

Gate, Globe & Check Valves

Forged Steel



ASME Class 150 - 2500, 8mm - 50mm (1/4" - 2"), API 6D
API 602 | BS 5352 | BS 6364 | ASME B16.34 | MSS SP 84

L&T Forged Steel Gate, Globe and Check Valves have established themselves the world over for their quality, reliability and long service. Rugged and compact in design, these valves are manufactured to the latest international designs using advanced manufacturing techniques and stringent quality control checks. The valves are regularly supplied to major Indian and international clients including oil refining companies and EPC contractors. They are available in a range of sizes starting from 1/4" to 2" (in reduced-bore design) and from 3/8" to 1 1/2" (in full-bore design).

L&T Valves Limited is a wholly owned subsidiary of Larsen & Toubro. Backed by an fifty-year track-record of excellence and world-leading innovation, the company provides engineered flow-control solutions for key sectors of the economy.

L&T Valves Limited is synonymous with world-class manufacturing and quality assurance systems. Our plants have the agility and flexibility to deliver a wide variety of valves against time constraints and dynamic market demands. International safety, health and environment standards govern every phase of the manufacturing process.



		Valve Type	End Conn.	ASME Class		1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	
DESIGN STANDARD	API 602 / BS 5352	Gate Valves	screwed/sock.wld	800	RB	•	•	•	•	•	•	•	•	
			sock.wld	1500	SP		•	•	•	•	•	•	•	
		flanged	150	RB		•	•	•	•	•	•	•	•	•
				FB										
			300	RB		•	•	•	•	•	•	•	•	•
				FB										
	BS 5352	Globe & Check Valves	screwed/sock.wld	800	RB		•	•	•	•	•	•	•	•
			sock.wld	1500	SP			•	•	•	•	•	•	•
		flanged	150	RB		•	•	•	•	•	•	•	•	•
				FB										
			300	RB		•	•	•	•	•	•	•	•	•
				FB										
	API 602	Bellows-Sealed Gate Valves	screwed/sock.wld	800	RB									
		sock.wld	800	FB										
BS 6364	Bellows-Sealed Globe Valves	screwed/sock.wld	800	RB										
		sock.wld	800	FB										
	Cryogenic Gate & Globe Valves	150	RB		•	•	•	•	•	•	•	•	•	
			FB											
		300	RB		•	•	•	•	•	•	•	•	•	
			FB											
ASME B16.34 / MSS SP 84	Y-pattern Globe Valves	screwed/sock.wld	1500	FB										
		butt.wld	2500	FB										
	Y-pattern Check Valves	screwed/sock.wld	1500	FB										
		butt.wld	2500	FB										

L&T Manufacturing Programme

RB - Reduced Bore - bore conforms to BS 5352 Reduced Bore and API 602 Standard Port
 FB - Full Bore - bore conforms to BS 5352 Standard Bore
 SP - Standard Port - bore conforms to API 602 Standard Port



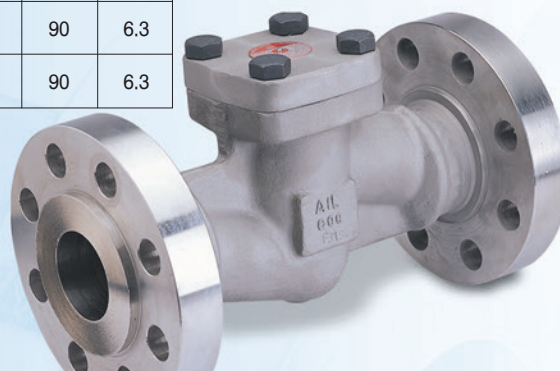
Pressure testing as per API 598 - for ASTM A105 and LF2*

- for other materials

Valve Type	ASME Class	HYDROSTATIC								AIR	
		Shell		Back Seat		Seat Closure				Seat	
		psi	kg/cm ²	psi	kg/cm ²	High Pressure		Low Pressure			
psi	kg/cm ²					psi	kg/cm ²	psi	kg/cm ²		
Gate	150	450	32	315	22	-	-	-	-	90	6.3
	300	1125	79	815	57	-	-	-	-	90	6.3
	600	2225	156	1630	115	-	-	-	-	90	6.3
	800	3000	211	2200	155	-	-	-	-	90	6.3
Globe	150	450	32	315	22	315	22	-	-	90	6.3
	300	1125	79	815	57	815	57	-	-	90	6.3
	600	2225	156	1630	115	1630	115	-	-	90	6.3
	800	3000	211	2200	155	2200	155	-	-	90	6.3
Check	150	450	32	-	-	315	22	80	6	-	-
	300	1125	79	-	-	815	57	210	15	-	-
	600	2225	156	-	-	1630	115	410	29	-	-
	800	3000	211	-	-	2200	155	550	39	-	-
B'Sealed Gate	800	3000	211	2200	155	-	-	-	-	90	6.3
B'Sealed Globe	800	3000	211	2200	155	2200	155	-	-	90	6.3

ASME Class		Working Pressure (in psi)		
		F5,F9 F11,F22	F304, F316, F321, F347	F304L, F316L
150	Shell	450	425	350
	Seat	320	305	255
300	Shell	1125	1100	900
	Seat	825	795	660
600	Shell	2250	2175	1800
	Seat	1650	1585	1320
800	Shell	3000	2900	2400
	Seat	2200	2115	1760
1500	Shell	5625	5400	4500
	Seat	4125	3960	3300

* Test pressure values are for ASTM A105 and LF2 materials of construction. For other materials, substitute corresponding figures from the table alongside. For check valves, low pressure hydrostatic closure test is carried out at 25% of the high pressure closure test.



