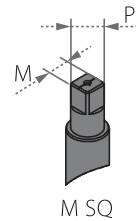
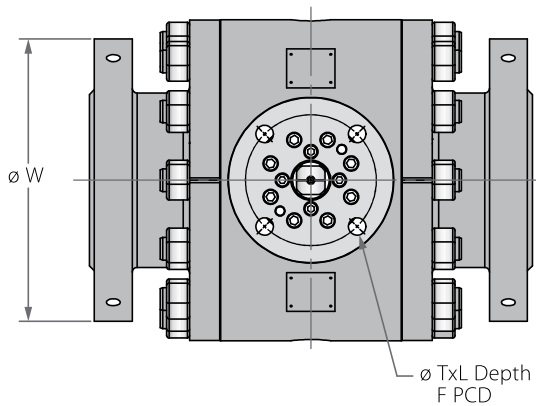
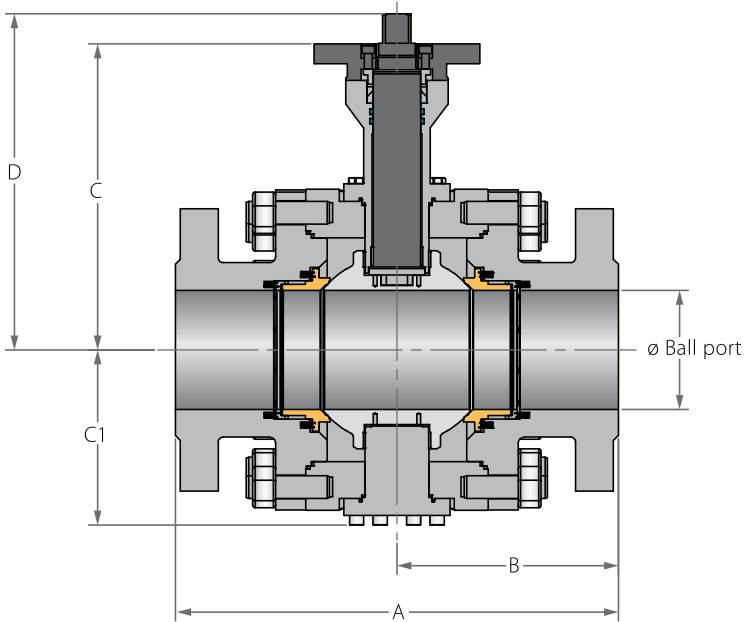


Z91T**Z92T**

2"-6" | DN50-DN150 | CLASS 150/300

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

Valve dimensions



Full port	Unit	Ball port	A		B		C	C1	D		M SQ	P SQ	F	TxL	Weight kg/ib		Kv/Cv		
			150	300	150	300			150	300					150	300	150	300	
DN50	mm	49.00	178.00	216.00	89.00	108.00	250.00	94.00	269.00	150.00	165.00	16.90	(F10)	102.00	M10X15 (4 holes)	27	31	400	363
2"	inch	1.93	7.01	8.50	3.50	4.25	9.84	3.70	10.59	5.91	6.50	0.67		4.02		60	68	463	420
DN80	mm	74.00	203.00	283.00	101.50	141.50	277.00	117.00	301.00	190.00	210.00	21.90	(F12)	125.00	M12X15 (4 holes)	49	63	1125	952
3"	inch	2.91	7.99	11.14	4.00	5.57	10.91	4.61	11.85	7.48	8.27	0.86		4.92		108	139	1300	1100
DN100	mm	100.00	229.00	305.00	114.50	152.50	293.00	139.00	322.00	230.00	255.00	26.90	(F14)	140.00	M16X15 (4 holes)	72	96	2154	1860
4"	inch	3.94	9.02	12.00	4.51	6.00	11.54	5.47	12.68	9.06	10.04	1.06		5.51		159	212	2490	2150
DN150	mm	150.00	394.00	403.00	197.00	201.50	362.00	191.00	400.00	280.00	320.00	35.90	(F16)	165.00	M22X25 (4 holes)	166	184	4723	4628
6"	inch	5.91	15.51	15.87	7.76	7.93	14.25	7.52	15.75	11.02	12.60	1.41		6.50		366	406	5460	5350

