

Gate Valve

ECOLINE GTV 150-300

Class 150-300
NPS ½"-12"

Type Series Booklet



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Type Series Booklet ECOLINE GTV 150-300

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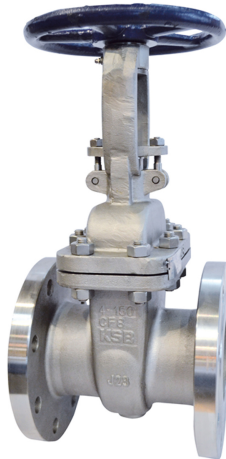
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Gate Valves

Gate Valves with Bolted Bonnet to ANSI/ASME

ECOLINE GTV 150-300



Main applications

- Chemical industry
- Petrochemical industry
- Pipelines and tank farms
- Refineries
- Process engineering

Fluids handled

- Steam
- Gas
- Fluids containing gas
- Hot water
- Oil
- Feed water

Operating data

Operating properties

Characteristic	Value
Nominal pressure	Class 150 - 300
Nominal size	NPS ½" - 12"
Max. permissible pressure	50 bar / 720 PSI
Min. permissible temperature	-29 °C / °F
Max. permissible temperature	+816 °C / +1500 °F

Temperatures < 0 °C on request

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

Body materials

Overview of available materials

Material	Temperature limit
ASTM A 351 CF8	Up to 816 °C / 1500 °F
ASTM A 351 CF8M	Up to 816 °C / 1500 °F

Other materials on request.

Design details

Design

- Gate valve to API 603
- Tested to API 598
- Compact design to API 603
- Valve made of corrosion-resistant materials
- Body made of stainless steel
- Bolted bonnet
- Outside screw
- Outside yoke
- Yoke head suitable for mounting electric and pneumatic actuators (DIN ISO 5210)
- Non-rotating stem
- Stem with burnished shank
- Stem nut made of nickel steel
- Non-rising handwheel
- Flexible wedge
- Stem sealed by gland packing
- Two-piece self-aligning gland follower
- Die-moulded graphite gland packing, packing end rings made of braided graphite
- Stainless steel/graphite gaskets
- Back seat
- Integrated seat ring
- Minimum wall thickness to API 603
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 97/23/EC (PED) for fluids in Groups 1 and 2.
- The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zones 2+22) to ATEX 2014/34/EU.

Variants

- Hard-faced back seat
- Hard-faced sealing surface (single or double)
- PTFE packing
- PTFE gasket
- Drain plug
- Pressure relief arrangement
- Locking device
- Limit switches
- Stem protecting tube
- Stem protecting tube with position indicator
- Gearboxes
- Electric actuators

- Grease-free version
 - Version with free stem end and top flange to ISO 5210
 - Non-destructive testing, e.g. radiographic testing
 - NACE standard
 - Other flange designs
 - Larger nominal sizes and other variants on request
- Variants
 - Reference number

Product benefits

Long gland life and high functional reliability

- Stem with shank burnished to a surface finish of 0.2 µm for reduced friction, lower actuating torque and improved sealing to atmosphere.
- Packing end rings enable higher compressive force by gland follower and prevent extrusion of middle graphite packing rings.
- Two-piece self-aligning gland follower prevents distortion on stem surface caused by improper assembly.

Reliable sealing and longer service life

- Male/female joint between body and bonnet prevents excessive compression of fully confined gasket, resulting in longer gasket life and improved sealing performance. (Exception: Class 150; flat body/bonnet interface due to square or oval flange design to comply with limited face-to-face length specified by design standard).
- Potential internal and external leakage points eliminated by integral back seat and body seat.

Additional safety and blow-out protection

- Standard metal back seat prevents blow-out of stem and other internal components from the valve body and bonnet as a result of fluid pressure inside the valve body.

Versatile application

- Stem nut made of nickel steel is suitable for numerous applications, particularly fluids which must not come into contact with component materials containing copper.

Extended maintenance-free service life

- Wear allowance higher than specified in relevant standard, for substantially increased service life.
- Integral seat is highly resistant to wear and easy to repair after long-term operation.