Compliance Standards

Valve Type	Valve Design	Face-to-face dimension	End Connection	Pressure / Temp. rating**	Valve inspection and testing
Gate Valves	API 602* BS 5352	L&T Standard (screwed/socket-weld/ butt-weld) ASME B16.10 BS 2080 (flanged)	ASME B1.20.1 (NPT) • BS 21 / ISO 7 (screwed - taper)	API 602 ASME B16.34	API 598 BS 5352
Globe and Check Valves	BS 5352*		BS 2779 / ISO 228 • BS 21 / ISO 7 (screwed - parallel)	BS 5352 ASME B16.34	API 598 BS 5352
Cryo Gate & Globe Valves	BS 6364		ASME B16.11 (socket-weld) ASME B16.5 RF 125-250 Ra (flanged)	BS 6364	BS 6364 API 598 BS 5352
Y-Globe and Check Valves	ASME B16.34 MSS SP 84	L&T Standard	see page 10	ASME 16.34	API 598

For Class 150 valves, the flange drilling dimensions will be as per Class 150 and all other dimensions as per Class 300. End flanges are welded onto the body. Bellows-Sealed Gate and Globe valves conform to BS 5352. Socket-weld Class 800 Reduced Bore valves conform to Class 3000 (or Sch.80/Sch.XS) fittings of ASME B16.11. Socket-weld Class 800 Full Bore valves conform to Class 6000 (or Sch.160) fittings of ASME B16.11. Socket-weld Class 1500 Standard Port valves conform to Class 9000 (or Sch.XXS) fittings of ASME B16.11. *Full Bore design also conforms to ASME B16.34 ** API 602/BS 5352 for Class 800 and ASME B16.34 for Class 150/300/600/1500/2500.

Ordering Information - Straight-pattern Valves

Size	Valve Type	Pressure Class	End Connection	Trim	Body Material	Options
1/4"	2 - Gate 5 - Globe 8 - Check	1 - Class 150 3 - Class 300 5 - Class 1500 6 - Class 600 8 - Class 800	1 - Screwed NPT 2 - Socket-weld 3 - Flanged 4 - Screwed BSP parallel 5 - Screwed BSP taper	01 - 13% Cr. 05 - HF 08 - 13% Cr. HF API Trim Nos. 10, 12, etc., also available	NIL - A105 LF2 F5 F11 F22 F304 / F304L F316 / F316L F347 Monel	NIL - Reduced / Standard Bore FB - Full Bore WB - Welded Bonnet LA - Locking Arrangement E - Electrical Actuator BS - Bellows-Sealed CR - Cryogenic
3/8"						
1/2"						
3/4"						
1"						
1 1/4"						
1 1/2"						
2"						

Ordering Information - Y-pattern Valves

Size	Valve type	Pressure Class	End Connection	Trim	Body material	Options
15- 15mm	GLOBE 6 - Scr. Bonnet 7 - Seal-welded Bonnet	15- Class 1500 25- Class 2500	3 - Butt-weld 4 - Screwed NPT 5 - Socket-weld	U - Hardfaced seating surface	NIL - A105 F11 F22	NIL - Standard IBR - IBR-certified
20- 20mm						
25- 25mm						
40- 40mm	CHECK 8 - Scr. Cap 9 - Seal-welded Cap					
50- 50mm						

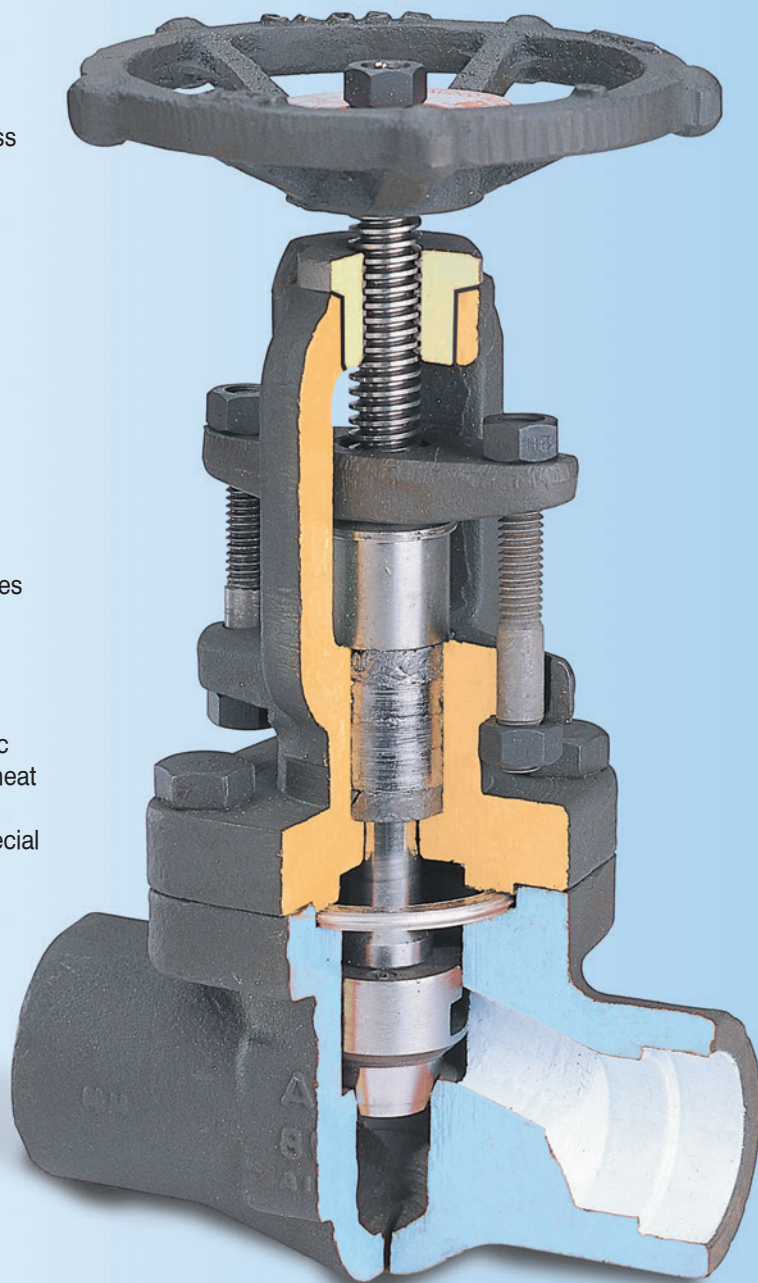
Familiarity with our catalogue numbering is not necessary when specifying or ordering our valves. A full description of the valve provided by you is translated into a catalogue number as per the system shown.

For any other special requirement, add **SPL** to the catalogue number and provide details.

