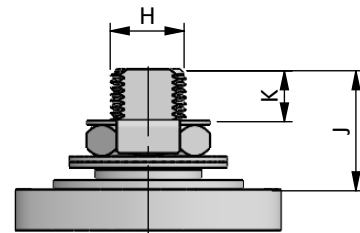
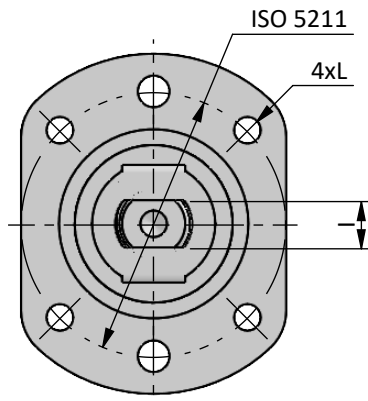
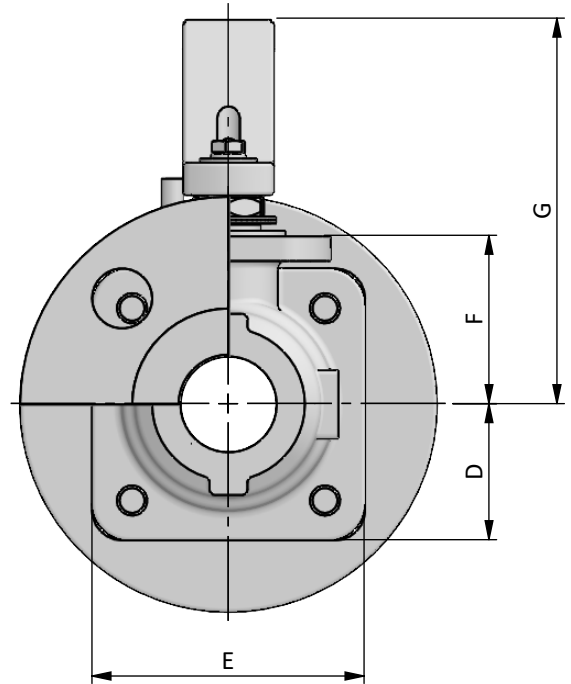
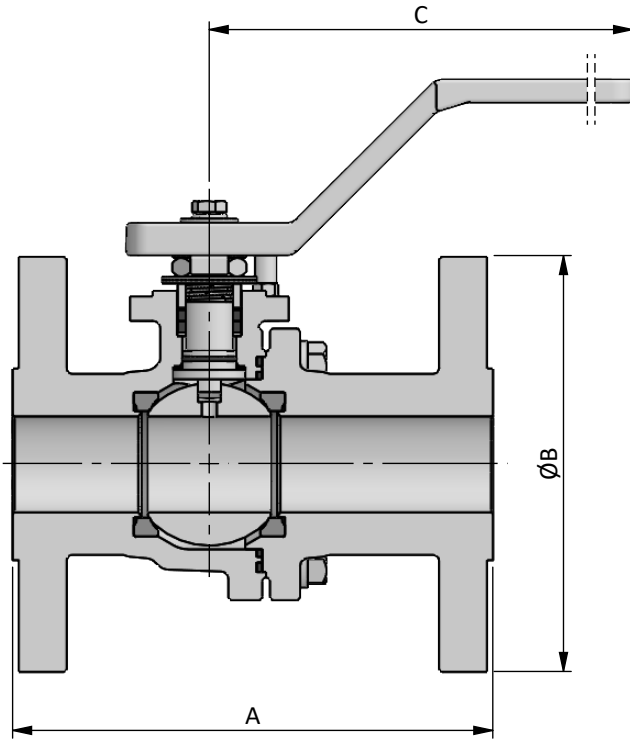
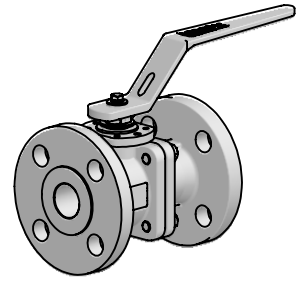


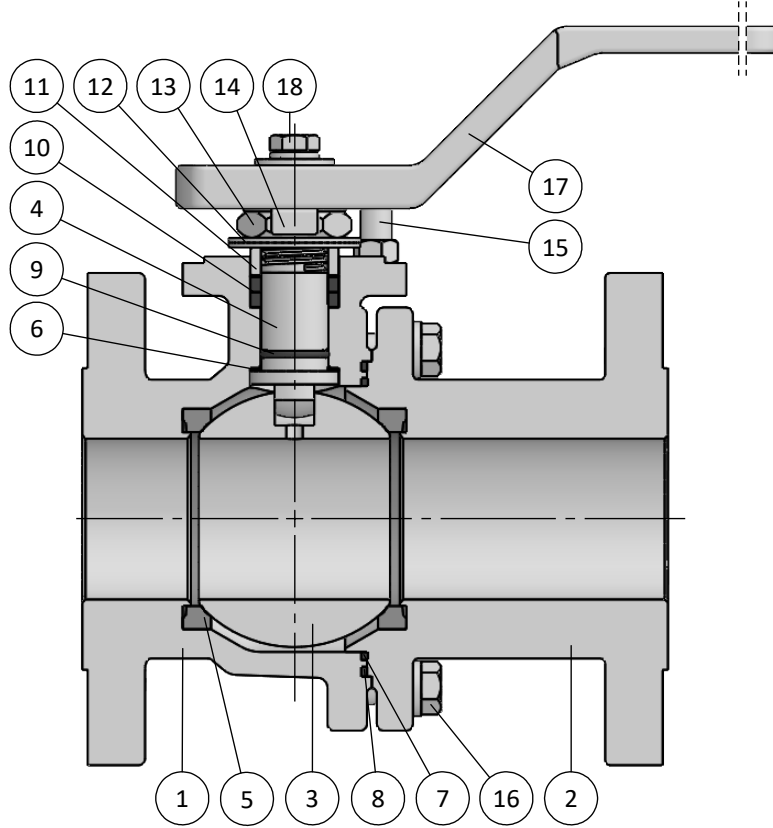
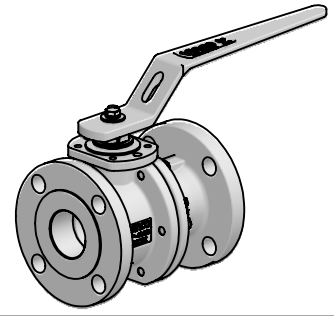
BILL OF MATERIALS

