

## GLOBE VALVE

### FEATURES

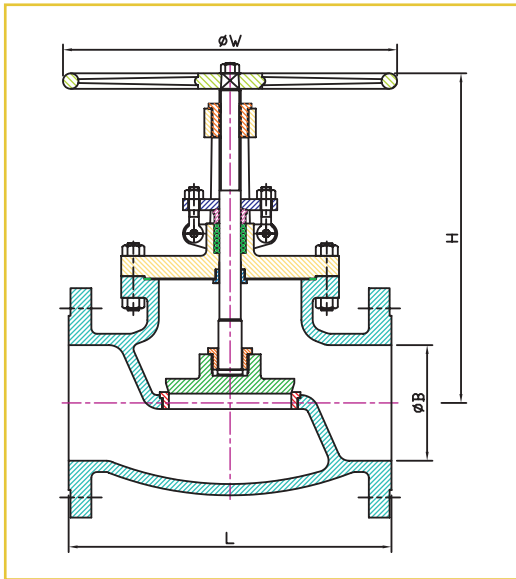
- » **Sap** Cast Steel Globe Valves have been designed to meet the requirements BS 1873 / ASME B 16.34
- » Face to Face and End to End dimensions conform to ASME B 16.10 / BS 2080 / DIN
- » End flange dimensions conform to ASME B 16.5 / API 605 / BS 3293 / DIN
- » Butt weld end dimensions conform to ASME B 16.25
- » Anti-frictional Ball bearings are provided in higher sizes and classes.
- » Outside screw and yoke construction
- » All the valves provided with backseat arrangement
- » The gland is of self aligning two piece type
- » Deep stuffing box
- » The Seat-rings are shoulder seated type having ample cross section for strength are provided with welded in and threaded Seat-rings will be supplied on request. In case of SS valves the Seat-rings are integral to Body
- » The Body to Bonnet joint is a male & female in ASME 150#, 300# & 600# valves and ring joint is used in higher classes
- » Valves meet the requirements of fugitive emission levels Shell category B as per MESC SPE 77/312



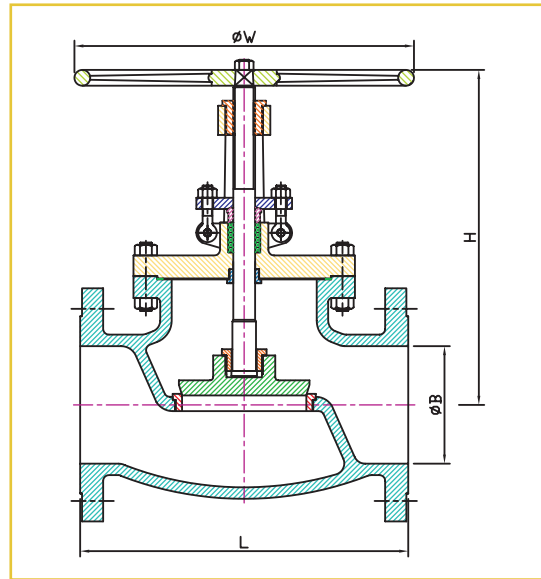
### OPTIONS

- » Angle and Y type design available
- » 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
- » Regulating, guided and soft seated plugs available
- » Bellow Seal for critical service and hazardous media

GLOBE VALVES



GLOBE VALVE 150 CLASS



GLOBE VALVE 300 CLASS

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
Bonnet	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
Disc@	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
Disc Nut	ASTM A 276 410 / A 276 304 / A 276 304L / A 276 316L
Stem	ASTM A 276 410 / A 276 304 / A 276 304L / A 276 316L
Seat Rings@	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
Back Seat Bushing	ASTM A 276 410 / A 276 304 / A 276 304L / A 276 316L
Gland	ASTM A 276 410 / A 276 304 / A 276 304L / A 276 316L
Gland Flange	Carbon Steel / Stainless Steel
Stem Nut	ASTM A 439 Gr.D2 / Al. Bronze
Gland Packing	Graphite Asbestos / Graphoil / PTFE
Bonnet Gasket	Corrugated Soft Iron / Corrugated SS / Spiral Wound SS 304 with Asbestos or Graphoil / Octagonal Ring
Gland Eye - Bolt & Nut	Carbon Steel / Stainless Steel
Cross Bolts & Nuts	Carbon Steel / Stainless Steel
Hand Wheel	Carbon Steel
Hand Wheel Nut	Carbon Steel
Grub Screw	Carbon Steel
Studs / Bolts	ASTM A 193 Gr B7 / A 193 Gr B7M / A 193 Gr B8 / A 193 Gr B8M / A 320 Gr L7
Nut	ASTM A 194 Gr B7 / A 194 Gr B7M / A 194 Gr B8 / A 194 Gr B8M / A 194 Gr 4/7

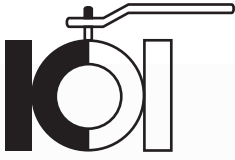
Globe Valve 150 Class

Size DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
**L,L1-RW,BW	203	216	241	292	356	406	495	622	699	787	914	977	977	1295
H (approx)	330	390	410	475	540	585	725	825	940	1200	1270	1300	1350	1450
ØW	200	250	250	300	350	350	450	500	600	600	650	650	700	750
Wt (approx) kg	23	29	40	59	95	115	178	268	385	540	760	1050	1225	1650