Straight-pattern Gate/Globe/Check Valves

Salient features

- Bolted body-bonnet design for valves up to Class 800. Valves with welded bonnet also available on request
- Screwed with seal-welded body-bonnet design for valves of Class 1500
- Bellows-sealed Gate and Globe valves available in Class 800
- Bolted body-bonnet joints provided with spiral-wound stainless steel gasket and graphite filler for maximum protection against leaks
- Die-formed graphite inner packing rings and braided graphite end rings with Inconel wire reinforcement and corrosion inhibitor
- T-head stem-disc connection of gate valve fully meets strength requirements of API 602 and API 598
- Rolled ACME thread on stem for smooth operation
- Tapered shoulder on the stem for back seating
- Self-aligning type gland assembly with stud-and-nut tightening
- Integral hard-faced body seat for globe and check valves
- Spring-loaded disc on check valves suitable for non-horizontal applications too
- Gate and globe valves can be offered with electrical actuators
- Austenitic SS forging for body and bonnet of Cryogenic valves, resulting in excellent impact strength, minimal heat loss and resistance to corrosion
- Valves can be offered to NACE MR-0175 and other special NACE requirements
- Valves can be supplied with IBR certification



Body and Trim Combinations

Body & Bonnet/Cover	Trim numbers
ASTM A105	01 / 08 / 05
ASTM A182 Gr. F5	08 / 05
ASTM A182 Gr. F9	08 / 05
ASTM A182 Gr. F11	08 / 05
ASTM A182 Gr. F22	08 / 05
ASTM A182 Gr. F304	02 / 15
ASTM A182 Gr. F316	10 / 12 / 16
ASTM A350 Gr. LF2	08 / 16

Other materials of construction such as F316L/ F304L also available.

Trim Materials

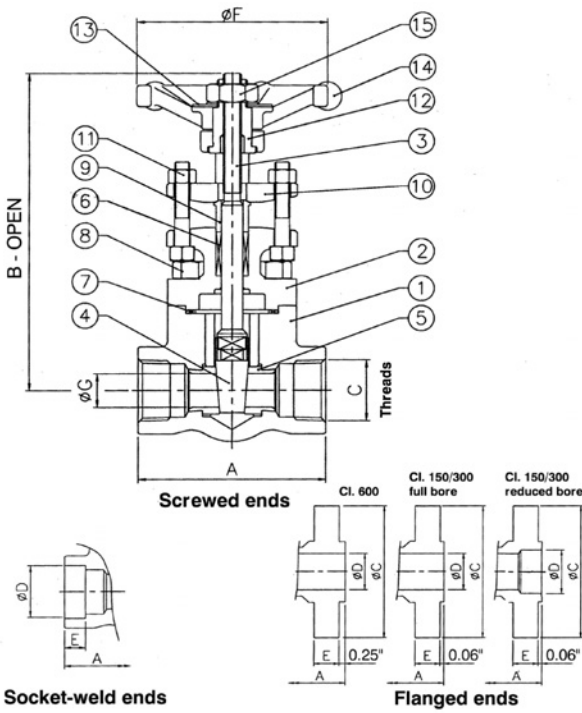
L&T Forged Steel Valves are offered with trims shown below, to suit a variety of services.

Trim No. (API 602)	Valve Type	Stem Material	Seating Surfaces	
			Disc	Body Seat
01	Gate Valves	ASTM A479 Type 410	13% Cr. Steel	13% Cr. Steel
05	Gate, Globe and Check Valves	ASTM A479 Type 410	HF	HF
08	Gate, Globe and Check Valves	ASTM A479 Type 410	13% Cr. Steel	HF
02	Gate Valves	ASTM A479 Type 304	SS 304	SS 304
10	Gate Valves	ASTM A479 Type 316	SS 316	SS 316
12	Gate, Globe and Check Valves	ASTM A479 Type 316	SS 316	HF
15	Gate, Globe and Check Valves	ASTM A479 Type 304	SS 304 + HF	HF
16	Gate, Globe and Check Valves	ASTM A479 Type 316	SS 316 + HF	HF

HF - Hard Faced with Cobalt-Chromium-Tungsten alloy (Stellite #6)

Gate Valves

Material Specification (Typical for Fig No. 28101)



Sl. No.	Part Description	Specification
1	Body	ASTM A105
2	Bonnet	ASTM A105
3	Stem	ASTM A479 Type 410
4	Wedge Disc	ASTM A217 Gr. CA15
5	Body Seat Ring	ASTM A276 Type 410
6	Stem packing	Graphite moulded rings with braided top / bottom rings
7	Gasket	Spiral-wound SS type 304 with graphite filler
8	Cap Screws	ASTM A193 Gr. B7
9	Gland Bush	ASTM A276 Type 410
10	Gland Flange	ASTM A105
11	Gland Stud / Nut	ASTM A276 Type 410 / ASTM A194 Gr. 2H
12	Yoke Sleeve	ASTM A582 Type 416
13	Identification Plate	Aluminium (anodised)
14	Handwheel	SG Iron / Steel
15	Handwheel Nut	Steel

Screwed/Socket-weld ends (in inches, unless specified)

Class 800

Valve size inch (mm)	CLASS 800 GATE VALVES												
	A	B		C		D (min)	E	F		G		App. Wt. (kg)	
		RB	FB	RB	FB			RB	FB	RB	FB	RB	FB
1/4 (8)**	3.15	6.0	-	1/4	-	0.555	0.38	3.25	-	0.25	-	1.6	-
3/8 (10)	3.15	6.0	6.0	3/8		0.690	0.38	3.25	3.25	0.25	0.38	1.6	1.6
1/2 (15)	3.15	6.0	6.2	1/2		0.855	0.38	3.25	3.25	0.38	0.50	1.6	2.0
3/4 (20)	3.35	6.2	7.5	3/4		1.065	0.50	3.25	4.00	0.50	0.71	2.0	3.1
1 (25)	3.94	7.5	10.0	1		1.330	0.50	4.00	5.50	0.71	0.94	3.1	6.1
1 1/4 (32)	4.70	10.0	10.0	1 1/4		1.675	0.50	5.50	5.50	0.94	1.19	6.1	6.0
1 1/2 (40)	4.70	10.0	11.4	1 1/2		1.915	0.50	5.50	7.25	1.19	1.44	6.0	9.1
2 (50)**	5.12	11.4	-	2	-	2.406	0.62	7.25	-	1.44	-	9.1	-

Flanged ends (in inches, unless specified)

