



In 1984, our journey into the business of repairing valves and industrial instrumentation began. That journey has led us to represent and service well known American brands and companies. In early 2000, our experience and growing passion for the valve industry encouraged our decision to launch our own brand, Morris Valves. Starting with the highly requested Ball Valves, the brand has been based on the principal of quality and performance to match our customers' needs. Our high standards of production later lead us to incorporate other models such as Gate Valve and Check Valves to our production. These additions were carefully selected to match our Standard of Quality. Our success has been driven by our belief of "Tradition with Quality" in everything we do. Our products are developed with that belief which drives our growth and guides the service we provide to our customers.

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Vision

Our vision is to be amongst the leading corporations in the supply of goods and services related to valves, their components and industrial equipment in general. We want to conquer new markets in conformity with international standards and remain committed to customer satisfaction, the welfare of our company and the sustainability our planet.

Mision

Our mission is to use our highly trained, highly focused, and extremely motivated staff to work with manufacturers who value quality and have the vision for new development and product applications to ensure the timely provision of goods and services related to valves, their components and industrial equipment in general. We maintain a rigorous standard of customer satisfaction, which will provide for the welfare of the company, the welfare of the countries we serve, and most importantly the sustainability of the planet.

"Serving the world, one project at a time"

TBV TYPE

SPECIFICATIONS:

- * Design Standard:
- API 6D
- ASME B16.34
- * Face to Face:
- API 6D,
- ANSI B16.10
- * End Connection:
- FLANGED: RF/RTJ,ANSI B16.5/ANSI B16.47
- BUTT WELDING: BW,ANSI B16.25

- * Test: API 6D ,API 598. Marking: MS SP-25
- * Body Material: Body Material: WCB, A105, CF8,CF8M,CF3,CF3M,F304,F3 16,F304L,F316L,LCB,LF2,F51
- * Ball Coating: ENP,Tungsten Carbide Coat (TCC), Chrome Carbide Coat (CCC)
- * Actuation: Lever, Worm Gear, Electrical, Pneumatic, Hydraulic



- *Full Bore, May Allow Pipeline Cleaning * Full Bore/Reduced Bore. (PIGGABLE)
- * Fire Safe Design to API 6FA/607.
- * Trunnion Mounted. Side Entry/Top Body
- Entry. Independent Ball & Stem
- * Soft Insert Seat/Metal-to-Metal Seat
- * Double Block & Bleed Function. With * Grease Injection on Stem & Seat
- Vent and Drain Hole

- * Cast 2pcs Bolted Body
- * Forged 3pcs Bolted or Welded
- * Anti-Blowout Stem.
- * Anti-static Device
- * Extended Bonnet or Stem Optional



C € APPROVED

MATERIALS

BODY & BONNET	
BALL	
TRUNNION	
STEM	
SEAT	
SEAT INSERT	
O-RING	

SIZE:

(2 – 36)" FULL PORT Class 150 Class 300 (2 – 32)" FULL PORT (2 – 30)" FULL PORT Class 600 (2 – 24)" FULL PORT Class 900 (2 – 16)" FULL PORT Class 1500 (2 - 12)" FULL PORT Class 2500

HOW TO ORDER

	SIZE		RATINGS		END CONNECTION
TBV-		-		-	

This is widely used in valves with high pressure and big sizes. Trunnion ball valve has floating seats. The seats move with the medium pressure to tight the ball and seal ring to ensure sealing reliability. Ball of Trunnion ball valve is fixed, it does not move with medium pressure. Bearings could be mounted in top shaft and bottom shaft, which reduce operation torque.



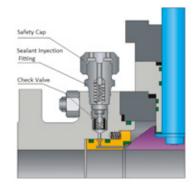
Sealant Injection Device.

Sealant Injection Device.- To decrease the operation torque, increasing sealing reliability, lubricated ball valves are adopted in recent years; Trunnion mounted ball valves are provided with devices for Sealant injection, which are on both the stem and seat for the Trunnion ball valves of DN>150mm (NPS6), and in the body cavity for the valve of DN<125mm.

