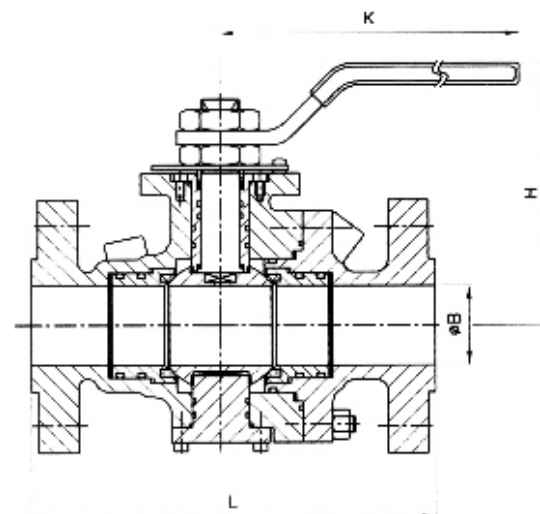


CAST STEEL, 2 PIECE, TRUNNION MOUNTED - FULL and REDUCED PORT**Features**

- ▶ Hawa Valves Cast Steel Ball Valves have been designed to meet the requirements BS 5351/ASME B 16.34/API 6D-ISO 14313/API 608/MSS SP 72
- ▶ Face to Face and End to End dimensions conform to ASME B 16.10 / ISO 5752 / BS 2080 / API 6D-ISO 14313/ DIN
- ▶ End flange dimensions conform to ASME B 16.5 / ISO 7005-1 / API 605 / BS 3293 / DIN
- ▶ Butt weld end dimensions conform to ASME B 16.25
- ▶ Fire tested design to API 607/API 6FA/BS 6755-II
- ▶ Pressure energized seat rings with spring assistance for preloading ensure leak tightness even at low pressure
- ▶ Blow out proof stem construction
- ▶ Double block and bleed
- ▶ Antistatic devices ensure electrical continuity between ball, stem and body
- ▶ Bearing pads fix the ball and absorb total thrust of the medium relieving the downstream sealing of the load
- ▶ ISO 5211 top pad for simplified gear/actuator mounting
- ▶ Valves meet the requirements of fugitive emission levels Shell category B as per MESG SPE 77/312

**Options**

- ▶ Two or three piece construction
- ▶ For low temperature and cryogenic services (cold box and non-cold box applications) extended bonnet as per BS 6364 available
- ▶ Locking arrangement
- ▶ Gear, Electrical, Hydraulic or Pneumatic actuator available
- ▶ Soft seats are recommended for service temperature up to 260°C and for higher temperatures metal to metal seating offered
- ▶ Emergency sealant injection system
- ▶ Can be supplied with GRAYLOC END HUB, under project license from GRAYLOC PRODUCTS®, UK.
- ▶ Large valves are provided with lifting lugs and installation supports.

Materials

Part Name	Material Option
Body	ASTM A 216 WCB / A 217 WC6 / A 217 WC9 / A 217 C5 / A 217 C12 / A 351 CF8 / A 351 CF8M / A 351 CF3 / A 351 CF3M / A 352 LCB
Side Piece	ASTM A 216 WCB / A 217 WC6 / A 217 WC9 / A 217 C5 / A 217 C12 / A 351 CF8 / A 351 CF8M / A 351 CF3 / A 351 CF3M / A 352 LCB
Ball	ASTM A 351 CF8 / A 351 CF8M / A 182 F304 / A 182 F316 / A 182 F 6a
Body Seal	PTFE / Graphoil / Spiral Wound SS 316 with Graphoil
Seats	PTFE / GET / Graphite filled PTFE
Seat Retainer	ASTM A 216 WCB / A 217 WC6 / A 217 WC9 / A 217 C5 / A 217 C12 / A 351 CF8 / A 351 CF8M / A 351 CF3 / A 351 CF3M / A 352 LCB
Stem	ASTM A 182 F304 / A 182 F316 / A 182 F 6a
Trunnion	ASTM A 216 WCB / A 217 WC6 / A 217 WC9 / A 217 C5 / A 217 C12 / A 351 CF8 / A 351 CF8M / A 351 CF3 / A 351 CF3M / A 352 LCB
Gland Housing	ASTM A 216 WCB / A 217 WC6 / A 217 WC9 / A 217 C5 / A 217 C12 / A 351 CF8 / A 351 CF8M / A 351 CF3 / A 351 CF3M / A 352 LCB
Top Plate	ASTM A 216 WCB / A 217 WC6 / A 217 WC9 / A 217 C5 / A 217 C12 / A 351 CF8 / A 351 CF8M / A 351 CF3 / A 351 CF3M / A 352 LCB
Spring	Spring Steel / SS 304 / SS 316 / Inconel X 750
'O' Ring	VITON / Silicon Rubber / Graphite
Gland	ASTM A 182 F304 / A 182 F316 / A 182 F 6a
Gland Packing	Graphoil / PTFE
Stem Packing	Graphite filled PTFE / Graphoil
Gland Nut	Stainless Steel
Stem Nut	Stainless Steel
Lever	Carbon Steel with PVC
Gear Box / Actuator	Manufacturer's Standard
Studs / Bolts	ASTM A 193 B7 / A 193 B7M / A 193 B8 / A 193 B8M / A 320 L7
Nut	ASTM A 194 2H / A 194 B7M / A 194 B / A 194 8M / A 194 4/7