Class 600

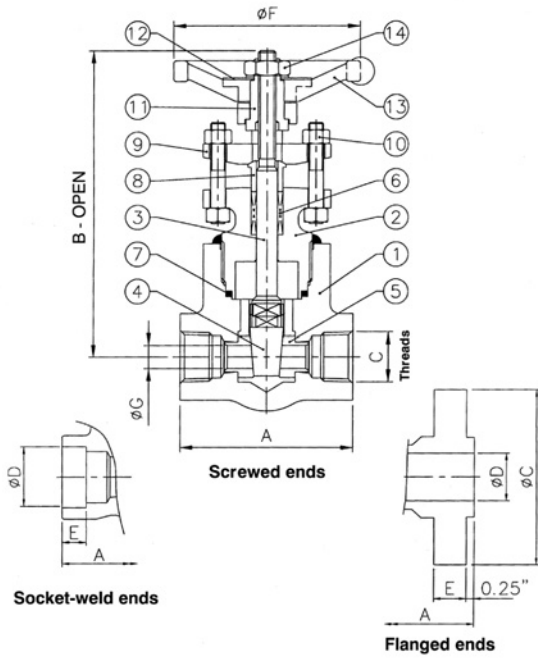
Valve size inch (mm)	CLASS 600 GATE VALVES										App. Wt. (kg)	
	A	B		C	ø D		E	ø F		RB	FB	
		RB	FB		RB	FB		RB	FB			
1/2 (15)	6.5	6.0	6.2	3.75	0.50	0.62	0.56	3.25	3.25	3.5	5.1	
3/4 (20)	7.5	6.2	7.5	4.62	0.75	0.82	0.62	3.25	4.00	5.1	7.1	
1 (25)	8.5	7.5	10.0	4.88	1.00	1.05	0.69	4.00	5.50	7.1	11.3	
1 1/4 (32)	9.0	10.0	10.0	5.25	1.25	1.38	0.81	5.50	5.50	11.3	13.5	
1 1/2 (40)	9.5	10.0	11.4	6.12	1.50	1.61	0.88	5.50	7.25	13.5	19.2	
2 (50)	11.5	11.4	-	6.50	2.00	-	1.00	7.25	-	19.2	-	

Flanged ends (in inches, unless specified)

Class 150/300

Valve size inch (mm)	CLASS 150 / 300 GATE VALVES								
	A	B		C		ø D	E	ø F	
		RB	FB	Class 150	Class 300			RB	FB
1/2 (15)	5.5	6.0	6.2	3.50	3.75	0.62	0.56	3.25	3.25
3/4 (20)	6.0	6.2	7.5	3.88	4.62	0.82	0.62	3.25	4.00
1 (25)	6.5	7.5	10.0	4.25	4.88	1.05	0.69	4.00	5.50
1 1/4 (32)	7.0	10.0	10.0	4.62	5.25	1.38	0.75	5.50	5.50
1 1/2 (40)	7.5	10.0	11.4	5.00	6.12	1.61	0.81	5.50	7.25
2 (50)	8.5	11.4	-	6.00	6.50	2.07	0.88	7.25	-

Gate Valves



Material Specification (Typical for Fig No. 25101)

Sl. No.	Part Description	Specification
1	Body	ASTM A105
2	Bonnet	ASTM A105
3	Stem	ASTM A479 Type 410
4	Wedge Disc	ASTM A217 Gr. CA15
5	Body Seat Ring	ASTM A276 Type 410
6	Gasket	Spiral-wound SS type 304 with graphite filler
7	Stem packing	Graphite moulded rings with braided top/bottom rings
8	Gland Bush	ASTM A276 Type 410
9	Gland Flange	ASTM A105
10	Gland Stud / Nut	ASTM A276 Type 410 / ASTM A194 Gr. 2H
11	Yoke Sleeve	ASTM A582 Type 416
12	Identification Plate	Aluminium (anodised)
13	Handwheel	SG Iron / Steel
14	Handwheel Nut	Steel

Class 1500 Standard Port (in inches)

Valve size inch (mm)	SCREWED / SOCKET-WELD ENDS							FLANGED ENDS						
	A	B	C	D (min)	E	F	G	A	B	C	D	E	F	G
3/8 (10)	3.70	7.32	3/8	0.690	0.38	4.00	0.250	-	-	-	-	-	-	-
1/2 (15)	3.70	7.32	1/2	0.855	0.38	4.00	0.375	8.50	7.32	4.75	0.50	0.88	4.00	0.375
3/4 (20)	3.70	7.32	3/4	1.065	0.50	4.00	0.500	9.00	7.32	5.12	0.75	1.00	4.00	0.500
1 (25)	4.40	7.50	1	1.330	0.50	5.50	0.625	10.00	7.50	5.88	1.00	1.12	5.50	0.625
1 1/4 (32)	5.12	10.92	1 1/4	1.675	0.50	7.25	1.102	11.00	10.92	6.25	1.25	1.12	7.25	1.102
1 1/2 (40)	5.12	10.92	1 1/2	1.915	0.50	7.25	1.102	12.00	10.92	7.00	1.50	1.25	7.25	1.102
2 (50)	7.82	19.10	2	2.406	0.62	14.00	1.500	14.50	19.10	8.50	2.00	1.50	14.00	1.500

For weights, refer to L&T

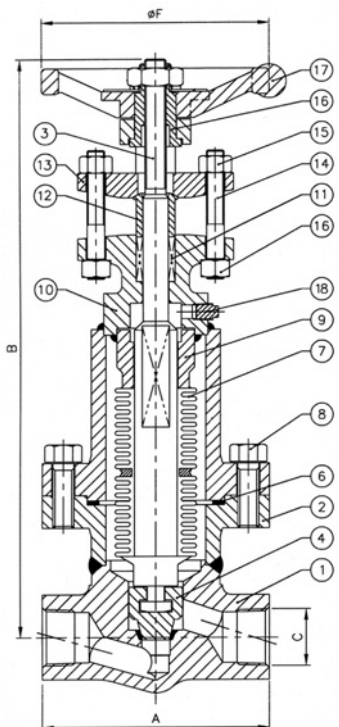
Bellows-Sealed Gate and Globe Valves

Class 800 - Reduced Bore and Full Bore (for dimensions, refer to L&T)

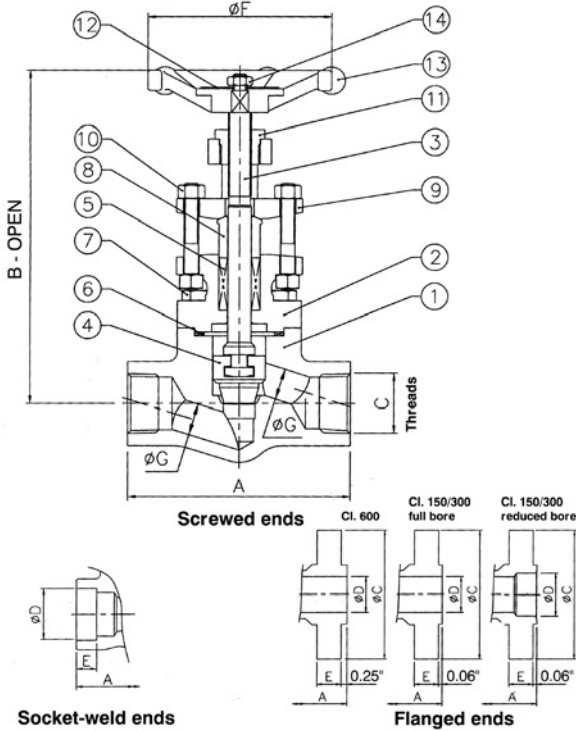
Material Specification (Standard)