Related documents

Other applicable documentation

Document	Reference number
Operating manual	7255.81

Purchase order specifications

- Type
- Class
- Nominal size
- Design pressure
- Design temperature
- Differential pressure
- Fluid handled
- Material
- Trim material (API trim number)
- Line connection

Pressure/temperature ratings

Permissible operating pressures [bar] (to ASME B16.34)

Class	Material	[°C]																							
		-29 to 38	93	149	204	260	316	343	371	399	427	454	482	510	538	566	593	621	649	677	704	732	760	788	816
150	A 351 CF8 ¹⁾	19,0	15,9	14,1	13,1	11,7	9,7	8,6	7,6	6,6	5,5	4,5	3,4	2,4	1,4	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,0 ²⁾
300		49,6	41,4	37,2	34,1	32,1	30,3	29,6	29,0	28,6	27,9	27,2	26,9	26,2	24,5	22,4	17,6	14,1	11,4	9,3	7,9	6,6	5,2	4,1	2,8
150	A 351 CF8M ¹⁾	19,0	16,2	14,8	13,4	11,7	9,7	8,6	7,6	6,6	5,5	4,5	3,4	2,4	1,4	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,4 ²⁾	1,0 ²⁾
300		49,6	42,7	38,6	35,5	33,1	31,0	30,3	30,0	29,3	29,0	29,0	28,6	26,5	25,2	24,8	21,0	16,2	12,8	10,0	7,9	6,6	5,2	4,1	2,8

Permissible operating pressures [psi] (to ASME B16.34)

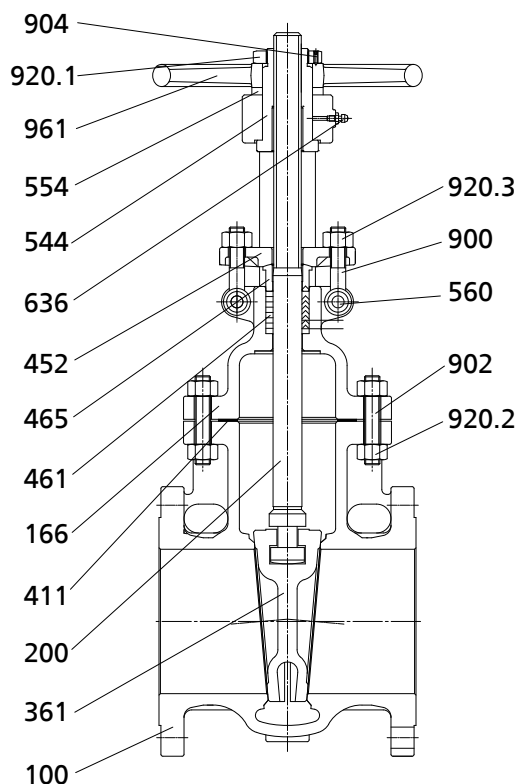
Class	Material	[°F]																							
		-20 to 100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500
150	A 351	275	230	205	190	170	140	125	110	95	80	65	50	35	20	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	15 ²⁾
300	CF8 ¹⁾	720	600	540	495	465	440	430	420	415	405	395	390	380	355	325	255	205	165	135	115	95	75	60	40
150	A 351	275	235	215	195	170	140	125	110	95	80	65	50	35	20	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	20 ²⁾	15 ²⁾
300	CF8M ¹⁾	720	620	560	515	480	450	440	435	425	420	420	415	385	365	360	305	235	185	145	115	95	75	60	40

Test pressures

Test	Test medium	Class 150		Class 300	
		[bar]	[psi]	[bar]	[psi]
Shell	Water	32	450	78	1125
Leak test (seat)		23	315	56	815
Leak test (back seat)		23	315	56	815
Leak test (seat)	Air	4 to 7	60 to 100	4 to 7	60 to 100

¹⁾ At temperatures over 538 °C (1000 °F), use only when carbon content is 0.04% or higher.
²⁾ For butt weld end valves only. Flanged end ratings terminate at 538 °C (1000 °F).

Materials



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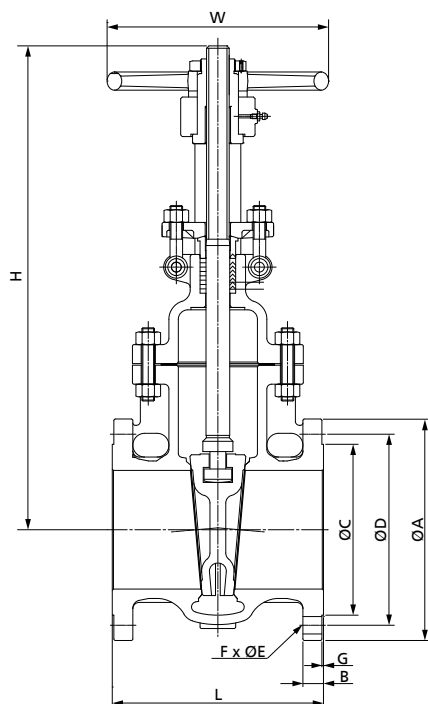
Parts list

