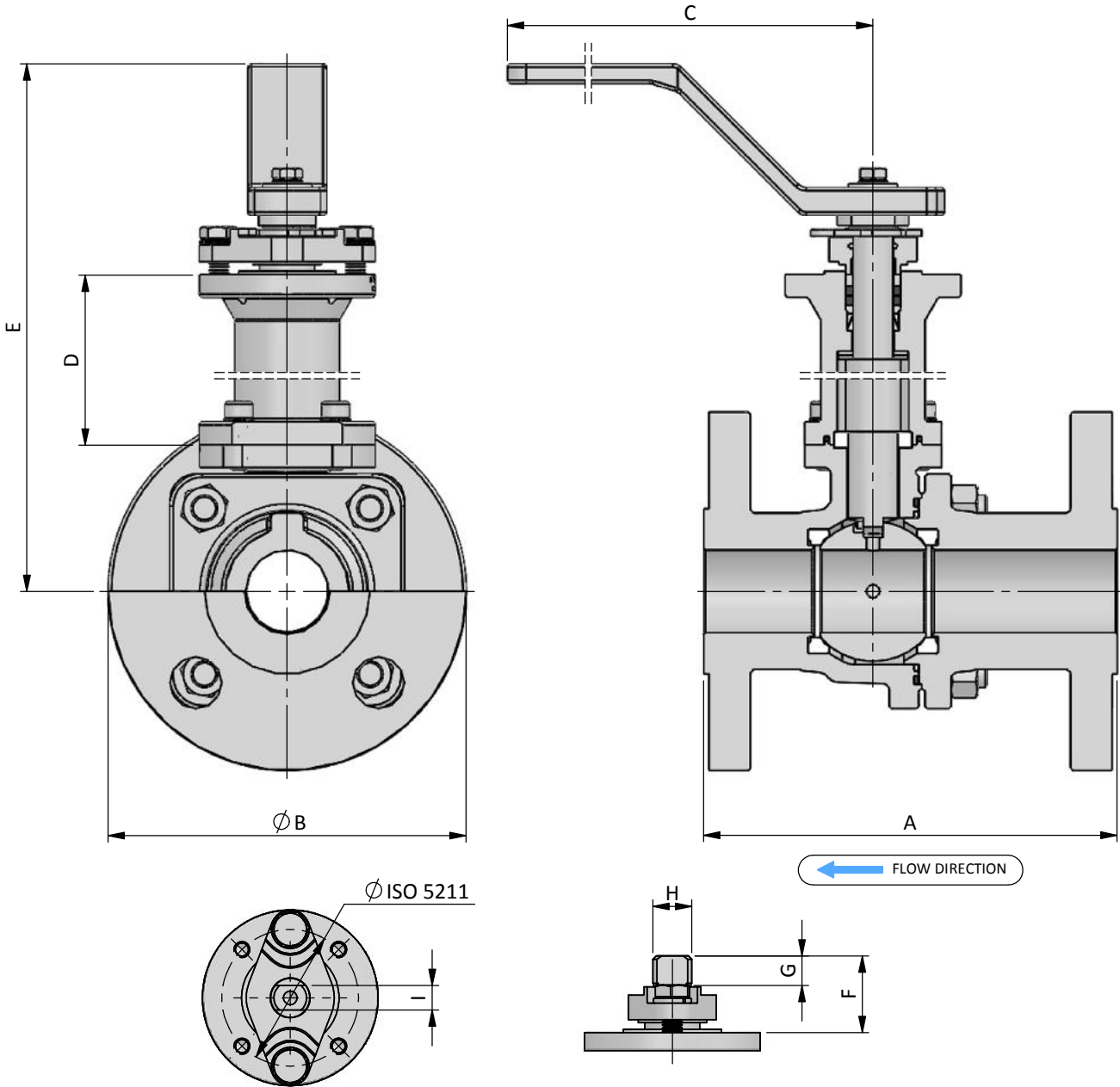
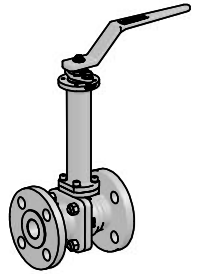