Part	Qt.	Description	CARBON STEEL VERSION	LT CARBON STEEL VERSION	STAINLESS STEEL VERSION
1	1	Body	A216 WCB	A352 LCC	A351 CF8M
2	1	End	A216 WCB	A352 LCC	A351 CF8M
3	1	Ball		A351 CF8M	
4	1	Stem		A479 316/L	
5	2	Seat		C-RPTFE	
6	1	Stem Thrust Seals		C-RPTFE + PEEK	
7	1	1st Body Seal		C-RPTFE	
8	1	2nd Body Seal		GRAPHITE	
9	1	O'Ring		FKM AED	
10	1	Stem Packing Set		GRAPHITE + PEEK	
11	1	Gland Packing		STAINLESS ST. 316	
12	2	Disc Spring		STAINLESS ST. 316	
13	1	Stem Nut		STAINLESS ST. 316	
14	1	Locking Clip		STAINLESS ST. 316	
15	1	Stop Pin		STAINLESS ST. 316	
16	-	Bolt	A193 Gr. B7 ZINC.	A320 Gr. L7M ZINC.	A193 Gr. B8M cl.2
17	1	Handle		A351 CF8	
18	1	Handle Fastener		STAINLESS ST. 304	

↘ TYPICAL SPARE PARTS



DN / Size		Dimensions										Automation					Weight Approx. [kg]		
FULL BORE		Ball Port	CL150		CL300		C	D	E	F	G	H	I	J	K	L	ISO 5211	CL150	CL300
mm	inch		A	B	A	B													
15	½"	15.1	108	90	140	95	180	27.5	55	35	90	10	6	15	5.5	M5	F04	2	2
20	¾"	20.6	117	100	152	115	180	32.5	65	40	100	12	7.5	20	8	M5	F04	2.5	3.5
25	1"	25.4	127	110	165	125	180	37.5	75	45	105	12	7.5	20	8	M5	F04	3.5	5
40	1½"	38.1	165	125	190	155	210	47.5	95	60	125	16	11	22	8.5	M6	F05	6	9

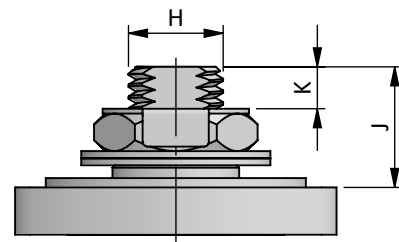
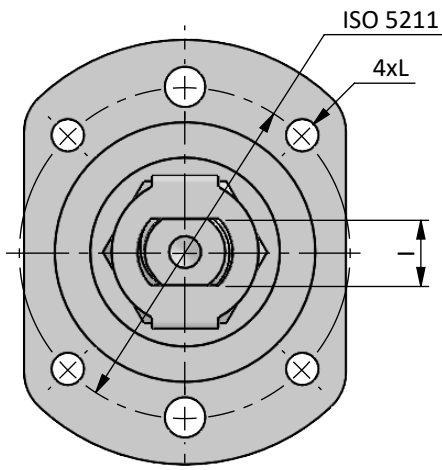
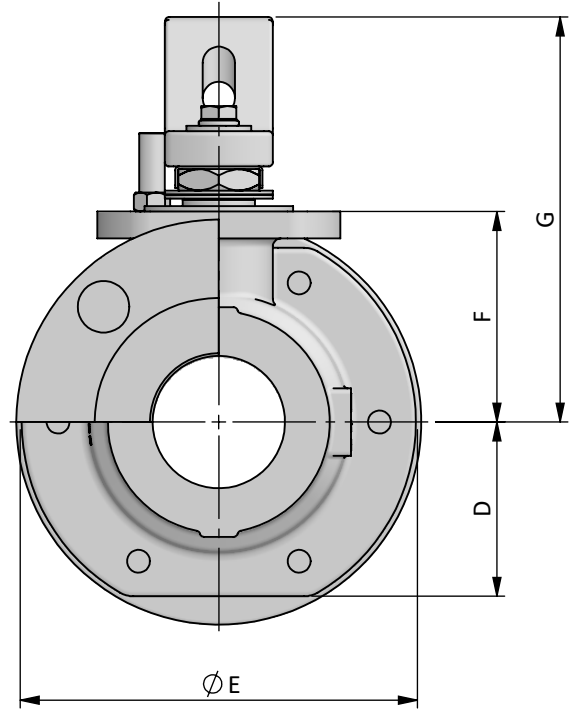
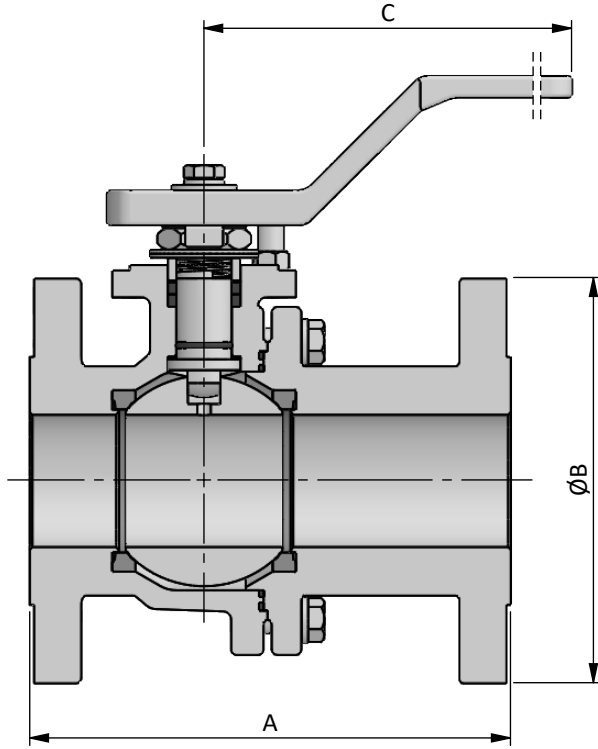
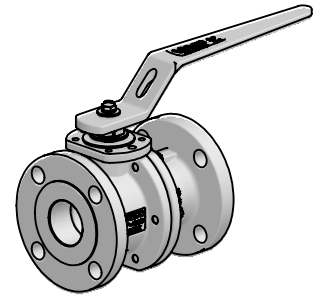