Globe Valve 300 Class

Size DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
**L,L1-RW,BW	267	292	318	355	400	444	558	622	711	838	863	977	1016	1346
H (approx)	350	425	485	520	565	655	825	920	1155	1250	1295	1340	1385	1475
ØW	200	250	300	300	350	350	500	600	700	700	450*	500*	550*	550*
Wt (approx) kg	30	45	60	83	135	162	265	375	525	765	1100	1470	1680	2475





## SWING CHECK VALVE

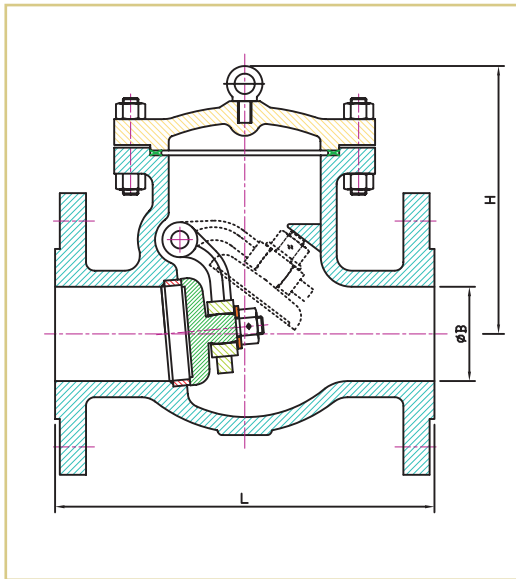
### FEATURES

- ▶ **Sap** Cast Steel Check Valves have been designed to meet the requirements of BS 1868 /ASME B 16.34/API 6D-ISO14313.
- ▶ Face to Face and End to End dimensions conform to ASME B 16.10 /BS 2080 /DIN
- ▶ End flange dimensions conform to ASME B 16.5 /API 605 /BS 3293 /DIN
- ▶ Butt weld end dimensions conform to ASME B 16.25
- ▶ The Seat-rings are cylindrical bottom seated type having ample cross section for strength are provided with welded in and threaded Seat-rings will be supplied on request. In case of SS valves the Seat-rings are integral to Body.
- ▶ The Body to Bonnet joint is a male & female in ASME 150#, 300# & 600# valves and ring joint is used in higher classes.
- ▶ Valves meet the requirements of fugitive emission levels Shell category B as per MESC SPE 77/312

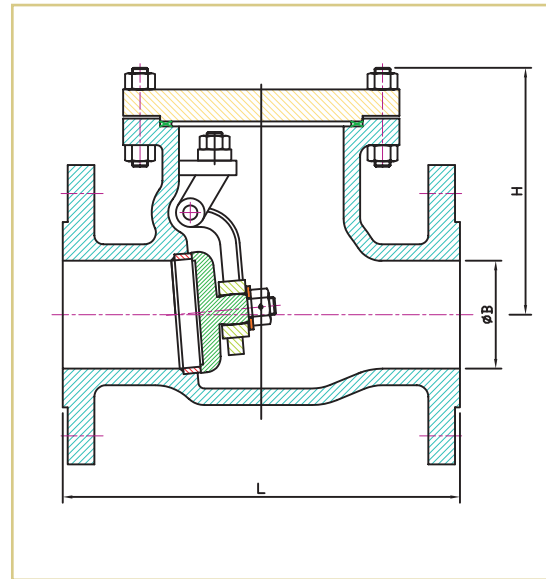


### OPTIONS

- ▶ Tilting disc design available
- ▶ Check Valves can be supplied with counter weight or dash pot arrangement



SWING CHECK VALVE 150 CLASS



SWING CHECK VALVE 300 CLASS

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
Cover	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
Disc@	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
Hinge	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
Hinge Bracket	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
Hinge Pin	ASTM A 276 410 / A 276 304 / A 276 304L / A 276 316L
Seat Rings@	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
Disc Nut	Carbon Steel / Stainless Steel
Washer	Carbon Steel / Stainless Steel
Gasket	Soft Iron / SS 304 / Graphoil
Studs / Bolts	ASTM A 193 Gr B7 / A 193 Gr B7M / A 193 Gr B8 / A 193 Gr B8M / A 320 Gr L7
Nut	ASTM A 194 Gr 2H / A 194 Gr B7M / A 194 Gr B / A 194 Gr 8M / A 194 Gr 47

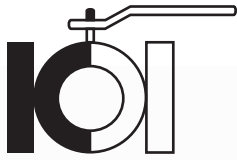
Swing Check 150 Class

Size DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L-RF, LI- BW	203	216	241	292	330	356	495	622	699	787	864	977	977	1295
H(approx)	155	190	200	225	245	260	305	390	410	435	530	570	625	675
Wt ( approx ) kg	16	25	34	46	75	89	120	220	337	471	575	788	916	1275

Swing Check 300 Class

Size DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L-RF, LI- BW	267	292	318	355	400	444	533	622	711	838	863	977	1016	1346
H(approx)	180	200	225	240	275	310	370	410	440	500	545	605	675	785
Wt ( approx ) kg	26	32	53	73	110	157	234	348	450	650	800	970	1350	2210