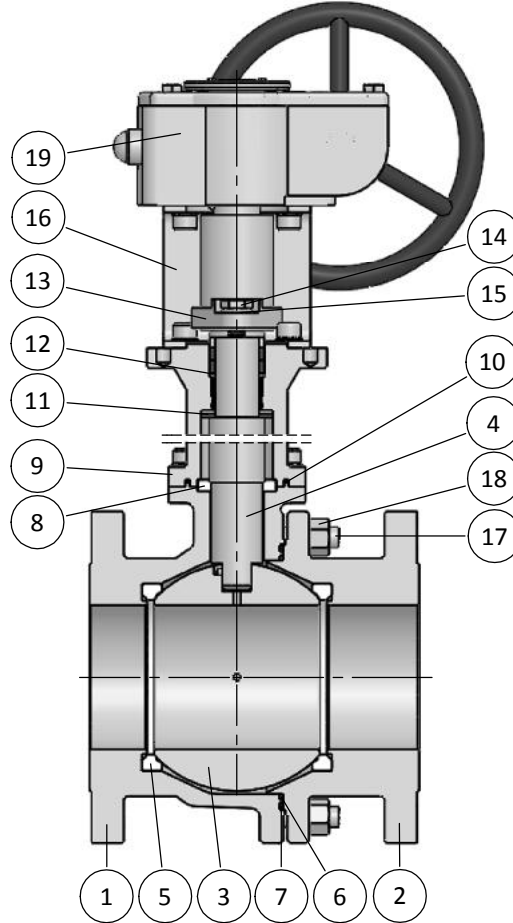
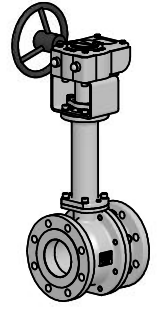
BILL OF MATERIALS

Part	Qt.	Description	STAINLESS STEEL VERSION
1	1	Body	A351 CF8M
2	1	End	A351 CF8M
3	1	Ball	A351 CF8M
4	1	Stem	HS STAINLESS ST.
5	2	Seat	TFM 1600
6	1	1st Body Seal	PTFE
7	1	2nd Body Seal	GRAPHITE
8	1	Bearing	PTFE
9	1	Extension	A479 316/L
10	1	Extension Seal	GRAPHITE
11	2	Extension Thrust Seal	316L + TFM 1600
12	1	Stem Packing Set	TFM 1600 + GRAPHITE
13	1	Gland Packing	A351 CF8M
14	2	Gland Packing Bolt	STAINLESS ST. 316
15	2	Gland Packing Spring	STAINLESS ST. 316
16	1	Stop Pin	STAINLESS ST. 316
17	-	Stud	A193 Gr. B8M cl.2
18	-	Nut	A194 Gr. 8M
19	1	Handle Fasteners	STAINLESS ST. 316
20	1	Handle	A351 CF8M

