

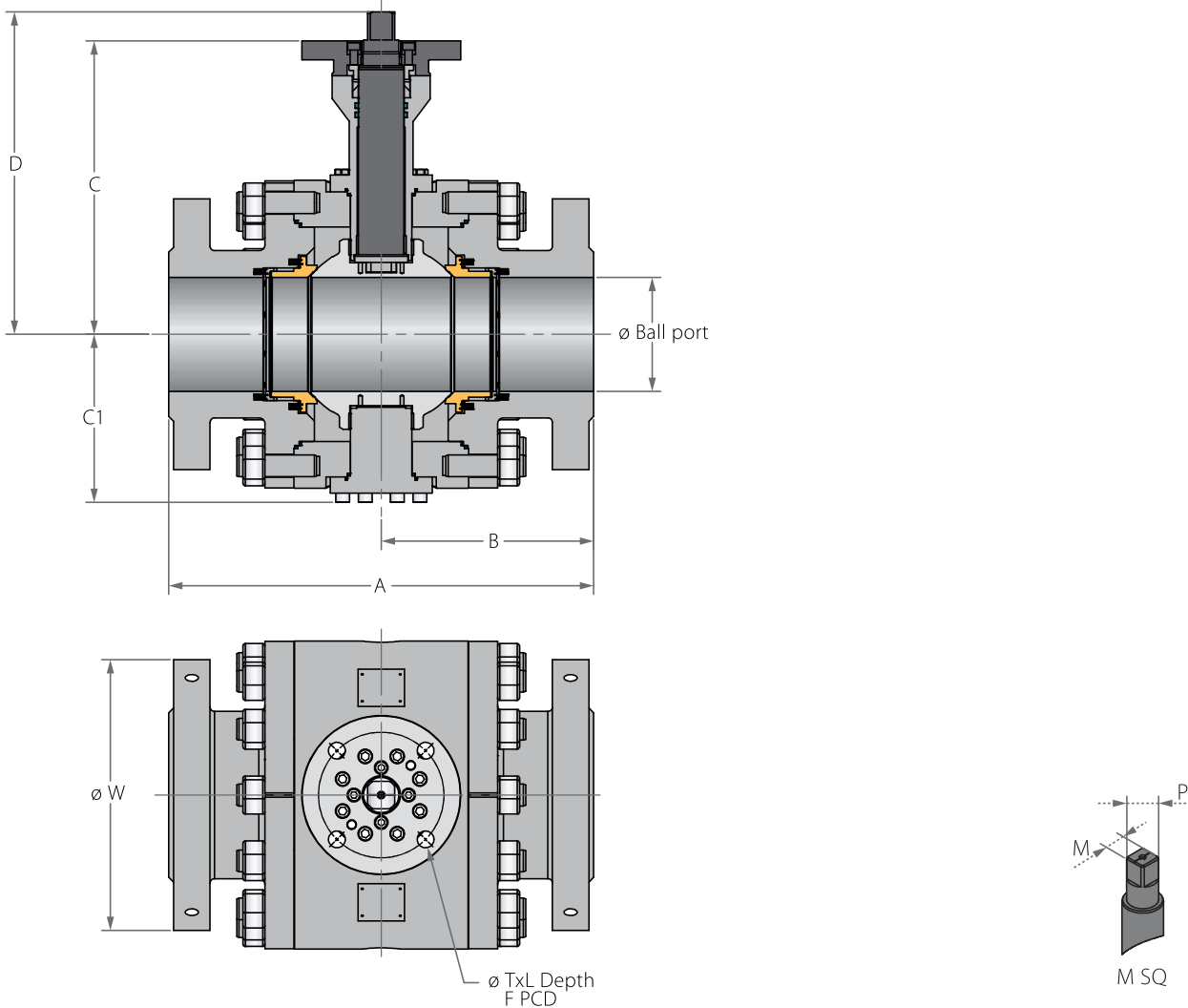
Z93T

Z94T

2"-6" | DN50-DN150 | CLASS 600/900

High Temperature Trunnion Ball 3 Piece Up to 538°C (1000°F)