BILL OF MATERIALS

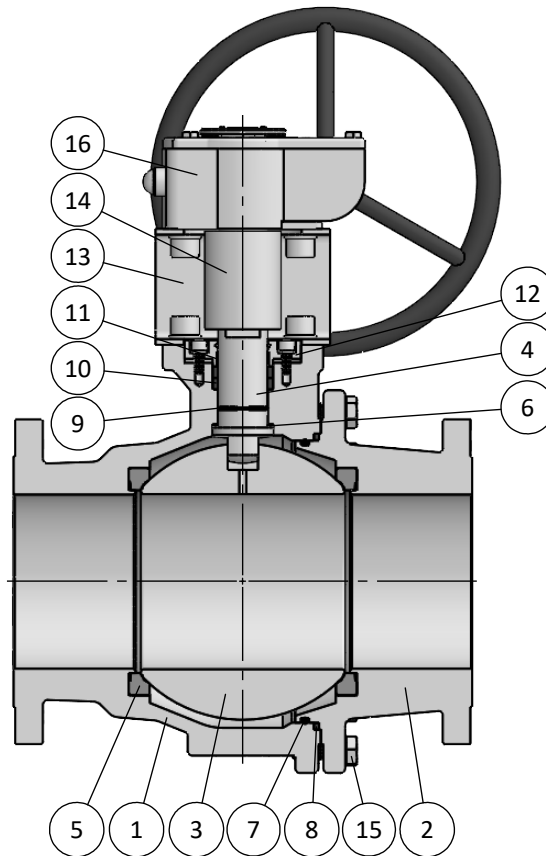
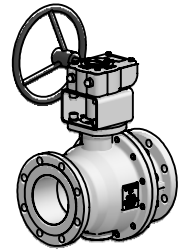
Part	Qt.	Description	CARBON STEEL VERSION	LT CARBON STEEL VERSION	STAINLESS STEEL VERSION
1	1	Body	A216 WCB	A352 LCC	A351 CF8M
2	1	End	A216 WCB	A352 LCC	A351 CF8M
3	1	Ball		A351 CF8M	
4	1	Stem		A479 316/L	
5	2	Seat		C-RPTFE	
6	1	Stem Thrust Seals		C-RPTFE + PEEK	
7	1	1st Body Seal		C-RPTFE	
8	1	2nd Body Seal		GRAPHITE	
9	1	O'Ring		FKM AED	
10	1	Stem Packing Set		GRAPHITE + PEEK	
11	1	Gland Packing		STAINLESS ST. 316	
12	2	Disc Spring		STAINLESS ST. 316	
13	1	Stem Nut		STAINLESS ST. 316	
14	1	Locking Clip		STAINLESS ST. 316	
15	1	Stop Pin		STAINLESS ST. 316	
16	-	Bolt	A193 Gr. B7 ZINC.	A320 Gr. L7M ZINC.	A193 Gr. B8M cl.2
17	1	Handle		A351 CF8	
18	1	Handle Fastener		STAINLESS ST. 304	