## FORGED VALVES



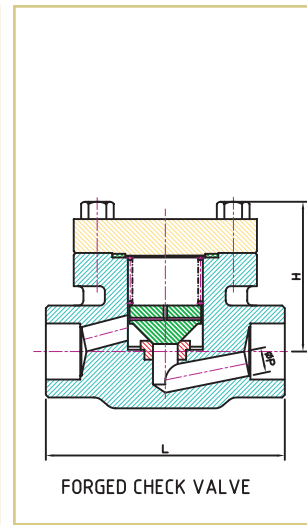
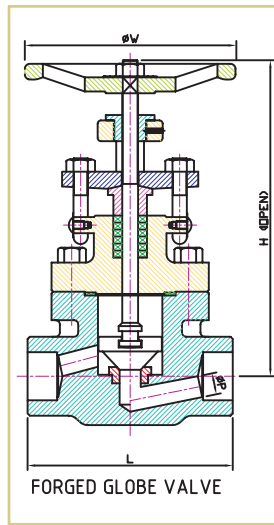
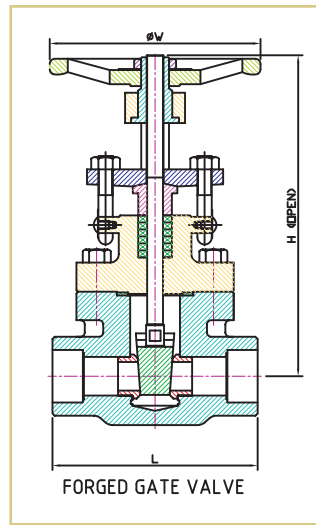
- ▶ **Sap** Forged Steel Valves have been designed to meet the requirements of API 602 / BS 5352 / ASME B 16.34
- ▶ Socket weld ends dimensions conforms to ASME B 16.11
- ▶ Screwed ends dimensions conforms to ASME B 1.20.1
- ▶ Outside screw and yoke construction
- ▶ The gland is of two piece self aligning type
- ▶ Back seat arrangement for Gate and Globe Valves.
- ▶ Valves meet the requirements of fugitive emission level Shell Category B as per MESG SPE 77/312

- ▶ For low temperature and cryogenic services (cold box and non cold box) extended bonnet as per BS 6364 available
- ▶ Welded bonnet construction
- ▶ Locking arrangement
- ▶ Welded on flanges
- ▶ Bellow Seal for critical service and hazardous area

### MATERIALS

Part Name	Material Option
Body	ASTM A 105 / 182 F304 / 182 F304L / 182 F316 / 182 F316L / 182 F11 / 182 F22 / 350 LF2
Bonnet	ASTM A 105 / 182 F304 / 182 F304L / 182 F316 / 182 F316L / 182 F11 / 182 F22 / 350 LF2
Wedge / Plug@	ASTM A 182 F6a / 182 F304/182 F304L / 182 F316 / 182 F316L / 182 F11 / 182 F22 / 350 LF2
Stem	ASTM A 276 T410 / 182 F304 / 182 F304L / 182 F316 / 182 F316L / 182 F11 / 182 F22 / 350 LF2
Seat Rings@	ASTM A 182 F6a / 182 F304 / 182 F304L / 182 F316 / 182 F316L / 182 F11 / 182 F22 / 350 LF2
Back Seat	Bushing Integral
Gland	ASTM A 276 T410 / 182 F304 / 182 F304L / 182 F316 / 182 F316L / 182 F11 / 182 F22 / 350 LF2
Gland Flange	ASTM A 105 / 182 F304 / 182 F304L / 182 F316 / 182 F316L / 182 F11 / 182 F22 / 350 LF2
Stem Nut	ASTM A 439 Gr.D2/AL.Bronze
Lock Nut	Carbon Steel / SS 304
Gland Packing	Graphited Asbestos / Grafoil / PTFE
Bonnet Gasket	Spiral Wound SS 304 / 304L / 316 / 316L with Asbestos / Teflon or Grafoil
Gland Eye Bolt & Nut	SS 410/SS 304
Hand Wheel	Carbon Steel
Hand Wheel Nut	Carbon Steel
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 2HM / A 194 8 / A 194 8M / A 194 4/7

FORGED VALVES



Gate Valve - 800 Class

Size DN	6	10	15	20	25	32	40	50
L	85	85	85	92	105	125	125	135
P	6.4	6.4	9.5	12.7	17.5	22.8	22.6	36.5
H(approx)	165	165	165	175	195	265	265	275
ØW	85	85	85	85	150	150	150	150
Wt. ( approx ) kg	2	2	2	3	3	8	8	10

Gate Valve - 1500 Class

Size DN	6	10	15	20	25	32	40
L	92	92	92	105	125	125	135
P	6.4	6.4	9.5	12.7	15.9	19	27
H(approx)	175	175	175	195	265	275	275
ØW	90	90	90	100	150	150	150
Wt. ( approx ) kg	3	3	3	4	8	10	10

Globe Valve - 800 Class

Size DN	6	10	15	20	25	32	40	50
L -SP	85	85	92	105	125	125	125	-
L -RP	85	85	85	92	105	125	125	135
P -SP	6	9	12	17.5	22.5	29.5	35	-
P -RP	6	6	9	12	17.5	22.5	29.5	35
H -SP	175	175	175	190	250	250	285	-
H -RP	170	170	170	175	190	250	250	285
W -SP	90	90	90	100	150	150	150	-
W -RP	85	85	85	85	100	100	150	150
Wt.-SP(approx)kg	3	3	3	4	8	8	11	11
Wt.-RP(approx)kg	2	2	2	3	4	8	8	11

Globe Valve - 1500 Class

Size DN	6	10	15	20	25	32	40
L	92	92	92	105	125	125	135
P	6	6	11	14.5	19	27	31
H(approx)	175	175	175	190	250	250	255
ØW	90	90	90	100	150	150	150
Wt. ( approx ) kg	3	3	3	4	8	8	11

