

Globe Valve

SICCA 150-600 GLC

Type Series Booklet



Legal information/Copyright

Type Series Booklet SICCA 150-600 GLC

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Globe Valves

Globe Valves to ANSI/ASME with Gland Packing

SICCA 150-600 GLC



Main applications

- Boiler feed applications
- Fossil-fuelled power stations
- Petrochemical industry
- Pipelines and tank farms
- Refinery
- Process engineering

Fluids handled

- Service water
- Steam
- Fluids containing gas
- Gas
- Hot water
- Heating water
- Condensate
- Cooling water
- Fire-fighting water
- Fluids containing mineral oils
- Oil
- Lubricants
- Grey water
- Boiler feed water
- Vacuum
- Thermal oil
- Wash water

Operating data

Table 1: Operating properties

Characteristic	Value
Nominal pressure	Class 150 - 600
Nominal size [inch]	NPS 2 - 28
Max. permissible pressure [bar]	103
Max. permissible pressure [psi]	1500
Min. permissible temperature [°C]	≥ 0
Max. permissible temperature [°C]	≤ +595
Min. permissible temperature [°F]	≥ 32
Max. permissible temperature [°F]	≤ +1100

Selection as per pressure/temperature ratings (⇒ Page 6)

Valve body materials

Table 2: Overview of available materials

Material	Temperature limit	
	[°C]	[°F]
ASTM A216 WCB	≤ 425	≤ 800
ASTM A217 WC6	≤ 595	≤ 1100
ASTM A217 WC9	≤ 595	≤ 1100
ASTM A351 CF8	≤ 538	≤ 1000
ASTM A351 CF8M	≤ 538	≤ 1000
ASTM A351 CF3	≤ 425	≤ 800
ASTM A351 CF3M	≤ 455	≤ 850
ASTM A352 LCC	≤ 345	≤ 650
ASTM A352 LCB	≤ 345	≤ 650

Design details

Design

- Globe valve to BS 1873
- Cast steel body
- Hard-faced seat/disc interface (13 % chrome steel/Stellite)
- Bolted bonnet
- Outside screw
- Outside yoke
- Rotating stem
- Rising handwheel
- Flanged ends
- Butt weld ends
- Graphite gaskets and graphite packing with braided packing end rings offering wiping action
- Fully confined cover gasket
- Stem with burnished shank
- Two-piece self-aligning gland follower
- On/off disc
- Integral stem back seat
- Back seat bush made of hardened stainless steel
- Seat ring welded into body

Variants

- Tapered valve disc
- Throttling plug
- Position indicator

- Valve design to API 623
- Body-guided valve disc
- Locking device
- Lantern ring
- Bypass
- Stem protecting tube
- Electric actuators
- Pneumatic actuators
- Gearbox
- Limit switches
- Drain plug
- Drain branch
- Special Class version for model with butt weld ends
- Flanged body with ring-type flanges (RTJ)
- Spring-loaded gland packing (live loading)
- Combined butterfly/check valve
- Deep gland packing
- Extended stem
- Flat face

Product benefits

- Long service life and high functional reliability
 - Two-piece self-aligning gland follower ensures even compression of packing rings.
 - Inconel-reinforced braided packing end rings offer smooth wiping action and prevent extrusion of graphite.
 - Hard-faced body seat made of wear-resistant and corrosion-resistant 13 % chrome steel or Stellite.
 - Burnished stem and smooth stuffing box surfaces extend the service life of the gland packing.
 - Rotating, self-aligning valve disc ensures reliable function.
 - Low actuating torque due to rolling element bearing on sizes 8 to 10 inches (Class 300) and 6 to 10 inches (Class 600).
- Additional features ensure safe sealing to atmosphere:
 - Additional safety and blow-out protection by standard back seat.
 - Fully confined bonnet gasket with controlled compression ensures leak-proof joint.
 - Die-formed endless graphite packing rings reliably seal the stem passage.
- Reliable, tight shut-off
 - High-grade surface finish: lapped seat/disc interface
- Economic benefits
 - Streamlined flow path minimises pressure losses.
 - Stem nut free from non-ferrous metals, for versatile application.