Part No.	Description	Material	
		A 351 CF8	A 351 CF8M
100	Body	A 351 CF8	A 351 CF8M
361	Flexible wedge	A 351 CF8	A 351 CF8M
200	Stem	A 276 304	A 276 316
411	Joint ring	Stainless steel/graphite	Stainless steel/graphite
166	Yoke	A 351 CF8	A 351 CF8M
461	Gland packing	Graphite	Graphite
465	Lower gland section	A 276 304	A 276 316
452	Gland follower	A 351 CF8	A 351 CF8
636	Lubricating nipple	Copper + nickel coating	Copper + nickel coating
544	Threaded bush	A 439 D2	A 439 D2
961	Handwheel	A 395 65 45 15	A 395 65 45 15
554	Washer	A 395 65 45 15	A 395 65 45 15
920.1	Handwheel nut	A 276 304	A 276 304
904	Grub screw	A 276 304	A 276 304
920.2	Nut	A 194 8	A 194 8
902	Stud	A 193 B8	A 193 B8
560	Pin	A 276 304	A 276 304
900	Eyebolt	A 193 B8	A 193 B8
920.3	Nut	A 194 8	A 194 8

Trim materials

Part No.	Description	Trim 2	
		304 / 304	316 / 316
100	Body	304 stainless steel	316 stainless steel
361	Flexible wedge	304 stainless steel	316 stainless steel
200	Stem	304 stainless steel	316 stainless steel

Dimensions and weights



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Dimensions [mm]

Class	NPS	L	H ³⁾	W	B	G	ØC	ØD	ØA	F x ØE	[kg]
150	1/2"	108	184	100	11	1,6	35	60,5	89	4 x 16	3,2
	3/4"	117	195	100	11,5	1,6	43	70	98	4 x 16	3,7
	1"	127	207	100	12	1,6	51	79,5	108	4 x 16	4,7
	1 1/2"	165	259	138	15	1,6	73	98,5	127	4 x 16	8,1
	2"	178	327,0	160	15,7	1,6	91,9	120,7	152	4 x 19,1	11
	2 1/2"	190	397,5	200	17,5	1,6	104,6	139,7	178	4 x 19,1	16
	3"	203	483,5	200	19,1	1,6	127,0	152,4	191	4 x 19,1	20
	4"	229	516,0	224	23,9	1,6	157,2	190,5	229	8 x 19,1	32
	6"	267	727,0	280	25,4	1,6	215,9	241,3	279	8 x 22,4	58
	8"	292	923,0	300	28,4	1,6	269,7	298,5	343	8 x 22,4	90
	10"	330	1130,0	350	30,2	1,6	323,9	362,0	406	12 x 25,4	139
	12"	356	1380,0	450	31,8	1,6	381,0	431,8	483	12 x 25,4	227
300	1/2"	140	189	100	15	1,6	35	66,5	95	4 x 16	4,3
	3/4"	152	192	100	16	1,6	43	82,5	117	4 x 19	5
	1"	165	239	138	18	1,6	51	89	124	4 x 19	7,9
	1 1/2"	190	289	200	21	1,6	73	114,5	156	4 x 22	13
	2"	216	338,0	200	22,4	1,6	91,9	127,0	165	8 x 19,1	16
	2 1/2"	241	409,0	224	25,4	1,6	104,6	149,4	191	8 x 22,4	28
	3"	283	475,0	224	28,4	1,6	127,0	168,1	210	8 x 22,4	40
	4"	305	552,0	300	31,8	1,6	157,2	200,2	254	8 x 22,4	60
	6"	403	766,0	350	36,6	1,6	215,9	269,7	318	12 x 22,4	108
	8"	419	988,0	400	41,1	1,6	269,7	330,2	381	12 x 25,4	199
	10"	457	1126,0	450	47,8	1,6	323,9	387,4	445	16 x 28,4	282
	12"	502	1444,0	500	50,8	1,6	381,0	450,9	521	16 x 31,8	425

³⁾ Open

Mating dimensions as per standard

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

Notes on installation

Flow may pass a gate valve in either direction. High-pressure valves with pressure relief arrangement are unidirectional, however.



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