Globe Valve

ECOLINE GLB 800

Type Series Booklet

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Type Series Booklet ECOLINE GLB 800

Contents

Globe Valves

Bellows-type Globe Valves to ANSI/ASME

ECOLINE GLB 800

Main applications

- Petrochemical industry
- Process engineering
- General industry
- Beverage industry and food industry
- Sugar industry

Fluids handled

- Steam
- Liquids containing gas or vapour
- Gas
- High-temperature hot water
- Condensate
- Volatile fluids
- Thermal oil
- Explosive fluids
- Combustible fluids
- Fluids posing a health hazard
- Toxic fluids
- Highly aggressive fluids
- Corrosive fluids
- Valuable fluids
- Fluids containing mineral oils
- Oil
- Boiler feed water
- Other fluids on request.

Operating data

Operating properties

Characteristic	Value
Nominal pressure	Class 150 - 800
Nominal size [inch]	NPS ½ - 2
Max. permissible pressure [bar]	136
Min. permissible temperature [°C]	≥ 0
Max. permissible temperature [°C]	≤ +427

Temperatures < 0 °C on request

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

Valve body materials

Overview of available materials

Material	Temperature limit
ASTM A 105	≤ 427 °C
ASTM A 182 F304	≤ 427 °C
ASTM A 182 F316	≤ 427 °C

Other materials on request.

Design details

Design

- Valve design to ASME B16.34, API 602 and MSS SP-117
- Bolted bonnet
- Outside screw
- Outside yoke
- Reduced bore
- Tapered valve disc
- Integral seat ring
- Metal-seated
- Rising stem
- Graphite gland packing
- Stainless steel/graphite gaskets
- Travel stop
- Valve disc guide
- Stem sealed by double-walled bellows and back-up gland packing
- Positive anti-rotation feature between stem and bellows

Variants

- Throttling plug
- Needle valve disc
- Full bore
- PTFE gasket (up to 200 °C)
- PTFE gland packing (up to 200 °C)
- Locking device
- Limit switch(es)
- Position indicator
- Seal-welded body/bonnet joint
- Stellited seat/disc interface
- Slanted seat design

7368.1/04-EN

- Body extension with nipple
- NACE standard
- Version in compliance with TA-Luft (German Clean Air Act) to VDI 2440 for temperatures up to 400 °C
- Electric actuators
- Other flanged end designs or butt weld ends to ASME B16.25

Product benefits

- Leak-free stem seal
  - Primary sealing to atmosphere is provided by a multi-walled metal bellows welded to the stem and a graphite gasket between body and bonnet.
  - Secondary sealing of the stem passage to atmosphere is provided by a minimum of five graphite packing rings plus lower gland section for added safety.
  - In the event of a ruptured bellows, fluid leakage along the stem passage is temporarily contained by the integral back seat.
- Longer service lives of valve and bellows
  - Specially designed multi-ply stainless steel bellows offers excellent corrosion resistance and flexibility; designed to withstand 1.5 times the nominal valve pressure.
  - Thanks to its position well outside the flow path, the bellows is not exposed to abrupt changes in fluid pressure which could result in lateral deformation and subsequent failure.
  - The valve disc is accurately guided along the inner body wall, resulting in a straight movement of the stem and bellows without seizing or jamming.
  - The guide pin on the stem moves in a groove in the bonnet, ensuring straight, non-rotating movement of the stem and bellows and preventing circumferential deformation at the bellows.
  - Stellite hard-facing applied to the seating surfaces of the seat rings and the valve disc prevents the valve disc from seizing on the seat rings and reduces wear. A minimum hard-faced layer of 1.6 mm is retained after machining.
- Reliable leakage protection of body
  - Integrally forged extension; no further potential leakage points (compared to welded design).
  - Valve body with integrally forged flanged ends withstands higher pressures than body with welded flanges.
  - Gaskets are fitted above and below the end fitting of the bellows assembly and firmly compressed by a set of bolts. The lower gasket is confined by the body shoulder and the end fitting of the bellows to prevent excessive compression.
- Ease of service without additional costs
  - No costs for daily or frequent maintenance work during valve duty thanks to reliable bellows seal between the stem and the body.
  - If required, a leakage monitoring hole can be provided in the gland packing area.
  - The bolted bonnet and the design of the stem and bellows assembly enable straightforward dismantling in the event that defective internal components need to be replaced.
  - Damage on valve disc can easily be remedied due to the "T"-shaped connection between valve disc and stem.
- Operating reliability
  - Standard travel stop prevents excessive valve travel which could destroy the bellows or reduce the expected service life of the bellows.
  - Anti-blow out stem design prevents stem from being blown out of the valve body under high internal valve pressure.
- Suitable for various installation positions
  - Design with valve disc accurately guided in the body enables special installation positions (in vertical pipes or with inclined but upward stem position).
- Available for all kinds of fluids
  - Several material variants available for body and bellows to suit a variety of fluids and applications.

7368.1/04-EN

Product information

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

For information as per chemicals Regulation (EC) No. 1907/2006 (REACH), see http://www.ksb.com/reach.