* Valves are available in Duplex & Super Duplex Stainless Steel and Nickel Aluminium Bronze. Please indicate Trim required and ask for individual technical data sheets provided separately for these special materials.

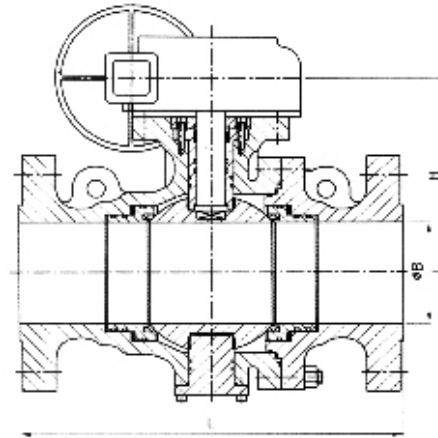
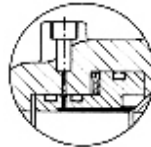
* Compliant to NACE MR-0175 (2002)

FULL PORT

Metal Seated



Sealant Injection System



Dimensions

ISO PN 20 / ASME 150 Class

Size	DN	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L - RF		394	457	533	610	686	762	864	914	1067	1143	1245	1295	1372	1524	1778	1854	2134
B		148	198	248	298	335	380	438	489	591	635	685	735	780	875	980	1020	1170
H (approx)		270	315	360	410	425	475	525	590	695	790	855	895	945	1025	1100	1150	1350
ØW		300	300	400	400	600	600	600	600	750	750	750	750	750	750	750	750	750
Wt. (approx) kg		110	160	320	448	567	850	1050	1350	1750	3100	3550	4300	4850	6800	8900	10100	16100

ISO PN 50 / ASME 300 Class

Size	DN	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L - RF		403	501	568	635	762	838	914	991	1143	1245	1346	1397	1524	1727	1981	2083	2387
B		148	198	248	298	335	380	438	489	591	635	685	735	780	875	980	1020	1170
H (approx)		285	345	380	435	450	495	570	615	710	815	870	910	960	1040	1115	1175	1375
ØW		300	300	400	400	600	600	600	750	750	750	750	750	750	750	750	750	750
Wt. (approx) kg		128	210	345	560	780	1020	1200	1625	2285	3350	3950	4900	5500	7500	9980	10500	17800

ISO PN 110 / ASME 600 Class

Size	DN	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L - RF		292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1448	1549	1651	1778	2083	2337	2438	2845
B		51	64	76	102	148	198	245	295	325	375	438	489	591	635	685	735	780	875	980	1020	1170
H (approx)		190	230	265	295	300	355	415	455	505	515	600	640	735	815	870	910	960	1040	1115	1175	1375
ØW		250	250	300	300	400	400	400	600	600	600	750	750	750	750	750	750	750	750	750	750	750
Wt. (approx) kg		34	40	45	98	200	395	555	840	1015	1220	1350	2080	2745	4500	5500	5900	6900	8900	12600	14000	25500

ISO PN 150 / ASME 900 Class

Size	DN	50	65	80	100	150	200	250	300	350	400	450	500	600	650	750	900
L - RF		368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	1651	1880	2286
B		51	64	76	98	148	198	245	295	325	375	438	489	570	620	715	860
H (approx)		210	250	285	280	360	455	510	525	595	650	685	695	735	815	910	1040
ØW		250	300	300	400	400	600	600	600	750	750	750	750	750	750	750	750
Wt. (approx) kg		45	50	72	130	235	495	690	1050	1350	1750	2300	2850	4800	6100	8200	9900

ISO PN 260 / ASME 1500 Class

Size	DN	50	65	80	100	150	200	250	300	350	400
L - RF		368	419	470	546	705	832	990	1130	1257	1384
B		51	64	76	102	146	194	241	290	320	360
H (approx)		230	260	290	305	370	470	520	575	635	700
ØW		300	300	400	400	600	600	750	750	750	750
Wt. (approx) kg		52	74	98	144	320	695	960	1550	2600	3700