Valve dimensions



Full port	Unit	Ball port	A		B		C		C1		D		W		M SQ	P SQ	F	TxL	Weight kg/ib				Kv/Cv	
			600	900	600	900	600	900	600	900	600	900	600	900					600	900	600	900		
DN50	mm	49.00	292.00	368.00	146.00	184.00	272.00	272.00	119.00	119.00	291.00	291.00	165.00	215.00	16.90	21.30	(F12)	125.00	M12X15 (4 holes)	49	67	329	294	
2"	inch	1.93	11.50	14.49	5.75	7.24	10.71	10.71	4.69	4.69	11.46	11.46	6.50	8.46	0.67	0.84		4.92		108	148	380	340	
DN80	mm	74.00	356.00	381.00	178.00	190.50	306.00	306.00	160.00	160.00	330.00	330.00	210.00	240.00	21.90	26.90	(F12)	125.00	M12X15 (4 holes)	95	114	874	822	
3"	inch	2.91	14.02	15.00	7.01	7.50	12.05	12.05	6.30	6.30	12.99	12.99	8.27	9.45	0.86	1.06		4.92		209	251	1010	950	
DN100	mm	100.00	432.00	457.00	216.00	228.50	334.00	334.00	184.00	184.00	364.00	364.00	275.00	290.00	26.90	34.90	(F16)	165.00	M22X25 (4 holes)	165	186	1557	1471	
4"	inch	3.94	17.01	17.99	8.50	9.00	13.15	13.15	7.24	7.24	14.33	14.33	10.83	11.42	1.06	1.37		6.50		364	410	1800	1700	
DN150	mm	150.00	559.00	610.00	279.50	305.00	386.00	404.00	220.00	220.00	424.00	442.00	355.00	380.00	35.90	46.20	(F16)	165.00	M22X25 (4 holes)	340	418	3893	3823	
6"	inch	5.91	22.01	24.02	11.00	12.01	15.20	15.91	8.66	8.66	16.69	17.40	13.98	14.96	1.41	1.82		6.50		750	922	4500	4420	

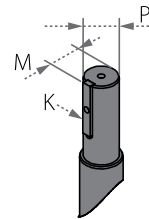
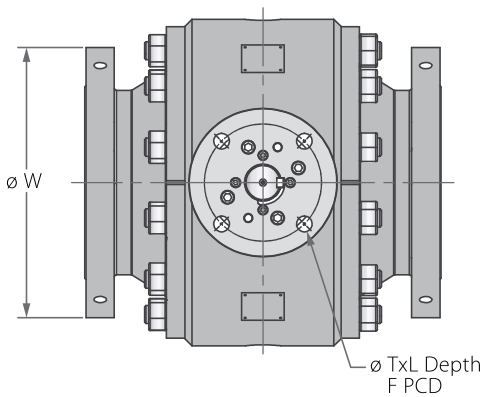
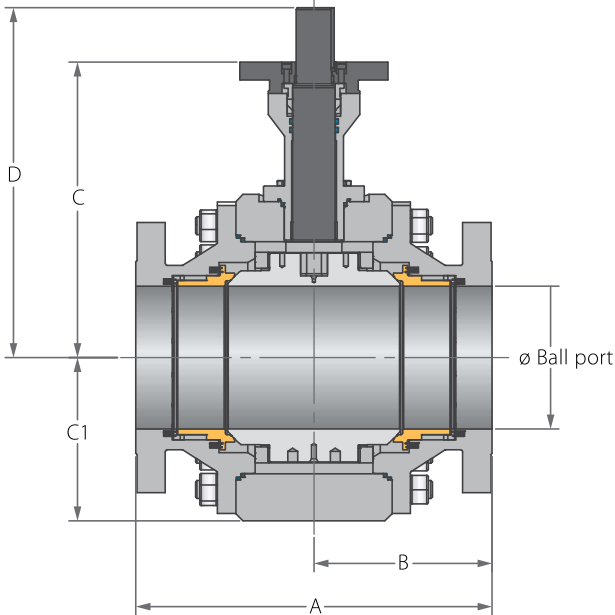
Z93T**Z94T**

8"-12" | DN50-DN150 | CLASS 600/900



High Temperature Trunnion Ball 3 Piece Up to 538°C (1000°F)