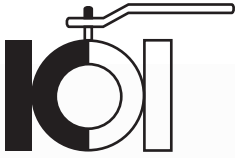
Lift Check Valve - 800 Class

Size DN	6	10	15	20	25	32	40	50
L -SP	85	85	92	105	125	125	135	-
L -RP	85	85	85	92	105	125	125	135
P -SP	6	9	12	17.5	22.5	29.5	35	-
P -RP	6	6	9	12	17.5	22.5	29.5	35
H -SP	55	55	55	70	105	105	115	-
H -RP	55	55	55	65	70	105	105	115
Wt.-SP(approx)kg	2	2	2	4	6	6	9	-
Wt.-RP(approx)kg	2	2	2	3	4	6	6	8

Lift Check Valve - 1500 Class

Size DN	6	10	15	20	25	32	40
L -SP	92	92	92	105	125	130	135
P -SP	6	6	11	14.5	18	27	31
H -SP	65	65	65	70	105	115	115
Wt. ( approx ) kg	4	4	4	4	7	10	10





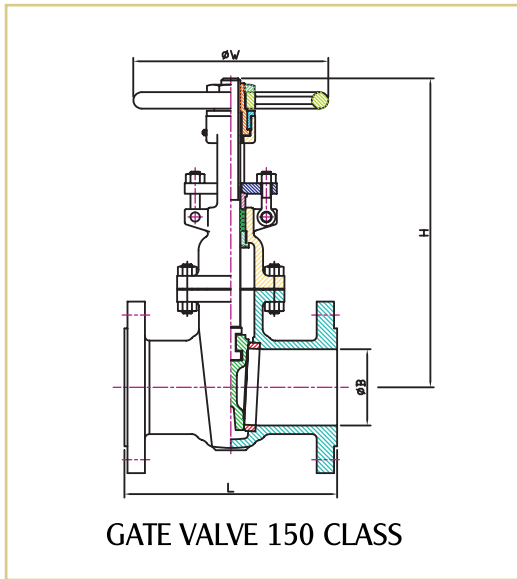
## GATE VALVES

- » Sap Cast Steel Gate Valves have been designed to meet the requirements of API 600 / BS 1414 / API 603 / API 6D / ASME B 16.34
- » Face to Face and End to End dimensions conform to ASME B 16.10 / BS 2080 / DIN
- » End flange dimensions conform to ASME B 16.5 / API 605 / BS 3293 / DIN
- » Butt weld end dimensions conform to ASME B 16.25
- » The stem nut design allows for the removal of the hand-wheel while keeping the Stem and Gate in a fixed position.
- » Anti-frictional Ball bearings are provided in higher sizes and classes.
- » The strength of Stem to Gate connection is stronger than the strength of the Stem at the root of the operating thread
- » Outside screw and yoke construction
- » All the valves provided with backseat arrangement
- » Bi-directional shut-off
- » The gland is of self aligning two piece type
- » Deep stuffing box
- » Body ports are streamlined, permitting unobstructed flow, reduces turbulence, results in lower pressure drop & lower erosion
- » The Seat-rings are cylindrical bottom seated type having ample cross section for strength are provided with welded in and threaded Seat-rings will be supplied on request. In case of SS valves the Seat-rings are integral to Body
- » The Body to Bonnet joint is flat in ASME 150# valves, a male and female joint is used in 300# & 600# and ring joint is used in higher classes
- » Valves meet the requirements of fugitive emission levels Shell category B as per MESC SPE 77/312

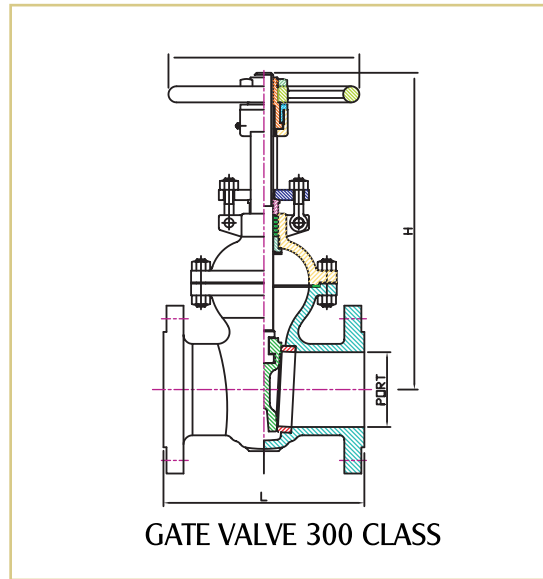


- » Solid, flexible, split wedge, double disc and parallel Slide Gate configurations available
- » For low temperature and cryogenic services (cold box and non-cold box applications) extended bonnet as per BS 6364 available
- » Locking arrangement
- » Gear, Electrical, Hydraulic or Pneumatic actuator available

GATE VALVES



GATE VALVE 150 CLASS



GATE VALVE 300 CLASS

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
Bonnet	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
Wedge@	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 276 410 / A 276 304 / A 276 304L / A 276 316L
Seat Rings@	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
Back Seat Bushing	ASTM A 276 410 / A 276 304 / A 276 304L / A 276 316L
Gland	ASTM A 276 410 / A 276 304 / A 276 304L / A 276 316L
Gland Flange	Carbon Steel / Stainless Steel
Stem Nut	ASTM A 439 Gr.D2 / Al. Bronze
Lock Nut	Carbon Steel / SS 304
Gland Packing	Graphite Asbestos / Graphoil / PTFE
Bonnet Gasket	Corrugated Soft Iron / Corrugated SS / Spiral Wound SS 304 with Asbestos or Graphoil / Octagonal Ring
Gland Eye - Bolt & Nut	Carbon Steel / Stainless Steel
Cross Bolts & Nuts	Carbon Steel / Stainless Steel
Hand Wheel	Carbon Steel
Hand Wheel Nut	Carbon Steel
Grease Nipple	Carbon Steel
Grub Screw	Carbon Steel
Studs / Bolts	ASTM A 193 B7 / A 193 B7M / A 193 BBM / A 320 L7
Nut	ASTM A 194 2H / A 194 8 / A 194 8M / A 194 4 / 7