↘ TYPICAL SPARE PARTS



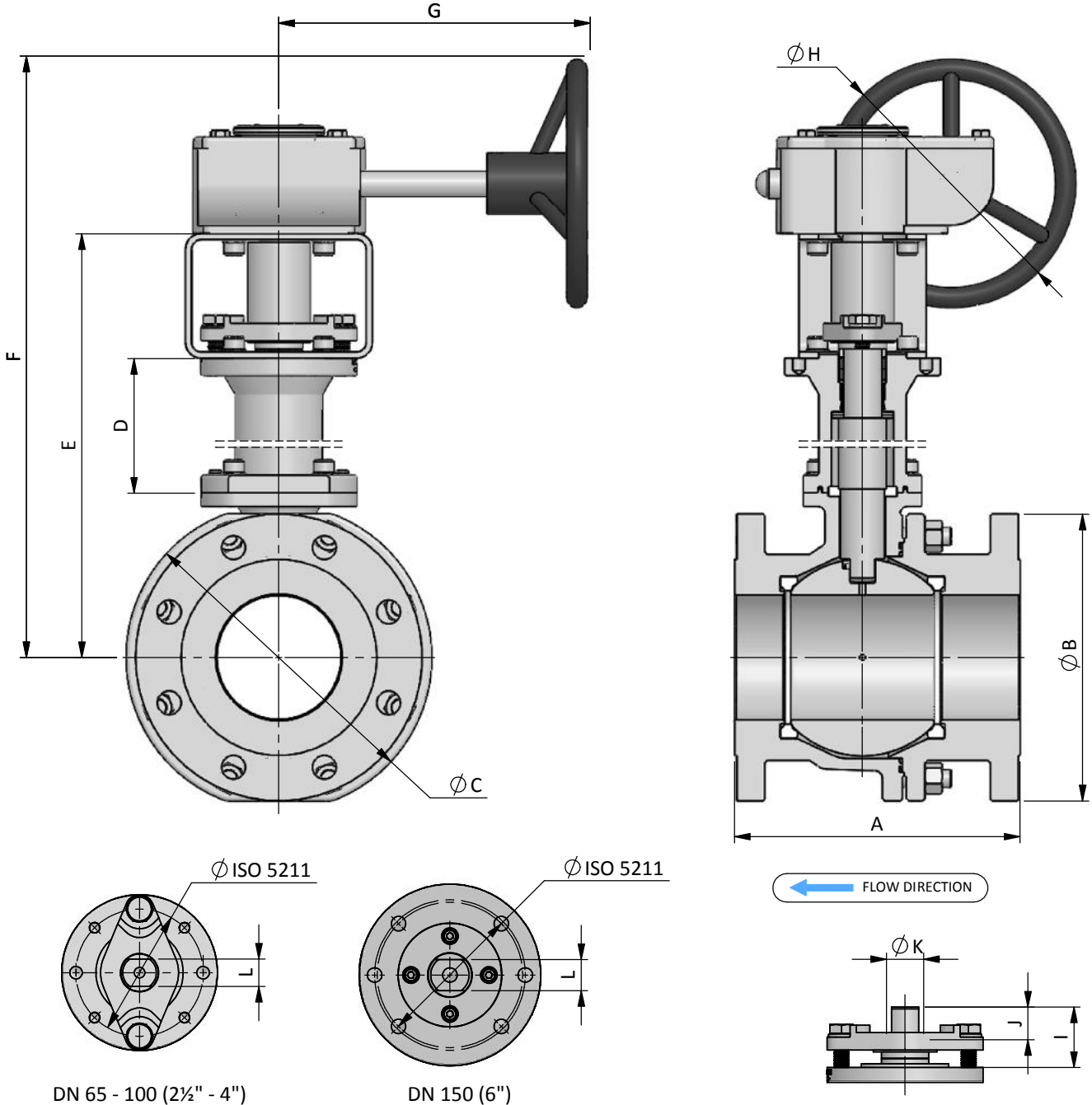
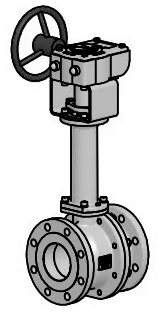
DN / Size		Dimensions								Automation					Weight Approx [kg]	
FULL BORE		Ball Port	CL150		CL300		C	D	E	F	G	H	I	ISO 5211	CL150	CL300
mm	inch		A	B	A	B										
15	½"	15.1	108	90	140	95	150	150	245	22.5	10	10	6	F04	2.5	3
20	¾"	20.6	117	100	152	115	180	150	255	23.5	11.5	12	7.5	F04	3.5	4.5
25	1"	25.4	127	110	165	125	180	150	260	23.5	11.5	12	7.5	F04	4.5	6
40	1½"	38.1	165	125	190	155	210	175	310	30	15	16	11	F05	8	11
50	2"	49.0	178	150	216	165	300	200	360	36	15	20	14	F07	14.5	16.5



BILL OF MATERIALS

Part	Qt.	Description	STAINLESS STEEL VERSION
1	1	Body	A351 CF8M
2	1	End	A351 CF8M
3	1	Ball	A351 CF8M
4	1	Stem	HS STAINLESS ST.
5	2	Seat	TFM 1600
6	1	1st Body Seal	PTFE
7	1	2nd Body Seal	GRAPHITE
8	1	Bearing	PTFE
9	1	Extension	A479 316/L
10	1	Extension Seal	GRAPHITE
11	2	Extension Thrust Seal	316L + TFM 1600
12	1	Stem Packing Set	TFM 1600 + GRAPHITE
13	1	Gland Packing	A351 CF8M
14	-	Gland Packing Bolt	STAINLESS ST. 316
15	2	Gland Packing Spring	STAINLESS ST. 316
16	1	Bracket	STAINLESS ST. 304
17	-	Stud	A193 Gr. B8M cl.2
18	-	Nut	A194 Gr. 8M
19	1	Gearbox	CAST IRON