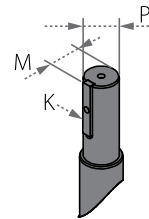
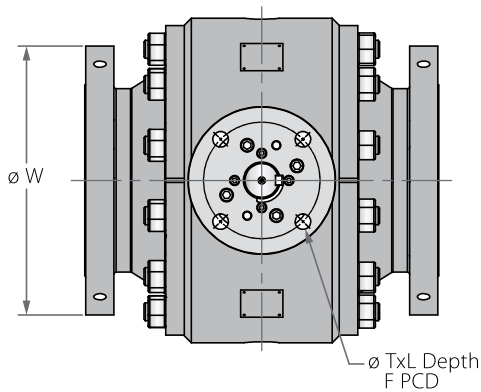
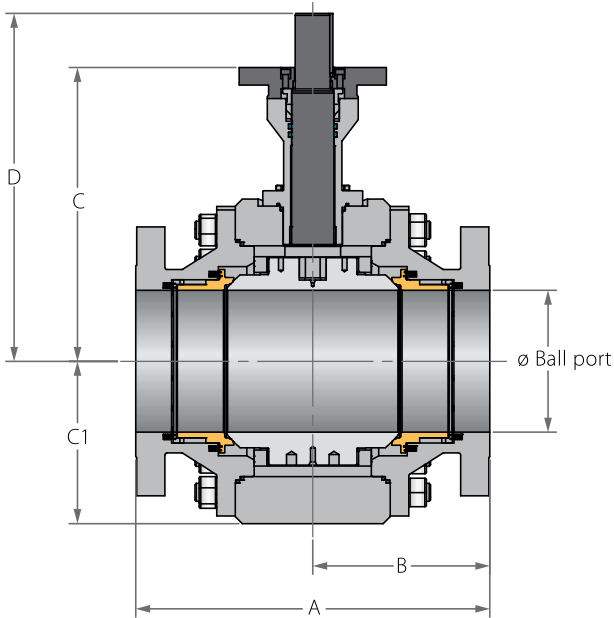
Z91T**Z92T**

8"-12" | DN50-DN150 | CLASS 150/300



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

Valve dimensions



Full port	Unit	Ball port	A		B		C	C1	D	M	K	F	TxL	Weight kg/lb		Kv/Cv	
			150	300	150	300								150	300		
DN200	mm	201.00	457.00	502.00	228.50	251.00	416.00	215.00	493.00	345.00	380.00	50.00	14.00	346	378	9273	8737
8"	inch	7.91	17.99	19.76	9.00	9.88	16.38	8.46	19.41	13.58	14.96			1.97	2.13	0.55	10720
DN250	mm	252.00	533.00	568.00	266.50	284.00	504.00	260.00	581.00	405.00	445.00	50.00	14.00	518	639	15224	14792
10"	inch	9.92	20.98	22.36	10.49	11.18	19.84	10.24	22.87	15.94	17.52			1.97	2.13	0.55	17600
DN300	mm	303.00	610.00	648.00	305.00	324.00	590.00	300.00	671.00	485.00	520.00	60.00	18.00	723	833	23096	22404
12"	inch	11.93	24.02	25.51	12.01	12.76	23.23	11.81	26.42	19.09	20.47			2.36	2.50	0.71	26700