A special sealant is injected between sealing faces of lubricated ball valve to create a layer increasing the sealing reliability, while decreasing thee operation torque; which is better for high pressure in big sized ball valves.







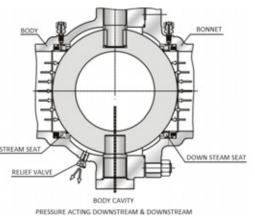
Double Block and Bleed.

Double Block and Bleed. - Trunnion Ball Valves features the front ball Sealing Design structure.

Each seat of the ball valve can separately cut- off the medium at both upstream and downstream, to achieve double block function.

When the ball valve is closed, body cavity is segregated from both Upstream and downstream even there is pressure at both ends.

The medium left in the body cavity could increase the pressure to propel the seats. The medium could be bled out through the relief valve to ensure valve safety.



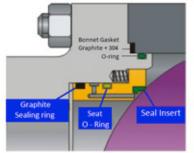
Fire safe design.

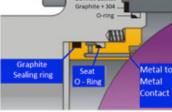
Fire safe design. - In a fire situation, the non-metal material parts such as:

- Seat sealing rings of PTFE or NYLON
- Stem O-Ring's
- Body & Bonnet Sealing Gasket's

May be damaged due to high temperature

An auxiliary Metal to Metal or Graphite Seal is provided to effectively prevent both internal and external valve leakage. Fire safe design for Trunnion ball valves





BEFORE FIRE

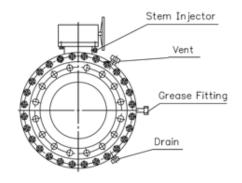
AFTER FIRE

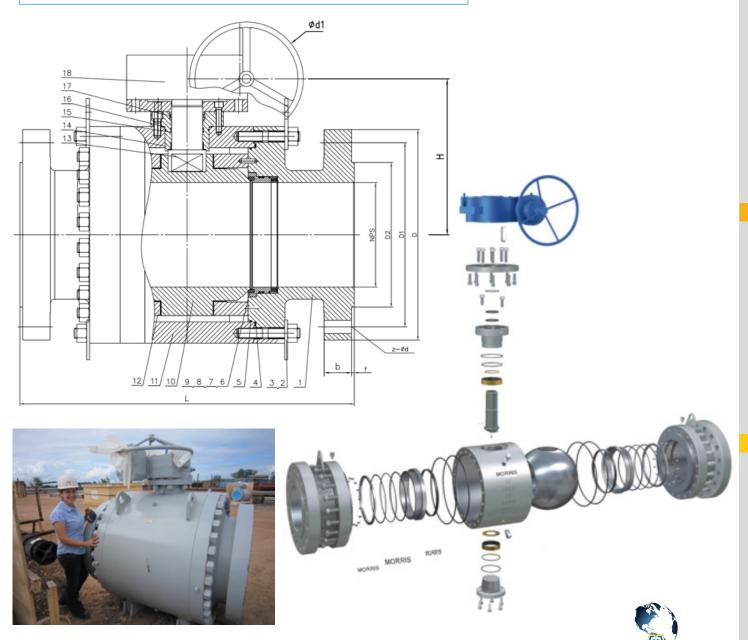
Anti-static Design.- The Ball, stem and body of the Trunnion mounted ball valve by means of the Anti-static spring and Grounding Plunger forms a static channel through which, the static electricity caused in the switching process of ball and body, will be guided to the ground. Thus it can prevent the valve from the potential fire and explosion risk.

Blow-out Proof stem. - This structure is provided for the stem, which is positioned by the up-end cap and screw, being guaranteed not to be blown-out by the medium even if an abnormal risen pressure in the cavity is presented.