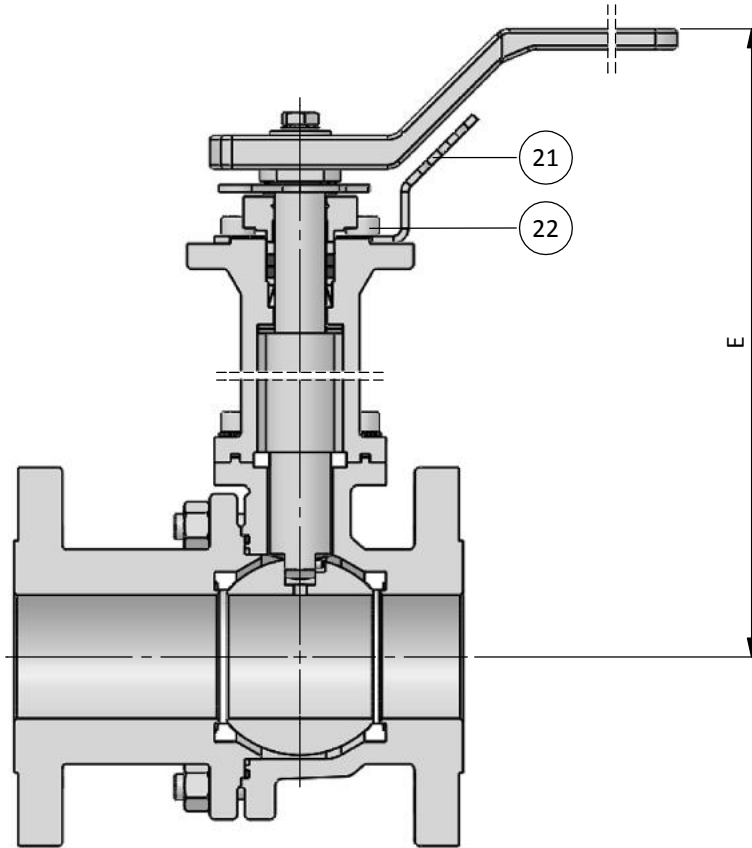
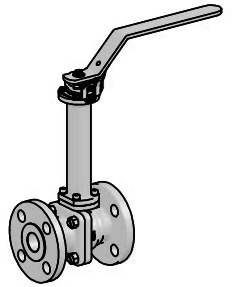
↳ TYPICAL SPARE PARTS



DN 65 - 100 (2½" - 4")

DN 150 (6")

DN / Size		Dimensions													Automation					Weight Approx [kg]			
FULL BORE		Ball Port	CL150		CL300		C	D	E	CL150			CL300			I	J	K	L	ISO 5211	Gearbox	CL150	CL300
mm	inch		A	B	A	B				F	G	H	F	G	H								
65	2½"	62	190	180	241	190	154	200	395	520	220	200	520	220	200	43.5	20.5	24	18	F10	AB215-15	30	32.5
80	3"	75	203	190	282	210	177	250	455	595	250	200	645	285	300	43.5	20.5	24	18	F10	AB550-20	42.5	50
100	4"	100	229	230	305	255	230	250	485	675	285	300	725	300	400	51	26	30	22	F10	AB550-20	60	72
150	6"	150	394	280	-	-	340	300	600	890	310	500	-	-	-	57.5	35	42	30	F14	AB880-20	145	-