Z91T

Z92T

Z93T

Z94T

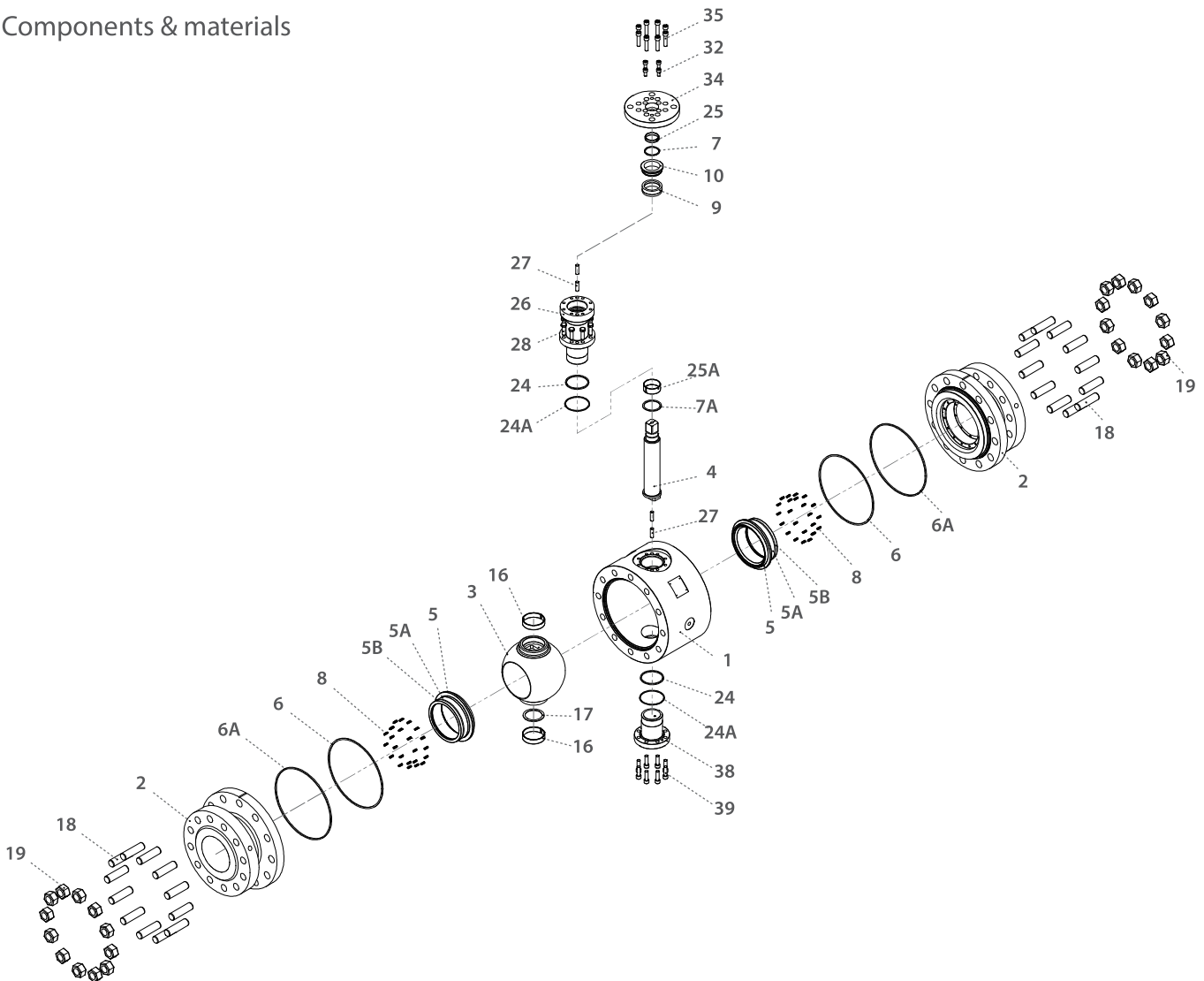
Z95T

Z96T

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

Z91T

Z92T

Z93T

Z94T

Z95T