		Main Parts 8	& Mate	rials								
	MATERIALS ASTM/ANSI											
No	PART	CARBON STEEL	LOW T	EMP STEEL	STAILESS STEEL							
1	CAP	WCB A105	CF8M	A182 F316	A352 - LCB	A350 -LF2						
2	BONNET BOLT	A193 - B7	A1	93 - B8	A 320) – L7						
3	BONNET BOLT NUT	A194 – 2H	A.	194 - 8	A194	4 - 4						
4	BONNET GASKET	GRAPHITE + 304 ²⁾	GRAP	HITE + 316 ²⁾	GRAPHI	ΓE + 304 ²⁾						
5	O – RING(BONNET)		V	/ITON								
6	SEAT RING	A105+ENP	A18	2 – F316	A350 – FI	L2 + ENP						
7	SEAT INSERT (SEAL)		GLASS I	FILLED PTFE	•							
8	SEAT O-RING	VITON										
9	SEAT SPRING	17 – 7PH	Incor	nel X - 750	17 – 7PH							
10	BALL	A182-F304 ¹⁾	A18	2 - F316	A182 - F304 ¹⁾							
11	BODY	WCB A105	CF8M	A182 F316	A352 - LCB	A350 -LF2						
12	BASE PLATE	A105 + ENP	CF8M	A182 F316	A352 - LCB	A350 -LF2						
13	STEM	A182 F6a	A2:	76 - 316	A276	- 304						
14	GLAND FLANGE	A105 WCB	CF8M	A182 F316	A352 - LCB	A350 -LF2						
15	O-RING(STEM)	VITON										
16	GLAND GASKET	GRAPHITE + 304 ²⁾	GRAPH	IITE + 3162	GRAPHITE + 304 ²⁾							
17	PACKING	FLEXIBLE GRAPHITE										
18	GEAR ACTUATOR	COMPONENT PART										
	HANDLE		CARB	ON STEEL								
Notes:												
	5+ENP Optional al wound construction											