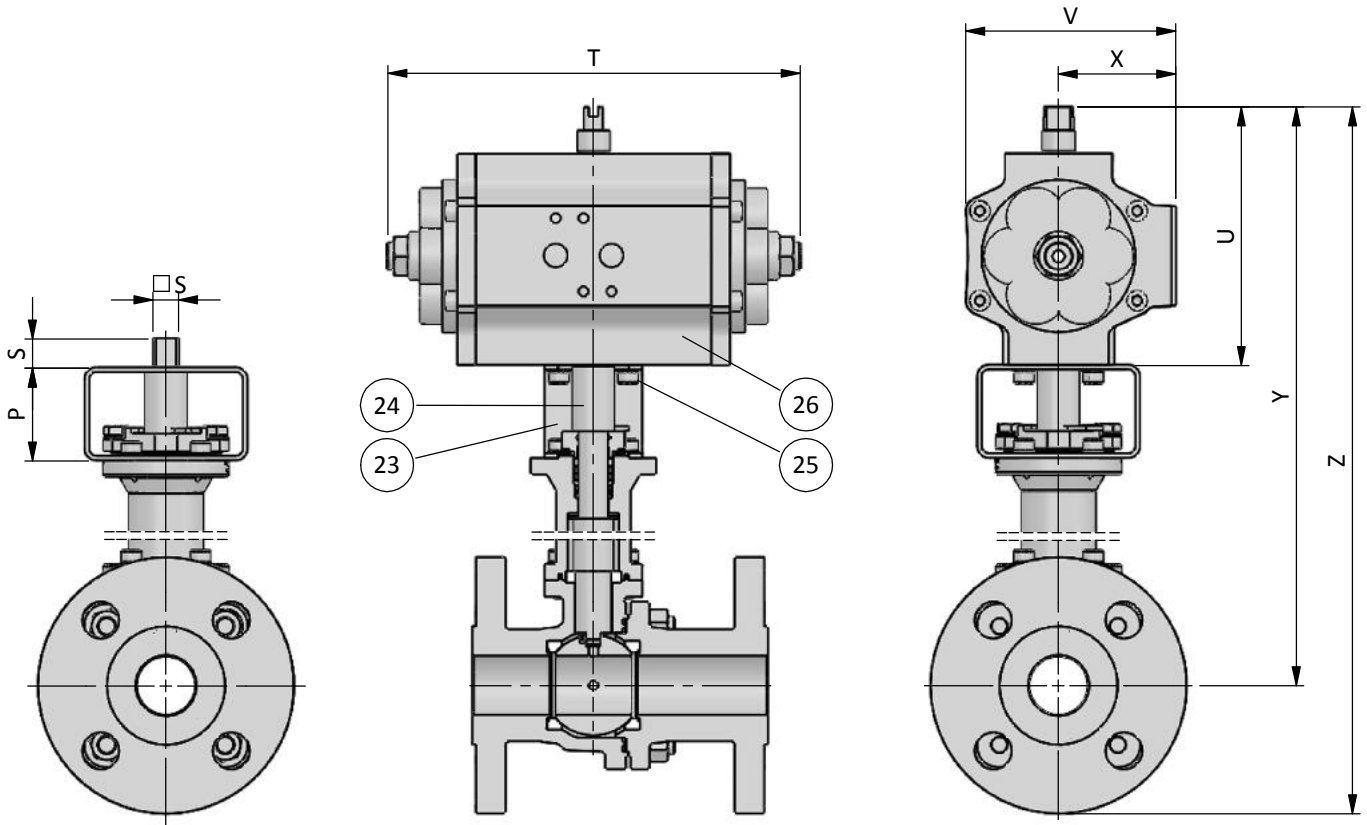
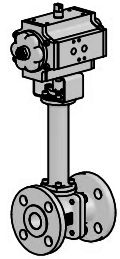


BILL OF MATERIALS

Part	Qt.	Description	STAINLESS ST. VERSION
21	1	Locking Plate	STAINLESS ST. 316
22	1	Bolt	STAINLESS ST. 316

DN / Size		Dimensions
FULL BORE		E
mm	inch	
15	½"	245
20	¾"	255
25	1"	260
40	1½"	310
50	2"	360

