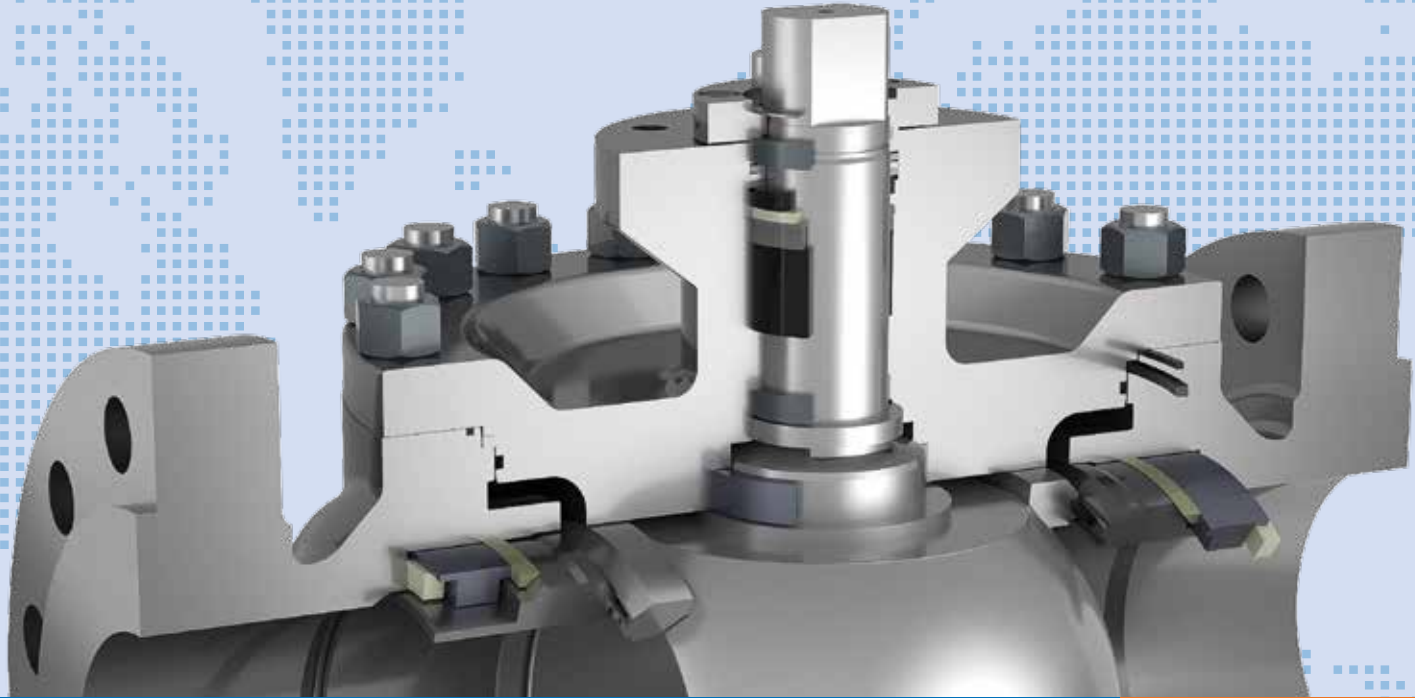
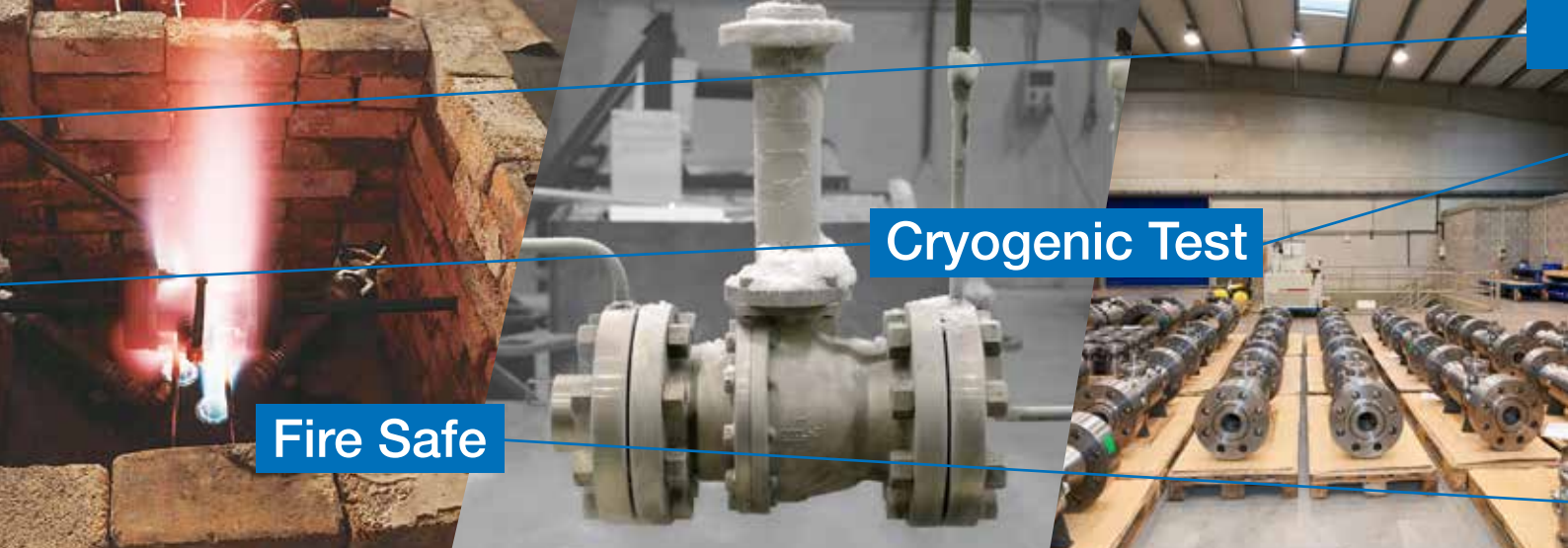