NPS (INCH)	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
L(RF)	7.00	7.50	8.00	9.00	15.50	18.00	21.00		l <mark>ass 150</mark> 27.00)) 30.00	34.00	36.00	42.00	45.00	49.00	51.00	54.00	60.00
L1(BW)	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	68.00
Н	7.00	7.50	8.25	9.25	11.4	15.92	19.80	21.20	23.20	24.08	25.6	28.5	33	35.8	36.3	38.7	41.9	44.7
W	-	-	20	20	24	24	24	24	32	32	32	32	32	32	32	32	32	32
Wt RF	15	19	27	38	81	140	160	205	260	390	510	750	1200	1400	1860	2100	2530	2970
(Kg) BW	13.5	15.5	24.5	32.5	76	132	147	182	241	370	496	726	1125	1250	1640	1930	2390	2760
NPS (INCH)	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
. (5.5)									lass 300									
L(RF)	8.50	9.50	11.12	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	67,99
L1(BW)	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	67,99
Н	5.20	5.68	7.40	9.40	13	15.60	17.80	20.80	22	23.20	24.20	24.40	29	30.4	31.60	33	34.80	37,40
W Wt RF	-	-	24	24	24	24	32	32	32	32	32	32	32	40	40	40	40	40
(Kg) BW	30	40	60	90	200	325	490	690	990	1810	2620	2860	4430	5430	6810	7655	7940	10150
(NG) BW	24	31	49	72	169	280	424	598	872	1665	2440	2635	4075	4880	6225	7115	7940	10150
NPS (INCH)	2	2 1/2	2	4	6	8	10	12	14	16	10	20	24	26	20	30	27	26
INF 3 (INCH)	2	2-1/2	3	4	O	0	10	12			18	20	24	26	28	30	32	36
L/ L1	11.50	13	14	17	22	26	31	33	lass 600 35)) 39	43	17	55	57	61	65	70	82,00
(RF)(BW)	11.50	13	14	17	22	20	31	33	33	39	43	47	55	57	01	05	70	62,00
L2 (RTJ)	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	57.50	61.50	65.50	70,62	82,63
Н	6.50	7.00	8.80	10	14.4	15.60	18	20	20.8	22	25.40	27	31.20	32.40	33.60	39,76	36.02	38,85
W	-	-	24	24	32	32	32	32	32	32	40	40	40	40	40	40	40	40
Wt RF/RTJ	34	53	65	125	245	505	640	910	1380	2250	3400	3850	4900	6700	8300	8380	9740	13300
(Kg) BW	27	43	49	95	188	418	495	740	1185	1960	3050	3406	4275	6025	759	8380	9740	13300
																		I 1
NDC	2	1-																
NPS (INCH)	2	2-1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
								(0	lass 900))								
L/ L1	14.50	16.50	15	18	24	29	33				18 48.00	52.00	61.00	26 65.00	69.00	30 74.00	32 80.00	90.00
L/ L1 (RF)(BW)	14.50	16.50	15	18	24	29	33	38	lass 900 40.50	44.50	48.00	52.00	61.00	65.00	69.00	74.00	80.00	90.00
L/ L1 (RF)(BW) L2 (RTJ)	14.50 14.62	16.50 16.62	15 15.12	18 18.12	24 24.12	29 29.12	33.12	38 38.12	40.88	44.50 44.88	48.00 48.50	52.00 52.50	61.00	65.00 65,86	69.00 69.88	74.00 74.88	80.00 80.86	90.00
L/L1 (RF)(BW) L2 (RTJ) H	14.50	16.50 16.62 7.50	15 15.12 10.20	18 18.12 11.4	24 24.12 14.8	29 29.12 16	33 33.12 18	38 38.12 20	40.88 20.8	44.50 44.88 22	48.00 48.50 24	52.00 52.50 25.2	61.00 61.75 32.4	65.00 65,86 33.46	69.00 69.88 35.43	74.00 74.88 38.58	80.00 80.86 48.81	90.00 91.14 51.57
L/L1 (RF)(BW) L2 (RTJ) H	14.50 14.62 6.72	16.50 16.62 7.50	15 15.12 10.20 16	18 18.12 11.4 16	24.12 14.8 16	29 29.12 16 20	33.12 18 20	38.12 20 20	40.88 20.8	44.50 44.88 22 24	48.00 48.50 24 24	52.00 52.50 25.2 24	61.00 61.75 32.4 28	65.00 65,86 33.46 28	69.00 69.88 35.43 32	74.00 74.88 38.58 40	80.00 80.86 48.81 40	90.00 91.14 51.57 40
L/L1 (RF)(BW) L2 (RTJ) H	14.50 14.62 6.72 - 45	16.50 16.62 7.50 - 65	15 15.12 10.20 16 73	18 18.12 11.4 16 135	24.12 14.8 16 360	29 29.12 16 20 650	33 33.12 18 20 930	38.12 20 20 1350	40.50 40.50 40.88 20.8 20 1890	44.88 22 24 3100	48.00 48.50 24 24 4300	52.00 52.50 25.2 24 4950	61.00 61.75 32.4 28 7100	65.00 65,86 33.46 28 8040	69.00 69.88 35.43 32 10840	74.00 74.88 38.58 40 12210	80.00 80.86 48.81 40 14992	90.00 91.14 51.57 40 19920
L/ L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ	14.50 14.62 6.72	16.50 16.62 7.50	15 15.12 10.20 16	18 18.12 11.4 16	24.12 14.8 16	29 29.12 16 20	33.12 18 20	38.12 20 20	40.88 20.8	44.50 44.88 22 24	48.00 48.50 24 24	52.00 52.50 25.2 24	61.00 61.75 32.4 28	65.00 65,86 33.46 28	69.00 69.88 35.43 32	74.00 74.88 38.58 40 12210	80.00 80.86 48.81 40	90.00 91.14 51.57 40
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37	16.50 16.62 7.50 - 65 53	15.12 10.20 16 73 56	18.12 11.4 16 135 98	24.12 14.8 16 360 291	29 29.12 16 20 650 545	33 33.12 18 20 930 760	38 38.12 20 20 1350 1145	40.50 40.50 40.88 20.8 20 1890 1650	44.50 44.88 22 24 3100 2750	48.00 48.50 24 24 4300 3875	52.00 52.50 25.2 24 4950 4410	61.00 61.75 32.4 28 7100 6485	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840	74.00 74.88 38.58 40 12210 12210	80.00 80.86 48.81 40 14992 14992	90.00 91.14 51.57 40 19920 19920