Sl. No.	Part Description	Specification
1	Body	ASTM A105, in-situ stellite seat
2	Pipe (top/bottom)	ASTM A105
3	Stem	ASTM A479 Type 316
4	Disc	ASTM A351 Gr. CF8M, seat face stellite
5	Seat Ring	ASTM A276 Type 316, seat face stellite
6	Gasket	Spiral-wound SS 316 with graphite filler
7	Bellows	SS 316L
8	Cap Screw	ASTM A193 Gr. B7
9	Guide	ASTM A276 Type 316
10	Bonnet	ASTM A105
11	Packing	Graphite rings with braided end rings
12	Gland	ASTM A276 Type 316
13	Gland Flange	ASTM A105
14	Stud	ASTM A276 Type 410
15	Nut	ASTM A194 Gr. 2H
16	Yoke Sleeve	ASTM A582 Type 416
17	Handwheel	SG Iron / Mall. Iron
18	Plug (1/16 NPT)	Carbon Steel

Note : Valves are available with screwed and socket-weld ends. For dimensions, refer to L&T



Globe Valves



Material Specification (Typical for Fig No. 58108)

Sl. No.	Part Description	Specification
1	Body	ASTM A105, in-situ stellite seat
2	Bonnet	ASTM A105
3	Stem	ASTM A479 Type 410
4	Plug Disc	ASTM A217 Gr. CA15
5	Stem packing	Graphite moulded rings with braided top / bottom rings
6	Gasket	Spiral-wound SS type 304 with graphite filler
7	Cap Screws	ASTM A193 Gr. B7
8	Gland Bush	ASTM A276 Type 410
9	Gland Flange	ASTM A105
10	Gland Stud / Nut	ASTM A276 Type 410 / ASTM A194 Gr. 2H
11	Yoke Bush	ASTM A582 Type 416
12	Identification Plate	Aluminium (anodised)
13	Handwheel	SG Iron / Steel
14	Handwheel Nut	Steel

Screwed/Socket-weld ends (in inches, unless specified)

Class 800

Valve size inch (mm)	CLASS 800 GLOBE VALVES												
	A	B		C		D (min)	E	F		G		App. Wt. (kg)	
		RB	FB	RB	FB			RB	FB	RB	FB	RB	FB
1/4 (8)	3.20	5.8	-	1/4	-	0.555	0.38	3.25	-	0.25	-	1.7	-
3/8 (10)	3.20	5.8	5.8	3/8		0.690	0.38	3.25	3.25	0.25	0.38	1.7	1.7
1/2 (15)	3.20	5.8	6.4	1/2		0.855	0.38	3.25	4.00	0.38	0.50	1.7	2.4
3/4 (20)	4.00	6.4	7.7	3/4		1.065	0.50	4.00	4.00	0.50	0.69	2.4	3.6
1 (25)	4.85	7.7	9.6	1		1.330	0.50	4.00	5.50	0.69	0.94	3.6	6.8
1 1/4 (32)	6.40	9.6	9.6	1 1/4		1.675	0.50	5.50	5.50	0.94	1.17	6.8	6.7
1 1/2 (40)	6.40	9.6	11.6	1 1/2		1.915	0.50	5.50	7.25	1.17	1.44	6.7	10.8
2 (50)	8.80	11.6	-	2	-	2.406	0.62	7.25	-	1.44	-	10.8	-

Flanged ends (in inches, unless specified)

Class 600

Valve size inch (mm)	CLASS 600 GLOBE VALVES											
	A		B		C	Ø D		E	Ø F		App. Wt. (kg)	
	RB	FB	RB	FB		RB	FB		RB	FB	RB	FB
1/2 (15)	6.5	6.5	5.8	6.4	3.75	0.50	0.62	0.56	3.25	4.00	3.6	5.4
3/4 (20)	7.5	7.5	6.4	7.7	4.62	0.75	0.82	0.62	4.00	4.00	5.4	7.4
1 (25)	8.5	8.5	7.7	9.6	4.88	1.00	1.05	0.69	4.00	5.50	7.4	11.4
1 1/4 (32)	9.0	9.0	9.6	9.6	5.25	1.25	1.38	0.81	5.50	5.50	11.4	13.5
1 1/2 (40)	9.5	11.5*	9.6	11.6	6.12	1.50	1.61	0.88	5.50	7.25	13.5	19.1
2 (50)	11.5	-	11.6	-	6.50	2.00	-	1.00	7.25	-	19.1	-

* Greater than ASME B16.10 / BS 2080

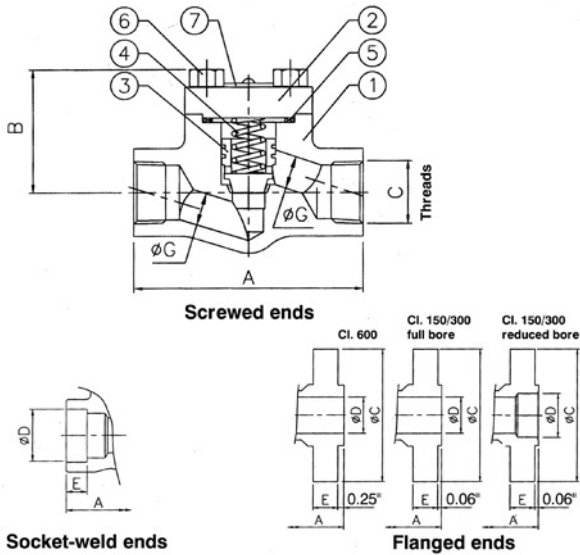
Flanged ends (in inches, unless specified)