Valve dimensions



Full port	Unit	Ball port	A		B		C		C1		D		W		P	M	K	F	TxL	Weight kg/lb		Kv/Cv	
			600	900	600	900	600	900	600	900	600	900	600	900						600	900		
DN200	mm	201.00	660.00	737.00	330.00	368.50	418.00	418.00	263.00	263.00	515.00	515.00	420.00	470.00	72.00	76.50	20.00	(F25) 254.00	18x25 (8 holes)	548	789	7742	7344
8"	inch	7.91	25.98	29.02	12.99	14.51	16.46	16.46	10.35	10.35	20.28	20.28	16.54	18.50	2.83	3.01	0.79	10.00		1208	1739	8950	8490
DN250	mm	252.00	787.00	838.00	393.50	419.00	519.00	537.00	310.00	326.00	616.00	634.00	510.00	545.00	72.00	76.50	20.00	(F30) 298.00	22x30 (8 holes)	895	1274	12543	12110
10"	inch	9.92	30.98	32.99	15.49	16.50	20.43	21.14	12.20	12.83	24.25	24.96	20.08	21.46	2.83	3.01	0.79	11.73		1973	2809	14500	14000
DN300	mm	303.00	838.00	965.00	419.00	482.50	598.00	605.00	344.00	361.00	695.00	702.00	560.00	610.00	72.00	76.50	20.00	(F30) 298.00	22x30 (8 holes)	1096	1546	19809	18598
12"	inch	11.93	32.99	37.99	16.50	19.00	23.54	23.82	13.54	14.21	27.36	27.64	22.05	24.02	2.83	3.01	0.79	11.73		2416	3408	22900	21500

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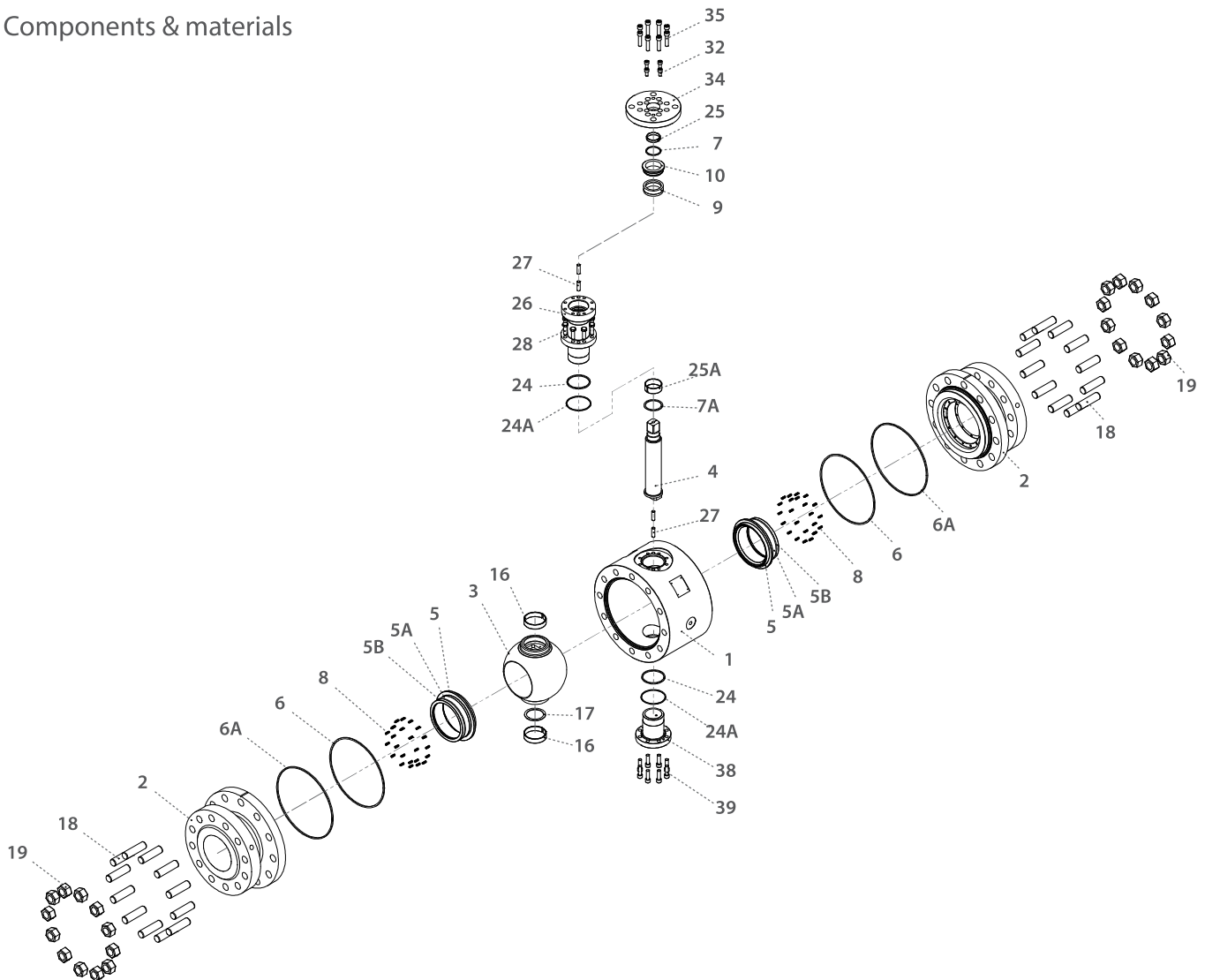
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2"-6"