Product information

Product information as per European Pressure Equipment Directive 2014/68/EU (PED)

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.

Product information as per UK Pressure Equipment (Safety) Regulations 2016

The valves satisfy the safety requirements of the UK Pressure Equipment (Safety) Regulations 2016 (PER) for fluids in Groups 1 and 2.

Product information as per Indian Boiler Regulations 1950

The valves meet the requirements of the Indian Boiler Regulations (IBR) 1950.

Product information as per Regulation No. 1907/2006 (REACH)

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

Related documents

Table 3: Information/documents

Document	Reference number
Type series booklet	7242.1
SICCA 900-2600 GLC	
Operating manual	0500.80

Purchase order specifications

Please specify the following information in all enquiries or purchase orders:

1. Type
2. Class
3. Nominal size
4. Design pressure
5. Design temperature
6. Operating pressure
7. Operating temperature
8. Differential pressure
9. Material
10. Fluid handled
11. Flow rate
12. Pipe connection
13. Pipe schedule
14. Variants
15. Reference number

Always indicate the original serial number and the year of construction when ordering spare parts.

Pressure/temperature ratings

Table 4: Permissible operating pressures [bar] (to ASME B16.34 Standard Class)

Class	Material	[°C]																											
		-29 to +38	50	100	150	200	250	300	325	350	375	400	425	450	475	500	538	550	575	600	625	650	675	700	725	750	775	800	816
150	A216 WCB ¹⁾	19,6	19,2	17,7	15,8	13,8	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4	-	-	-	-	-	-	-	-	-	-	-	-
300		51,1	50,1	46,6	45,1	43,8	41,9	39,8	38,7	37,6	36,4	34,7	28,8	23	17,4	11,8	5,9	-	-	-	-	-	-	-	-	-	-	-	-
600		102,1	100,2	93,2	90,2	87,6	83,9	79,6	77,4	75,1	72,7	69,4	57,5	46	34,9	23,5	11,8	-	-	-	-	-	-	-	-	-	-	-	-
150	A217 WC6 ²⁾³⁾⁴⁾	19,8	19,5	17,7	15,8	13,8	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,1 ⁵⁾	-	-	-	-	-	-	-
300		51,7	51,7	51,5	49,7	48	46,3	42,9	41,4	40,3	38,9	36,5	35,2	33,7	31,7	25,7	14,9	12,7	8,8	6,1	4,3	2,8	-	-	-	-	-	-	-
600		103,4	103,4	103	99,5	95,9	92,7	85,7	82,6	80,4	77,6	73,3	70	67,7	63,4	51,5	29,8	25,4	17,6	12,2	8,5	5,7	-	-	-	-	-	-	-
150	A217 WC9 ^{2) 4)}	19,8	19,5	17,7	15,8	13,8	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,1 ⁵⁾	-	-	-	-	-	-	-
300		51,7	51,7	51,5	50,3	48,6	46,3	42,9	41,4	40,3	38,9	36,5	35,2	33,7	31,7	28,2	18,4	15,6	10,5	6,9	4,5	2,8	-	-	-	-	-	-	-
600		103,4	103,4	103,0	100,3	97,2	92,7	85,7	82,6	80,4	77,6	73,3	70,0	67,7	63,4	56,5	36,9	31,3	21,1	13,8	8,9	5,7	-	-	-	-	-	-	-
