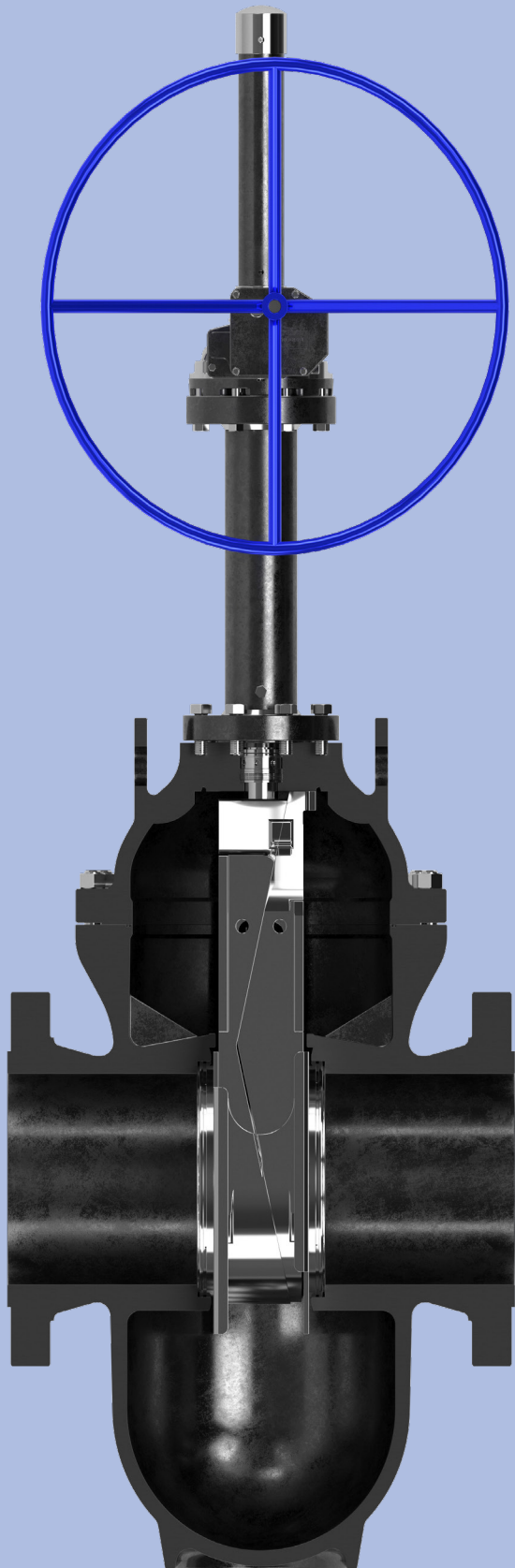




WKM Pow-R-Seal

Double expanding gate valve



WKM™ Pow-R-Seal™ double expanding gate valve is a high-quality and reliable, through-conduit expanding gate valve. It is engineered to deliver superior performance in critical isolation applications where a tight mechanical seal that resists pressure variations and vibrations is needed. These valves are extensively tested and certified to low fugitive emissions standard ISO 15848-1.

Contents

Introduction	4
Design	5
Features	6
Options	7
Operation	8
SLS spring-loaded lip seal	9
Thermal relief system	10
Model M	11
Model E1C	13
Pressure and temperature ratings	15
Trim chart	16
Common trims	17

Introduction

SLB is a leading provider of valves for the oil and gas industry. Our products are primarily used to control and direct the flow of hydrocarbons as they are moved from individual wellheads through flowlines, gathering lines, and transmission systems to refineries, petrochemical plants, and industrial centers for processing.

We provide a wide range of valves for use in natural gas, liquefied natural gas (LNG), crude oil, and refined products. Our portfolio includes Cameron T30 Series™ fully welded ball valves, Grove™ valves, Ring-O™ subsea valves, Tom Wheatley™ check valves, and Entech™ nozzle check valves. This broad offering has strengthened our ability to serve as a single source for customer requirements. We also provide critical service valves for refineries, chemical and petrochemical processing businesses, and associated storage terminal applications, particularly through the Orbit™ rising stem ball valve and General Valve™ plug and diverter valves. These brands are complemented by WKM valves and Texsteam™ plug valves, which considerably expand the scope of our product offerings.

