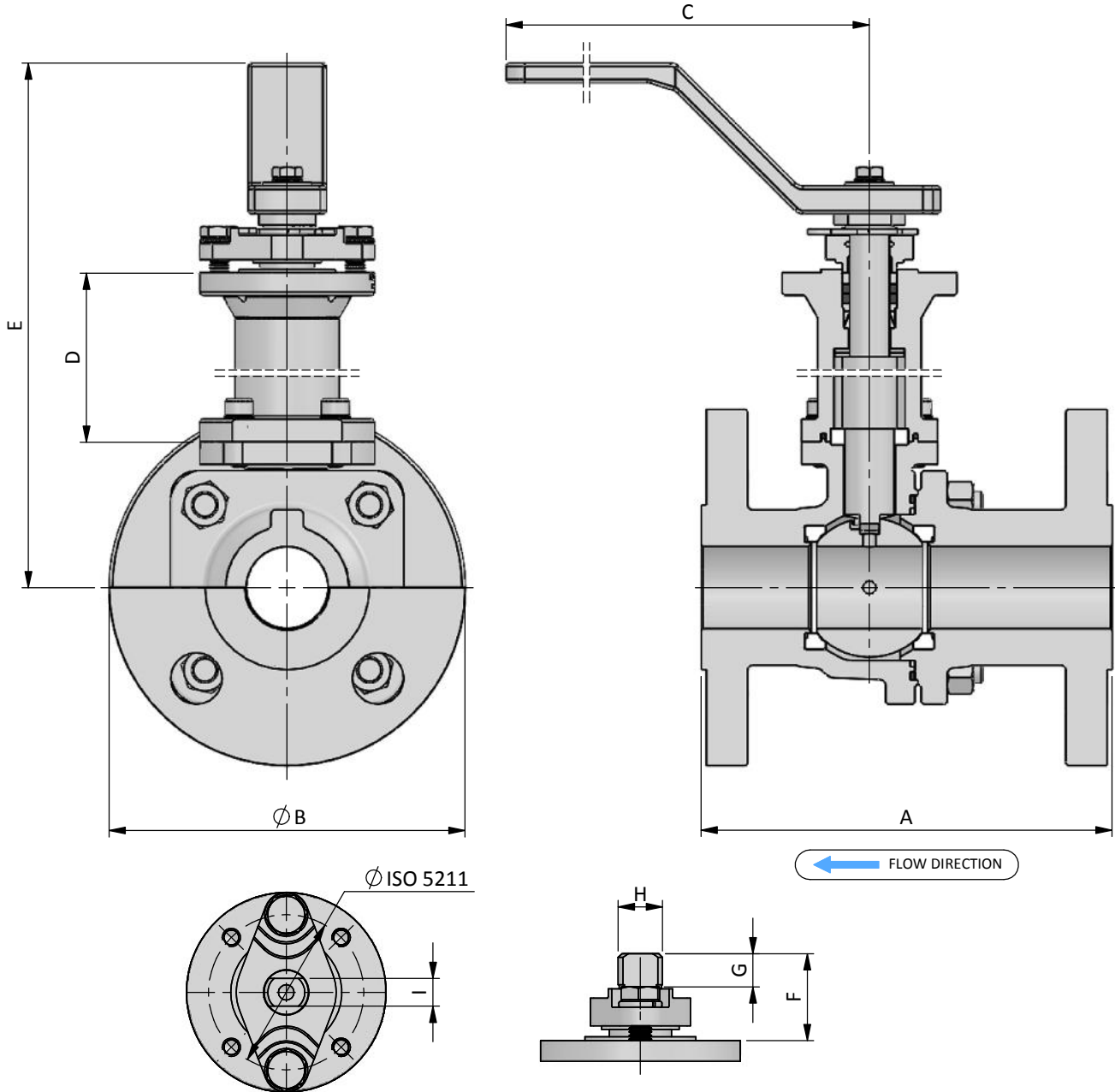
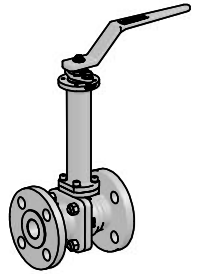


