

# Double Block and Bleed Plug Valves



ASME Class 150 to 600 | 50 mm to 1050 mm (2" to 42")  
API 6D

L&T Valves is a wholly owned subsidiary of Larsen & Toubro. Backed by a heritage of excellence that exceeds five decades, the company manufactures engineered flow-control solutions for key sectors of the economy.

**Product Range:**

- Gate, Globe & Check Valves
- Pipeline & Process Ball Valves
- Triple-offset Butterfly Valves
- Flanged & Wafer-type Butterfly Valves
- Double Block and Bleed Plug Valves
- Customized Solutions including HIPPS
- Smart and Digital Solutions

The valves are designed using state-of-the-art 3D design, simulation and analysis software. Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) are used to fine-tune product performance.

The Quality Management System of L&T Valves is certified to comply with ISO 9001 and API Spec Q1. The company is licensed to offer products monogrammed API 600, API 6D and API 609 as well as valves with CE Marking and ATEX certification. Ball, Butterfly, Gate and Globe Valves with SIL-3 certification (IEC 61508) are also offered.

Valve manufacturing at L&T Valves leverages the best in technology and skill, and all manufacturing operations are guided by international safety, health and environment standards.

L&T Valves distribution network spans the globe, partnering key valve distribution companies in major industrial centres.





## Double Block and Bleed Plug Valves

L&T Valves manufactures a comprehensive range of Double Block & Bleed (DBB) Plug Valves in sizes up to 42" (1050 mm), and in ASME classes from 150 to 600. The valves are offered in a combination of materials and actuation options to suit customer requirements.

The highly reliable valve has successfully completed over 10,000 cycles at its rated pressure.

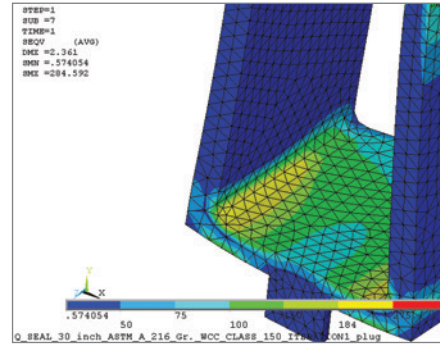
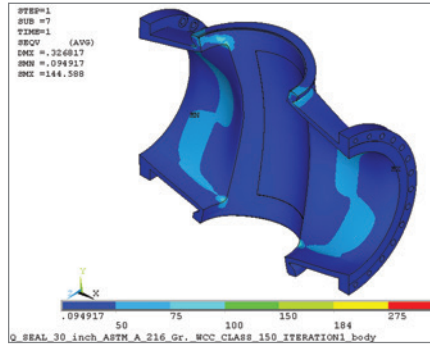
### Range

ASME Class	2	3	4	6	8	10	12	14	16	18	20	24	30	36	42
	50	80	100	150	200	250	300	350	400	450	500	600	750	900	1050
150	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
300	•	•	•	•	•	•	•	•	•	•	•	•			
600	•	•	•	•	•	•	•	•	•						

Double Block & Bleed Plug Valve provides online-verifiable bubble tight sealing and is a safe and reliable replacement to the conventional two-valve system. In this valve, high integrity positive shut-off is obtained mechanically, independent of line pressure, without sealants/ lubricants.

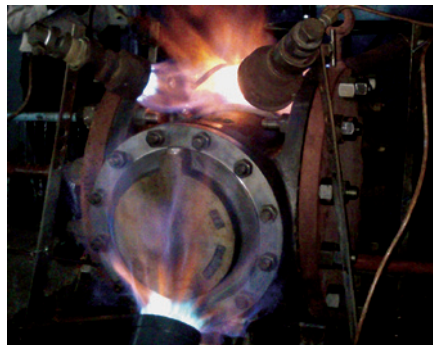
Globally, the valve has emerged as the industry standard for movement and storage of petroleum products in refineries, petrochemical plants pipelines, tank farms and terminals.





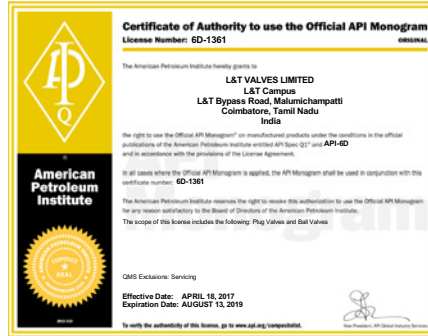
Safety and reliability are built into each DBB Plug Valve by leveraging our long track-record in developing Double Block & Bleed Valves. Designs for the valves are created in a 3D environment using state-of-the-art design and analysis software. Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) are used to fine-tune product designs.