The Pow-R-Seal double expanding gate valve's smooth, continuous bore reduces turbulence. Additionally, the seat faces are outside the flow stream and protected from contact with the lading whether the valve is in the open or closed position. The full bore makes it possible to run pigs, scrapers, or hot tap cutters through the valve without risk of lodging the scraper, jamming it with metal cuttings, or causing other damage.



SLB valves plant in Ville Platte, Louisiana, USA

Design

The Pow-R-Seal gate valve's design provides a number of specific advantages for reliable performance and long life, even in fluid, gas, steam, and hot water critical services up to 1,000 degF [538 degC].

Protection of seat faces

Seat faces are outside the flow stream and in full contact with the gate in both fully open and fully closed positions, greatly extending the seat life.

Smooth, continuous conduit for flow

Destructive turbulence is nearly eliminated. In a fullbore valve, pressure drop through the valve is no greater than that through an equal length of pipe with the same diameter.

Tight mechanical seal and double block-and-bleed capability

The valve's parallel expanding gate design provides a tight mechanical seal, both upstream and downstream.

Metal-to-metal mechanical sealing

The seal is unaffected by pressure surges, vibration, or heat under normal operating conditions. First, the seat insert contacts the gate. Then, the insert is compressed and a metal-to-metal seal is established.

Low emissions

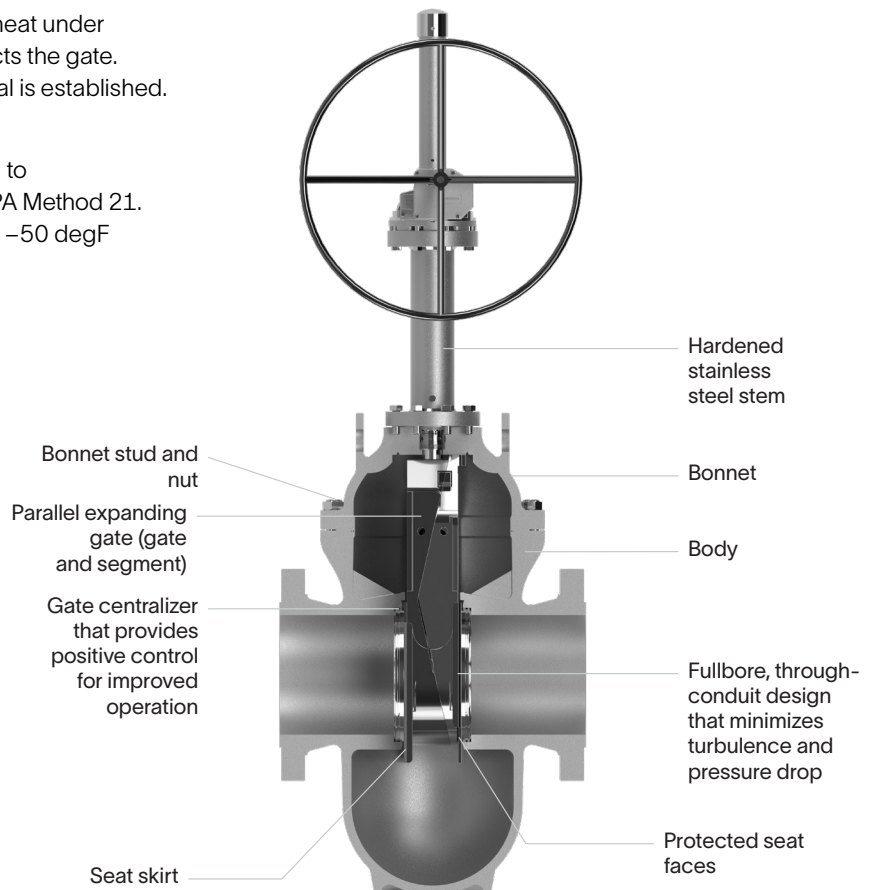
These valves have been extensively tested and certified to ISO 15848-1 and meet the emissions requirements of EPA Method 21. The designs are qualified for temperatures ranging from -50 degF to 350 degF [-46 to 177 degC].