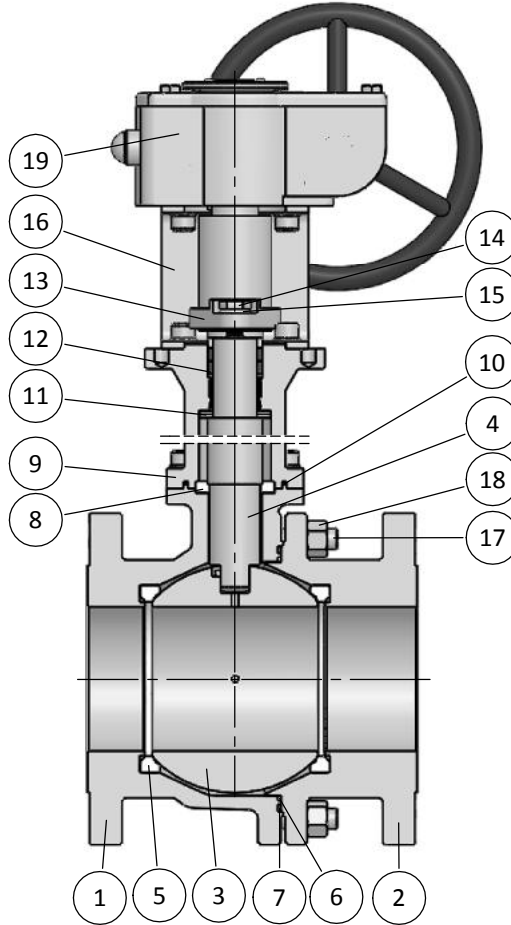
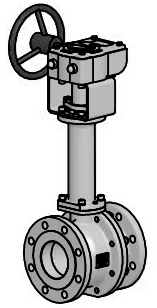
**BILL OF MATERIALS**

Part	Qt.	Description	STAINLESS STEEL VERSION
1	1	Body	1.4408
2	1	End	1.4408
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	A4 CL.70
18	-	Nut	A4 CL.70
19	1	Handle Fasteners	STAINLESS ST. 316
20	1	Handle	A351 CF8M