Gate Valve 150 Class

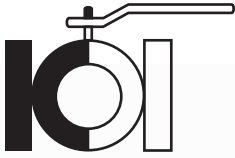
Size DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050
L-RF	178	191	203	228	254	267	292	330	355	381	406	432	457	508	559	609	609	660	711	812	860
**L1-BW	216	241	282	304	381	403	419	457	501	571	609	660	711	812	863	914	914	965	1016*	1066*	1143
H (approx)	425	435	535	600	705	800	1010	1250	1385	1575	1825	1950	2080	2425	2750	2825	3175	3473	3600	4100	4500
ØW	200	200	250	250	280	300	350	450	500	350*	350*	350*	400*	400*	450*	450*	500*	500*	500*	500*	550*
Wt kg	22	29	37	56	78	84	138	210	310	450	565	740	927	1125	1425	1550	1950	2200	3050	3265	4250

Gate Valve 300 Class

Size DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
L-RF, LI- BW	0216	241	282	305	381	403	419	457	502	762	838	914	990	1143	1244	1346	1397
H(approx)	430	475	535	605	715	845	1075	1260	1425	1585	1845	1995	2175	2650	2850	3050	3270
ØW	200	200	250	300	300	350	450	500	500	350*	400*	450*	450*	500*	500*	500*	550*
Wt ( approx ) kg	28	40	53	80	125	152	245	360	532	725	950	1350	1648	2350	2900	3400	4100







**Sap**<sup>®</sup>  
MARK

## BALL VALVES 2PC - F/E

### FEATURES

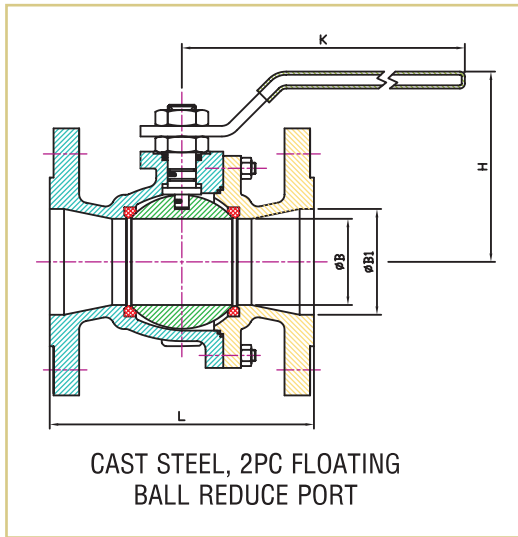
- ▶ **Sap** Mark Cast Steel Ball Valves have been designed to meet the requirements
- ▶ BS 5351/ASME B 16.34 / API 6D /API 608/MSS SP 72
- ▶ Face to Face and End to End dimensions conform to ASME B 16.10 /BS 2080/API 6D/DIN
- ▶ End flange dimensions conform to ASME B 16.5 / API 605 /BS 3293 /DIN
- ▶ Butt weld end dimensions conform to ASME B 16.25
- ▶ Fire tested design to API 607/API 6FA/BS 6755-II
- ▶ Flexible lip seats compensate for wear and changes in pressure
- ▶ Blow out proof stem construction
- ▶ Antistatic devices ensure electrical continuity between ball, stem & body
- ▶ Triple stem sealing
- ▶ ISO 5211 top pad for simplified gear/actuator mounting
- ▶ Valves meet the requirements of fugitive emission levels Shell category B as per MESC SPE 77/312



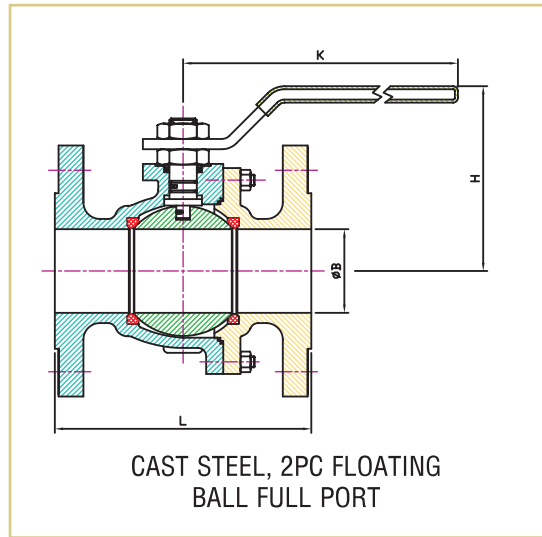
### OPTIONS

- ▶ 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 a metal to metal seating offered can be supplied

BALL VALVES 2PC - F/E



CAST STEEL, 2PC FLOATING  
BALL REDUCE PORT



CAST STEEL, 2PC FLOATING  
BALL FULL PORT

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
Stem	ASTM A 182 F304 / A 182 F316 / A 182 F 6a
Gland Bush	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
Disc Spring	Carbon Steel
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