150	A351 CF8 ⁶⁾	19	18,3	15,7	14,2	13,2	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,2 ⁵⁾	1,0 ⁵⁾
300		49,6	47,8	40,9	37,0	34,5	32,5	30,9	30,2	29,6	29,0	28,4	28,0	27,4	26,9	26,5	24,4	23,6	20,8	16,9	13,8	11,3	9,3	8,0	6,8	5,8	4,6	3,5	2,8
600		99,3	95,6	81,7	74,0	69,0	65,0	61,8	60,4	59,3	58,1	56,9	56,0	54,8	53,9	53,0	48,9	47,1	41,7	33,8	27,6	22,5	18,7	16,1	13,5	11,6	9,0	7,0	5,9
150	A351 CF8M ⁶⁾	19,0	18,4	16,2	14,8	13,7	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,2 ⁵⁾	1,0 ⁵⁾
300		49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,9	30,3	29,9	29,4	29,1	28,8	28,7	28,2	25,2	25,0	24,0	19,9	15,8	12,7	10,3	8,4	7,0	5,9	4,6	3,5	2,8
600		99,3	96,2	84,4	77,0	71,3	66,8	63,2	61,8	60,7	59,8	58,9	58,3	57,7	57,3	56,5	50,0	49,8	47,9	39,8	31,6	25,3	20,6	16,8	14,0	11,7	9,0	7,0	5,9
150	A351 CF3 ⁷⁾	19	18,3	15,7	14,2	13,2	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,2 ⁵⁾	1,0 ⁵⁾
300		49,6	47,8	40,9	37,0	34,5	32,5	30,9	30,2	29,6	29,0	28,4	28,0	27,4	26,9	26,5	24,4	23,6	20,8	16,9	13,8	11,3	9,3	8,0	6,8	5,8	4,6	3,5	2,8
600		99,3	95,6	81,7	74,0	69,0	65,0	61,8	60,4	59,3	58,1	56,9	56,0	54,8	53,9	53,0	48,9	47,1	41,7	33,8	27,6	22,5	18,7	16,1	13,5	11,6	9,0	7,0	5,9
150	A351 CF3M ⁸⁾	19,0	18,4	16,2	14,8	13,7	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,4 ⁵⁾	1,2 ⁵⁾	1,0 ⁵⁾
300		49,6	48,1	42,2	38,5	35,7	33,4	31,6	30,9	30,3	29,9	29,4	29,1	28,8	28,7	28,2	25,2	25,0	24,0	19,9	15,8	12,7	10,3	8,4	7,0	5,9	4,6	3,5	2,8
600		99,3	96,2	84,4	77,0	71,3	66,8	63,2	61,8	60,7	59,8	58,9	58,3	57,7	57,3	56,5	50,0	49,8	47,9	39,8	31,6	25,3	20,6	16,8	14,0	11,7	9,0	7,0	5,9
150	A352 LCC ⁹⁾	19,8	19,5	17,7	15,8	13,8	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4	-	-	-	-	-	-	-	-	-	-	-	-
300		51,7	51,7	51,5	50,2	48,6	46,3	42,9	41,4	40,0	37,8	34,7	28,8	23,0	17,1	11,6	5,9	-	-	-	-	-	-	-	-	-	-	-	-
600		103,4	103,4	103,0	100,3	97,2	92,7	85,7	82,6	80,0	75,7	69,4	57,5	46,0	34,2	23,2	11,8	-	-	-	-	-	-	-	-	-	-	-	-
150	A352 LCC ⁹⁾	18,4	18,2	17,4	15,8	13,8	12,1	10,2	9,3	8,4	7,4	6,5	5,5	4,6	3,7	2,8	1,4	-	-	-	-	-	-	-	-	-	-	-	-
300		48,0	47,5	45,3	43,9	42,5	40,8	38,7	37,6	36,4	35,0	32,6	27,3	21,6	15,7	11,1	5,9	-	-	-	-	-	-	-	-	-	-	-	-
600		96,0	94,9	90,7	87,9	85,1	81,6	77,4	75,2	72,8	69,9	65,2	54,6	43,2	31,3	22,1	11,8	-	-	-	-	-	-	-	-	-	-	-	-

1 Upon prolonged exposure to temperatures above 425 °C, the carbide phase of steel may be converted to graphite. Permissible but not recommended for prolonged use above 425 °C.

2 Use normalised and tempered material only.

3 Cannot be used for temperatures above 595 °C

4 The deliberate addition of any element not listed in ASTM A217, table 1, is prohibited. Exception: Calcium (Ca) and manganese (Mn) may be added for deoxidation.