↘ TYPICAL SPARE PARTS

CFH SERIES
CL150/CL300 (300/750 psi)
FULL BORE - 2" (DN50) ÷ 4" (DN100)
ASME FLANGED ENDS
OVERALL DIMENSIONS



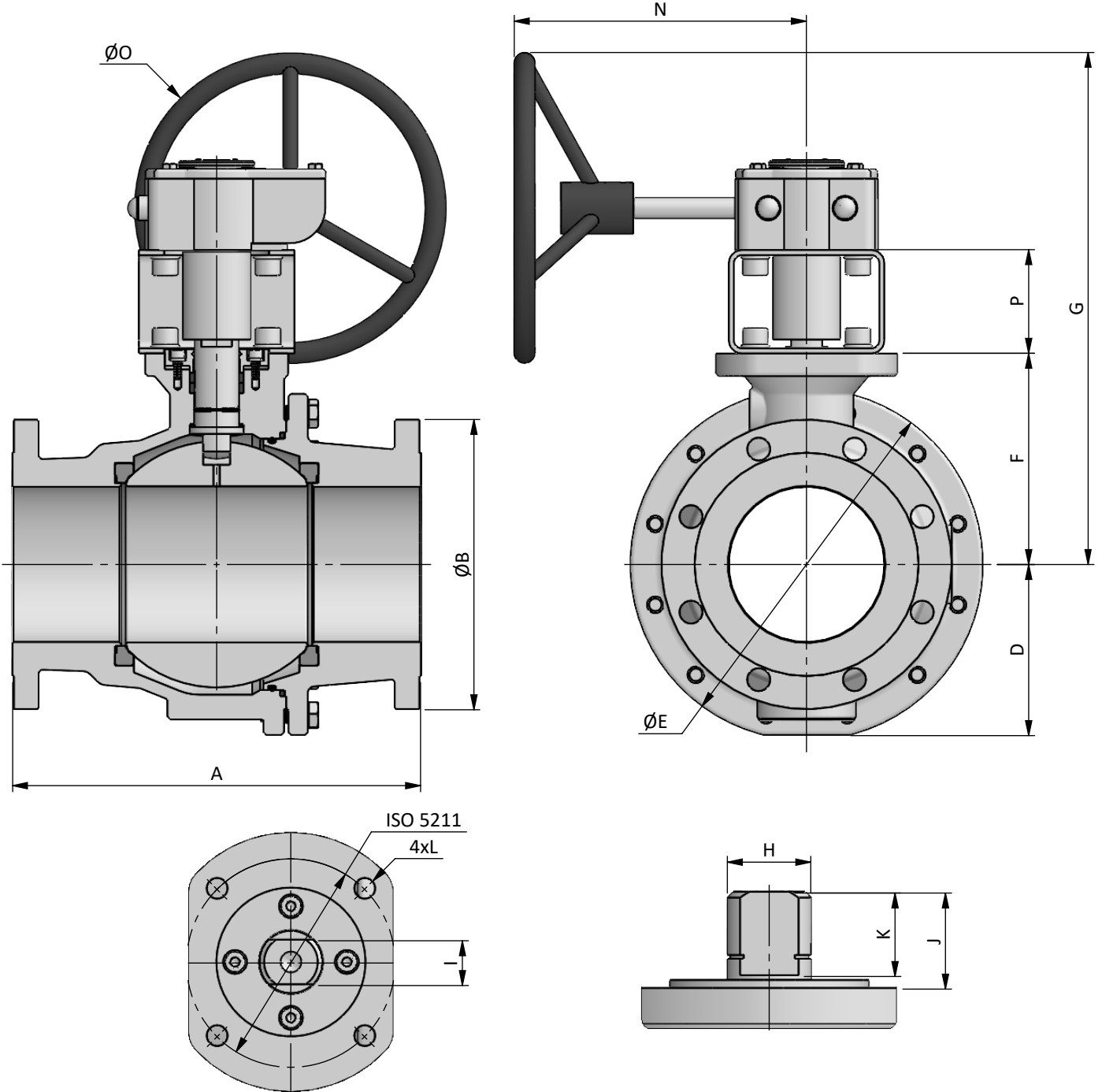
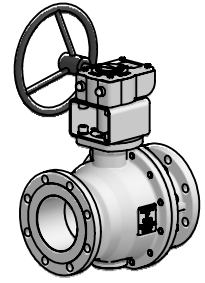
DN / Size		Dimensions										Automation					Weight Approx. [kg]		
FULL BORE		Ball Port	CL150		CL300		C	D	E	F	G	H	I	J	K	L	ISO 5211	CL150	CL300
mm	inch		A	B	A	B													
50	2"	49	178	150	216	165	300	65	145	80	150	20	14	26	9	M8	F07	10	15
65	2½"	62	190	180	241	190	360	80	175	95	175	24	18	35	14.5	M8	F07	20	25
80	3"	75	203	190	282	210	420	90	200	105	190	24	18	35	12	M10	F10	25	30
100	4"	100	229	230	305	255	480	115	250	135	225	30	22	42.5	16.5	M10	F10	40	50