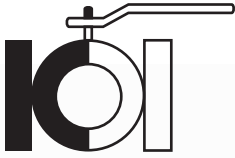
Ball Valve 2PC 150 Class

Size DN	15	20	25	40	50	65	80	100	150	200
L-RF	108	118	127	165	178	190	203	229	394	457
B	12.5	17	24	37	49	64	75	98	148	198
H(approx)	65	70	80	95	110	135	145	170	235	275
K	150	155	160	180	200	225	325	350	500	600
Wt. ( approx ) kg	3	4	5	8	12	21	26	43	80	155

Ball Valve 2PC 300 Class

Size DN	15	20	25	40	50	65	80	100	150	200
**L,L1-RW,BW	140	152	165	190	216	241	282	305	403	502
B	12.5	17	24	37	49	64	75	98	148	198
H(approx)	70	85	90	105	120	145	160	195	250	290
K	155	160	180	200	225	325	350	500	600	700
Wt ( approx ) kg	3	5	7	13	15	28	32	55	105	170





## BALL VALVES 3PC - F/E

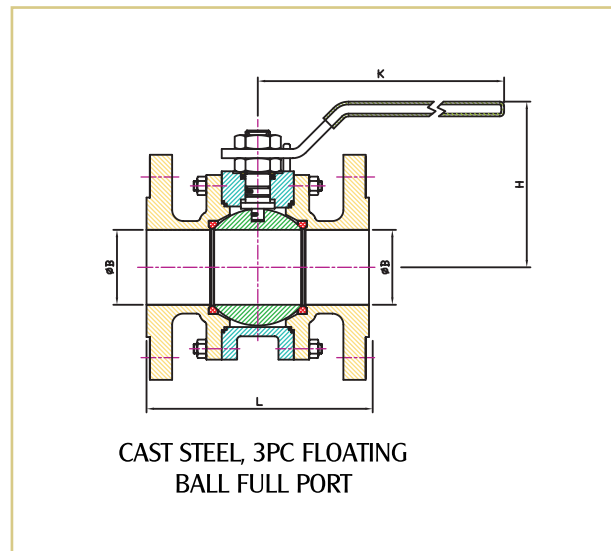
### FEATURES

- ▶ **Sap** Mark Cast Steel Ball Valves have been designed to meet the requirements
- ▶ BS 5351/ASME B 16.34 / API 6D / API 608 / MSS SP 72
- ▶ Face to Face and End to End dimensions conform to ASME B 16.10 / BS 2080 / API 6D / DIN
- ▶ End flange dimensions conform to ASME B 16.5 / 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
- ▶ Flexible lip seats compensate for wear and changes in pressure
- ▶ Blow out proof stem construction
- ▶ Antistatic devices ensure electrical continuity between ball, stem & body
- ▶ Triple stem sealing
- ▶ 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

- ▶ One, 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 260o C and for higher temperatures a metal to metal seating shall be offered



## 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
Stem	ASTM A 182 F304 / A 182 F316 / A 182 F 6a
Gland Bush	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
Disc Spring	Carbon Steel
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

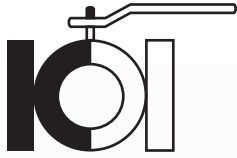
## Ball Valve 3PC 150 Class

Size DN	15	20	25	40	50	65	80	100	150	200
L-RF	108	118	127	165	178	190	203	229	394	457
B	12.5	17	24	37	49	64	75	98	148	198
H(approx)	65	70	80	95	110	135	145	170	235	275
K	150	155	160	180	200	225	325	350	500	600
Wt. ( approx ) kg	3	4	5	8	12	22	28	45	83	158

## Ball Valve 3PC 300 Class

Size DN	15	20	25	40	50	65	80	100	150	200
**L,L1-RW,BW	140	152	165	190	216	241	282	305	403	502
B	12.5	17	24	37	49	64	75	98	148	198
H(approx)	70	85	90	105	120	145	160	195	250	290
K	155	160	180	200	225	325	350	500	600	700
Wt ( approx ) kg	3	5	7	14	17	30	35	58	110	175





## BALL VALVE 3PC S/E

### CONSTRUCTION

- ▶ 3 Piece Full Bore, Blow Out Proof Stem Floating Ball, Fire /Non Fire Safe Design