5 Flanged end ratings terminate at 538 °C.

6 At temperatures over 538 °C, use only when carbon content is 0.04 % or higher.

7 Cannot be used for temperatures above 425 °C

8 Cannot be used for temperatures above 455 °C

9 Cannot be used for temperatures above 345 °C

Table 5: Test pressure (to API 598)

Test (API 598)	Test fluid	Class 150	Class 300	Class 600
		[bar]	[bar]	[bar]
Shell	Water	31	78	157
Back seat		22	57	114
Seat tightness test		22	57	114

Materials

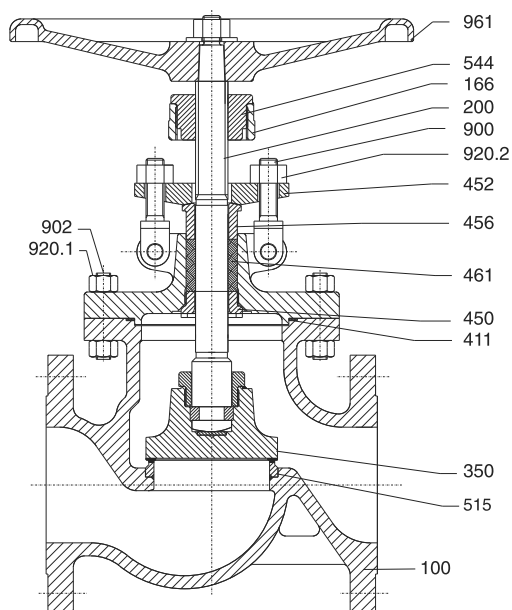


Fig. 1: Sectional drawing of SICCA 150-600 GLC

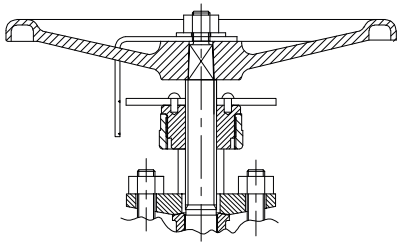
Table 6: Parts list

Part No.	Description	Material
100	Body	A216 WCB
		A217 WC6
		A217 WC9
		A351 CF8
		A351 CF8M
		A351 CF3
		A351 CF3M
		A352 LCC
		A352 LCB
166	Yoke	A216 WCB
		A217 WC6
		A217 WC9
		A351 CF8
		A351 CF8M
		A351 CF3
		A351 CF3M
		A352 LCC
		A352 LCB
200	Stem	A479 410-2
		A276 304/304L
		A276 316/316L
		XM19A
350	Valve disc	A216 WCB+13 % chromium
		A216 WCB+ST6
		A217 CA15
		A217 WC6+ST6
		A217 WC9+ST6
		A351 CF8
		A351 CF8+ST6
		A351 CF8M
		A351 CF8M+ST6
		A351 CF3
		A351 CF3+ST6
		A351 CF3M
		A351 CF3M+ST6
411	Joint ring	SS 316 + graphite

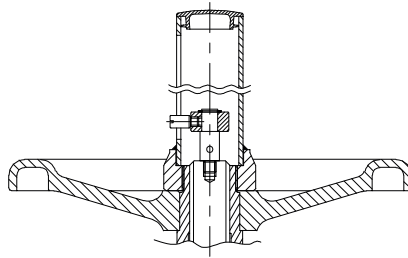
Part No.	Description	Material
450	Back seat bush	A276 410 (H)
		A276 304/304L
		A276 316/316L
		A276 304+ST6
		A276 316+ST6
		A276 304L+ST6
		A276 316L+ST6
452	Gland follower	A105/A216 WCB
		A351 CF8
		A351 CF8M
		A351 CF3
		A351 CF3M
		A182 F304/304L
		A182 F316/316L
456	Lower gland section	A276 410
		A276 304/304L
		A276 316/316L
461	Gland packing	Graphite
		PTFE
515	Seat ring	A105 + ST6
		A182 F11 + ST6
		A182 F22 + ST6
		A182 F304/304L
		A182 F316/316L
		A182 F304/304L + ST6
		A182 F316/316L + ST6
544	Threaded bush	A439 D2
900	Eyebolt	A307-Grade B
		A182 F304
902	Stud	A193 B7
		A193 B16
		A193 B8
		A193 B8M
920.1	Nut	A194 2H
		A194 4/7
		A194 8
		A194 8M
920.2	Nut	A194 2H
		A194 8
		A194 8M
961	Handwheel	Carbon steel