Ball valves

**TOP
ENTRY**





Fire Safe

Cryogenic Test

Certifications and tests

Certificates of the company

ISO 14001	Enviromental Management System
ISO 9001	Quality Management system
API Monogram	Standard API 6D. Certificate Number 6D-0363

Certificates of the product

Lloyd's Type Approval	Fire Safe & Type Approval
TA – Luft ISO 15848 + VDI 2440	Stem Tightness for gas emissions
Directive 2014 /68/EU	Pressure Equipment directive (CE marking)
Directive 2014/34/EU	ATEX Explosive Atmospheres (Ex. II 2GD cTx)
BS 6364	Valves for Cryogenic Service
IEC 61508	SIL3 CAPABLE



Some Company Approvals

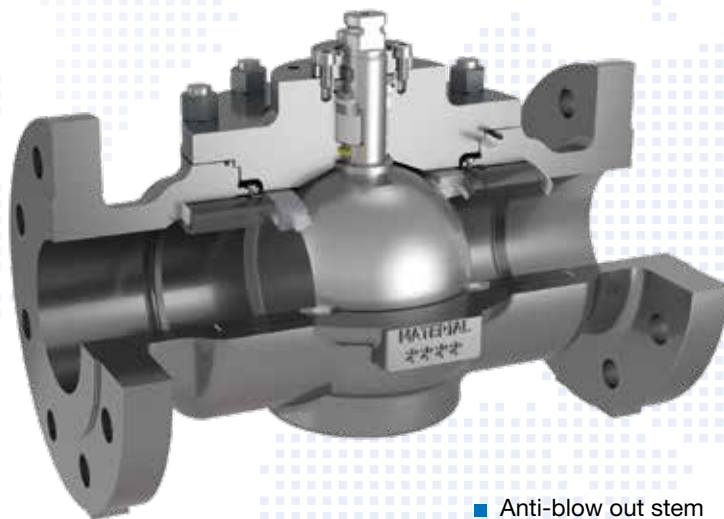
- Repsol – YPF (Spain)
- Al furat Petroleum (Syria)
- Sasol Technology (South Africa)
- EGPC (Egypt)
- China Petroleum
- OMV/Petrom
- Borealis
- Solvay
- Qatar Petroleum
- Petroleum Development Oman (PDO)
- Kuwait Oil Co. (KOC)
- Zadco (UAE)
- National Iranian Oil Engineering & Construction Co. (Iran)
- ADNOC (Borouge, GASCO, ADGAS, ZADCO)
- NOVYN / INEOS
- Neste

General features

- Design as per BS5351, ANSI B16.34, ISO 17292 API 6D upon request.
- ISO 5211 Top Flange
- FIRE SAFE construction certified as per BS6755 part 2, API 6FA, API 607 and ISO 10497
- Pressure testing according API 598, ISO 5208 and API 6D upon request
- Face to face as per ANSI B16.10, API 6D. UNE-EN 558
- End connections:
 - Flanged RF, RTJ ANSI 16.5
 - Butt Weld..... ANSI 16.25
 - Socket Weld ANSI 16.11-UNE-EN558
 - NPT ANSI B1.20.1
 - BSPP BS 21, ISO 228/1, DIN259
 - BSPT BS 21 ISO 7/1

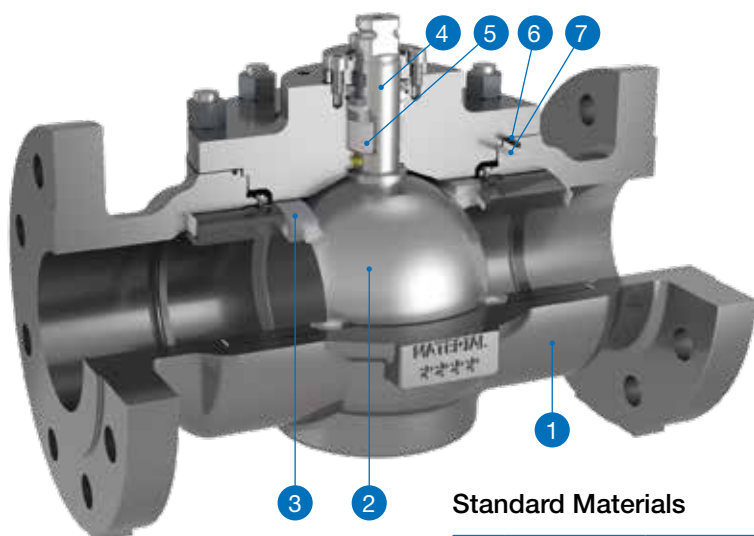
Body Constructions and design advantages

- Floating ball
- Full Trunnion
- Full / Reduced Bore
- Bidirectional
- ISO 5211 Top Flange
- Soft and Metal Seat
- Allow in-line maintenance
- Cryogenic Service



- Anti-blow out stem
- Antistatic Stem
- Auto adjustable packing / Maintenance free
- Standard construction Fire Safe
- Self Cavity Pressure relief
- Low emission design
- Double block and bleed

ZTE



Range

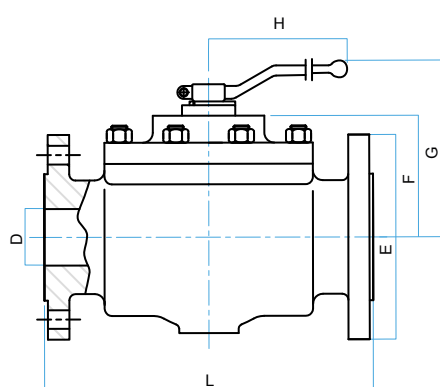
DN15-100	PN16-40
DN15-50	PN63-100
1/2" - 4"	CL150-300
1/2" - 2"	CL600