Class 150/300

Valve size inch (mm)	CLASS 150 / 300 GLOBE VALVES									
	A		B		C		Ø D	E	Ø F	
	RB	FB	RB	FB	Class 150	Class 300			RB	FB
1/2 (15)	6.0	6.0	5.80	6.35	3.50	3.75	0.62	0.56	3.25	4.00
3/4 (20)	7.0	7.0	6.35	7.70	3.88	4.62	0.82	0.62	4.00	4.00
1 (25)	8.0	8.0	7.70	9.55	4.25	4.88	1.05	0.69	4.00	5.50
1 1/4 (32)	8.5	8.5	9.55	9.55	4.62	5.25	1.38	0.75	5.50	5.50
1 1/2 (40)	9.0	11.5*	9.55	11.60	5.00	6.12	1.61	0.81	5.50	7.25
2 (50)	10.5	-	11.60	-	6.00	6.50	2.07	0.88	7.25	-

* Greater than ASME B16.10 / BS 2080

Check Valves



Material Specification (Typical for Fig No. 88108)

Sl. No.	Part Description	Specification
1	Body	ASTM A105, in-situ stellite seat
2	Cover	ASTM A105
3	Piston Disc	ASTM A276 Type 410
4	Spring	SS 302
5	Gasket	Spiral-wound SS type 304 with graphite filler
6	Cap Screws	ASTM A193 Gr. B7
7	Identification Plate	Aluminium (anodised)

Minimum differential pressure of 1 bar required for operating the valve.

Screwed/Socket-weld ends (in inches, unless specified)

Valve size inch (mm)	CLASS 800 CHECK VALVES										
	A		B		C	D (min)	E	G		App. Wt. (kg)	
	RB	FB	RB	FB				RB	FB	RB	FB
1/4 (8)	3.20	-	2.1	-	1/4	0.555	0.38	0.25	-	1.1	-
3/8 (10)	3.20	3.20	2.1	2.1	3/8	0.690	0.38	0.25	0.38	1.1	1.1
1/2 (15)	3.20	4.00	2.1	2.3	1/2	0.855	0.38	0.38	0.50	1.1	1.5
3/4 (20)	4.00	4.85	2.3	2.6	3/4	1.065	0.50	0.50	0.69	1.5	2.4
1 (25)	4.85	6.40	2.6	3.5	1	1.330	0.50	0.69	0.94	2.4	4.4
1 1/4 (32)	6.40	6.40	3.5	3.5	1 1/4	1.675	0.50	0.94	1.17	4.4	4.4
1 1/2 (40)	6.40	8.80	3.5	4.1	1 1/2	1.915	0.50	1.17	1.44	4.3	6.8
2 (50)	8.80	-	4.1	-	2	2.406	0.62	1.44	-	6.8	-

Class 800

Flanged ends (in inches, unless specified)

Valve size inch (mm)	CLASS 600 CHECK VALVES									
	A		B		C	ø D		E	App. Wt. (kg)	
	RB	FB	RB	FB		RB	FB		RB	FB
1/2 (15)	6.5	6.5	2.1	2.3	3.75	0.50	0.62	0.56	3.0	4.6
3/4 (20)	7.5	7.5	2.3	2.6	4.62	0.75	0.82	0.62	4.6	6.2
1 (25)	8.5	8.5	2.6	3.5	4.88	1.00	1.05	0.69	6.2	9.1
1 1/4 (32)	9.0	9.0	3.5	3.5	5.25	1.25	1.38	0.81	9.1	11.2
1 1/2 (40)	9.5	11.5*	3.5	4.1	6.12	1.50	1.61	0.88	11.2	15.2
2 (50)	11.5	-	4.1	-	6.50	2.00	-	1.00	15.2	-

Class 600

* Greater than ASME B16.10 / BS 2080

Flanged ends (in inches, unless specified)

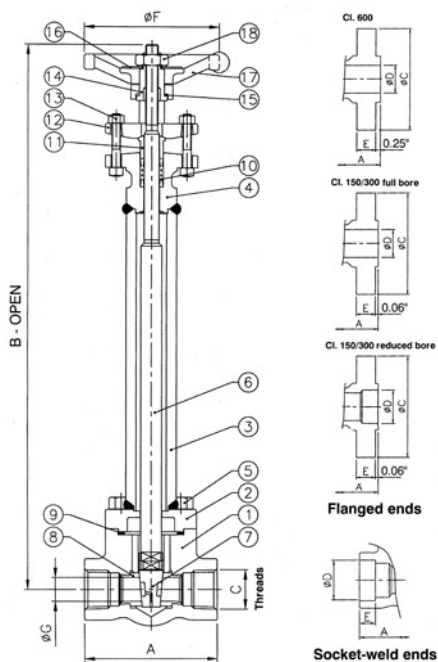
Valve size inch (mm)	CLASS 150/300 CHECK VALVES							
	A		B		C		ø D	E
	RB	FB	RB	FB	Class 150	Class 300		
1/2 (15)	6.0	6.0	2.10	2.30	3.50	3.75	0.62	0.56
3/4 (20)	7.0	7.0	2.30	2.60	3.88	4.62	0.82	0.62
1 (25)	8.0	8.0	2.60	3.50	4.25	4.88	1.05	0.69
1 1/4 (32)	8.5	8.5	3.50	3.50	4.62	5.25	1.38	0.75
1 1/2 (40)	9.0	11.5*	3.50	4.10	5.00	6.12	1.61	0.81
2 (50)	10.5	-	4.10	-	6.00	6.50	2.07	0.88

Class 150/300

* Greater than ASME B16.10 / BS 2080

Cryogenic Gate Valves

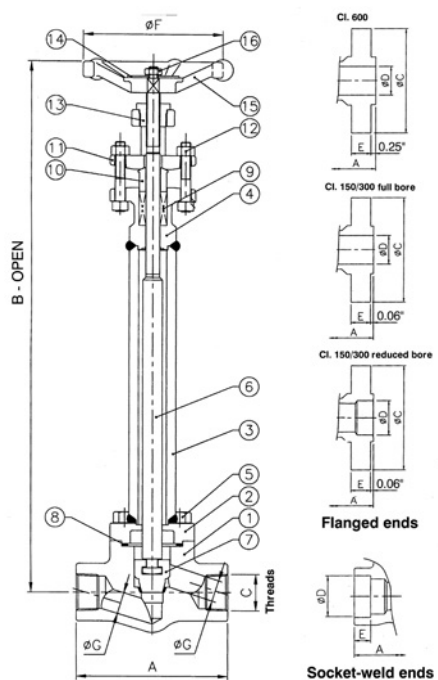
Material Specification (Standard)