↘ TYPICAL SPARE PARTS



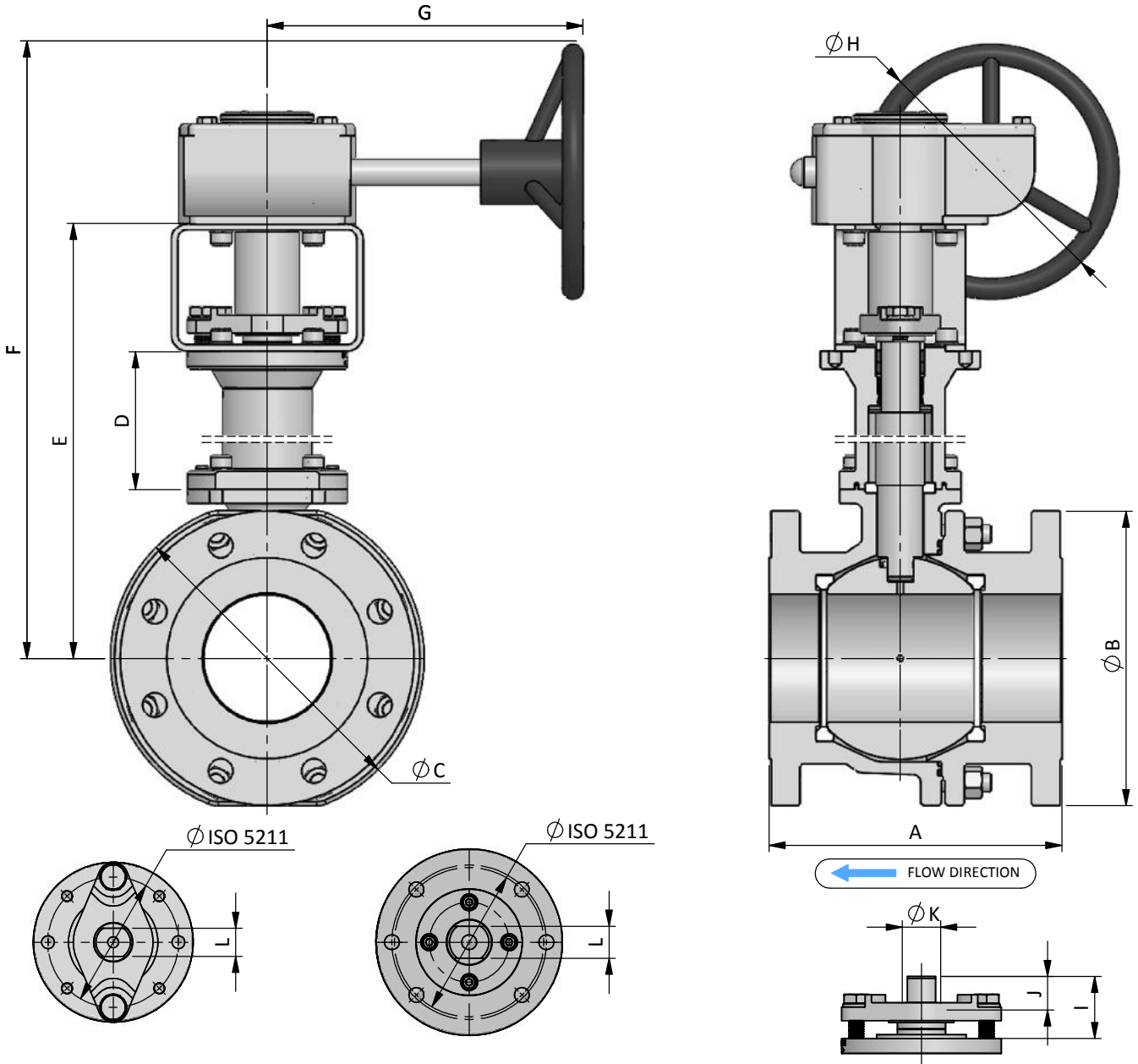
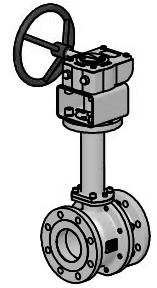
DN / Size		Dimensions								Automation					Weight Approx [kg]	
FULL BORE		Ball Port	F1		F4		C	D	E	F	G	H	I	ISO 5211	F1	F4
mm	inch		A	B	A	B										
15	½"	15.1	130	95	115	95	150	150	245	22.5	10	10	6	F04	-	-
20	¾"	20.6	150	105	120	105	180	150	255	23.5	11.5	12	7.5	F04	-	-
25	1"	25.4	160	115	125	115	180	150	260	23.5	11.5	12	7.5	F04	-	-
32	1¼"	31.8	180	140	130	140	210	175	305	30	15	16	11	F05	-	-
40	1½"	38.1	200	150	140	150	210	175	310	30	15	16	11	F05	-	-
50	2"	49.0	230	165	150	165	300	200	360	36	15	20	14	F07	-	-