Standard Materials

Item	Description	ANSI		DIN	
		C.S.	S.S.	C.S.	S.S.
1	Body	A216 WCC/A352 LCC	A351 CF8M	1.0619/1.6220	14.408
2	Ball	F316		14.401	
3	Seat*	PTFE (modified)+CG		PTFE (Modified)	
4	Stem	S.S. AISI 316		14.401	
5	Stem packing	PTFE + Graphite		PTFE + Graphite	
6	Body seal 1	PTFE (modified)+CG		PTFE (Modified)	
7	Body seal 2	Graphite		Graphite	

* Seats/Seals available in different materials

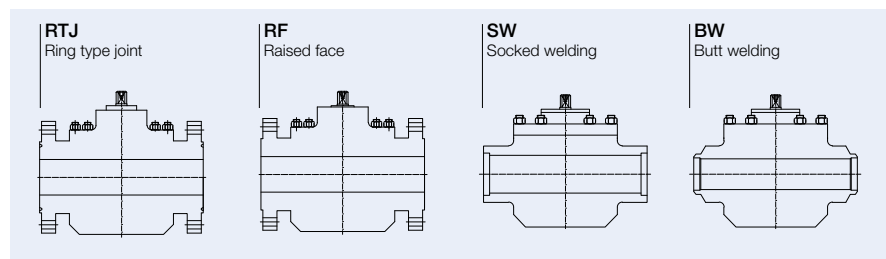
Dimensions (mm)



Weight (Kgs)

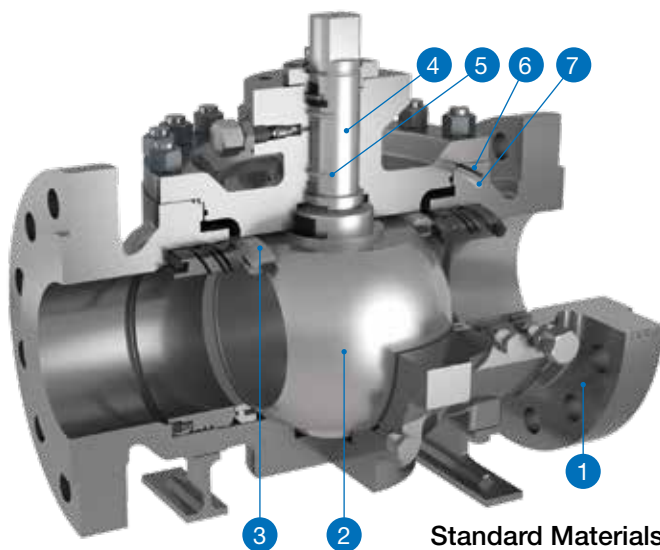
NPS	CL150	CL300	CL 600	B.Welding	S. Welding
1/2"	7	9	8	7	7
3/4"	8	9	8	7	7
1"	8	10	10	7	7
1 1/4"	10	12	13	9	9
1 1/2"	14	17	18	12	12
2"	22	25	26	19	20
2 1/2"	32	35	-	27	27
3"	48	53	-	42	42
4"	69	77	-	58	59

Ends



NPS	D	CL 150, 300 & 600										
		L				E			F	G	H	ISO 5211
		RTJ	RF	SW	BW	150	300	600				
1/2"	15	216	216	216	216	90	95	95	67	124	185	F05
3/4"	20	216	216	216	216	100	115	115	67	124	185	F05
1"	25	216	216	216	216	110	125	125	67	124	185	F05
1 1/4"	32	229	229	229	229	115	135	135	71	128	185	F05
1 1/2"	40	241	241	241	241	125	155	155	87	157	293	F07
2"	50	295	292	292	292	150	165	165	95	165	293	F07
2 1/2"	65	333	330	330	330	180	190	-	105	175	293	F07
3"	80	359	356	356	356	190	210	-	126	230	450	F10
4"	100	435	432	432	432	230	255	-	139	243	450	F10

TEGS



Range

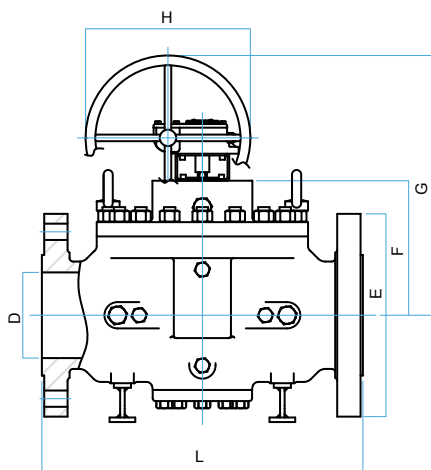
DN80-1050	PN10-100
DN80-500	PN160-250
DN80-300	PN320-400
6"-42"	CL150-300-600
6"-20"	CL900-1500
6"-12"	CL2500

Standard Materials

Item	Description	ANSI		DIN	
		C.S.	S.S.	C.S.	S.S.
1	Body	A216 WCC/A352 LCC	A351 CF8M	1.0619/1.6220	14.408
2	Ball	F316		14.401	
3	Seat*	PTFE (modified)		PTFE (Modified)	
4	Stem	AISI 316		14.401	
5	Stem packing	PTFE + Graphite		PTFE + Graphite	
6	Body seal 1	PTFE (modified)		PTFE (Modified)	
7	Body seal 2	Graphite		Graphite	