The valves are certified Fire Safe as per API 607 and ISO 10497. The valves also meet the requirements of Fugitive Emission as per ISO 15848 standard.



**In-house Test Facilities:**

- Antistatic Test
- Drive-train Strength Test
- Endurance Test
- Fire Test
- Fugitive Emission Test
- Torque Test



The quality management system has been certified to comply with:

- ISO 9001: 2008
- API Spec Q1

DBB Plug Valves conform to API 6D and can be offered with API 6D Monogram.

Established processes control all stages of manufacture to ensure quality consistent with international standards and customer requirements.

A world-class manufacturing and QA infrastructure guarantees that each DBB Plug Valve delivers reliable performance. Dimensional accuracy and consistency are obtained using CNC and Special Purpose Machines.

International health, safety and environment standards govern every phase of the manufacturing process. The plants are zero discharge units and are pioneers in green initiatives.



### Compliance Standards

DBB Plug Valves are designed in accordance with key international standards. They also meet the requirements of major hydrocarbon industry standards and customer specifications.

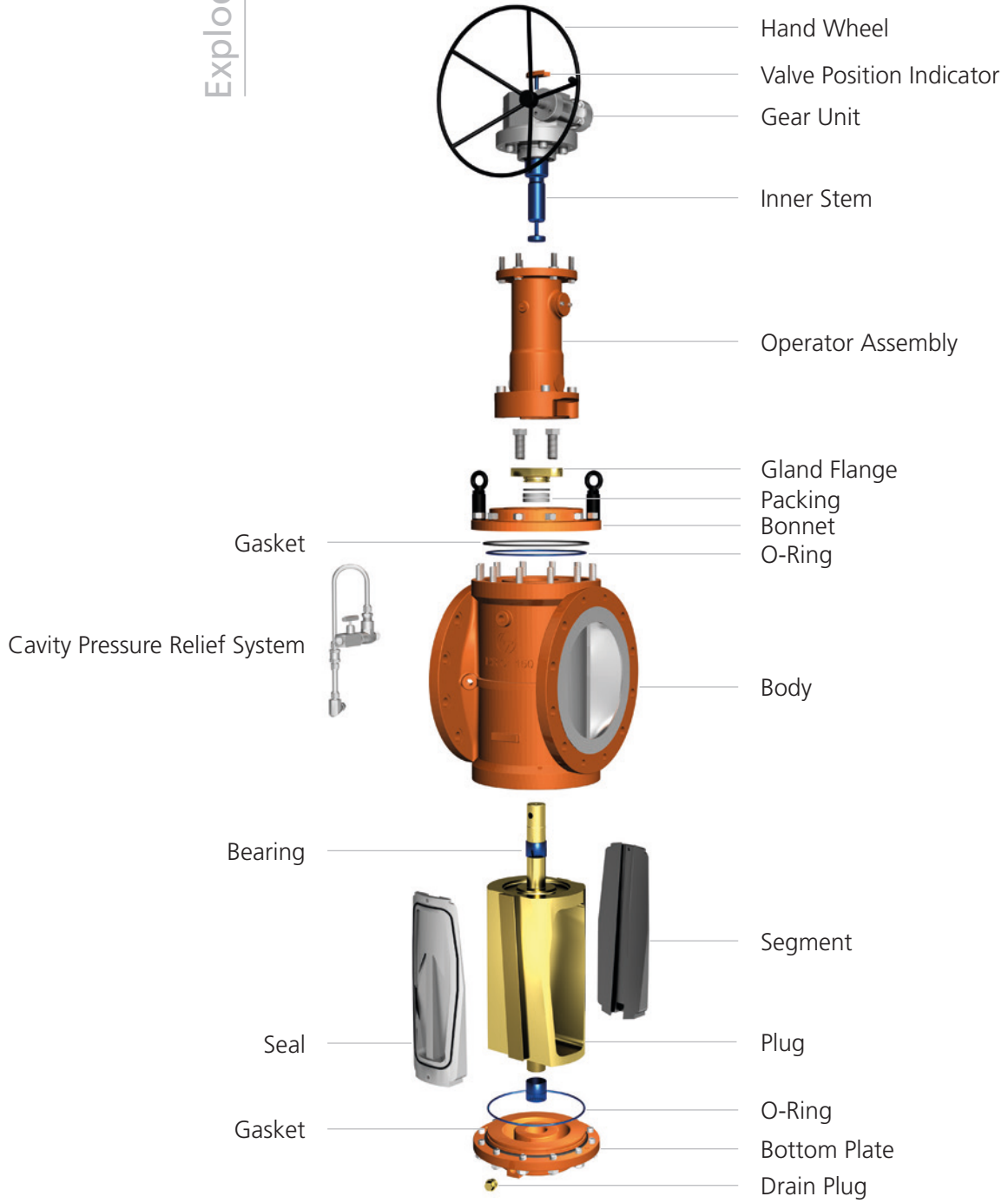
Parameter	Standard
Design	API 6D/ ISO 14313
Pressure-Temperature Rating	ASME B16.34
Face-to-Face	ASME B16.10 from 2" to 18" Manufacturer standard for 20" and above
End Flanges	ASME B16.5, ASME B16.47-Series A
Actuator/ Gear Mounting Flange	ISO 5210
Pressure Testing	API 6D
Fire Test	API 607/ ISO 10497
Fugitive Emission	ISO 15848, Part 1