Sl. No.	Part Description	Specification
1	Body	ASTM A182 Gr. F304/F316
2	Cover Flange	ASTM A182 Gr. F304/F316
3	Extension Column	ASTM A312 Gr. TP304L/316L
4	Bonnet	ASTM A182 Gr. F304/F316
5	Cap Screw	ASTM A320 Gr. B8 Cl. 2
6	Stem	ASTM A479 Gr. 304/316
7	Wedge Disc	ASTM A351 Gr. CF8/CF8M with suitable seating surface
8	Body Seat Ring	Type 304/316 with suitable seating surface
9	Gasket	Spiral-wound SS type 304 with graphite filler
10	Stem packing	Graphite moulded rings with braided top/bottom rings
11	Gland Bush	Type 304/316 SS
12	Gland Flange	ASTM A182 Gr. F304/F316
13	Gland, Stud and Nut	ASTM A320 Gr. B8 Cl. 2/ ASTM A194 Gr. 8
14	Yoke Sleeve	Type 416 SS
15	Thrust Washer	Sintered Bronze/SS-backed PTFE/ CS-backed PTFE
16	Identification Plate	Aluminium (anodised)
17	Handwheel	SG Iron / Steel
18	Handwheel Nut	Steel

Cryogenic Globe Valves

Material Specification (Standard)



Sl. No.	Part Description	Specification
1	Body	ASTM A182 Gr. F304/F316, in-situ stellited seat
2	Cover Flange	ASTM A182 Gr. F304/F316
3	Extension Column	ASTM A312 Gr. TP304L/316L
4	Bonnet	ASTM A182 Gr. F304/F316
5	Cap Screw	ASTM A320 Gr. B8 Cl. 2
6	Stem	ASTM A479 Gr. 304/316
7	Plug Disc	ASTM A351 Gr. CF8/CF8M with suitable seating surface
8	Gasket	Spiral-wound SS type 304 with graphite filler
9	Stem packing	Graphite moulded rings with braided top/bottom rings
10	Gland Bush	Type 304/316 SS
11	Gland Flange	ASTM A182 Gr. F304/F316
12	Gland, Stud and Nut	ASTM A320 Gr. B8 Cl. 2/ ASTM A194 Gr. 8
13	Yoke Bush	Type 416 SS
14	Identification Plate	Aluminium (anodised)
15	Handwheel	SG Iron / Steel
16	Handwheel Nut	Steel

Class 800 Screwed/Socket-weld ends (in inches, unless specified)

Valve size inch (mm)	CLASS 800 CRYO GATE / GLOBE VALVES																	
	A			B				C	D (min)	E	GATE				GLOBE			
	GLOBE		G	GATE		GLOBE					F		G		F		G	
	GATE	RB		FB	RB	FB	RB	FB	RB	FB	RB	FB	RB	FB	RB	FB		
1/2 (15)	3.94	3.20	4.00	17.1	17.1	16.2	16.7	1/2	0.855	0.38	3.25	3.25	0.38	0.50	3.25	4.00	0.38	0.50
3/4 (20)	3.94	4.00	4.85	17.1	17.1	16.7	17.0	3/4	1.065	0.50	3.25	4.00	0.50	0.71	4.00	4.00	0.50	0.69
1 (25)	3.94	4.85	6.40	17.1	20.7	17.0	20.0	1	1.330	0.50	4.00	5.50	0.71	0.94	4.00	5.50	0.69	0.94
1 1/4 (32)	4.70	6.40	6.40	20.7	20.7	20.0	20.0	1 1/4	1.675	0.50	5.50	5.50	0.94	1.19	5.50	5.50	0.94	1.17
1 1/2 (40)	4.70	6.40	8.80	20.7	22.1	20.0	21.8	1 1/2	1.915	0.50	5.50	7.25	1.19	1.44	5.50	7.25	1.17	1.44
2 (50)	5.12	8.80	-	22.1	-	21.8	-	2	2.406	0.62	7.25	-	1.44	-	7.25	-	1.44	-

Cryogenic valves are also available in Class 150, 300, 600 and 1500, with dimensions generally as per corresponding gate/globe valves in pages 5 - 7. For detailed dimensions, refer to L&T

Y-pattern Globe/Check Valves

L&T Forged Steel Y-pattern Globe and Check Valves have established themselves in the industry for their rugged and compact design, and reliable service. These valves are offered in Carbon Steel and Alloy Steel. They are available in a range of sizes starting from 1/4" to 2" (in reduced-bore design) and from 3/8" to 1 1/2" (in full-bore design).

The **rugged construction** ensures an ideal body and bonnet, suited to handle high pressure and temperatures - up to 425°C in carbon steel and 540°C in alloy steel.

The **Y-pattern design** ensures a near-perfect straight flow which significantly reduces pressure drop and turbulence when compared to conventional designs.

As a standard, valves are supplied with **screwed body-bonnet joint**, which ensures ease of inspection and in-line maintenance, thus minimising downtime.

L&T Y-pattern valves can be offered to NACE MR-0175 and other special NACE requirements. They can also be supplied with IBR certification.



Y-pattern Globe Valves

Disc and Seat

The disc is provided with two integral rings to guide it throughout its travel in the body. This minimises side thrust on the disc and eliminates bending of the stem even at high flow velocities. Body and disc seats are hard-faced to ensure a long, trouble-free life cycle.

Disc-Stem Connection

The unique joint at the disc and the stem provides for a flexible yet strong connection that enables the disc to freely float on the stem. This results in perfect alignment of the disc with the stem.



Body-Bonnet Joint

The bonnet is screwed to the body with ACME threads to ensure ease of dismantling and resistance to galling. A graphite gasket is provided for tight sealing. This joint is tack-welded to prevent loosening while in service. The bonnet can be easily removed for inspection and maintenance of inner parts. The joint can also be seal-welded on request.

Packing

Die-moulded graphite rings are used as packing to provide for optimal performance at high pressures and temperatures. Two filament rings provided at the top and bottom of the graphite packing rings act as anti-extrusion rings. Moreover, a smooth surface finish on the stuffing box along with a precision-machined stem ensure optimum sealing and packing life.

Stem

The stem is ACME-threaded and is ground for smooth operation.

Gland Arrangement

The two-piece ball-type gland flange arrangement ensures uniform loading on the packing even in case the gland is unevenly tightened.