*Seats/Seals available in different materials

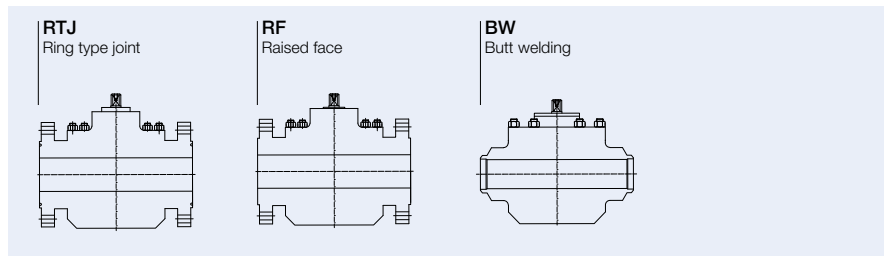
Dimensions (mm)



Weight (Kgs)

NPS	CL 150	CL 150BW	CL 300	CL 300BW	CL 600	CL 600BW	G. Box
6"	160	145	180	152	225	176	38
8"	280	255	310	268	400	321	42
10"	375	344	430	367	585	457	45
12"	550	498	630	538	820	670	48
14"	815	741	913	778	1200	960	53
16"	1085	986	1215	1036	1600	1280	58
18"	1350	1227	1512	1289	2000	1690	68
20"	1720	1560	2250	1923	3000	2550	70
24"	2650	2410	3155	2696	4100	3600	90

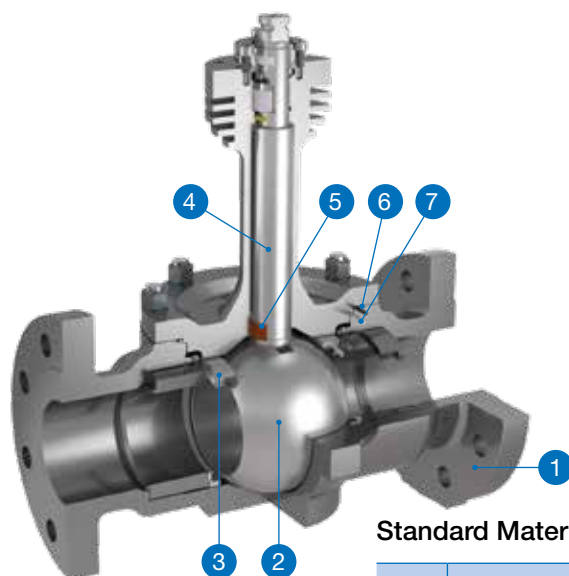
Ends



NPS	D	L			E			F			GEARBOX						ISO 5211		
		RF	RTJ	BW	150	300	600	150	300	600	G			H			150	300	600
6"	150	559	562	559	280	320	355	223	223	236	482	544	658	202	271	386	F12	F12	F14
8"	201	660	663	660	345	380	420	279	279	279	600	600	621	271	271	386	F14	F14	F16-1
10"	252	787	790	787	405	445	510	310	310	310	631	732	708	271	386	455	F14	F14	F16-1
12"	303	838	841	838	485	520	560	358	358	383	700	700	781	386	386	455	F16	F16	F25
14"	334	889	892	889	535	585	605	370	370	370	712	768	718	386	455	353	F16	F16	F25
16"	385	991	994	991	595	650	685	413	413	413	811	761	768	455	353	430	F16	F16	F25
18"	436	1092	1095	1092	635	710	745	455	455	455	803	810	767	353	430	390	F25	F25	F30
20"	487	1194	1200	1194	700	775	815	498	498	498	846	810	857	353	390	482	F25	F25	F30
24"	589	1397	1407	1397	815	915	940	582	582	582	937	941	967	430	482	509	F30	F35	F35

Sizes from 26 " up to 42", upon request.

ZTEFOSU



Range

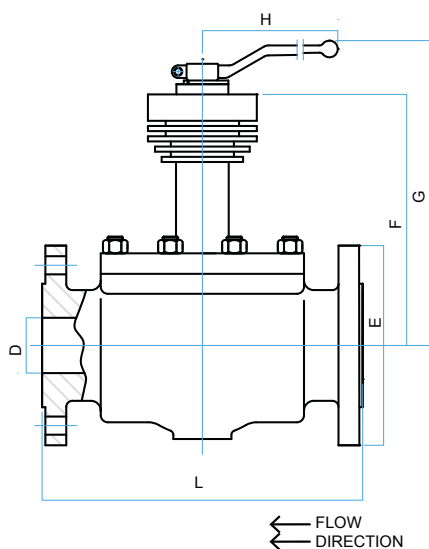
DN15-100	PN16-40
DN15-50	PN63-100
1/2" - 4"	CL150-300
1/2" - 2"	CL600

Standard Materials

Item	Description	ANSI	DIN
		S.S.	S.S.
1	Body	A351 CF8M	14.408
2	Ball	F316	14.401
3	Seat*	PCTFE	PCTFE
4	Stem	XM-19	XM-19
5	Stem packing	PTFE + Graphite	PTFE + Graphite
6	Body seal 1	PTFE (Modified)	PTFE (Modified)
7	Body seal 2	Graphite	Graphite

*Seats/Seals available in other materials

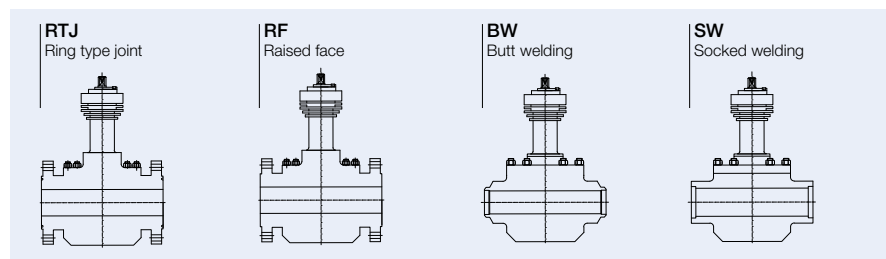
Dimensions (mm)



Weight (Kgs)