Product information as per Directive 2014/34/EU (ATEX)

The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 1 (zones 0+20), category 2 (zones 1+21) and category 3 (zones 2+22) to ATEX 2014/34/EU.

Product information as per 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.

Related documents

Information/documents

Document	Reference number
ECOLINE GTB 800 type series booklet (bellows-type gate valves)	7372.1
ECOLINE GLB 150-600 type series booklet (bellows-type globe valves)	7366.1
Operating manual	0570.86

Purchase order specifications

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

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

Pressure/temperature ratings

Permissible operating pressure [bar] (to API 602 and ASME B16.34)

Class	Material	[°C]									
		-29 to 38	93	149	204	260	316	343	371	399	427
150	A 105	19,7	17,9	15,9	13,8	11,7	9,7	8,6	7,6	6,6	5,5
300		51,0	46,9	45,2	43,8	41,7	39,3	37,9	36,5	34,8	28,3
600		102,0	93,8	90,3	87,2	83,1	78,3	75,8	73,1	70,0	56,9
800		136,0	124,8	120,5	116,4	110,9	104,5	101,1	97,4	93,2	75,7
150	A 182 F304	19,0	15,9	14,1	13,1	11,7	9,7	8,6	7,6	6,6	5,5
300		49,6	41,4	37,2	34,1	32,1	30,3	29,6	29,0	28,6	27,9
600		99,3	82,7	74,1	68,6	64,1	61,0	59,6	58,3	56,9	55,8
800		132,4	110,3	98,9	91,4	85,5	81,2	79,4	77,6	76,0	74,5
150	A 182 F316	19,0	16,2	14,8	13,4	11,7	9,7	8,6	7,6	6,6	5,5
300		49,6	42,7	38,6	35,5	33,1	31,0	30,3	30,0	29,3	29,0
600		99,3	85,5	77,2	70,7	65,8	62,1	61,0	60,0	59,0	58,3
800		132,4	114,0	102,9	94,3	87,9	82,9	81,2	80,0	78,5	77,6

Test pressure

Test	Test medium	Class 150		Class 300		Class 600		Class 800	
		[bar]	[psi]	[bar]	[psi]	[bar]	[psi]	[bar]	[psi]
Shell	Water	31,0	450	77,6	1125	153,4	2225	205,1	2975
Leak test (seat)		22,4	325	56,9	825	113,8	1650	149,8	2173
Leak test (seat)[1)]	Air	5,5	80	5,5	80	5,5	80	5,5	80

7368.1/04-EN

1) Optional for globe valves

Materials

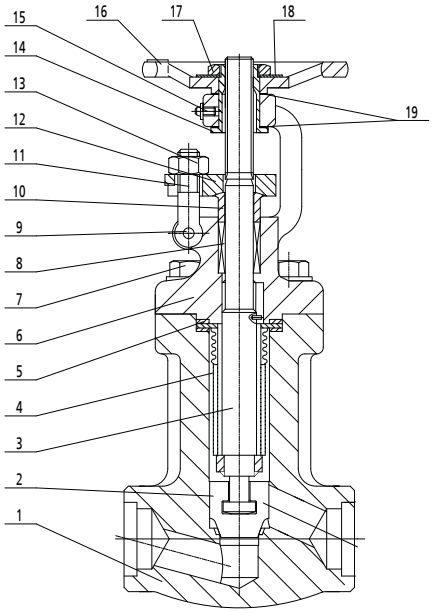

Fig. 1: ECOLINE GLB 800

Parts list

Part No.	Description	Material		
		Trim 2	Trim 8	Trim 10
1	Body	A 182 F304	A 105 + ST6	A 182 F316
2	Valve disc	A 276 304	A 276 420	A 276 316
3[2)]	Stem	A 182 F304	A 182 F6a	A 182 F316
4[3)2)]	Bellows	SS316L	SS304	SS316L
5[2)]	Bonnet gasket	SS 316 + graphite	SS 316 + graphite	316 + graphite
6	Bonnet	A 182 F304	A 105	A 182 F316
7	Bolt	A 193 B8	A 193 B7	A 193 B8M
8[2)]	Gland packing	Graphite	Graphite	Graphite
9	Pin	A 276 304	A 276 410	A 276 316
10	Lower gland section	A 276 304	A 276 420	A 276 316
11	Eyebolt	A 193 B8	A 193 B7	A 193 B8
12	Gland follower	A 182 F304	A 105	A 182 F316
13	Nut	A 194 8	A 194 2 H	A 194 8
14	Stem nut	A 276 410	A 276 410	A 276 410
15	Lubricating nipple	Brass	Brass	Brass
16	Handwheel	A 197	A 197	A 197
17	Nut	A 194 8	A 194 2 H	A 194 8
18	Name plate	SS304	SS304	SS304
19	Washer	A 276 410	A 276 410	A 276 410

2) Recommended spare parts
3) Other bellows materials on request.