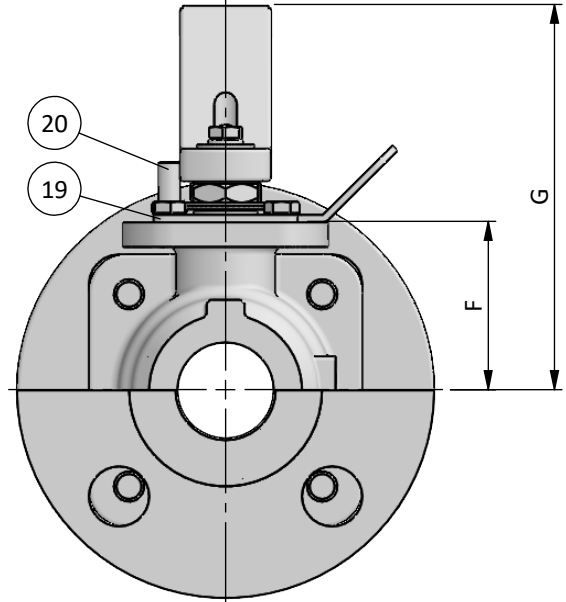
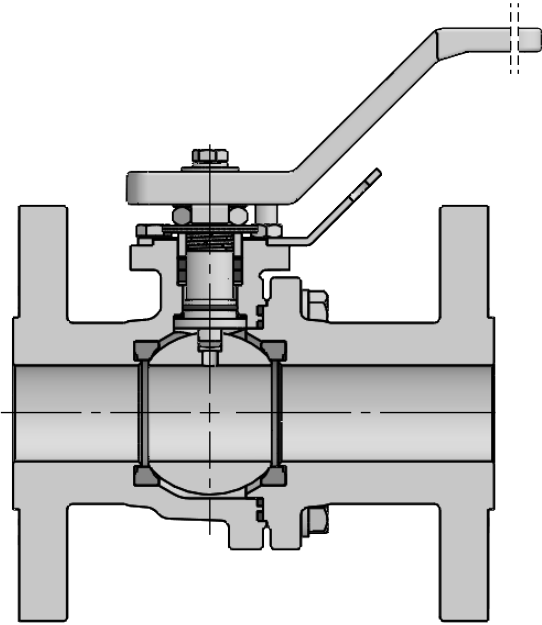
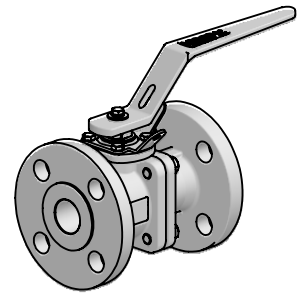
BILL OF MATERIALS

Part	Qt.	Description	CARBON STEEL VERSION	LT CARBON STEEL VERSION	STAINLESS STEEL VERSION
1	1	Body	A216 WCB	A352 LCC	A351 CF8M
2	1	End	A216 WCB	A352 LCC	A351 CF8M
3	1	Ball		A351 CF8M	
4	1	Stem		A479 316/L	
5	2	Seat		C-RPTFE	
6	1	Stem Thrust Seals		C-RPTFE + PEEK	
7	1	Body O'Ring		FKM AED	
8	1	Body Seal		GRAPHITE	
9	1	O'Ring		FKM AED	
10	1	Stem Packing Set		GRAPHITE + PEEK	
11	1	Bearing		PTFE	
12	1	Gland Packing		A479 316/L	
13	1	Bracket		STAINLESS ST.304	
14	1	Bracket Stem		A479 316/L	
15	-	Bolt	A193 Gr. B7 ZINC.	A320 Gr. L7M ZINC.	A193 Gr. B8M cl.2
16	1	Gearbox		CAST IRON	

↘ TYPICAL SPARE PARTS



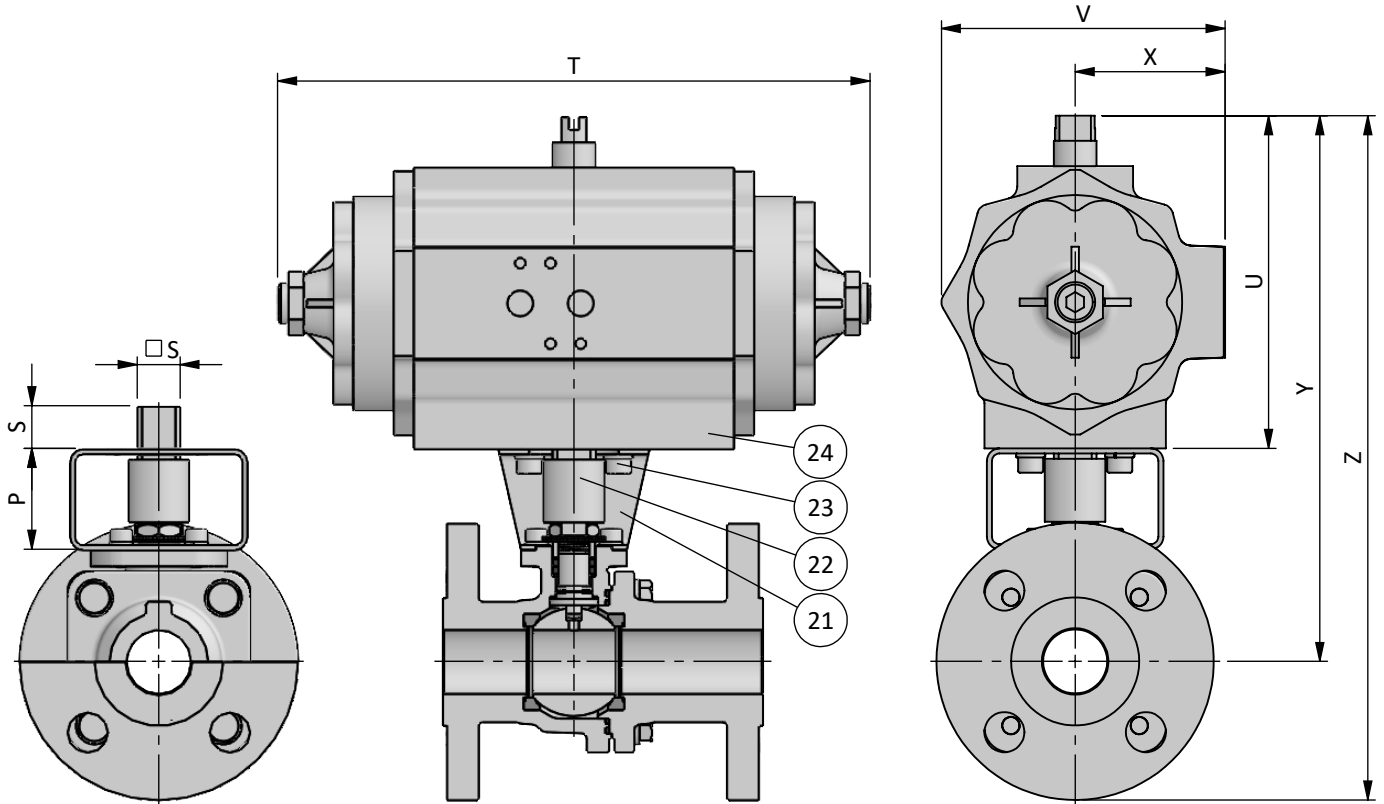
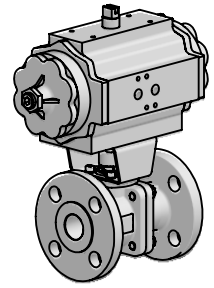
DN / Size		Dimensions								Automation								Weight Approx. [Kg]			
FULL BORE	Ball Port	CL150		CL300		D	E	F	G	H	I	J	K	M	N	O	P	ISO 5211	CL150	C300	
		A	B	A	B																
150	6"	151	394	280	-	-	165	340	205	495	42	30	48.5	28.5	M16	285	300	100	F14	125	-
150	6"	151	-	-	403	320	170	350	205	495	42	30	48.5	28.5	M16	285	300	100	F14	-	145
200	8"	202	457	345	-	-	215	440	260	600	56	36	70	65	M20	285	400	100	F16	220	-
200	8"	202	-	-	502	380	220	450	260	615	56	36	70	65	M20	330	400	100	F16	-	270