L/ L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ	14.50 14.62 6.72 - 45	16.50 16.62 7.50 - 65	15 15.12 10.20 16 73	18 18.12 11.4 16 135	24.12 14.8 16 360	29 29.12 16 20 650	33 33.12 18 20 930	38.12 20 20 1350 1145	40.88 20.8 20 1890 1650	44.88 22 24 3100 2750	48.00 48.50 24 24 4300	52.00 52.50 25.2 24 4950	61.00 61.75 32.4 28 7100	65.00 65,86 33.46 28 8040	69.00 69.88 35.43 32 10840	74.00 74.88 38.58 40 12210	80.00 80.86 48.81 40 14992	90.00 91.14 51.57 40 19920
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37	16.50 16.62 7.50 - 65 53	15 15.12 10.20 16 73 56	18.12 11.4 16 135 98	24 24.12 14.8 16 360 291	29 29.12 16 20 650 545	33 33.12 18 20 930 760	38.12 20 20 1350 1145	40.88 20.8 20 1890 1650	44.88 22 24 3100 2750	48.00 48.50 24 24 4300 3875	52.00 52.50 25.2 24 4950 4410	61.00 61.75 32.4 28 7100 6485	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840	74.00 74.88 38.58 40 12210 12210	80.00 80.86 48.81 40 14992 14992	90.00 91.14 51.57 40 19920 19920
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37	16.50 16.62 7.50 - 65 53	15 15.12 10.20 16 73 56	18.12 11.4 16 135 98	24.12 14.8 16 360 291	29 29.12 16 20 650 545	33 33.12 18 20 930 760	38.12 20 20 1350 1145	40.88 20.8 20 1890 1650	44.88 22 24 3100 2750	48.00 48.50 24 24 4300 3875	52.00 52.50 25.2 24 4950 4410	61.00 61.75 32.4 28 7100 6485	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840	74.00 74.88 38.58 40 12210 12210	80.00 80.86 48.81 40 14992 14992	90.00 91.14 51.57 40 19920 19920
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW)	14.50 14.62 6.72 - 45 37 2	16.50 16.62 7.50 - 65 53 2-1/2	15 15.12 10.20 16 73 56 3	18 18.12 11.4 16 135 98 4 21.50	24 24.12 14.8 16 360 291 6	29 29.12 16 20 650 545 8 32.75	33 33.12 18 20 930 760 10 39.00	38 38.12 20 20 1350 1145 12 (c) 44.50	40.50 40.50 40.88 20.8 20 1890 1650 14 lass 150 49.50	44.50 44.88 22 24 3100 2750 16 0) 54.50	48.00 48.50 24 24 4300 3875 18	52.00 52.50 25.2 24 4950 4410 20 65.51	61.00 61.75 32.4 28 7100 6485	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840	74.00 74.88 38.58 40 12210 12210	80.00 80.86 48.81 40 14992 14992	90.00 91.14 51.57 40 19920 19920
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS ((NCH) L/L1 (RF)(BW) L2 (RTJ)	14.50 14.62 6.72 - 45 37	16.50 16.62 7.50 - 65 53 2-1/2	15 15.12 10.20 16 73 56 3 18.50	18 18.12 11.4 16 135 98 4 21.50	24 24.12 14.8 16 360 291 6 27.75	29 29.12 16 20 650 545 8 32.75	33 33.12 18 20 930 760 10 39.00 39.38	38 38.12 20 20 1350 1145 12 (c) 44.50	40.50 40.50 40.88 20.8 20 1890 1650 14 49.50 50.25	44.50 44.88 22 24 3100 2750 16 0) 54.50	48.00 48.50 24 24 4300 3875 18 60.51	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37	61.00 61.75 32.4 28 7100 6485	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840	74.00 74.88 38.58 40 12210 12210	80.00 80.86 48.81 40 14992 14992	90.00 91.14 51.57 40 19920 19920
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW)	14.50 14.62 6.72 - 45 37 2 14.50	16.50 16.62 7.50 - 65 53 2-1/2 16.50	15 15.12 10.20 16 73 56 3	18 18.12 11.4 16 135 98 4 21.50	24 24.12 14.8 16 360 291 6	29 29.12 16 20 650 545 8 32.75	33 33.12 18 20 930 760 10 39.00 39.38	38 38.12 20 20 1350 1145 12 (c) 44.50	40.50 40.50 40.88 20.8 20 1890 1650 14 lass 150 49.50	44.50 44.88 22 24 3100 2750 16 0) 54.50	48.00 48.50 24 24 4300 3875 18	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43	61.00 61.75 32.4 28 7100 6485	65,86 33,46 28 8040 8040	69.00 69.88 35.43 32 10840 10840	74.00 74.88 38.58 40 12210 12210	80.00 80.86 48.81 40 14992 14992	90.00 91.14 51.57 40 19920 19920