ASME Pressure Classes

Size, in [mm]	ASME Class				
	150	300	600	900	1500
2 [50]	•	•	•	•	•
3 [80]	•	•	•	•	•
4 [100]	•	•	•	•	•
6 [150]	•	•	•	•	•
8 [200]	•	•	•	•	•
10 [250]	•	•	•	•	•
12 [300]	•	•	•	•	•
14 [350]	•	•	•	•	•
16 [400]	•	•	•	•	–
18 [450]	•	•	•	•	–
20 [500]	•	•	•	•	–
22 [550]	–	–	–	–	–
24 [600]	•	•	•	•	–
26 [650]	–	–	–	–	–
28 [700]	–	–	–	–	–
30 [750]	•	•	•	–	–
32 [800]	–	–	–	–	–
34 [850]	–	–	–	–	–
36 [900]	•	•	•	–	–

Common applications

- Pump station isolation
- Launchers and receivers
- Decoking systems
- Gathering lines



Features

Through-conduit parallel expanding gate valve

- Tight mechanical seal
- Fullbore design that reduces pressure drop and allows passage of all types of scrapers (pigs)
- Nickel-plated gate and segment as standard

SLS™ spring-loaded lip seal*

- Certified to ISO 15848-1**
- Stem seal completely contained in the bonnet
- Stem centralized by bearings
- Nickel-plated stem as standard
- Self-adjusting seal that does not depend on plastic packing
- Polytetrafluoroethylene (PTFE) compound resistant to virtually all ladings
- Pedestal that supports the seal and acts as a stem scraper

Interference fit seats

- Inline replacement
- Upstream and downstream sealing
- Block and bleed per API Spec 6D standards
- Simple design with resistance to dirty service
- Insert that initiates the seal and helps clean the gate†
- Seal compatibility with virtually all ladings
- Seats that can be lubricated to promote long life, reduce operating torques, or effect a seal in an emergency
- Fire testing to API Std 6FA, 3rd Edition

Inline-repairable bolted bonnet valve

- 6 to 12 in [150 to 300 mm]: Flat metal gasket
- 14 to 24 in [350 to 600 mm]: O-ring seal
- High-temperature valves: Spiral-wound metal gasket with nonasbestos filler

Yoke-tube upper flanges in compliance with MSS SP-102 standard

- Simplified operator mounting
- Optional manufacturing to comply with ISO 5210

Single-piece cast body center section

- Resistance to pipe bending
- Smooth shape that reduces stress concentrations
- Pressure-vessel-quality steel manufacturing

Valve stroke established by manufacturing tolerances

No adjustments required

Leverlock gate centralizer‡

- Gate and segment assembly retained in a neutral position during opening and closing travel
- Expansion of the assembly at the proper moment for seating

* For Model E1C; does not apply to high-temperature valves

** 2- to 4-in valves are certified to ISO 15848-1 with CHEVRON® V-ring stem seals.

† High-temperature valves do not have an insert.

‡ Standard on 6-in valves and larger

Options

- Lubrication, packing, and drain extensions
- Stem and yoke-tube extensions
- Variety of paints and coatings, including coal tar epoxy for buried service, two- to three-part coating systems for marine environments, and inorganic-zinc-rich epoxy
- HF-6 hardfacing available on request for the gate and segment assembly and seat sealing surfaces
- Handwheel operator* (position indicator standard)
- Bevel gear operator (position indicator standard)
- Less gearing (bare stem)
- Electric motor operator
- Several types of body cavity thermal relief systems

* Where API Spec 6D rim pull requirements can be met



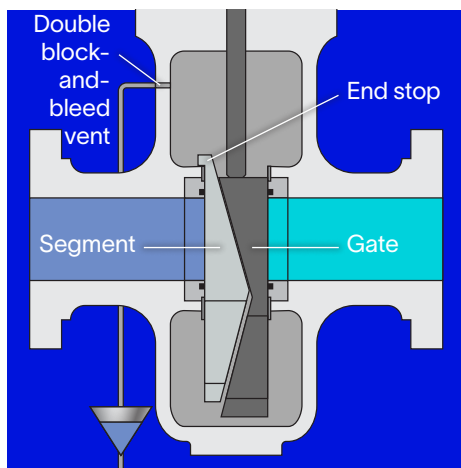
16-in, Class 300 Pow-R-Seal valve.