BILL OF MATERIALS

Part	Qt.	Description	Material
19	1	Locking Plate	STAINLESS ST. 304
20	1	Stop Pin	STAINLESS ST. 316

DN / Size		Dimensions	
FULL BORE		F	G
mm	inch		
15	½"	35	90
20	¾"	40	100
25	1"	45	105
40	1½"	60	125
50	2"	80	150
65	2½"	95	175
80	3"	105	190
100	4"	135	225
150	6"	GEARBOX	
200	8"		

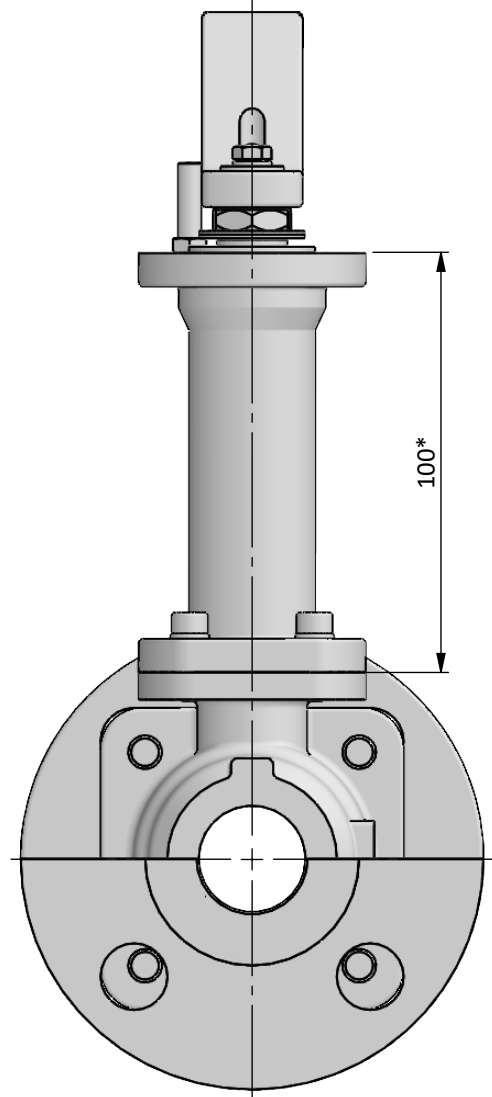
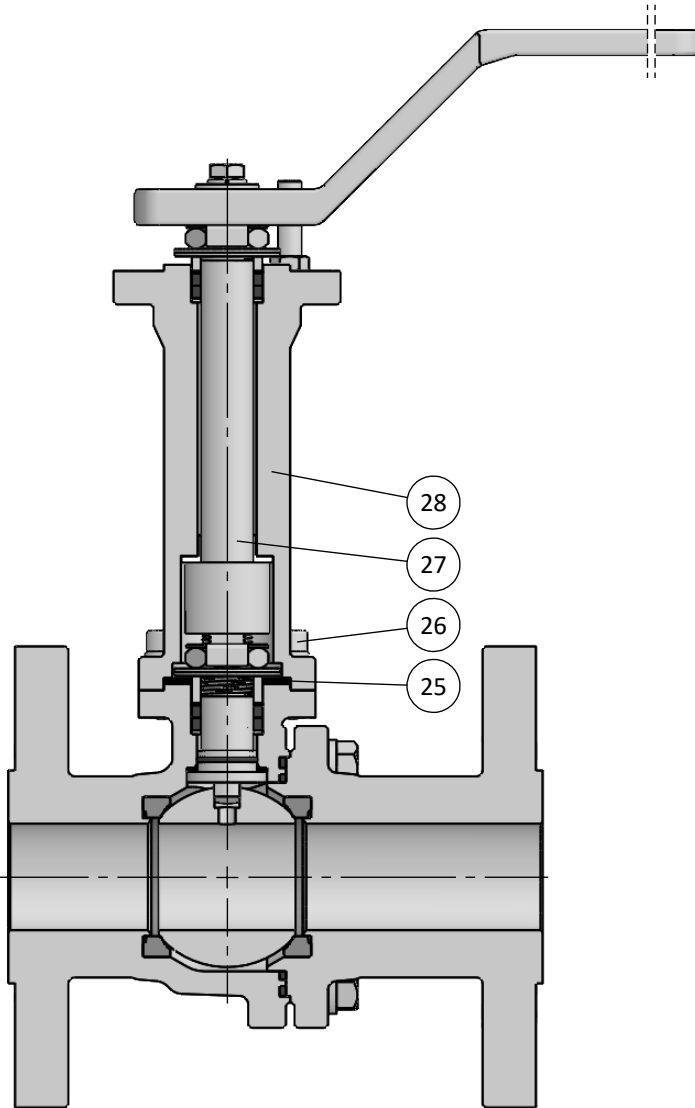
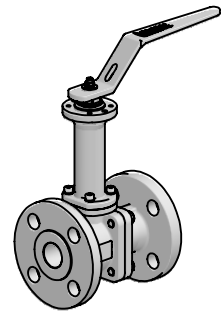