High Temperature Trunnion Ball 3 Piece Up to 538°C (1000°F)

Components & materials



Item	Description	Material Spec. ASTM	Qty.
1	Body	Acc. Ordering Code	1
2	End	Acc. Ordering Code	2
3	Ball	Acc. Ordering Code	1
4	Stem	Acc. Ordering Code	1
5*	Seat	Acc. Ordering Code	2
5A*	Seat seal	Graphite	2
5B*	Seat ring	Acc. Ordering Code	2
6*	Body inner seal	Graphite	2
6A*	Body outer seal	Graphite	2
7	Upper thrust seal	S.steel 316 / Inconel 625	1
7A	Lower thrust seal	S.steel 316 / Inconel 625	1
8	Seat Spring	Inconel X750	16-48
9*	Stem seal	Graphite	1
10	Follower	S.steel	1
16	Ball bearing	S.steel 316 / Inconel 625	2
17	Ball thrust seal	S.steel 316 / Inconel 625	1

Item	Description	Material Spec. ASTM	Qty.
18	Body stud	A193-B8M / A320 L7	8-24
19	Body nuts	A194-8M / A194 L7	8-24
24*	Bonnet inner seal	Graphite	2
24A*	Bonnet outer seal	Graphite	2
25	Upper stem bearing	S.steel 316 / Inconel 625	1
25A	Lower stem bearing	S.steel 316 / Inconel 625	1
26	Bonnet	S. steel / C. steel	1
27	Bonnet pin	S. steel / C. steel	4
28	Bonnet bolts	A193-B8M / A320 L7	4-8
32	Follower drive bolts	A193-B8M / A320 L7	4-8
34	Iso plate	S. steel / C. steel	1
35	Iso plate bolts	A193-B8M / A320 L7	4-8
38	External trunnion	S. steel / C. steel	1
39	External trunnion bolts	A193-B8M / A320 L7	4-8