Installation

Globe valves can be installed, either with the flow over or under the disc, depending on the service condition. However, in the case of steam and other such hot services that include drain lines, globe valves ought to be installed with flow over the disc to avert unseating caused as an effect of differential thermal expansion that would otherwise result in leakage and consequent wire drawing.

End Connection

Socket-weld ends to ASME B16.11
Butt-weld ends to BS 5352 Annexure D
Screwed ends (NPT) to ASME B1.20.1

Bore Diameter

Both Class 1500 and Class 2500 valves have bore diameters conforming to Class 1500-Standard Bore of BS 5352, with the exception of 15mm Class 2500 valve which has a bore diameter of 14.5mm.

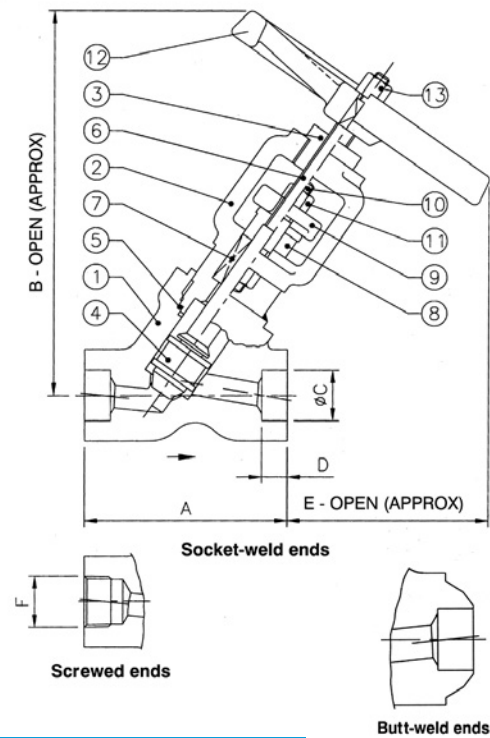
Y-pattern Check Valves

Y-pattern Check Valves incorporate the same design and construction features as their globe valve counterparts. The spring-loaded disc minimises chattering and enables the valve to be installed either in a horizontal or vertical position.

Y-pattern Globe Valves

Material Specification

Sl. No.	Part Description	Specification	
1 & 2	Body & Bonnet	Carbon Steel	Alloy Steel
		ASTM A105, in-situ stellited seat	ASTM A182 Gr.F22, in-situ stellited seat
3	Yoke Bush	ASTM A439 Type D2	
4	Disc	Type 410 SS, in-situ stellited seat	
5	Stem	Type 410 SS	
6	Stem packing	Graphite with braided end rings	
7	Handwheel	SG Iron	
8	Gland	Type 410 SS	
9	Gland Flange	BS 970 : 70M40 COND R	
10	Handwheel Nut	Steel	
11	Gland Stud	ASTM A193 Gr. B7	
12	Gland Stud Nut	ASTM A194 Gr. 2H	
13	Gasket	Graphite	



Dimensional details (in mm, unless specified)

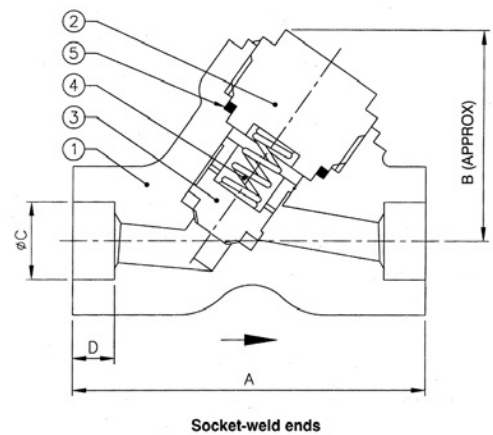
Valve Size	Class 1500							Class 2500						
	A	B	C	D	E	F	App.Wt. (kg)	A	B	C	D	E	F	App.Wt. (kg)
15	97.5	220	21.72 22.23	9.7	128	1/2"-14NPT	6	115	245	21.72 22.23	9.7	135	1/2"-14NPT	7
20	115	245	27.05 27.56	12.7	135	3/4"-14NPT	7	115	245	27.05 27.56	12.7	135	3/4"-14NPT	7
25	138	295	33.78 34.29	12.7	165	1"-11.1/2NPT	10	138	295	33.78 34.29	12.7	165	1"-11.1/2NPT	10
40	185	392	48.64 49.15	12.7	238	1 1/2"-11.1/2NPT	19	202	415	48.64 49.15	12.7	255	1 1/2"-11.1/2NPT	25
50	185	392	61.11 61.62	16.0	238	2"-11.1/2NPT	19	202	415	61.11 61.62	16.0	255	2"-11.1/2NPT	25

Note : 40mm valves can be offered with butt-weld and socket-weld ends to suit 32mm pipe. 50mm valves can be offered with butt-weld ends to suit 65mm pipe. Class 900 valves available on request.

Y-pattern Check Valves

Material Specification

Sl. No.	Part Description	Specification	
1	Body & Bonnet	Carbon Steel	Alloy Steel
		ASTM A105, in-situ stellited seat	ASTM A182 Gr.F22, in-situ stellited seat
2	Cap	ASTM A105 or IS 1875 Cl. 2	ASTM A182 Gr. F22
3	Disc	Type 410 SS, in-situ stellited seat	
4	Spring	Nimonic 90 / Inconel X 750	
5	Gasket	Graphite	



Dimensional details (in mm, unless specified)

Valve Size	Class 1500						Class 2500					
	A	B	C	D	E	App.Wt. (kg)	A	B	C	D	E	App.Wt. (kg)
15	97.5	71	21.72 22.23	9.7	1/2"-14NPT	2	115	85	21.72 22.23	9.7	1/2"-14NPT	2.5
20	115	85	27.05 27.56	12.7	3/4"-14NPT	2.5	115	85	27.05 27.56	12.7	3/4"-14NPT	2.5
25	138	95	33.78 34.29	12.7	1"-11.1/2NPT	5	138	95	33.78 34.29	12.7	1"-11.1/2NPT	5
40	185	120	48.64 49.15	12.7	1 1/2"-11.1/2NPT	9	202	135	48.64 49.15	12.7	1 1/2"-11.1/2NPT	9
50	185	120	61.11 61.62	16.0	2"-11.1/2NPT	9	202	135	61.11 61.62	16.0	2"-11.1/2NPT	9

End dimensions of 50mm valves can be machined to suit 65mm pipe. For details, refer to L&T Class 900 valves available on request. For dimensions, refer to L&T



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Publication Number: VC006-2/0715
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