BILL OF MATERIALS

Part	Qt.	Description	Material
21	1	Bracket	STAINLESS ST. 304
22	1	Coupling	A479 316/L
23	8	Bolt	STAINLESS ST. 316
24	1	Actuator	ALUMINIUM

DN / Size	Automation	Actuator*										Automation		Actuator*											
		FULL BORE				CL150												CL300							
		P	S	REF.	T	U	V	X	Y	Z	P	S	REF.	T	U	V	X	Y	Z						
15	½"	40	11	005-10	180	111	89	49	190	235	40	11	005-10	180	111	89	49	190	235						
20	¾"	40	11	005-10	180	111	89	49	195	245	40	11	005-10	180	111	89	49	195	250						
25	1"	40	17	008-10	233	131	112	57	220	275	40	17	008-10	233	131	112	57	220	280						
40	1½"	50	19	012-08	280	131	112	57	240	305	50	19	012-08	280	131	112	57	240	320						
50	2"	60	19	012-08	280	131	112	57	270	345	60	22	020-14	294	151	133	70	290	375						
65	2½"	60	22	030-18	286	189	169	85	345	435	60	22	030-18	286	189	169	85	345	440						
80	3"	100	22	030-18	286	189	169	85	395	490	100	27	040-18	344	199	169	85	405	510						
100	4"	100	27	040-18	344	199	169	85	435	550	100	36	100-18	440	246	210	108	480	610						
150	6"	100	46	200-20	537	272	232	120	580	720	100	36	250-40	460	340	305	151	645	805						
200	8"	100	46	370-20	670	340	305	151	700	875	under request														

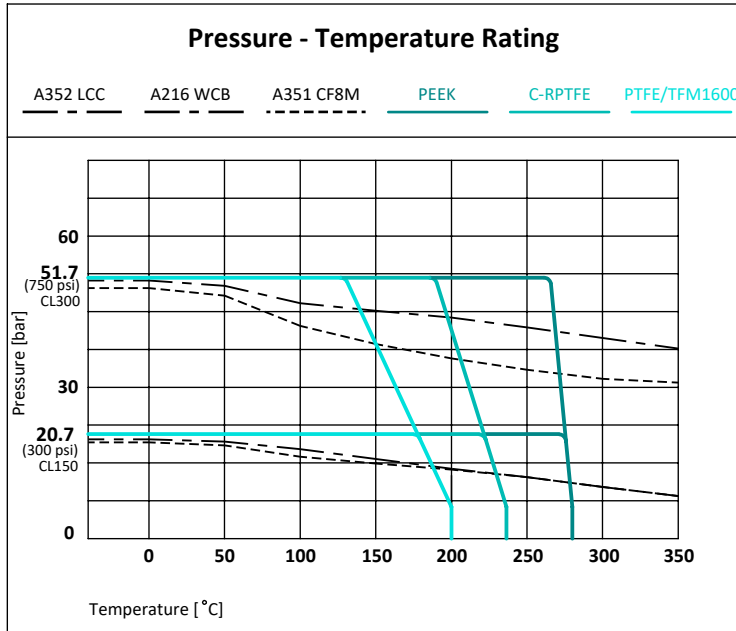
*Spring Return Pneumatic Actuators selected for PTFE and filled PTFE seats considering input air pressure of 5.5bar and minimum 25% safety margin



BILL OF MATERIALS

Part	Qt.	Description	Material
25	1	Extension	A351 CF8M
26	1	Stem	A479 316/L
27	1	Extension Seal	GRAPHITE
27	4	Bolt	STAINLESS ST. 316