**BILL OF MATERIALS**

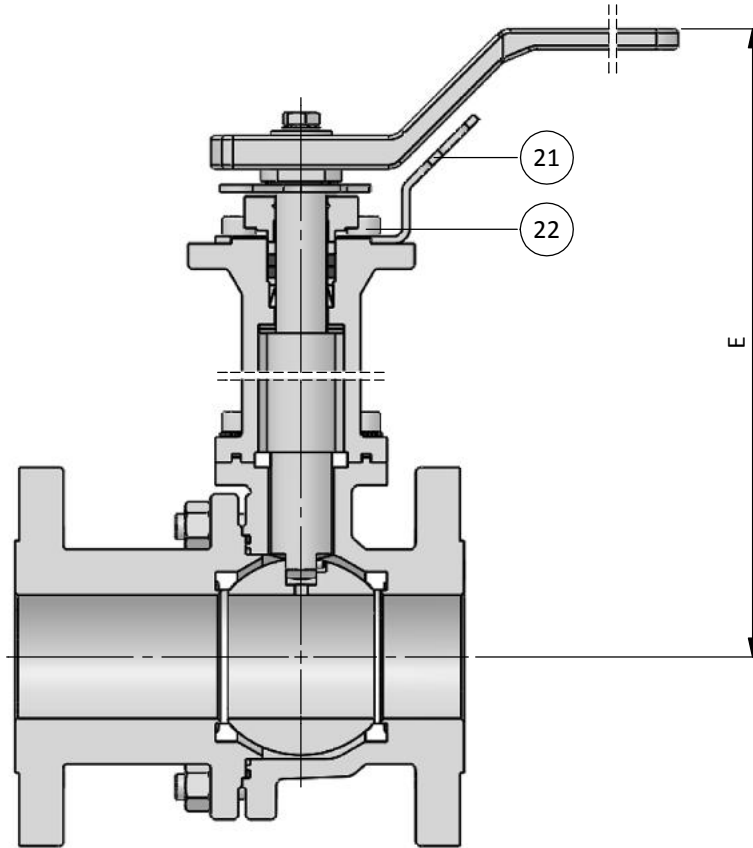
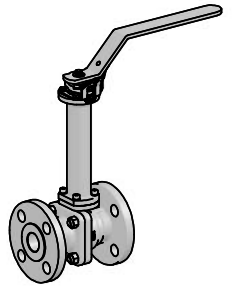
Part	Qt.	Description	STAINLESS STEEL VERSION
1	1	Body	1.4408
2	1	End	1.4408
3	1	Ball	A351 CF8M
4	1	Stem	HS STAINLESS ST.
5	2	Seat	TFM 1600
6	1	1st Body Seal	PTFE
7	1	2nd Body Seal	GRAPHITE
8	1	Stem Packing Set	GRAPHITE + PEEK
9	1	Bearing	PTFE
10	1	Extension	A479 316/L
11	1	Extension Seal	316L + TFM 1600
12	2	Extension "L" Seal	TFM 1600 + GRAPHITE
13	1	Gland Packing	A351 CF8M   A479 316/L
14	2	Gland Packing Bolt	STAINLESS ST. 316
15	2	Gland Packing Spring	STAINLESS ST. 316
16	1	Bracket	STAINLESS ST. 304
17	-	Stud	A4 CL.70
18	-	Nut	A4 CL.70
19	1	Gearbox	CAST IRON