Larger size valves available with lockable gearboxes

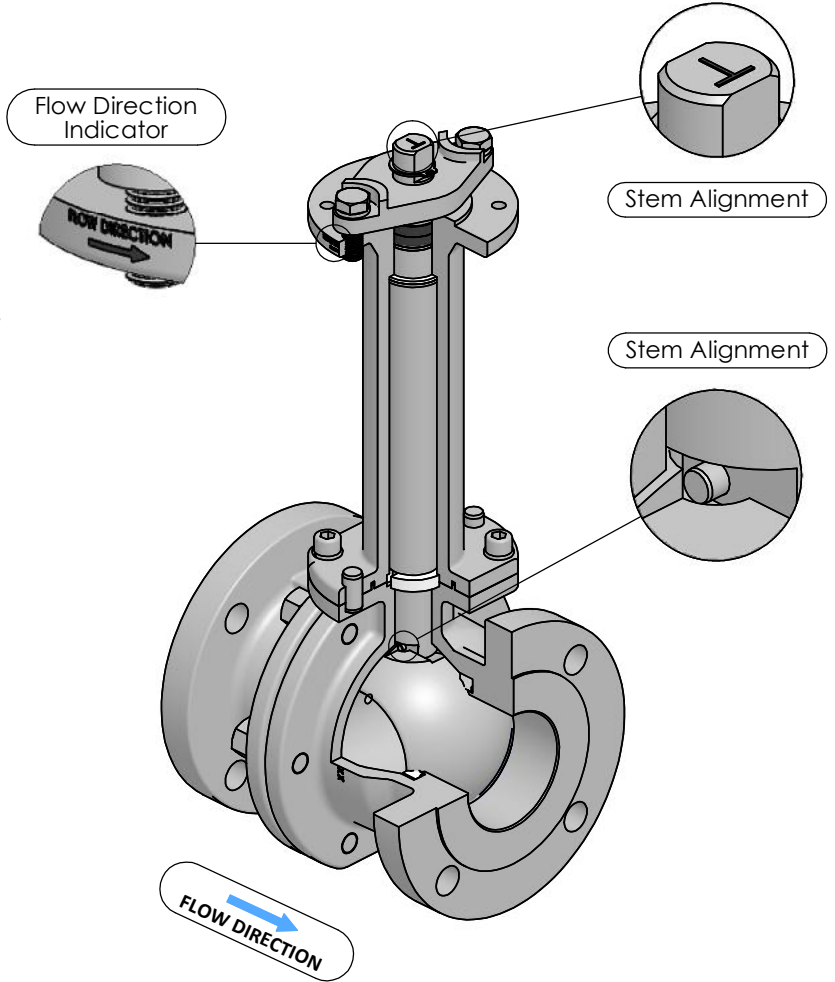
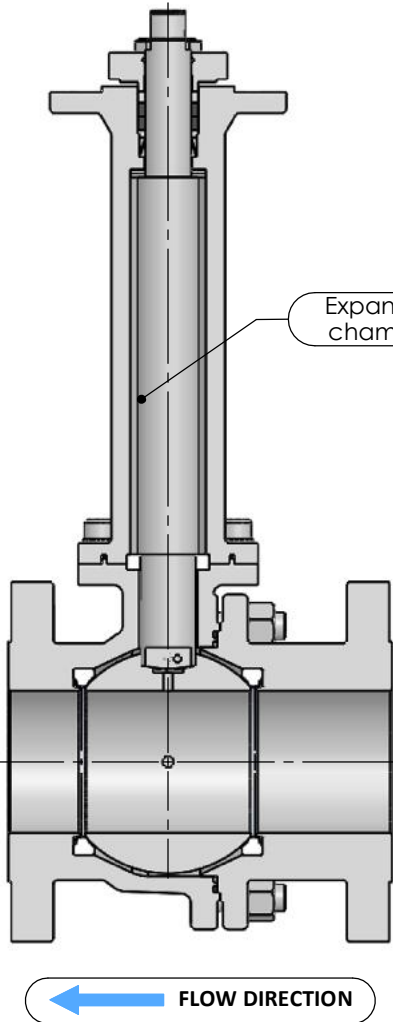
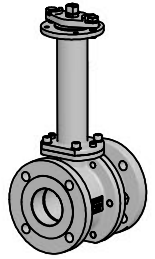


BILL OF MATERIALS

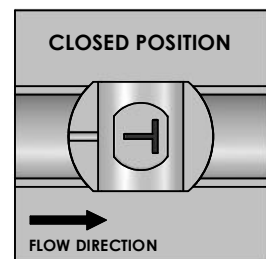
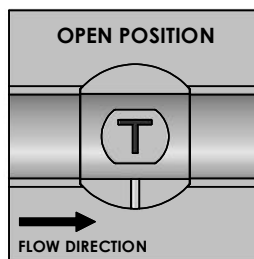
Part	Qt.	Description	Material
23	1	Bracket	STAINLESS ST. 304
24	1	Stem Extension	HS STAINLESS ST.
25	8	Bolt	STAINLESS ST. 316
26	1	Pneumatic Actuator	ALUMINIUM