* Size 6" and 8" valve extension height is 150mm and 200mm



Working Conditions

Material	mOT* [°C]			MOT* [°C]	
	WCB	LCC	CF8M	ALL	
PTFE TFM1600	-29	-46	-50	-100*	200
C-RPTFE	-29	-46	-50	-100*	240
PEEK	-29	-46	-50		280

*mOT - minimum Operating Temperature.
*MOT - Maximum Operating Temperature at 10 bar
Standard version recommended up to -50 °C
*Extended version recommended up to -100 °C

DN	Rating
FB 15 (½") to 200 (8")	CL300 - 51.7 bar / 750 psi
FB 15 (½") to 200 (8")	CL150 - 20.7 bar / 300 psi

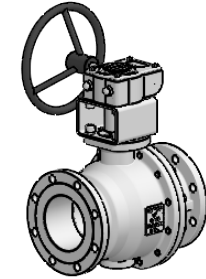
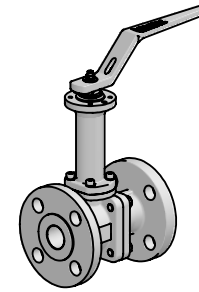
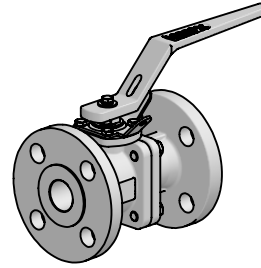
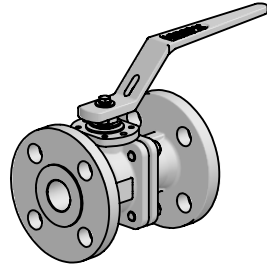
DN / Size		Torque Valve Figure [Nm] *											Maximum Allowable Stem Torque [Nm]					Flow Coefficient Cv	
FULL BORE		C-RPTFE											316	S31803	S32760	S17400	718		
mm	inch	CL150					CL300						MAST						
		BTO	RTO	ETO	BTC	RTC	ETC	BTO	RTO	ETO	BTC	RTC	ETC						
15	½"	5	3	4	4	3	4	7	4	6	6	4	6	16	25	30	40	53.5	20
20	¾"	8	5	6	6	5	7	10	6	8	8	6	8	29.5	45	55	71.5	98.5	45
25	1"	12	7	9	9	7	10	14	8	11	11	8	12	29.5	45	55	71.5	98.5	75
40	1½"	22	13	17	17	13	18	33	19	25	25	19	27	82.5	125	150	200	275	175
50	2"	28	16	21	21	16	23	44	25	33	33	25	36	110	240	290	385	535	300
65	2½"	58	32	44	44	32	47	68	38	51	51	38	55	205	445	540	715	1000	500
80	3"	70	39	53	53	39	56	90	50	68	68	50	72	205	445	540	715	1000	1000
100	4"	110	61	83	83	61	88	200	110	150	150	110	160	405	880	1075	1420	1950	2000
150	6"	350	193	263	263	193	280	500	275	375	375	275	400	1150	2525	3085	4075	5600	4500
200	8"	850	468	638	638	468	680	1650	908	1238	1238	908	1320	2530	5550	6800	8950	12350	10000

*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 PED 2014/68/EU Fire Safe Design acc. to API 607Ed.6/ISO 10497 ATEX II 2GD acc. to 2014/34/EU Fugitive Emissions Class B acc. to ISO 15848 CO1 (-46 °C to RT) Quality System Certified acc. to ISO 9001	ASME B16.34 ASME B16.5 ASME B16.10 ISO 5211	Pressure tests according to: EN12266-1 / API 598 / ISO 5208 Rate A Tests applied: Hydrostatic Shell Test Hydrostatic Seat Test Pneumatic Tightness Test Pneumatic Seat Test 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 O'RING	OPTIONS
CFH	1 - CL150	1 - ASME	F - FB	015	FLANGED RF	A - A216 WCB	F - A351 CF8M A479 316	A - B7	3 - C-RPTFE C-RPTFE	1 - Grafite Grafite FKM AED	C - Spring Return
	2 - CL300			020	F1 - ASME RF	B - A352 LCC	Z - Others	D - L7M			E - Extension 100 mm
				025		F - A351 CF8M		F - B8M Cl.2			F - Bracket Automation
				040		Z - Others					G - Gear Box
				050							H - Actuators
				065							I - Switch Box / Limit Swiches
				080							L - Locking Lever/Handle
				100							O - Oval Lever/Handle
				150							R - Bare Shaft / Bare Stem
				200							S - Solenoid Valve
											T - Upstream Relief Hole
											W - "V" Ball Port
											Z - Others

Example:

CFH21F015F1F1AFA41

CFH11F080F1F1FFF41L

HYDROGEN RANGE

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



XFH Series
3 pieces bolted - Floating
CI 300 to 600
DN ¾" (10) to 6" (150)



SFH Series
3 pieces bolted - Floating
CI 800
DN ½" (15) to 1½" (40)



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



HFH Series
3 pieces bolted - Floating
CI 2500
DN ½" (15) to 1" (25)



HFH Series
3 pieces bolted - Floating
CI 4000
DN ½" (15) to 1" (25)



OTHER RANGE

SANITARY RANGE
XP / RP / LP / MP / QP



CRYOGENIC RANGE
CCF / CXF / CBF / CSF / CVT



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