Variants

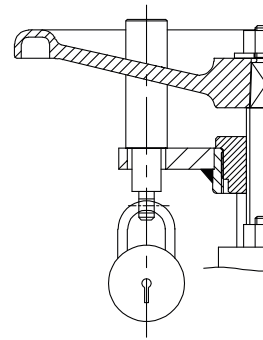
Consultation with KSB required.



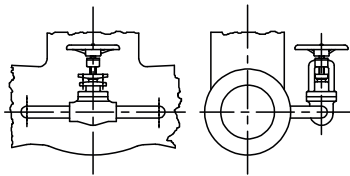
Position indicator



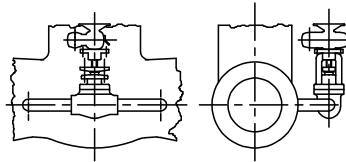
Position indicator for 8 and 10 in. only



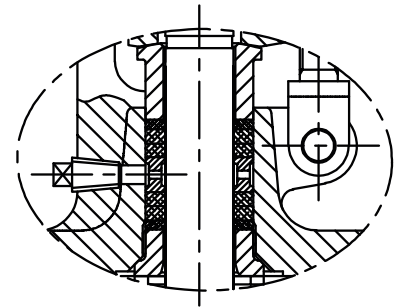
Locking arrangement



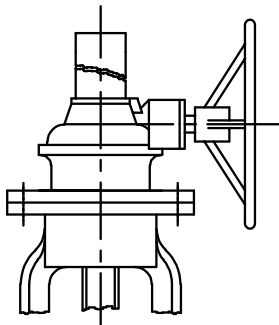
Bypass



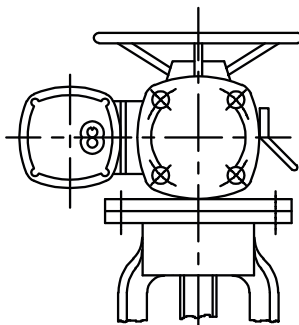
Bypass with actuator



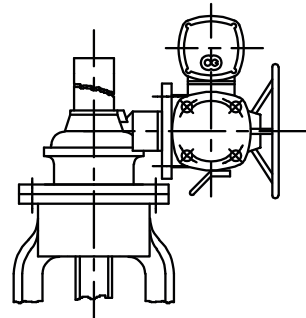
Lantern ring



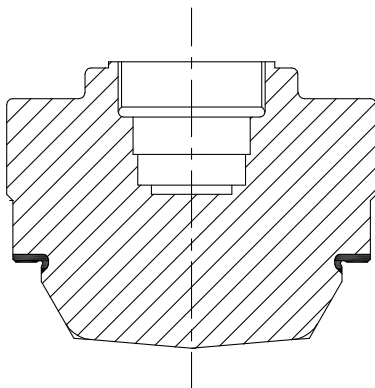
Manual gearbox



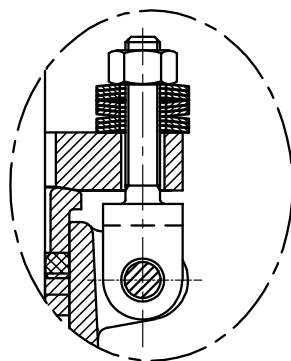
Actuator



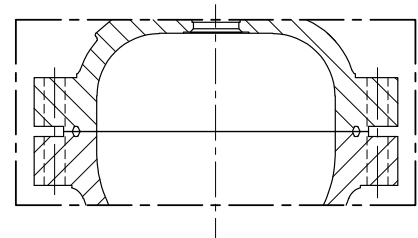
Gearbox with actuator



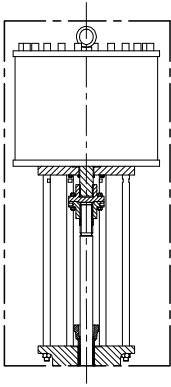
Throttling plug



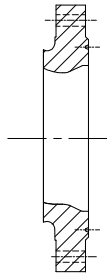
Spring-loaded gland packing



Body/bonnet ring-type joint (RTJ) connection



Pneumatic actuator



Ring-type joint flanged end (RTJ)

Dimensions and weights

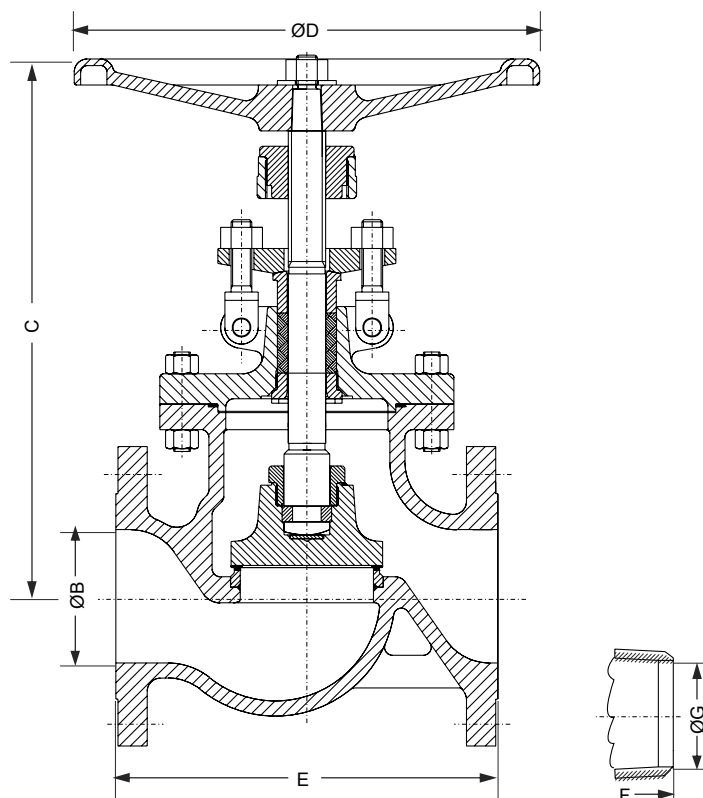


Fig. 2: Sectional drawing of SICCA 150-600 GLC

Table 7: Dimensions and weights