DN / Size		Actuator *																	
FULL BORE		CL150									CL300								
mm	inch	P	S	REF.	T	U	V	X	Y	Z	P	S	REF.	T	U	V	X	Y	Z
15	½"	40	17	008-10	233	131	112	57	355	400	40	17	008-10	233	131	112	57	355	405
20	¾"	40	17	008-10	233	131	112	57	365	415	40	17	008-10	233	131	112	57	365	420
25	1"	40	19	012-08	280	131	112	57	365	420	40	19	012-08	280	131	112	57	365	430
40	1½"	50	22	030-18	286	189	169	85	475	535	50	27	040-18	344	199	169	85	485	560
50	2"	60	27	040-18	344	199	169	85	535	610	60	27	060-20	377	230	195	100	570	650
65	2½"	100	36	100-18	440	246	210	108	640	730	100	36	140-24	445	272	232	120	665	760
80	3"	100	36	140-24	445	272	232	120	730	830	100	36	250-40	460	340	305	151	795	900
100	4"	100	36	250-40	460	340	305	151	825	940	120	46	370-20	670	340	305	151	845	970
150	6"	100	55	500-32	794	450	406	207	1050	1200	-	-	-	-	-	-	-	-	-

*Pneumatic Actuators selected for TFM1600 seats considering input air pressure of 5.5bar and minimum 50% safety margin

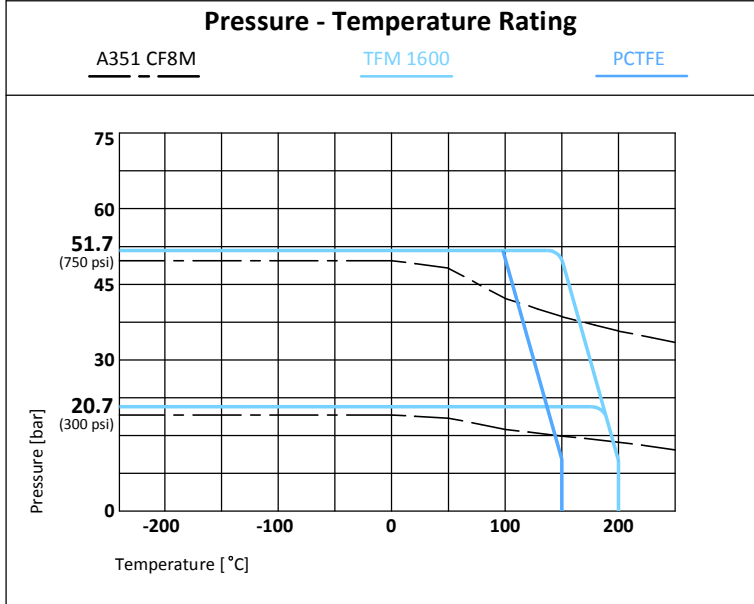


DN SIZE		Expansion Chamber
FULL BORE		
mm	inch	cm ³
15	½"	9
20	¾"	18
25	1"	18
40	1½"	33
50	2"	53
65	2½"	65
80	3"	88
100	4"	154
150	6"	245



STEM ALIGNMENT SAFETY DESIGN

RIB AND GROOVE DESIGN BETWEEN THE BALL AND THE STEM TO GUARANTEE THE ALIGNMENT OF THE UPSTREAM RELIEF HOLE AVOIDING INCORRECT INSTALLATIONS. POSITION OF THE UPSTREAM RELIEF HOLE VISIBLE ON TOP OF THE STEM.