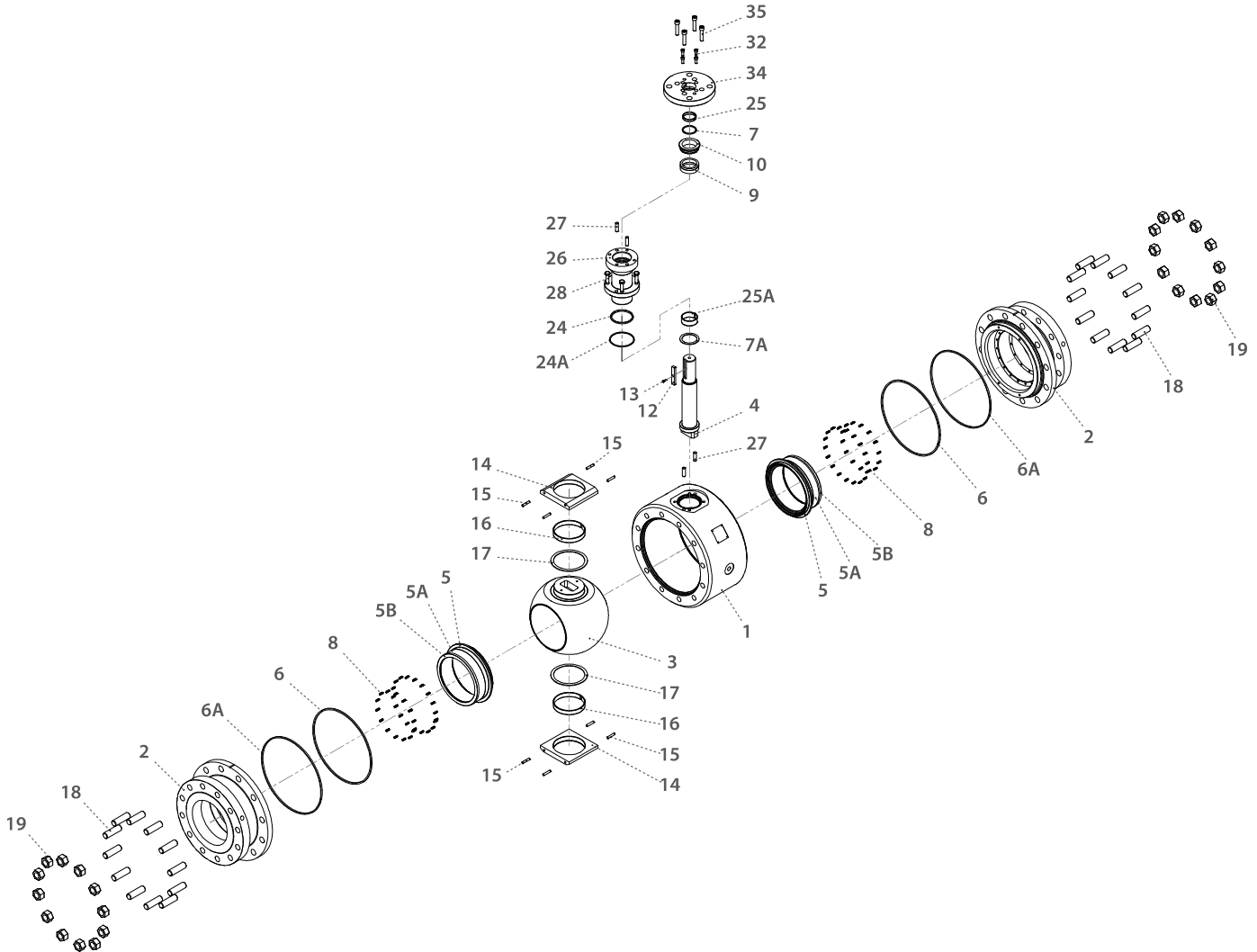
Z96T

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

Z91

Z92

Z93

Z94

Z95

Z96



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)