L/L1 (RF)(BW) L2 (RTJ) H W Wt REF/RTJ (KG) BW NPS ((NCH) L/L1 (RF)(BW) L2 (RTJ) H	14.50 14.62 6.72 - 45 37 2 14.50	16.50 16.62 7.50 - 65 53 2-1/2 16.50	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11	29 29.12 16 20 650 545 8 32.75 33.12 20.47	33 33.12 18 20 930 760 10 39.00 39.38 25.19	38 38.12 20 20 1350 1145 12 (c) 44.50 45.12 28.34	40.50 40.50 40.88 20.8 20 1890 1650 14 49.50 50.25 29.92	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37	61.00 61.75 32.4 28 7100 6485 24	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840	74.00 74.88 38.58 40 12210 12210 30	80.00 80.86 48.81 40 14992 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt REF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW) L2 (RTJ) H W	14.50 14.62 6.72 - 45 37 2 14.50 14.62 -	16.50 16.62 7.50 - 65 53 2-1/2 16.50	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11 20	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20	38 38.12 20 20 1350 1145 12 (c 44.50 45.12 28.34 20 1980	40.50 40.50 40.88 20.8 20 1890 1650 14 lass 150 49.50 50.25 29.92 20	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28	61.00 61.75 32.4 28 7100 6485 24	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 12210 30	80.00 80.86 48.81 40 14992 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt REF/RTJ (Kg) BW NPS ((NCH) L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - - 55	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - 75	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150	24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360	38 38.12 20 20 1350 1145 12 (c 44.50 45.12 28.34 20 1980	40.50 40.50 40.88 20.8 20 1890 1650 14 lass 150 49.50 50.25 29.92 20 3100	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120	61.00 61.75 32.4 28 7100 6485 24	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 12210 30	80.00 80.86 48.81 40 14992 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt REF/RTJ (Kg) BW NPS ((NCH) L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - - 55	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - 75	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150	24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360	38 38.12 20 20 1350 1145 12 (c 44.50 45.12 28.34 20 1980	40.50 40.50 40.88 20.8 20 1890 1650 14 lass 150 49.50 50.25 29.92 20 3100	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120	61.00 61.75 32.4 28 7100 6485 24	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 12210 30	80.00 80.86 48.81 40 14992 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - - 55 40	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - - 75 55	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95 65	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150 115	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540 420	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880 685	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360 1025	12 (c) 44.50 45.12 28.34 20 1980 1555	14 lass 150 49.50 49.50 50.25 29.92 20 3100 2600	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120 4120	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120 9120	61.00 61.75 32.4 28 7100 6485 24	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 12210 30	80.00 80.86 48.81 40 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - - 55 40	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - - 75 55	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95 65	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150 115	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540 420	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880 685	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360 1025	12 (c) 44.50 45.12 28.34 20 1980 1555	14 lass 150 49.50 40.40 49.50 49.50 25 29.92 20 3100 2600	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120 4120	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120 9120	61.00 61.75 32.4 28 7100 6485 24	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 12210 30	80.00 80.86 48.81 40 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - - 55 40	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - 75 55	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95 65	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150 115	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540 420	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880 685	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360 1025	12 (c) 1980 1255 12 (c)	14 lass 150 49.50 40.40 49.50 49.50 25 29.92 20 3100 2600	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120 4120 16	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120 9120	61.00 61.75 32.4 28 7100 6485 24	