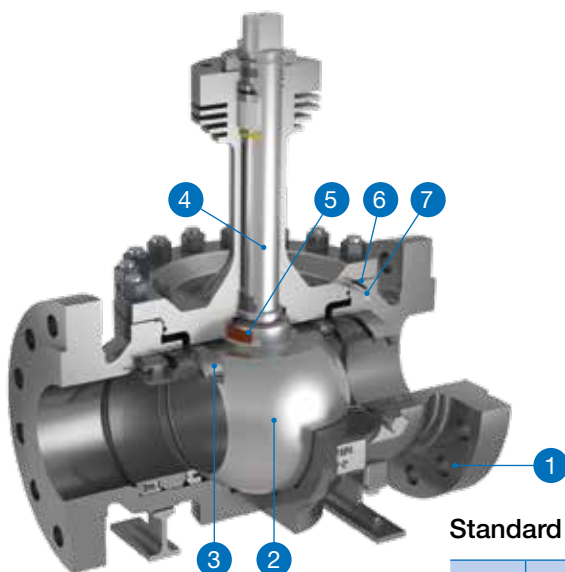
NPS	CL150	CL300	CL600	B.Welding	S. Welding
1/2"	10	11	12	10	10
3/4"	11	11	12	10	10
1"	11	12	13	10	10
1 1/4"	12	15	15	11	11
1 1/2"	17	21	21	16	16
2"	25	28	29	22	23
2 1/2"	34	37	-	29	29
3"	53	58	-	47	47
4"	74	82	-	63	64

Ends



NPS	D	L				CL 150, 300 & 600						
						E			F	G	H	ISO 5211
		RTJ	RF	SW	BW	150	300	600				
1/2"	15	216	216	216	216	90	95	95	299	356	185	F05
3/4"	32	229	229	229	229	100	115	115	303	360	185	F05
1"	25	216	216	216	216	110	125	125	299	356	185	F05
1 1/4"	32	229	229	229	229	115	135	135	303	360	185	F05
1 1/2"	40	241	241	241	241	125	155	155	307	377	293	F07
2"	50	295	292	292	292	150	165	165	315	385	293	F07
2 1/2"	65	333	330	330	330	180	190	-	325	395	293	F07
3"	80	359	356	356	356	190	210	-	327	431	450	F10
4"	100	435	432	432	432	230	255	-	340	444	450	F10

ZTEFGOSU



Range

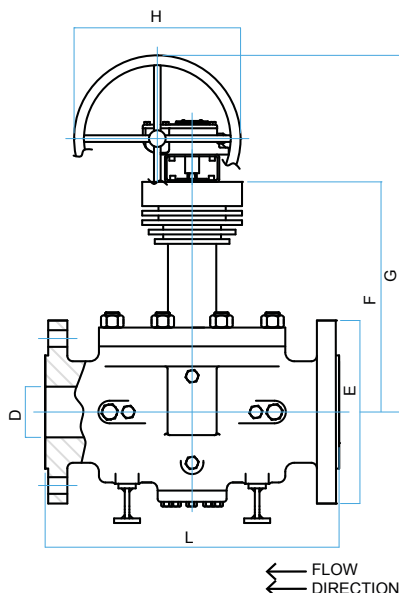
DN80-1050	PN10-100
DN80-500	PN160-250
DN80-300	PN320-400
3"-42"	CL150-600
3"-20"	CL900-1500
3"-12"	CL2500

Standard Materials

Item	Description	ANSI	DIN
		S.S.	S.S.
1	Body	A351 CF8M	14.408
3	Ball	F316	14.401
4	Seat*	PCTFE	PCTFE
5	Stem	XM-19	XM-19
7b	Stem packing 2	PTFE + Graphite	PTFE + Graphite
14	Body seal 1	PTFE (Modified)	PTFE (Modified)
34	Body seal 2	Graphite	Graphite

*Seats/Seals available in other materials

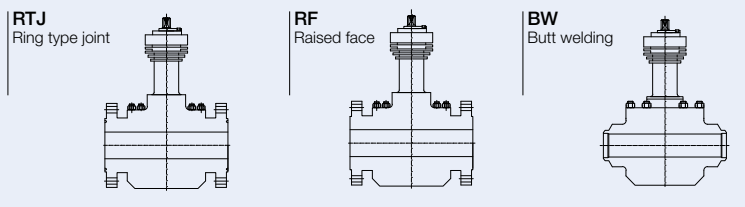
Dimensions (mm)



Weight (Kgs)

NPS	CL150	CL150 BW	CL 300	CL 300 BW	CL 600	CL 600 BW	G. Box
3"	55	49	60	54	63	58	-
4"	78	65	84	74	88	81	-
6"	170	155	190	162	235	186	38
8"	280	255	310	268	400	321	42
10"	380	349	435	372	585	457	45
12"	555	503	635	543	820	670	48
14"	822	747	920	836	1260	1068	53
16"	1095	995	1225	1114	1680	1424	58
18"	1362	1238	1525	1386	2100	1780	68
20"	1735	1577	2270	2064	3150	2669	70
24"	2673	2430	3185	2895	4305	3648	90