### Materials of Construction

Components	Materials
Body	ASTM A216 Gr WCC + ENP
Plug	ASTM A216 Gr WCC + ENP
Segment	ASTM A395 Gr 60-40-18
Seal	Viton
Bonnet	ASTM A216 Gr WCC
Radial Bearing	Stainless Steel backed PTFE
Packing	Flexible graphite
O-Ring	Viton B
Drain Plug	SS 410
Bottom Plate	ASTM A216 Gr WCC
Gasket	Flexible graphite
Gland Flange	ASTM A216 Gr WCB
Outer Stem	ASTM A479 Type 410
Inner Stem	ASTM A479 Type 410 Condition 3
Stud	ASTM A193 Gr B7
Hex Nut	ASTM A194 Gr 2H
Cavity Pressure Relief System	SS 316

\*Valves in other materials available on demand

Exploded View



### Double Block & Bleed

At the heart of L&T Plug Valve are two seats energised by a single obturator, and a drain port between the seats. Bubble-tight sealing is obtained when obturator (plug) forces the segments against the body seats. The sealing is independent of line pressure, and is online verifiable, thus making L&T Plug Valve a true API 6D Double Block & Bleed Valve.

### Positive Double Isolation

L&T Plug Valve is recommended for critical services that demand double positive isolation since sealing is obtained mechanically independent of line pressure, or sealants/ lubricants.

The valve is fire-safe and complies to API 607 and ISO 10497.

### Cavity Relief System

In flammable fluid lines, build-up of pressure inside the valve cavity can trigger accidents. To prevent this occurrence L&T Plug Valves are supplied with an inbuilt cavity pressure relief system.



### Bleed Option

For online verification of seat integrity as well as to drain the body cavity, L&T Plug Valves are supplied with a drain port.



### Valve Operator Mechanism

The patented operator mechanism controls the movement of plug and the segments. It enables the segments to move towards the seats to close the valve, and away from the seat during valve operation.

### Inline Maintainable Seats

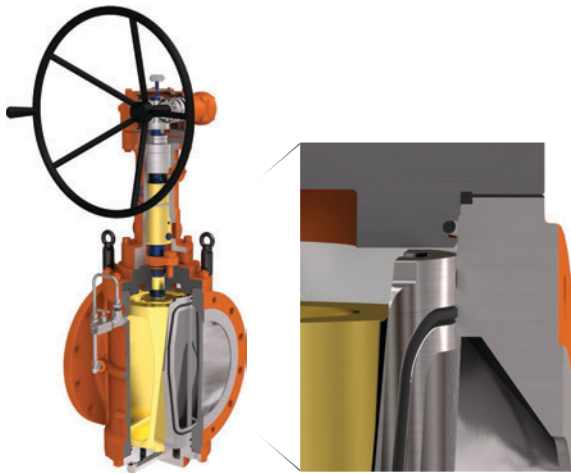
L&T Plug Valve seats can be renewed without removing the valve from the pipeline. In open position, after the bottom cover is removed, the segments can be retracted from the seat and replaced. Care should be taken to ensure that the line is drained.