↘ TYPICAL SPARE PARTS



Class	DN / Size		Dimensions										Automation					Weight Approx [kg]			
	FULL BORE		Ball Port	F1		F4		C	D	E	F	G	H	I	J	K	L	ISO 5211	Gearbox	F1	F4
	mm	inch		A	B	A	B														
PN16	65	2½"	62	290	185	170	185	154	200	395	520	220	200	43.5	20.5	24	18	F10	AB215-15	-	-
	80	3"	75	310	200	180	200	177	250	455	595	250	200	43.5	20.5	24	18	F10	AB550-20	-	-
	100	4"	100	350	220	190	220	230	250	485	675	285	300	51	26	30	22	F10	AB550-20	-	-
	150	6"	150	-	-	350*	285	340	300	600	890	310	500	57.5	35	42	30	F14	AB880-20	-	-
PN40	65	2½"	62	290	185	170	185	154	200	395	520	220	200	43.5	20.5	24	18	F10	AB215-15	-	-
	80	3"	75	310	200	180	200	177	250	455	645	285	300	43.5	20.5	24	18	F10	AB550-20	-	-
	100	4"	100	350	235	190	235	230	250	485	725	300	400	51	26	30	22	F10	AB550-20	-	-

\*Face to face according to F5

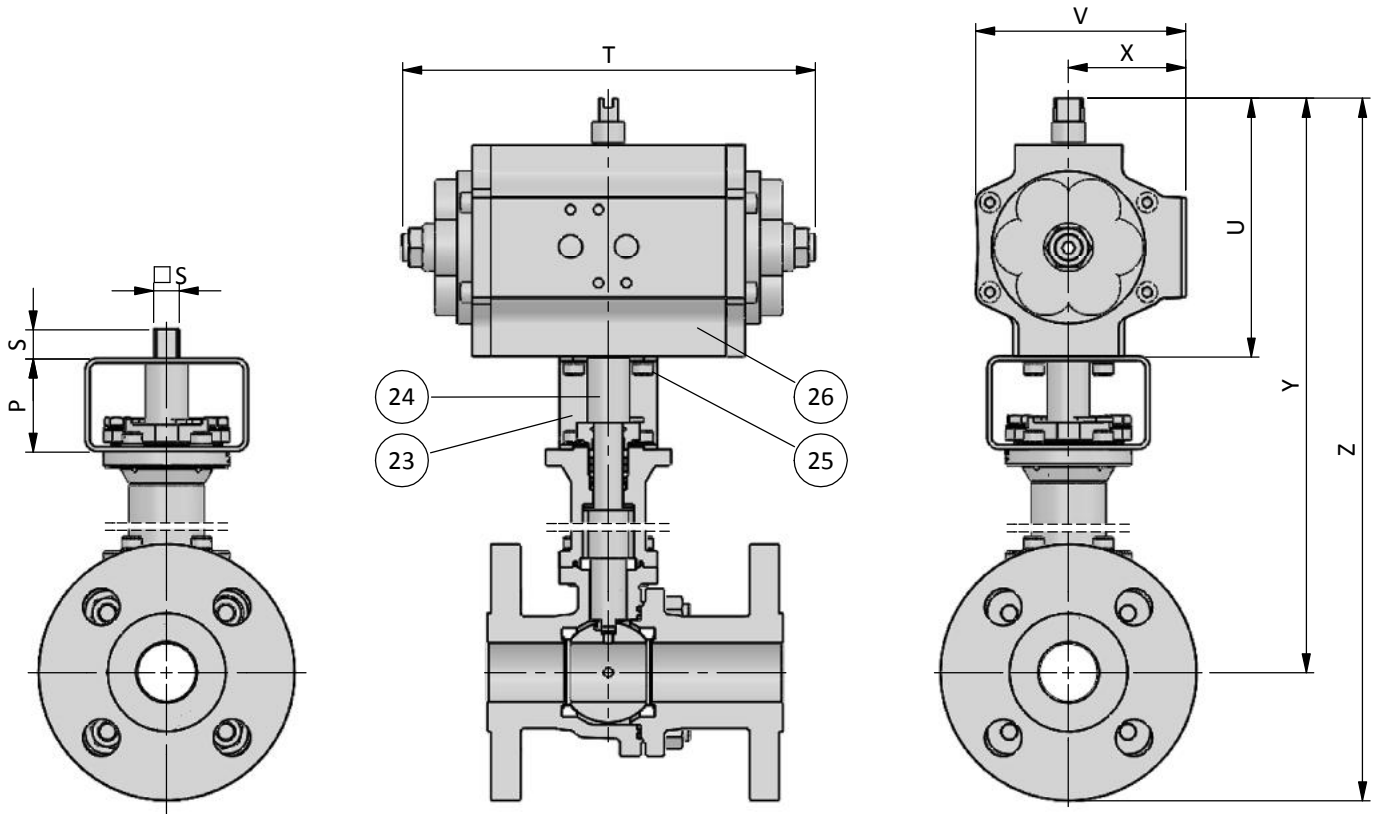
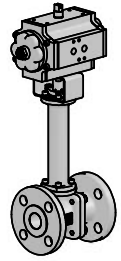


**BILL OF MATERIALS**

Part	Qt.	Description	STAINLESS ST. VERSION
21	1	Locking Plate	STAINLESS ST. 316
22	1	Bolt	A4 CL.70

DN / Size		Dimensions
FULL BORE		E
mm	inch	
15	½"	245
20	¾"	255
25	1"	260
32	1¼"	305
40	1½"	310
50	2"	360