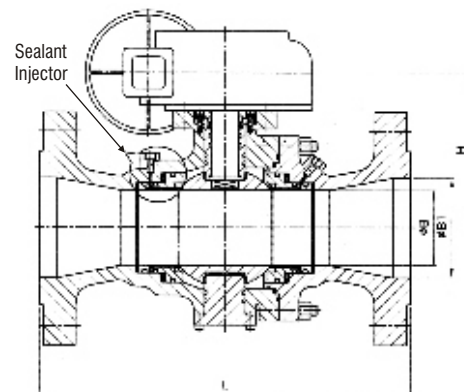
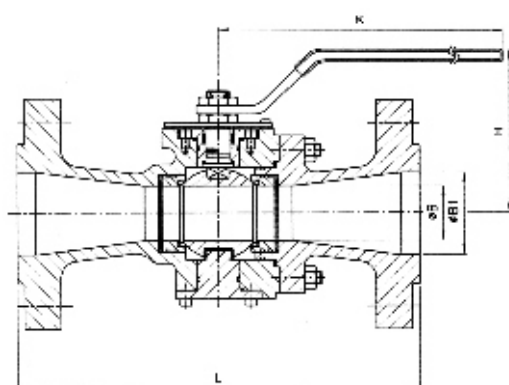
ISO PN 420 / ASME 2500 Class
Dimensions & Weights on request



CAST STEEL, 2 PIECE, TRUNNION MOUNTED



REDUCED PORT



Dimensions

ISO PN 20 / ASME 150 Class

Size DN	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L - RF	394	457	533	610	686	762	864	914	1067	1143	1245	1295	1372	1524	1778	1854	2134
B	98	144	187	228	266	305	387	438	489	591	635	685	735	780	875	980	1020
H (approx)	240	270	315	360	410	425	475	525	590	695	790	855	895	945	1025	1100	1150
ØW	300	300	300	400	400	600	600	600	600	750	750	750	750	750	750	750	750
Wt. (approx) kg	85	125	230	400	525	520	950	1035	1585	2200	3100	3750	4200	5300	7600	8900	12700

ISO PN 50 / ASME 300 Class

Size DN	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L - RF	403	501	568	635	762	838	914	991	1143	1245	1346	1397	1524	1727	1981	2083	2387
B	98	144	187	228	266	305	387	438	489	591	635	685	735	780	875	980	1020
H (approx)	245	285	345	380	435	450	495	570	615	710	815	870	910	960	1040	1115	1075
ØW	300	300	300	400	400	600	600	600	750	750	750	750	750	750	750	750	750
Wt. (approx) kg	105	155	235	355	575	655	1150	1245	1985	2640	3700	4350	5050	6400	9000	10800	14000

ISO PN 110 / ASME 600 Class

Size DN	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L - RF	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1448	1549	1651	1778	2083	2337	2438	2845
B	36	50	57	75	98	144	187	228	266	305	387	438	489	591	635	685	735	780	875	980	1020
H (approx)	155	170	230	265	265	300	355	415	455	505	515	600	640	735	815	870	910	960	1040	1115	1175
ØW	250	250	250	300	300	400	400	400	600	600	600	750	750	750	750	750	750	750	750	750	750
Wt. (approx) kg	28	36	41	74	145	295	450	620	890	975	1350	1700	2400	2900	4050	4700	5500	7100	9950	12500	15500

ISO PN 150 / ASME 900 Class

Size DN	50	65	80	100	150	200	250	300	350	400	450	500	600	650	750	900
L - RF	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	1651	1880	2286
B	36	50	57	75	98	144	187	228	266	305	387	438	489	570	620	715
H (approx)	190	210	250	285	280	310	360	455	510	525	595	650	685	695	735	815
ØW	250	250	300	300	400	400	400	600	600	600	750	750	750	750	750	750
Wt. (approx) kg	42	47	52	88	190	335	685	910	1050	1200	1950	2250	3850	4800	6400	8000

ISO PN 260 / ASME 1500 Class

Size DN	50	65	80	100	150	200	250	300	350	400
L - RF	368	419	470	546	705	832	990	1130	1257	1384
B	36	50	57	75	98	144	187	241	290	320
H (approx)	205	230	260	290	305	370	470	520	575	635
ØW	300	400	400	600	600	750	750	750	750	750
Wt. (approx) kg	51	62	76	110	215	500	815	1200	1900	2900

ISO PN 420 / ASME 2500 Class

Dimensions & Weights on request

* Compliant to NACE MR-0175 (2002)