Class	NPS	ØB	C ⁽¹⁰⁾⁽¹¹⁾⁽¹²⁾	ØD	E	F ⁽¹³⁾	ØG ⁽¹³⁾⁽¹⁴⁾	With flanged ends ⁽¹⁵⁾	With butt weld ends
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg] ⁽¹²⁾	[kg] ⁽¹²⁾	
150	2	51,0	350,0	203,0	203,0	203,2	52,5	25,0	20,0
	2 1/2	63,5	410,0	254,0	216,0	216,0	62,5	35,0	30,0
	3	76,0	420,0	254,0	241,0	241,3	78,0	40,0	40,0
	4	102,0	480,0	356,0	292,0	292,1	102,0	60,0	55,0
	5	127,0	545,0	356,0	356,0	356,0	128,0	75,0	65,0
	6	152,0	575,0	356,0	406,0	406,4	154,0	120,0	90,0
	8	203,0	685,0	457,0	495,0	495,3	203,0	145,0	130,0
	10	254,0	870,0	508,0	622,0	622,3	254,5	260,0	240,0
	12	305,0	1101,0	-	698,0	698,0	303,0	428,0	403,0
	14	337,0	1179,0	-	787,0	787,0	333,5	607,0	570,0
	16	387,0	1298,0	-	914,0	914,0	381,0	852,0	813,0
	18	438,2	1386,0	-	978,0	978,0	428,5	959,0	895,0
	20 ⁽¹⁶⁾	489,0	1394,0	-	978,0	978,0	478,0	1101,0	1011,0
	22 ⁽¹⁶⁾	540,0	1551,0	-	1067,0	1067,0	Note ⁽¹⁴⁾	1346,0	1273,0
	24 ⁽¹⁶⁾	591,0	1666,8	-	1295,0	1295,0	574,5	1766,0	1673,0
	28 ⁽¹⁶⁾	702,0	1904,0	-	1448,0	1448,0	Note ⁽¹⁴⁾	2741 ⁽¹⁷⁾	2511,0
300	2	51,0	360,0	203,0	266,7	266,7	52,5	32,0	25,0