## Valve Operation

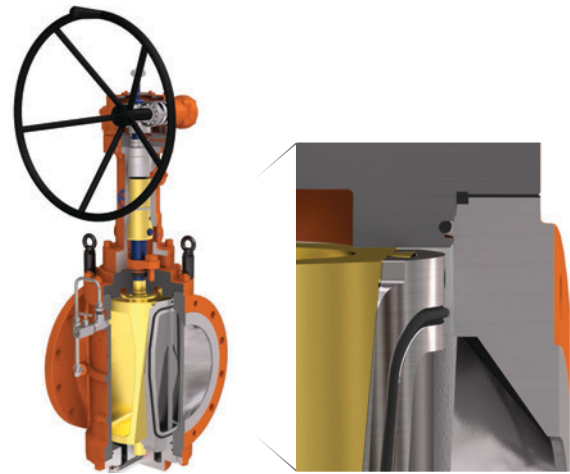
### 1. Valve Closed

In the closed position, the plug forces the segments against the body to achieve bubble-tight sealing.



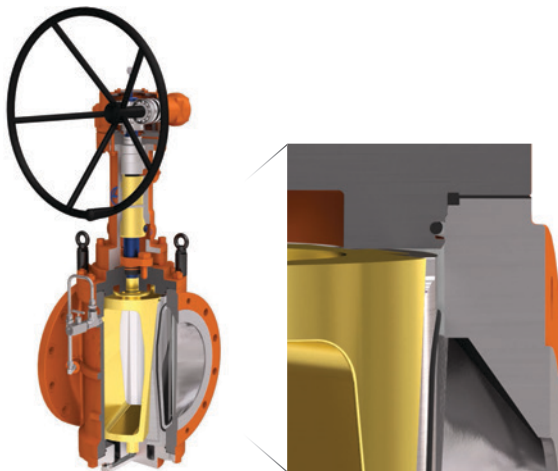
### 2. Closed to Open - Segments Retracted

When the valve is opened, the plug moves up and causes the segments to retract from the seats.



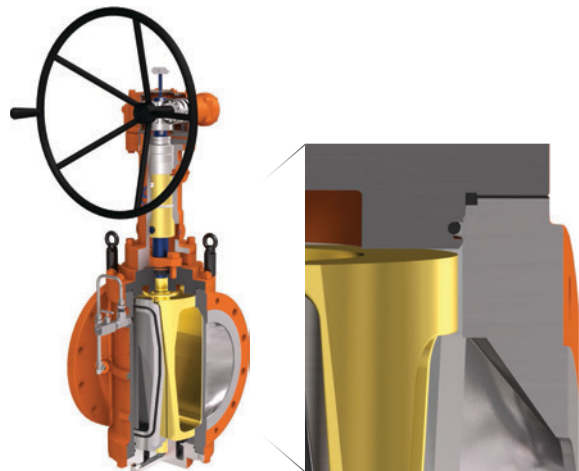
### 3. Closed to Open - Friction-free Rotation

Plug rotates from closed to open position without the segments rubbing against the seats. This reduces torque and enhances valve life.