* Repair kit components

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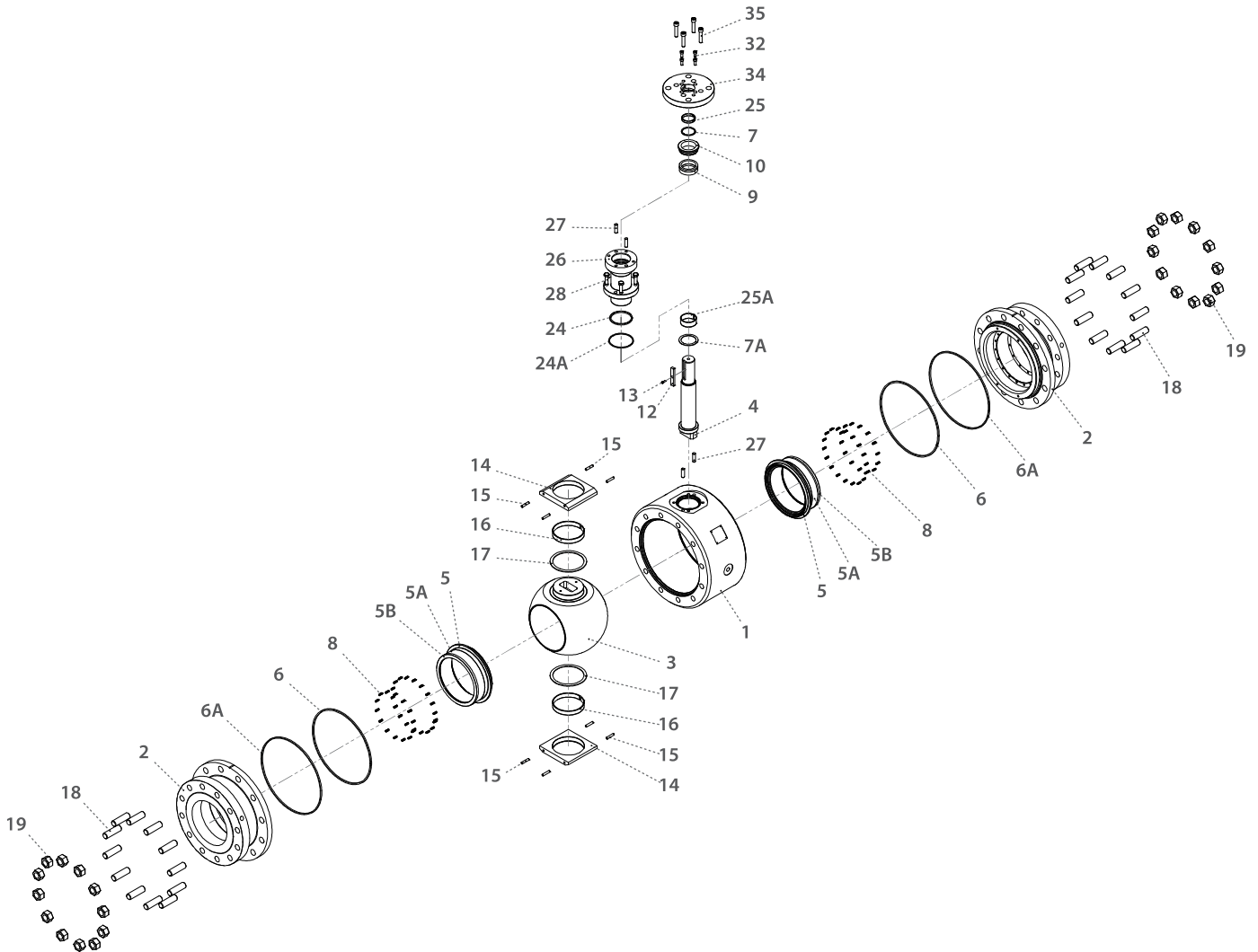
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8"-12"



High Temperature Trunnion Ball 3 Piece Up to 538°C (1000°F)

Components & materials



Item	Description	Material Spec. ASTM	Qty.
1	Body	Acc. Ordering code	1
2	End	Acc. Ordering code	2
3	Ball	Acc. Ordering code	1
4	Stem	Acc. Ordering code	1
5*	Seat	Acc. Ordering code	2
5A*	Seat seal	Graphite	2
5B*	Seat ring	Acc. Ordering code	2
6*	Body inner seal	Graphite	2
6A*	Body outer seal	Graphite	2
7	Upper thrust seal	S.steel 316 / Inconel 625	1
7A	Lower thrust seal	S.steel 316 / Inconel 625	1
8	Seat Spring	Inconel X750	68-76
9*	Stem seal	Graphite	1
10	Follower	S.steel	1
12	Stem key	S.steel / C.steel	1
13	Stem key bolt	S.steel / C.steel	1
14	Trunnion plate	S.steel / C.steel	2

