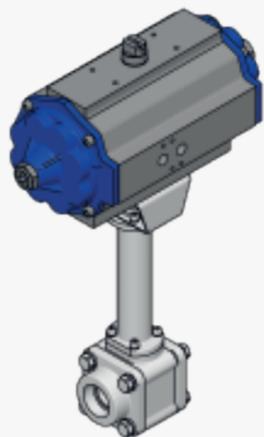
Some severe services require an extra length extension to provide the best possible solution for the applications. The valves can be provided with the dimensions defined in the well know and reliable standard BS 6364. This provides the best ultra-high extension solution maximizing the barrier of insulation.

Fire Fail Safe

Flammable gases and chemicals are often used in processes across several industries. To prevent the widespread of a fire event in these facilities, a fire fail safe valve may be used as a safety device, which will trigger an automatic emergency shutoff. The fire fail safe valve is designed to be activated at the set temperature of the system by the fusible link breakage. This breakage will lead to the line shutoff.



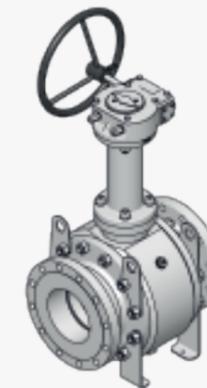
AUTOMATIC OPERATION



Bracket and Actuator

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.

OTHER SERIES



CVT SERIES
Trunnion version



CHF SERIES
High pressure version



CQF SERIES
Multi Port version