Larger size valves available with lockable gearboxes

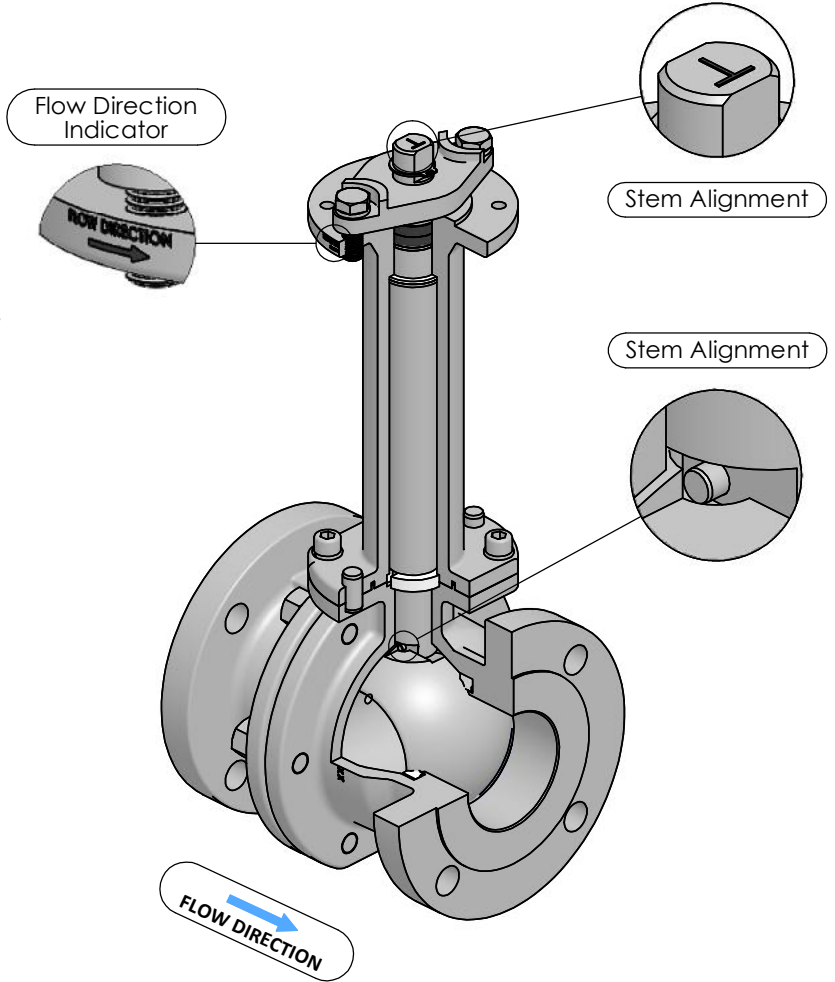
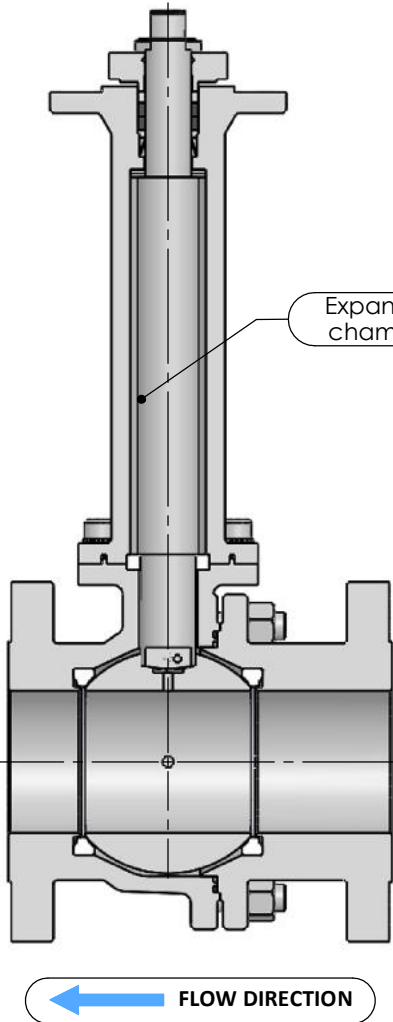
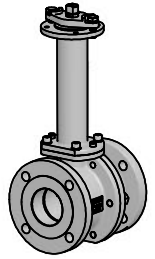


**BILL OF MATERIALS**

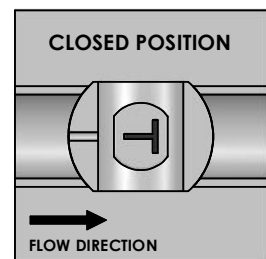
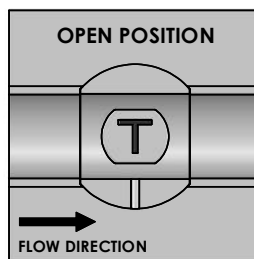
Part	Qt.	Description	Material
23	1	Bracket	STAINLESS ST. 304
24	1	Stem Extension	HS STAINLESS ST.
25	8	Bolt	A4 CL.70
26	1	Pneumatic Actuator	ALUMINIUM

DN / Size		Actuator *																	
FULL BORE		PN16										PN40							
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	405
20	¾"	-	-	-	-	-	-	-	-	-	40	17	008-10	233	131	112	57	365	415
25	1"	-	-	-	-	-	-	-	-	-	40	19	012-08	280	131	112	57	365	425
32	1¼"	-	-	-	-	-	-	-	-	-	50	22	030-18	286	189	169	85	470	535
40	1½"	-	-	-	-	-	-	-	-	-	50	27	040-18	344	199	169	85	485	560
50	2"	-	-	-	-	-	-	-	-	-	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	200-20	537	272	232	120	730	830
100	4"	100	46	250-40	460	340	305	151	825	935	120	46	370-20	670	340	305	151	845	960
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