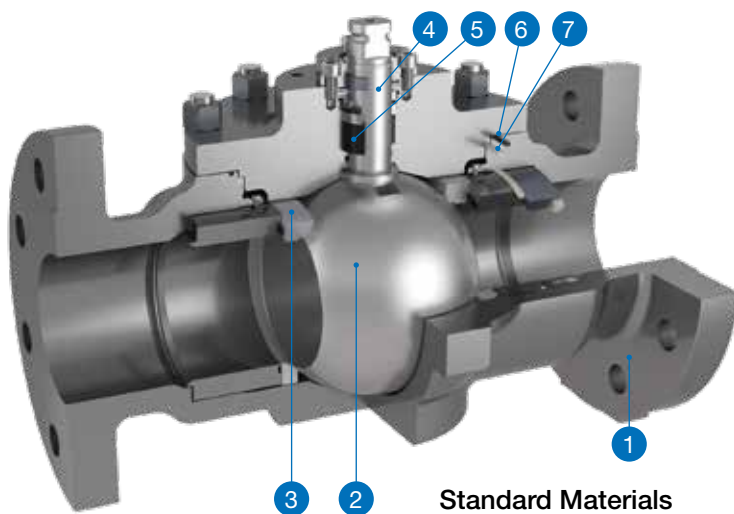
Ends



NPS	D	L			E			F			GEARBOX						M			N			ISO 5211		
											G			H											
		RF	RTJ	BW	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600
3"	80	356	359	356	190	210	210	327	327	327	586	586	586	202	202	202	422	432	432	230	230	240	F10	F10	F10
4"	100	432	435	432	230	255	275	340	340	340	599	599	661	202	202	271	455	468	478	283	283	295	F10	F10	F12
6"	150	559	562	559	280	320	355	438	438	438	759	759	860	271	271	386	660	660	663	356	356	370	F12	F12	F14
8"	201	660	663	660	345	380	420	477	477	477	798	899	875	271	386	455	742	742	747	444	444	464	F14	F14	F16-
10"	252	787	790	787	405	445	510	508	508	508	930	930	906	386	386	455	818	818	826	507	507	533	F14	F14	F16-
12"	303	838	841	838	485	520	560	541	541	541	883	939	889	386	455	353	892	892	902	595	595	607	F16	F16	F25
14"	334	889	892	889	535	585	605	885	935	955	1283	1283	1310	455	353	430	1152	1227	1257	660	660	660	F16	F16	F25
16"	385	991	994	991	595	650	685	945	1000	1035	1293	1355	1347	353	430	390	1242	1325	1378	700	700	700	F16	F16	F25
18"	436	1092	1095	1092	635	710	745	1035	1110	1145	1390	1422	1504	430	390	482	1352	1465	1517	755	755	755	F25	F25	F30
20"	487	1194	1200	1194	700	775	815	1100	1175	1215	1455	1487	1574	430	390	482	1450	1563	1622	880	880	880	F25	F25	F30
24"	589	1397	1407	1397	815	915	940	1245	1345	1370	1557	1704	1755	390	482	509	1652	1802	1840	1040	1040	1040	F30	F35	F35

Sizes from 26 " up to 42", upon request.

ZTEMS



Range

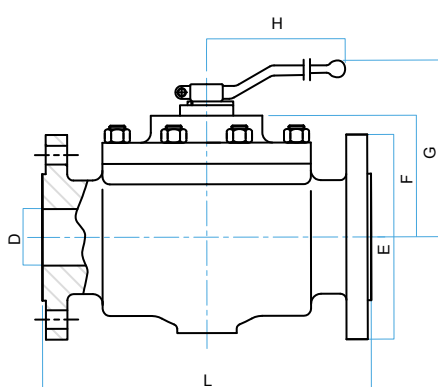
DN15-100	PN16-40
DN15-50	PN63-100
1/2" - 2"	CL600
1/2" - 4"	CL300
1/2" - 8"	CL150

Standard Materials

Item	Description	ANSI		DIN	
		C.S.	S.S	C.S.	S.S
1	Body	A216 WCC / LCC	A351 CF8M	10.619	14.408
2	Ball	F316 + Cr. Carbide		1.4401 + Cr. Carbide	
3	Seats*	AISI 316 + Cr Carbide		1.4401 + Cr. Carbide	
4	Stem	XM-19		XM-19	
5	Stem Packing	Graphite		Graphite	
6	Body Seal 1	Graphite		Graphite	
7	Body Seal 2	Graphite		Graphite	

*Seats/Seals available in other materials

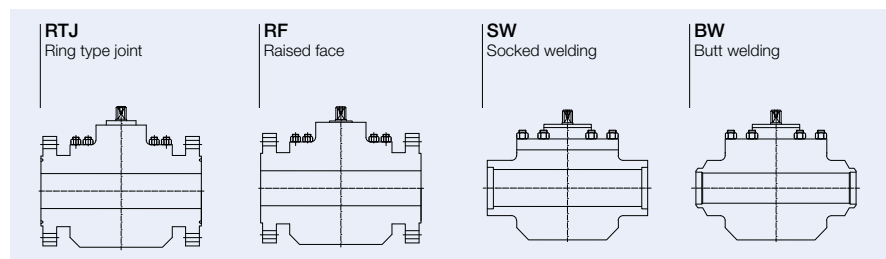
Dimensions (mm)



Weight (Kgs)

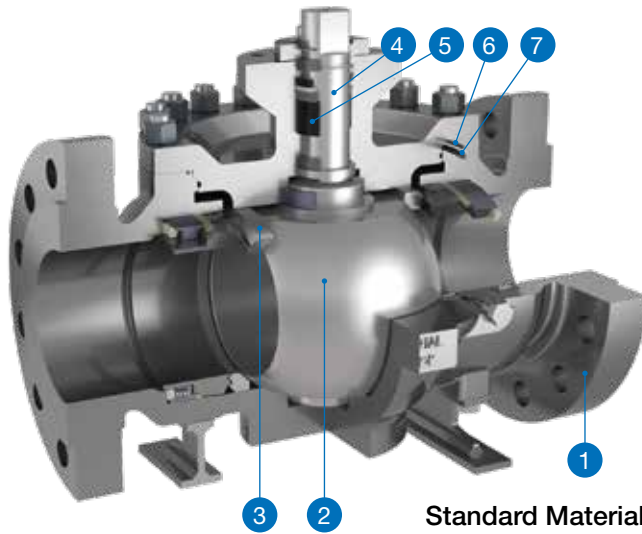
NPSv	CL 150	CL 300	CL 600	B.Welding	S. Welding
1/2"	7	9	8	7	7
3/4"	8	9	8	7	7
1"	8	10	10	7	7
1 1/4"	10	12	13	9	9
1 1/2"	14	17	18	12	12
2"	22	25	26	19	20
2 1/2"	32	35	-	27	27
3"	48	53	-	42	42
4"	69	77	-	58	59