### MANUFACTURING STANDARD

- ▶ BS-5351

### TESTING STANDARD

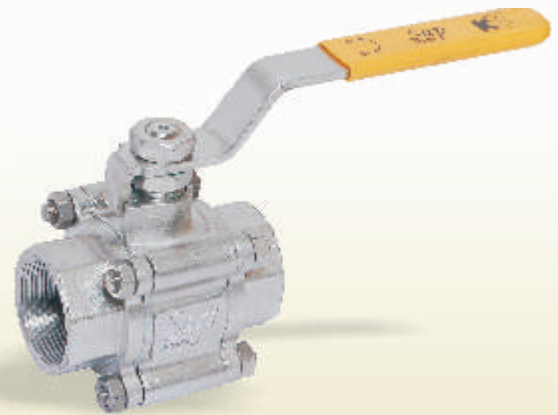
- ▶ BS-5146

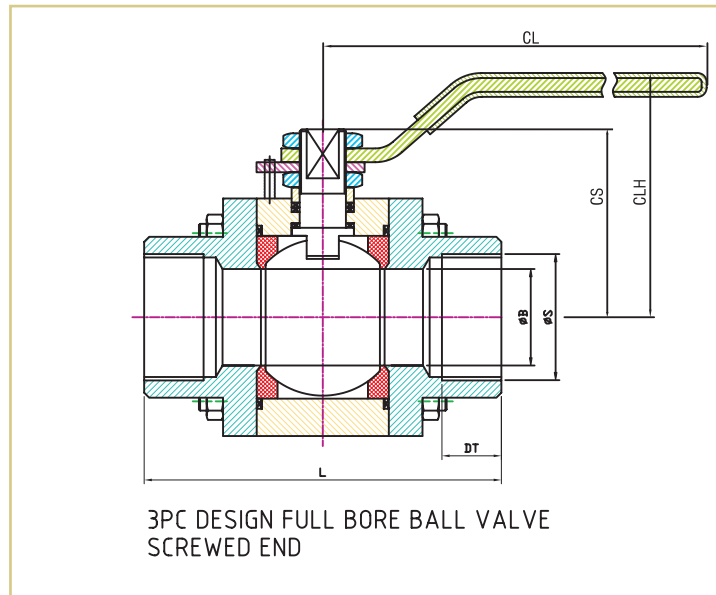
### FACE TO FACE

- ▶ AS SHOWN

### END CONNECTION

- ▶ Screwed Ends to BSP / BSPT / NPT FEMALE Threads.
- ▶ Socket Weld Ends to ANSI-B-16.11





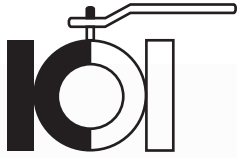
## MATERIALS

Part Name	Material Option
Body	ASTM A 351 CF8 / CF3 / CF 8M / CF 3M / ALLOY 20 / HAST B / HAST C / ASTM A 216 GR. WCB / IS 210 GR. FG 200 / 220
Body Connector	ASTM A 351 CF8 / CF3 / CF 8M / CF 3M / ALLOY 20 / HAST B / HAST C / ASTM A 216 GR. WCB / IS 210 GR. FG 200 / 220
Connector Seal	PTFE / GFT
Ball Seat	PTFE / GFT
Ball	AISI304 / AISI316 / AISI304L / AISI316L / ALLOY20 / HAST-B / HAST-C
Stem	AISI304 / AISI316 / AISI304L / AISI316L / ALLOY20 / HAST-B / HAST-C
Stem Seal	PTFE / GFT
Gland Packing	PTFE
Gland	AISI304 / AISI316 / AISI304L / AISI316L / ALLOY20 / HAST-B / HAST-C
Gland Nut	SS-304
Lever	SS – 304/MS. Cd. PLATED
Lever Nut	SS – 304/MS. Cd. PLATED
Body Stuo	SS-304/ASTM A 193 Gr. B 7
Body Nut	SS-304/ASTM A 194 Gr. 2 H
Lever Sleeve	PVC

## Ball Valve 3PC S/E

Size	ØB	L	CS	CLH	CL	ØS	DT
15	12.5	65	35	50	110	½"	13.5
20	17	75	40	55	110	¾"	14
25	24	85	42	60	135	1"	17.5
40	37	105	70	95	220	1.1/2"	18.5
50	49	125	85	100	260	2"	19.5





## BALL VALVE 1PC S/E

### CONSTRUCTION

- ▶ 1 Piece Full Bore, Blow Out Proof Stem Floating Ball, Fire /Non Fire Safe Design

### MANUFACTURING STANDARD

- ▶ BS-5351

### TESTING STANDARD

- ▶ BS-5146

### FACE TO FACE

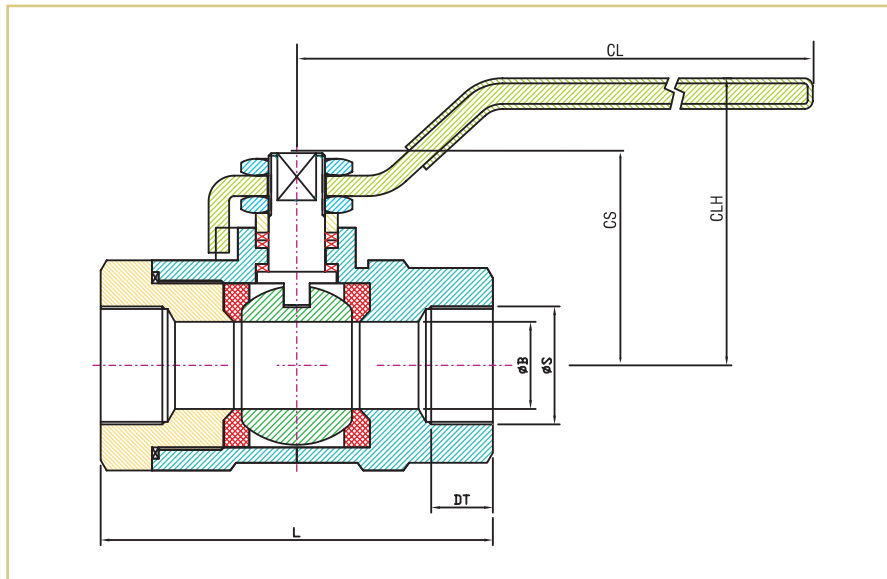
- ▶ AS SHOWN

### END CONNECTION

- ▶ Screwed Ends to BSP / BSPT / NPT FEMALE Threads.
- ▶ Socket Weld Ends to ANSI-B-16.11