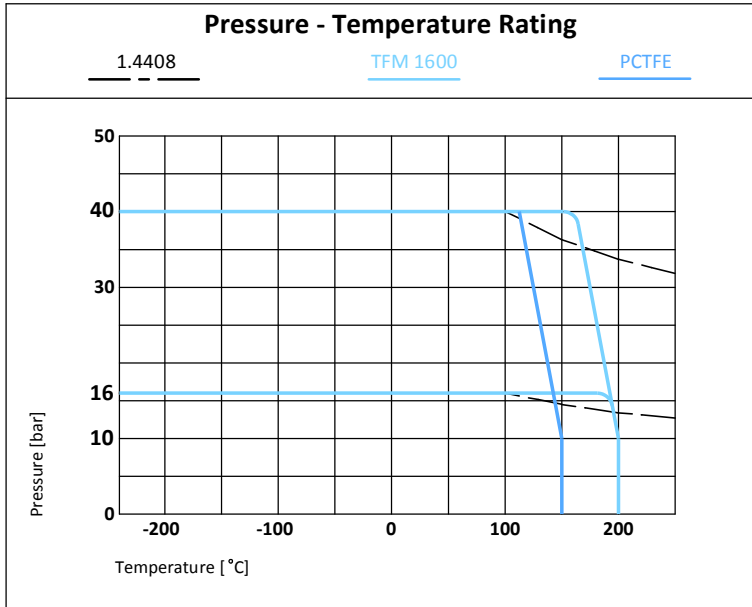


DN SIZE		Expansion Chamber
mm	inch	
15	½"	9
20	¾"	18
25	1"	18
40	1½"	33
50	2"	53
65	2½"	65
80	3"	88
100	4"	154
150	6"	245



**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]	
1.4408	TFM 1600	-196	200
	PCTFE	-196	150

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

DN / SIZE	Rating	
	PN16	PN40
FB 15 (½") to 150 (6")	PN16 16 bar	PN40 40 bar

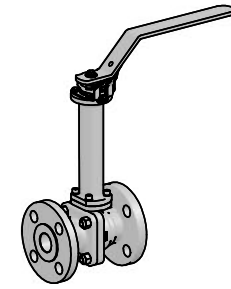
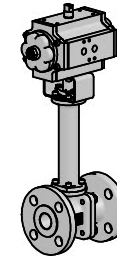
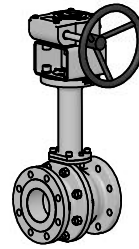
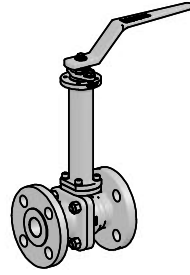
DN / Size		Torque Valve Figure [Nm] *		Maximum Allowable Stem Torque [Nm]	Flow Coefficient Cv
		PN16	PN40		
FULL BORE		BTO		MAST	
mm	inch	TFM 1600			
15	½"	-	10	40	15
20	¾"	-	17	71.5	35
25	1"	-	28	71.5	50
32	1¼"	-	50	200	90
40	1½"	-	70	200	135
50	2"	-	115	385	230
65	2½"	150	215	715	380
80	3"	210	350	715	575
100	4"	400	600	1420	965
150	6"	1000	-	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   1ª SEAL	PACKING   2ªSEAL	OPTIONS
CCF	1 - PN16	6 - DIN	F - FB	015	<b>FLANGED RF</b>	F - 1.4408	O - A351 CF8M   HS STAINLESS ST.	F - B8M cl.2	2 - <b>TFM 1600</b>   PTFE	1 - <b>V TFM + Grafite</b>   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 - PN40			020	F2 - DIN F4/5 Form B	Z - Others	Z - Others		8 - PCTFE   PTFE	2 - V TFM   PTFE	
				025	F3 - DIN F1 Form B						
				040							
				050							
				065							
				080							
				100							
				150							

Example:

**CCF26F015F3F3FFF21**

**CCF16F100F2F2FFF21H**

**CRYOGENIC RANGE**

CRYOGENIC RANGE  
CXF / CBF / CSF / CVT



**INDUSTRIAL RANGE**

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



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



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



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



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



VTR Series  
3 pieces bolted - Trunnion  
Cl 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