Ends



NPS	D	CL 150, 300 & 600										
		L				E			F	G	H	ISO 5211
		RTJ	RF	SW	BW	150	300	600				
1/2"	15	216	216	216	216	90	95	95	67	124	185	F05
3/4"	20	216	216	216	216	100	115	115	67	124	185	F05
1"	25	216	216	216	216	110	125	125	67	124	185	F05
1 1/4"	32	229	229	229	229	115	135	135	71	128	185	F05
1 1/2"	40	241	241	241	241	125	155	155	87	157	293	F07
2"	50	295	292	292	292	150	165	165	95	165	293	F07
2 1/2"	65	333	330	330	330	180	190	190	105	175	293	F07
3"	80	359	356	356	356	190	210	210	126	230	450	F10
4"	100	435	432	432	432	230	255	275	139	243	450	F10

ZTEGMS



Range

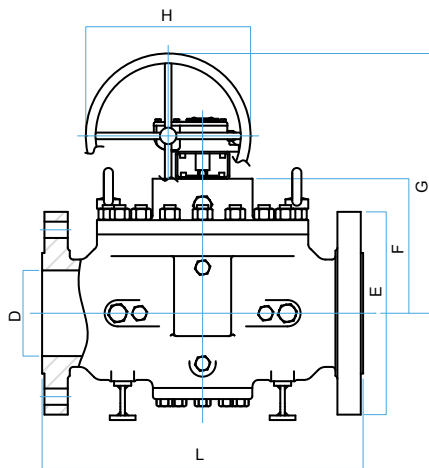
DN80-1050	PN10-100
DN80-500	PN160-250
DN80-300	PN320-400
3"-42"	CL150-600
3"-20"	CL900-1500
3"-12"	CL2500

Standard Materials

Item	Description	ANSI		DIN	
		C.S.	S.S.	C.S.	S.S.
1	Body	A216 WCC / A352 LCC	A351 CF8M	1.619/1.6620	14.408
2	Ball	F316 + Cr carbide		1.4401+Cr-Carbide	
3	Seats*	AISI 316 + Cr Carbide		1.4401+Cr-Carbide	
4	Stem	XM-19		XM-19	
5	Stem Packing	Graphite		Graphite	
6	Body Seal 1	Graphite		Graphite	
7	Body Seal 2	Graphite		Graphite	

*Seats/Seals available in different materials

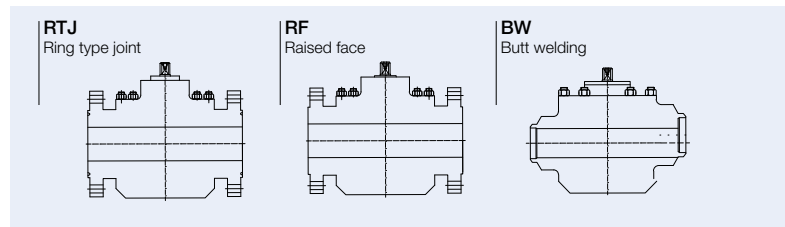
Dimensions (mm)



Weight (Kgs)

NPS	CL 150	CL 150 BW	CL 300	CL 300 BW	CL 600	CL 600BW	G. Box
3"	51	49	56	51	60	54	-
4"	72	69	80	76	87	82	-
6"	160	145	180	152	225	176	38
8"	280	255	310	268	400	321	42
10"	375	344	430	367	585	457	45
12"	550	498	630	538	820	670	48
14"	815	741	913	778	1200	960	53
16"	1085	986	1215	1036	1600	1280	58
18"	1350	1227	1512	1289	2000	1690	68
20"	1720	1560	2250	1923	3000	2550	70
24"	2650	2410	3155	2696	4100	3600	90

Ends



NPS	D	L			E			F			GEARBOX						ISO 5211		
		RF	RTJ	BW	150	300	600	150	300	600	G			H			150	300	600
3"	80	356	359	356	190	210	210	178	178	189	437	499	510	202	271	271	F10	F10	F12-1
4"	100	432	435	432	230	255	275	199	199	210	520	520	632	271	271	386	F10	F12-1	F14-1
6"	150	559	562	559	280	320	355	223	223	236	645	645	634	386	386	455	F12	F14-1	F16-1
8"	201	660	663	660	345	380	420	279	279	279	701	677	635	386	455	303	F14	F16-1	F16
10"	252	787	790	787	405	445	510	310	310	310	708	666	615	455	303	380	F16-1	F16-1	F25-1
12"	303	838	841	838	485	520	560	358	358	383	756	714	688	455	303	380	F16	F16	F25
14"	334	889	892	889	535	585	605	370	370	370	675	675	729	380	380	482	F25-1	F25-1	F30-1
16"	385	991	994	991	595	650	685	413	413	413	718	727	772	380	390	482	F25-1	F30-1	F30-1
18"	436	1092	1095	1092	635	710	745	455	455	455	769	814	840	390	482	509	F30-1	F30	F35
20"	487	1194	1200	1194	700	775	815	498	498	498	857	883	883	482	509	556	F30	F35	F40
24"	589	1397	1407	1397	815	915	940	582	582	582	941	967	1081	482	556	679	F30	F40	F40

Sizes from 26 " up to 42", upon request.