Item	Description	Material Spec. ASTM	Qty.
15	Trunnion plate pin	S.steel / C.steel	8
16	Ball bearing	S.steel 316 / Inconel 625	2
17	Ball thrust washer	S.steel 316 / Inconel 625	2
18	Body stud	A193-B8M / A320 L7	16-40
19	Body nuts	A194 8M / A194 L7	16-40
24*	Bonnet inner seal	Graphite	1
24A*	Bonnet outer seal	Graphite	1
25	Upper stem bearing	S.steel 316 / Inconel 625	1
25A	Lower stem bearing	S.steel 316 / Inconel 625	1
26	Bonnet	S.steel / C.steel	1
27	Bonnet pin	S.steel / C.steel	4
28	Bonnet bolts	ASTM A320-B8M	4-8
32	Follower drive bolts	ASTM A320-B8M	4-8
34	Iso plate	S.steel / C.steel	1
35	Iso plate bolts	A193-B8M / A320 L7	4-8

* Repair kit components

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High Temperature Trunnion Ball 3 Piece - Ordering Code System

"Mandatory option" options are marked with **green background** | "Standard offer" options are marked with **light green background**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	...	30
4	0			Z	B	9	4	P	-	6	M	6	D	I	V	G	/	9	0	0		0			
Size		Features			Series		Design	Body & ends material			Stem material	Ball material	Seat feature	Hardening	Inner Seal	Outer Seal	End Connection				Special features				

Size (1-2)		
Code	inch	mm
20*	2"	50
30	3"	80
40	4"	100
60	6"	150
80	8"	200
A0	10"	250
A2	12"	300

* Full port only

Features (3-6)	
Z	Metal seats
B	Full port

Series - 3 Piece (7-8)	
91	ASME B16.5 #150
92	ASME B16.5 #300
93	ASME B16.5 #600
94	ASME B16.5 #900
95	ASME B16.5 #1500
96	ASME B16.5 #2500

Design (9)	
W	-46°C to 200°C (-50°F to 400°F)
P	-46°C to 327°C (-40°F to 620°F)
T	-60°C to 538°C (-76°F to 1000°F)

Body & ends (11)	
4*	C. Steel A105
6	S. Steel A479 316
J**	F22

* -29°C to 425°C
(-20°F to 800°F)

** For T design only

Stem (12)	
M	High Strength S. Steel
Z	Inconel 718

Ball material(13)	
6	S. Steel A182 316
N*	ASTM A182 F6A (S.Steel 410)

* For O hardening only

Seat feature (14)	
D	Double Piston Effect (DPE) (API 6D DIB-1)
S	Single Piston Effect (SPE) (API 6D DBB)

Hardening (15)	
I*	Cr3C2- Chromium Carbide with Nickel Chrome binder - HVOF technique
O	WC-Co- Tungsten Carbide with Cobalt binder HVO technique

Inner Seal material (16)	
V	Viton (-20°C to 200°C [-4°F to 400°F])
H	HNBR (-46°C to 150°C [-50°F to 300°F])
K	Kalrez (-20°C to 327°C [-4°F to 620°F])
G	Graphite

* Only with N ball material

Outer Seal material (17)	
G	Graphite

End connections (19-22)	
Flanged	
150	ASME B16.5 #150
300	ASME B16.5 #300
600	ASME B16.5 #600
900	ASME B16.5 #900
1500	ASME B16.5 #1500
2500	ASME B16.5 #2500
PN16	DIN EN 1092-1 PN16
PN40	DIN EN 1092-1 PN40
PN63	DIN EN 1092-1 PN63
PN100	DIN EN 1092-1 PN100
PN160	DIN EN 1092-1 PN160
PN250	DIN EN 1092-1 PN250
PN320	DIN EN 1092-1 PN320
PN400	DIN EN 1092-1 PN400

Flanged RTJ	
600RTJ	ASME B16.5 #600 RTJ
900RTJ	ASME B16.5 #900 RTJ
1500RTJ	ASME B16.5 #1500 RTJ
2500RTJ	ASME B16.5 #2500 RTJ

Welded	
XBW	Extended butt weld sch 40
XBW80	Extended butt weld sch 80
XBW160	Extended butt weld sch 160

Special features (23-30)	
L*	Seat greasing point
D**	Drain & Vent
Blank	Drain & vent is capped
H**	Drain ball valve & vent
PT***	Basic paint system
P1	Offshore, Temp Ambient up to 93°C (200°F)
P2	Offshore, up to 537°C (998°F)

* for 6" up not for -T design

** for 6" up

*** colors RAL 1018 or 7036
(other colors upon request)