Dimensions and weights

Dimensions and weights of Class 150 to 600

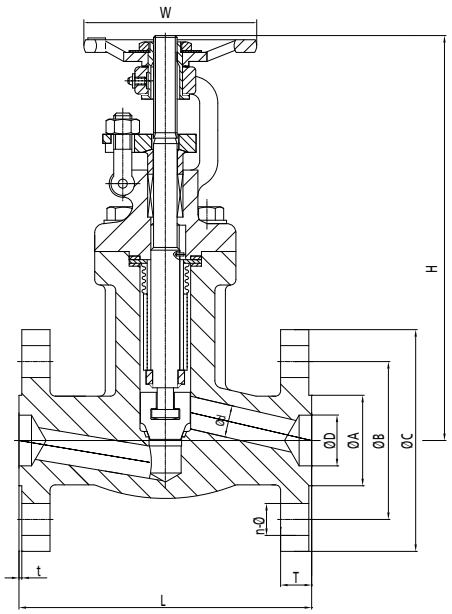

Fig. 2: ECOLINE GLB 150-600

Dimensions and weights

Class	NPS	L	T	t	n-Ø	Ød	ØD	ØA	ØB	ØC	H [4]	W	[kg]
	[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
150	½	108	10	2	4-16	10	15	34,9	60,3	90	212	100	4,5
	¾	117	10,9	2	4-16	13	20	42,9	69,9	100	212	100	6,9
	1	127	11,6	2	4-16	17,5	25	50,8	79,4	110	238	125	9,8
	1 ¼	140	13,2	2	4-16	23	32	63,5	89,9	115	306	160	13,5
	1 ½	165	14,7	2	4-16	28,5	40	73,0	98,4	125	306	160	19,5
	2	203	16,3	2	4-19	35	50	92,1	120,7	150	336	180	29,0
300	½	152	14,7	2	4-16	10	15	34,9	66,7	95	212	100	4,8
	¾	178	16,3	2	4-19	13	20	42,9	82,6	115	212	100	7,7
	1	203	17,9	2	4-19	17,5	25	50,8	88,9	125	238	125	11,0
	1 ¼	216	19,5	2	4-19	23	32	63,5	98,4	135	306	160	16,8
	1 ½	229	21,1	2	4-22	28,5	40	73,0	114,3	155	306	160	21,2
	2	267	22,7	2	8-19	35	50	92,1	127,0	165	336	180	32,6
600	½	165	21,3	7	4-16	10	15	34,9	66,7	95	212	100	5,6
	¾	190	22,9	7	4-19	13	20	42,9	82,6	115	212	100	7,6
	1	216	24,5	7	4-19	17,5	25	50,8	88,9	125	238	125	12,5
	1 ¼	229	27,7	7	4-19	23	32	63,5	98,4	135	306	160	17,0
	1 ½	241	29,3	7	4-22	28,5	40	73,0	114,3	155	306	160	23,5
	2	292	32,4	7	8-19	35	50	92,1	127,0	165	336	180	38,8

Mating dimensions as per standard

Face-to-face lengths: ASME B16.10
Flanges: ASME B16.5

7368.1/04-EN

4) Open

Dimensions and weights of Class 800

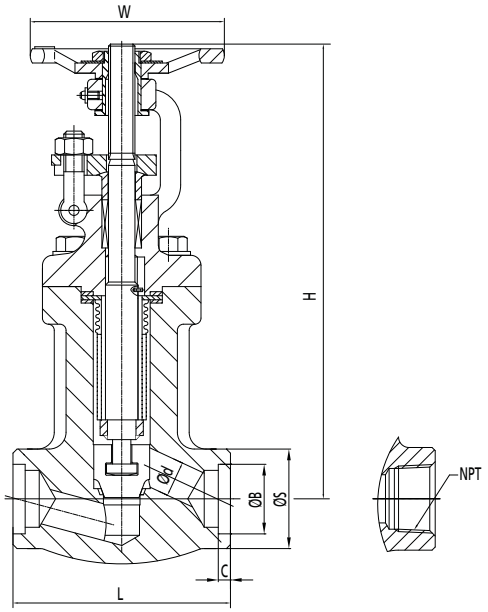

Fig. 3: ECOLINE GLB 800

Dimensions [mm] and weights [kg]

Class	NPS	L	Ød	ØB	C	S	NPT	H [5]	W	[kg]
	[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[inch]	[mm]	[mm]	
800	½	79	10	21,8	10	34	½	212	100	3,0
	¾	92	13	27,2	13	40	¾	212	100	4,8
	1	111	17,5	33,9	13	49	1	238	125	7,9
	1 ¼	152	23	42,7	13	58	1 ¼	306	160	11,0
	1 ½	152	28,5	48,8	13	64	1 ½	306	160	16,8
	2	172	36	61,2	16	78	2	336	180	25,2

Mating dimensions as per standard

Face-to-face lengths:	See table
Threaded ends:	ASME B1.20.1
Socket weld ends:	ASME B16.11

Installation information

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

Globe valves must always be installed in such a way that the actual flow direction of the fluid matches the arrow on the body, unless otherwise requested by the customer.

7368.1/04-EN

5) Open

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7368.1/04-EN

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