¹⁰ Open

¹¹ Dimensions and weights for design variants to API 623 on request.

¹² Approximate values

¹³ Valves with butt weld ends: Schedule 40 for Class 150/300 and Schedule 80 for Class 600. Alternative schedules on request.

¹⁴ The inside diameter of butt weld ends can be customised.

¹⁵ Raised-face flanged ends (RF) for nominal sizes up to and including 24 in. (ASME B16.5) and for nominal sizes from 26 in.; raised-face flanged ends (RF) type B (ASME B16.47) and type A on request.

¹⁶ Consultation with KSB Coimbatore required.

¹⁷ Weight of valve with flanged ends, type A

Class	NPS	ØB	C ⁽¹⁰⁾⁽¹¹⁾⁽¹²⁾	ØD	E	F ⁽¹³⁾	ØG ⁽¹³⁾⁽¹⁴⁾	With flanged ends ⁽¹⁵⁾	With butt weld ends
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg] ⁽¹²⁾	[kg] ⁽¹²⁾	
300	2 1/2	63,5	430,0	254,0	292,0	292,0	62,5	45,0	40,0
	3	76,0	445,0	254,0	317,5	317,5	78,0	48,0	43,0
	4	102,0	520,0	356,0	355,6	355,6	102,0	75,0	65,0
	5	131,0	545,0	356,0	400,0	400,0	128,0	75,0	65,0
	6	152,0	620,0	457,0	444,5	444,5	154,0	135,0	120,0
	8	203,0	840,0	508,0	558,8	558,8	203,0	305,0	260,0
	10	254,0	910,0	508,0	622,3	622,3	254,5	375,0	315,0
	12 ⁽¹⁶⁾	305,0	1296,0	-	711,0	711,0	303,0	722,0	646,0
	14	305,0	1296,0	-	854,0	854,0	333,5	806,0	684,0
	16 ⁽¹⁶⁾	388,0	1401,7	-	864,0	864,0	381,0	1069,0	932,0
600	2	51,0	415,0	254,0	292,1	292,1	49,2	45,0	40,0
	2 1/2	63,5	480,0	254,0	330,0	330,0	59,0	51,0	42,0
	3	76,0	500,0	356,0	355,6	355,6	73,5	75,0	70,0
	4	102,0	570,0	356,0	431,8	431,8	97,0	110,0	100,0
	5	127,0	660,0	508,0	508,0	508,0	122,0	178,0	136,0
	6	152,0	790,0	508,0	558,8	558,8	146,5	215,0	165,0
	8	200,0	920,0	610,0	660,4	660,4	193,5	540,0	500,0
	10	248,0	1140,0	610,0	787,4	787,4	243,0	790,0	720,0
	12	298,0	1347,0	-	838,0	838,0	289,0	1161,0	1050,0
	14	294,0	1347,0	-	889,0	889,0	317,5	1266,0	1115,0
	16 ⁽¹⁶⁾	338,0	1783,0	-	991,0	991,0	363,5	1841,0	1624,0

Mating dimensions as per standard

Face-to-face lengths: ASME B16.10

Flanges: ASME B16.5

Butt weld ends: ASME B16.25

Installation information

The valve bodies are marked with an arrow indicating the flow direction.

Install the valves in such a way that the actual flow direction of the fluid matches the arrow on the valve body.



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