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 30 30	80.00 80.86 48.81 40 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - - 55 40	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - 75 55	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95 65	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150 115 4 26.50	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540 420	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880 685	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360 1025 10	12 (c) 1980 1255 12 (c)	14 lass 150 49.50 40.40 49.50 49.50 25 29.92 20 3100 2600	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120 4120 16	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120 9120	61.00 61.75 32.4 28 7100 6485 24	65.00 65,86 33.46 28 8040 8040	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 30 30	80.00 80.86 48.81 40 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L2 (RTJ) H W Wt RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - 55 40 2	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - 75 55 2-1/2	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95 65	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150 115 4 26.50	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540 420 6	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880 685	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360 1025 10 50.00	38 38.12 20 20 1350 1145 12 (c 44.50 45.12 28.34 20 1980 1555	14 lass 150 200 2600 144 lass 250 -	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120 4120 16 0)	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120 9120 20	61.00 61.75 32.4 28 7100 6485 24 - - - - 24	65.00 65,86 33.46 28 8040 8040 26	69.00 69.88 35.43 32 10840 10840 	74.00 74.88 38.58 40 12210 12210 30	80.00 80.86 48.81 40 14992 14992 32	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L2 (RTJ) H W L/L1 (RF)(BW) L2 (RTJ) H W UT RF/RTJ (Kg) BW	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - 55 40 2 17.75	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - 75 55 2-1/2 20 21.25	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95 65 3 22.75	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150 115 4 26.50 26.88	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540 420 6 36.00	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880 685 8 40.25	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360 1025 10 50.00	38 38.12 20 20 1350 1145 12 (c 44.50 45.12 28.34 20 1980 1555 12 (c 56.00	14 lass 150 2600 2600 144 lass 250 -	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120 4120 16 0)	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120 9120 -	61.00 61.75 32.4 28 7100 6485 24 - - - - 24	65.00 65,86 33.46 28 8040 8040 26	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 12210 30	80.00 80.86 48.81 40 14992 14992 32 - - - - - - -	90.00 91.14 51.57 40 19920 19920 36
L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L/L1 (RF)(BW) L2 (RTJ) H W Wt RF/RTJ (Kg) BW NPS (INCH) L2 (RTJ) H L/L1 (RF)(BW) L2 (RTJ) H H L/L1 (RF)(BW) L2 (RTJ) H H	14.50 14.62 6.72 - 45 37 2 14.50 14.62 - - 55 40 2 17.75 17.88 6.69	16.50 16.62 7.50 - 65 53 2-1/2 16.50 16.62 - 75 55 2-1/2 20 21.25 8.26	15 15.12 10.20 16 73 56 3 18.50 18.62 10.03 20 95 65 3 22.75 23.00 9.84	18 18.12 11.4 16 135 98 4 21.50 21.62 11.22 20 150 115 4 26.50 26.88 11.41	24 24.12 14.8 16 360 291 6 27.75 28.00 18.11 20 540 420 6 36.00 36.50 13.38	29 29.12 16 20 650 545 8 32.75 33.12 20.47 20 880 685 8 40.25 40.88 18.50	33 33.12 18 20 930 760 10 39.00 39.38 25.19 20 1360 1025 10 50.00 50.88 19.29	38 38.12 20 20 1350 1145 12 (c 44.50 45.12 28.34 20 1980 1555 12 (c 56.00 56.88 24.21	14 lass 150 2600 2600 144 lass 250	44.50 44.88 22 24 3100 2750 16 0) 54.50 55.38 32.28 24 4120 4120 16 0)	48.00 48.50 24 24 4300 3875 18 60.51 61.37 34.64 24 6260 6260	52.00 52.50 25.2 24 4950 4410 20 65.51 66.37 35.43 28 9120 9120 -	61.00 61.75 32.4 28 7100 6485 24 - - - - - -	65.00 65,86 33.46 28 8040 8040 26 - - - - - - -	69.00 69.88 35.43 32 10840 10840 28	74.00 74.88 38.58 40 12210 12210 30 30	80.00 80.86 48.81 40 14992 14992 32 - - - - - - -	90.00 91.14 51.57 40 19920 19920 36 - - - - - - - - -





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