BALL VALVE 1PC S/E



MATERIALS

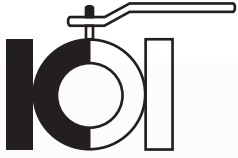
Part Name	Material Option
Body	ASTM A 351 CF8 / CF3 / CF 8M / CF 3M / ALLOY 20 / HAST B / HAST C / ASTM A 216 GR. WCB / IS 210 GR. FG 200 / 220
Body Connector	ASTM A 351 CF8 / CF3 / CF 8M / CF 3M / ALLOY 20 / HAST B / HAST C / ASTM A 216 GR. WCB / IS 210 GR. FG 200 / 220
Connector Seal	PTFE / GFT
Ball Seat	PTFE / GFT
Ball	AISI304 / AISI316 / AISI304L / AISI316L / ALLOY20 / HAST-B / HAST-C
Stem	AISI304 / AISI316 / AISI304L / AISI316L / ALLOY20 / HAST-B / HAST-C
Stem Seal	PTFE / GFT
Gland Packing	PTFE
Gland	AISI304 / AISI316 / AISI304L / AISI316L / ALLOY20 / HAST-B / HAST-C
Gland Nut	SS - 304
Lever	SS - 304/MS. Cd. PLATED
Lever Nut	SS - 304/MS. Cd. PLATED
Lever Sleeve	PVC

BALL VALVE 1PC S/E

Size	ØB	L	CS	CLH	CL	ØS	DT
8	6	60	32	49	95	1/4"	10.5
10	9	60	32	49	95	3/8"	10.5
15	12.5	65	35	50	110	1/2"	13.5
20	17	75	40	55	110	3/4"	14
25	24	85	42	60	135	1"	17.5
32	30	95	55	75	170	1.1/4"	18.0
40	37	105	70	95	220	1.1/2"	18.5
50	49	125	85	100	260	2"	19.5







## BUTTERFLY VALVES

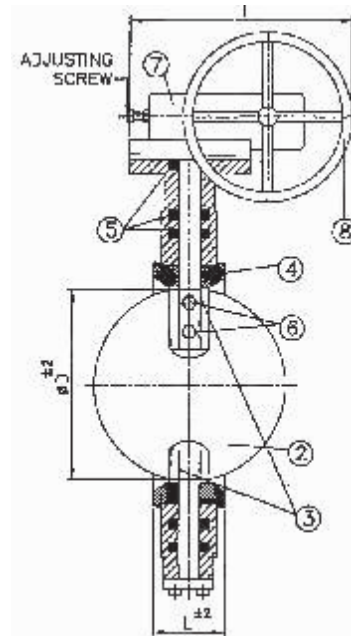
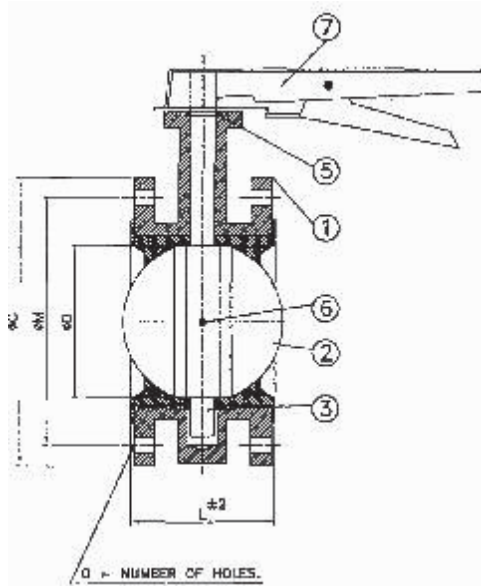
### FEATURES

- ▶ Sap Mark Cast Steel Ball Valves have been designed to meet the requirements
- ▶ BS 5351/ASME B 16.34 / API 6D / API 608 / MSS SP 72
- ▶ Face to Face and End to End dimensions conform to ASME B 16.10 / BS 2080 / API 6D / DIN
- ▶ End flange dimensions conform to ASME B 16.5 / 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
- ▶ Flexible lip seats compensate for wear and changes in pressure
- ▶ Blow out proof stem construction
- ▶ Antistatic devices ensure electrical continuity between ball, stem & body
- ▶ Triple stem sealing
- ▶ 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

- ▶ One, 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 260o C and for higher temperatures a metal to metal seating shall be offered



HYDRAULIC TEST PRESSURE	
BODY	16KG / Cm2
SEAT	10KG / Cm2
MFG. STD.	BS - 5155
INSP. STD.	BS - 6755

### MATERIALS

Part Name	Material Option
Body	CAST IRON / CAST STEEL / S.S.304 - 316
Disc	CAST IRON / CAST STEEL / S.S.304 - 316
Spindle	SS 410 / 304 / 316
Body Lining	NITRILE / E.P.D.M. / NEOPRENE / SILICON / VITON
'O' Ring	NITRILE / E.P.D.M.
Pin	S.S. 304 / 316
Lever	M.S. FABRICATED

### Specification

Size	40	50	65	80	100	125	150	200
A	112	103	110	118	148	164	176	230
B	52	70	76	85	102	115	130	156
C	83	98	110	126	156	176	206	270
D	38	46	59	71	90	120	145	194
E	53	65	65	65	65	65	65	285
F	185	185	185	225	225	225	328	350
L	33	43	46	46	52	56	56	60

### Specification

Size	250	300	350	400	450	500	600
A	266	300	320	385	405	465	540
B	196	230	272	302	325	405	460
C	316	365	425	480	525	580	695
D	244	292	340	385	425	472	572
E	285	285	300	305	305	305	370
F	350	350	350	500	500	500	450
G	119	119	116	140	140	140	240
H	68	68	83	75	75	75	115
I	318	318	318	409	409	409	478
L	68	78	92	102	114	127	154