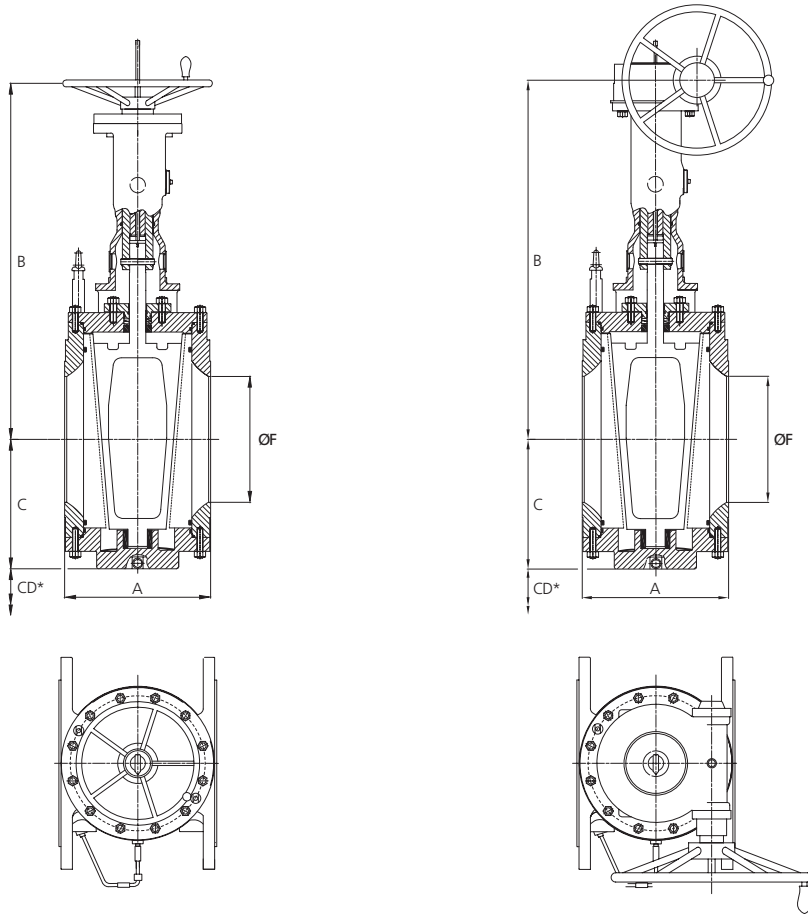


### 4. Valve Open

The plug port aligns with the body bore to facilitate flow.