Technical Features

Breakaway torques (N.m)

Soft Seated Floating

NPS FB	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"	
NPS RB	3/4"		1"		1 1/2"		1 1/2"		2"		2 1/2"		3"		4"		6"	
Seat material	PTFE	PTFE + CG	PTFE	PTFE + CG	PTFE	PTFE + CG	PTFE	PTFE + CG	PTFE	PTFE + CG	PTFE	PTFE + CG	PTFE	PTFE + CG	PTFE	PTFE + CG	PTFE	PTFE + CG
CL 150	9	11	11	13	16	19	23	28	32	38	48	58	62	74	103	124	145	174
CL 300	14	17	16	19	19	23	32	38	42	50	70	84	90	108	150	180	216	259
CL 600	16	19	18	22	40	48	61	73	90	108	156	187	-	-	-	-	-	-

Soft Seated Trunnion

NPS FB	6"	8"	10"	12"	14"	16"	18"	20"	24"	SEAT
NPS RB	8"	10"	12" - 14"	16"	18"	20"	-	24"	-	TYPE
CL 150	450	695	940	1160	1970	2655	3570	4480	5968	PTFE+CG
CL 300	695	1085	1415	1715	2915	3905	5690	7560	12430	PTFE+CG
CL 600	1110	1750	2215	2640	4495	6020	9185	12460	19295	PTFE+CG

Cryogenic Floating

NPS FB	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	SEAT
NPS RB	3/4"	1"	1 1/2"	1 1/2"	2"	2 1/2"	3"	4"	6"	TYPE
CL 150	19	23	34	48	67	99	130	214	302	PCTFE
CL 300	29	33	40	67	88	146	187	312	450	PCTFE
CL 600	33	38	83	126	187	325	-	-	-	PCTFE

Cryogenic Trunnion

NPS FB	6"	8"	10"	12"	14"	16"	18"	20"	24"	SEAT
NPS RB	8"	10"	12" - 14"	16"	18"	20"	-	24"	-	TYPE
CL 150	600	930	1260	1560	2650	3565	4800	6020	8020	PCTFE
CL 300	930	1460	1900	2305	3920	5250	7650	10160	16710	PCTFE
CL 600	1490	2350	2975	3545	6040	8090	12345	16745	25930	PCTFE

Metal Seated Floating

NPS FB	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	SEAT
NPS RB	3/4"	1"	1 1/2"	1 1/2"	2"	2 1/2"	3"	4"	6"	TYPE
CL 150	22	32	40	60	80	106	180	300	360	S.S + Cr C
CL 300	30	35	50	78	105	170	225	330	460	S.S + Cr C
CL 600	36	58	100	228	309	390	-	-	-	S.S + Cr C

Metal Seated Trunnion

NPS FB	6"	8"	10"	12"	14"	16"	18"	20"	24"	SEAT
NPS RB	8"	10"	12" - 14"	16"	18"	20"	-	24"	-	TYPE
CL 150	1150	1793	2409	2983	5066	6825	9244	11591	15347	S.S + Cr C
CL 300	1788	2787	3639	4412	7500	10044	14635	19441	31968	S.S + Cr C
CL 600	2852	4445	5689	6793	11556	15409	23620	32526	49610	S.S + Cr C

Technical Features

Kv Values (m³/h)

Floating

NPS FB	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"
NPS RB	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"
Kv	20	44	88	200	310	480	960	1700

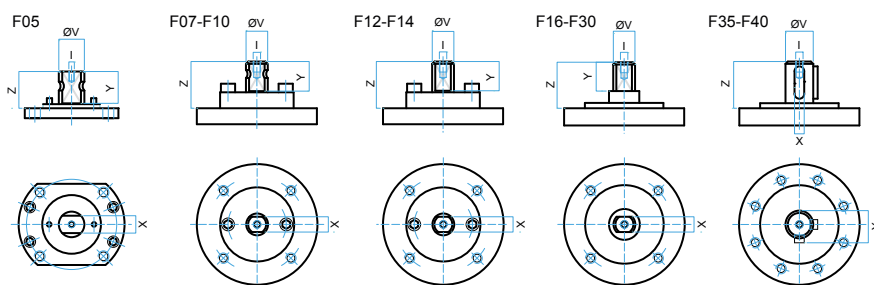
Trunnion

NPS FB	6"	8"	10"	12"	14"	16"	18"	20"	24"
NPS RB	8"	10"	12" - 14"	16"	18"	20"	-	24"	-
Kv	4100	8200	11500	18340	26300	30200	35400	54100	70300

TOP FLANGE ISO 5211 (mm)

Floating

ISO5211	F05	F07	F10
X	14	17	22
V	18	22	28
Z	19,5	30	40
Y	17	20	22
I	M4	M6	M8



Trunnion

ISO5211	F10	F12	F12-1	F14	F14-1	F16	F16-1	F25	F25-1	F30	F30-1	F35	F40
X	22	27	22	36	27	46	36	55	46	75	55	Key 32X18	Key 45X25
V	28	36	28	48	36	60	48	72	60	98	72	120	180
Z	40	50	36	63	44	73	63	83	68	106	83	200	200
Y	22	35	22	40	35	60	40	70	60	100	70	127	190
I	M8	M8	M8	M10	M8	M10	M10	M10	M10	M12	M10	M16	M16

MAST (Maximum allowable stem torque N.m)

Floating

Stem material	F05	F07	F10
316	92	244	510
F51	207	550	1147
XM-19	175	464	968

Trunnion

Stem material	F10/F12	F12/F14-1	F14/F16-1	F16/F25-1	F25/F30-1	F30	F35	F40
316	510	1047	2482	4926	8490	21438	12960	28500
F51	1147	2356	5585	11084	19103	48235	29160	64125
XM-19	969	1989	4716	9360	16131	40732	24624	54150



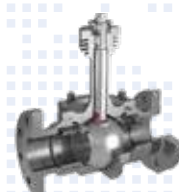
Top ENTRY



**FLOATING
ZTE**



**TRUNNION
TEGS**



**FLOATING
CRYOGENIC
ZTEFOSU**



**TRUNNION
CRYOGENIC
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