Work Conditions			
Material		mOT* [°C]	MOT* [°C]
A351 CF8M	TFM 1600	-196	200
	PCTFE	-196	150

*mOT - minimum Operating Temperature.
 *MOT - Maximum Operating Temperature at 10 bar

DN / SIZE	Rating	
	CL150	CL300
FB 15 (½") to 150 (4")	20.7 bar 300 psi	51.7 bar 750 psi

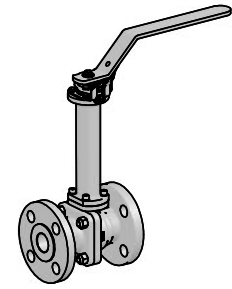
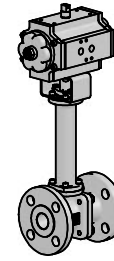
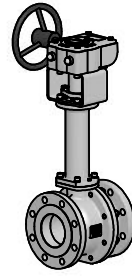
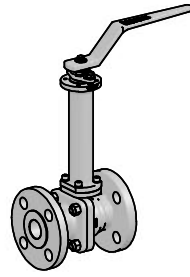
DN / Size		Torque Valve Figure [Nm] *		Maximum Allowable Stem Torque [Nm]	Flow Coefficient Cv
		CL150	CL300		
FULL BORE		BTO		MAST	
mm	inch	TFM 1600			
15	½"	9	10	40	15
20	¾"	13	17	71.5	35
25	1"	20	28	71.5	50
40	1½"	60	75	200	135
50	2"	90	125	385	230
65	2½"	160	250	715	380
80	3"	250	400	715	575
100	4"	450	700	1420	965
150	6"	1100	-	4075	2500

*Values without safety margin

Reference BTO 100% - RTO 55% | ETO 75% | BTC 75% | RTC 55% | ETC 80%

CERTIFICATION	CONSTRUCTION STANDARDS	TEST STANDARDS
CE Certification acc. to TPED 2010/35/EU <i>(on going process)</i> CE Certification acc. to PED 2014/68/EU Fire Safe Design acc. to API 607Ed.6/ISO 10497 CE Certification acc. to ATEX II 2GD 2014/34/EU Quality System Certified acc. to ISO 9001	ASME B16.34 ISO 17292 ASME B16.5 ASME B16.10 MSS-SP-25 ISO 5211	Pressure tests according to: EN12266-1 / API 598 / ISO 5208 Rate A Ambient temperature tests applied: Hydrostatic Shell Test Hydrostatic Seat Test Pneumatic Tightness Test Pneumatic Seat Test Cryogenic pressure test according BS 6364 available under request EN 10204 type 3.1 Certificate

Standards acc. to the latest available revision



SERIE	CLASS	VERSION	PORT	DN	ENDS	BODY	BALL STEM	BOLTING	SEATS 1° SEAL	PACKING 2° SEAL	OPTIONS
CCF	1 - CL150	1 - ASME	F - FB	015	FLANGED RF	F - A351 CF8M	O - A351 CF8M HS STAINLESS ST.	F - B8M cl.2	2 - TFM 1600 PTFE	1 - V TFM + Grafite Grafite	B - BS 6364 Extension F - Bracket Automation G - Gear Box H - Actuators I - Switch Box / Limit Swiches L - Locking Lever/Handle O - Oval Lever/Handle R - Bare Shaft / Bare Stem S - Solenoid Valve W - "V" Ball Port Z - Others
	2 - CL300			020	F1 - ASME RF	Z - Others	Z - Others		8 - PCTFE PTFE	2 - V TFM 1600 PTFE	
				025							
				040							
				050							
				065							
				080							
				100							
				150							

Example:

CCF21F015F1F1FOF21

CCF11F100F1F1FOF21H

CRYOGENIC RANGE

CRYOGENIC RANGE
CXF / CBF / CSF / CVT



INDUSTRIAL RANGE

CF Series
2 split body - Floating
CI 150/300
DN ½" (15) to 8" (200)



BF Series
2 split body - Floating
CI 150 to 600
DN ½" (15) to 4" (100)



SF Series
3 pieces bolted - Floating
CI 300 to 800
DN ½" (15) to 4" (100)



HF Series
3 pieces bolted - Floating
CI 1500/2500
DN ½" (15) to 2" (50)



ST Series
Multi-ways - Floating
CI 150 to 600
DN ¾" (10) to 2" (50)



VTR Series
3 pieces bolted - Trunnion
CI 150 to 2500
DN ½" (15) to 12" (300)



OTHER RANGE

SANITARY RANGE
XP / RP / LP / MP / QP



METALLIC SEATS RANGE
CFM / BFM / XFM / SFM / VTM