## Double Block & Bleed Plug Valves - ASME Class 150 (Reduced Bore)



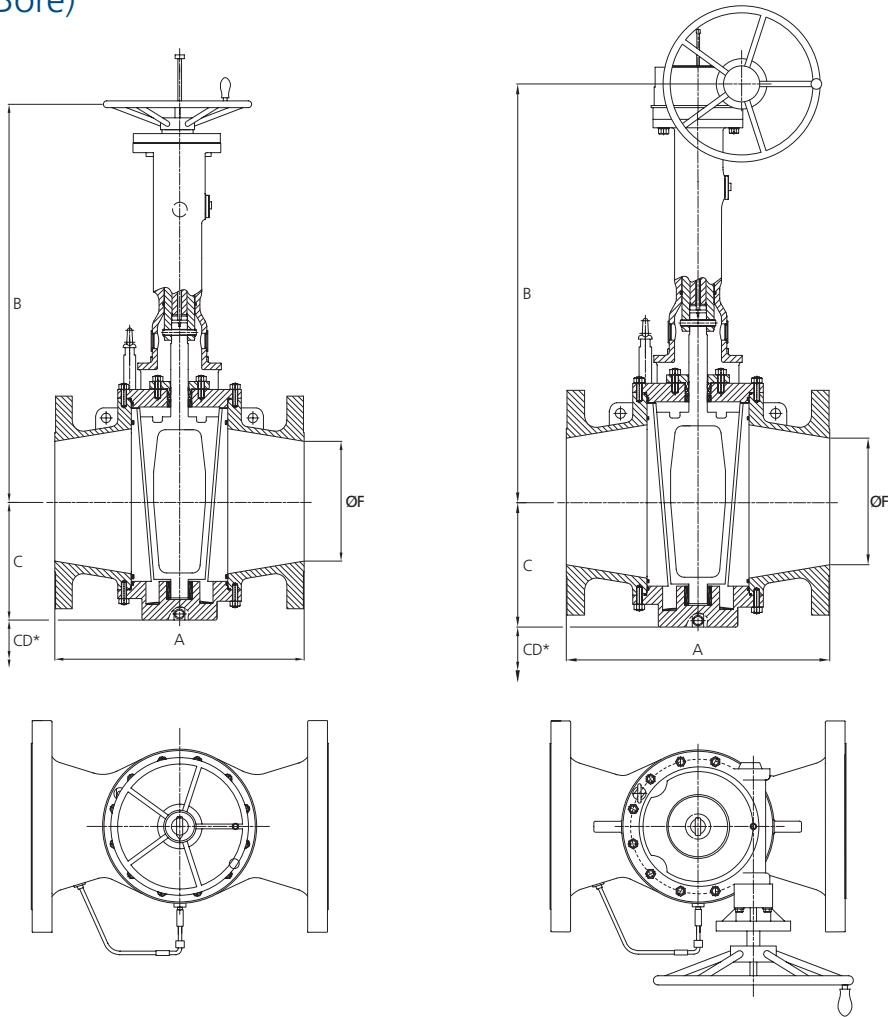
### Dimensions & Weights

ASME Class	Size		A	B	C	CD**	ØF	Tapped Holes in Each Flange		Weight
	NPS*	DN*						No.	Size	
150	2	50	178	455	150	85	49			40
	3	80	203	470	175	100	74			50
	4	100	229	490	190	140	100	4	5/8" - 11 UNC - 2B	65
	6	150	267	640	225	200	150	4	3/4" - 10 UNC - 2B	130
	8	200	292	670	260	255	201	4	3/4" - 10 UNC - 2B	150
	10	250	330	710	290	340	252	4	7/8" - 9 UNC - 2B	210
	12	300	356	785	330	425	303	4	7/8" - 9 UNC - 2B	320
	14	350	381	800	380	465	334	4	1" - 8 UNC - 2B	450
	16	400	406	1075	410	535	385	8	1" - 8 UNC - 2B	645
	18	450	432	1100	440	590	436	8	1 1/8" - 8 UN - 2B	680
	20	500	813	1140	495	670	487	8	1 1/8" - 8 UN - 2B	1000
24	600	914	1215	570	820	589	12	1 1/4" - 8 UN - 2B	1455	
30	750	1524	1840	705	1035	735	16	1 1/4" - 8 UN - 2B	2965	

All dimensions in mm and weights in kg

\*Reduced Port \*\*Minimum Clearance for Segment Removal

## Double Block & Bleed Plug Valves - ASME Class 300 & 600 (Reduced Bore)



### Dimensions & Weights

ASME Class	Size		A	B	C	CD**	ØF	Tapped Holes in Each Flange		Weight
	NPS*	DN*						No.	Size	
300	2	50	216	455	150	85	49			45
	3	80	283	470	175	100	74			55
	4	100	305	490	190	140	100			75
	6	150	403	640	225	200	150			175
	8	200	419	670	260	255	201			235
	10	250	457	710	270	330	252	4	1" - 8 UNC - 2B	315
	12	300	502	775	345	415	303	4	1½" - 8 UN - 2B	450
	14	350	762	825	395	465	334	4	1½" - 8 UN - 2B	880
	16	400	838	875	445	515	385	4	1¼" - 8 UN - 2B	1150
	18	450	914	925	495	565	436	4	1¼" - 8 UN - 2B	1500
20	500	991	975	545	615	487	4	1¼" - 8 UN - 2B	1800	
24	600	1321	1025	600	665	589	4	1½" - 8 UN - 2B	2250	
600	2	50	292	395	130	80	49			55
	3	80	356	395	130	80	74			65
	4	100	432	495	185	105	100			120
	6	150	559	660	230	180	150			320
	8	200	660	690	280	250	201			500
	10	250	787	930	405	280	252			895
	12	300	838	970	435	350	303			1150

All dimensions in mm and weights in kg

\*Reduced Port \*\*Minimum Clearance for Segment Removal

## Gate, Globe & Check Valves

Bolted Bonnet & Pressure-seal  
#150 to 4500, Up to 72" (1800 mm)

Cryogenic Valves  
Low Emission Valves  
Bellows-sealed Valves  
API monogrammed, SIL3-Capable



## Ball Valves

Trunnion-mounted  
#150 to 2500, Up to 56" (1400 mm)  
Side-entry and Top-entry  
Soft-seated and Metal-seated  
API monogrammed, SIL3-Capable

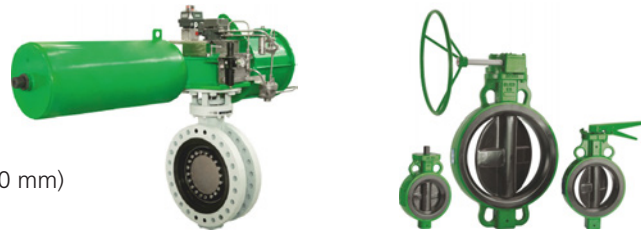
Floating Ball Valves, #150 to 2500, Up to 8" (200 mm)  
Soft-seated and Metal-seated



## Butterfly Valves

Triple-offset, #150 to 1500, Up to 100" (2500 mm)  
API monogrammed, SIL3-Capable

Soft-seated, PN6 to PN25  
Integrally-moulded - Wafer, Lugged & Flanged, Up to 36" (900 mm)  
Large-size Flanged Valves, Up to 120" (3000 mm)



## Double Block and Bleed Plug Valves

#150 to 600,  
Up to 42" (1050 mm)  
API Monogrammed



## Valve Automation Solutions

SIL3-capable Automation Solutions

High Integrity Pressure Protection System (HIPPS),  
Emergency Shutdown Valves (ESDV)



## LAMP L&T Valves Asset Management Programme

Smart Valves with diagnostic and communication modules



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