Operation

Seventy years of service worldwide in oil, gas, chemicals, water, slurry, and multiproduct applications has established the double expanding Pow-R-Seal gate valve as one of the most trusted gate valves where safety and seal reliability are critical.

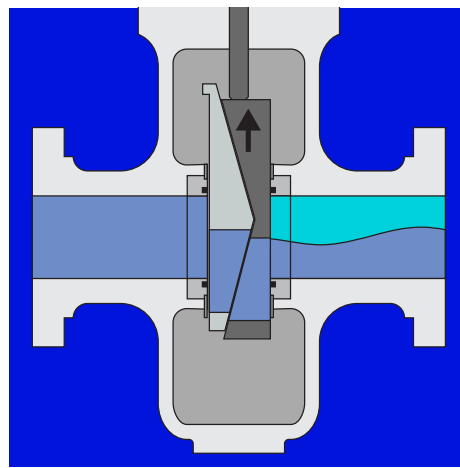
The parallel expanding gate design provides a tight mechanical seal that resists vibrations and pressure variations. The rigid, cast-steel body resists pipeline bending moments, which can affect seat sealing in other valves. PTFE seat inserts on both faces of the valve provide drop-tight sealing, while metal-to-metal

contact between the seats and gate mechanism provides tight shutoff. All-metal seats are available for service to 1,000 degF [538 degC], and leakage rates comply with API Spec 6D and ISO 5208 standards.



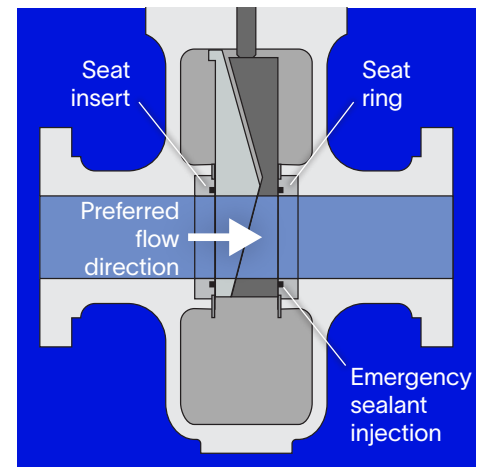
Sealed closed

In the fully closed position, the segment is engaged with an end stop, and the gate is wedged downward, expanding the segment and gate so that they form a tight mechanical closure against the upstream and downstream seats. Venting the body cavity provides total, tight shutoff.



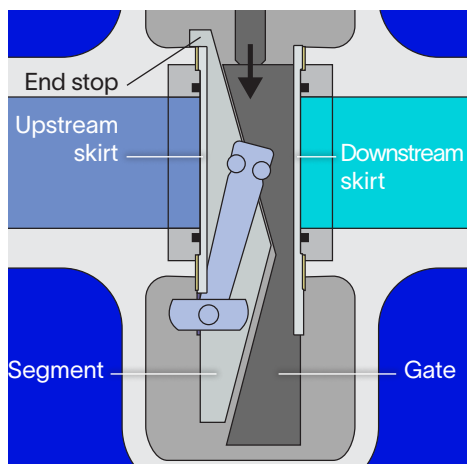
Midtravel

During the opening process, the gate slides across the wedge angle of the segment into neutral position so that it travels freely between the seat faces. The patented Leverlock gate centralizer holds the mechanism in the neutral position until expansion is required.



Fully open

When the bore in the segment is aligned with the conduit bore, an end stop prevents further travel and the gate slides across the wedge angle, expanding the gate and segment, and isolating the flow from the valve body. The preferred flow direction ensures easier operation.



Leverlock mechanism

The lever arm is held parallel to the gate and segment faces by the skirts while the assembly is moving through its stroke. Near the end of travel, the skirt allows the lever to tilt. The gate and segment slide against their angled faces, creating the expanding sealing action. In their final position, the gate and segment are mechanically secured in place. The skirts act as guide rails and align the gate and segment with the seats.

SLS spring-loaded lip seal

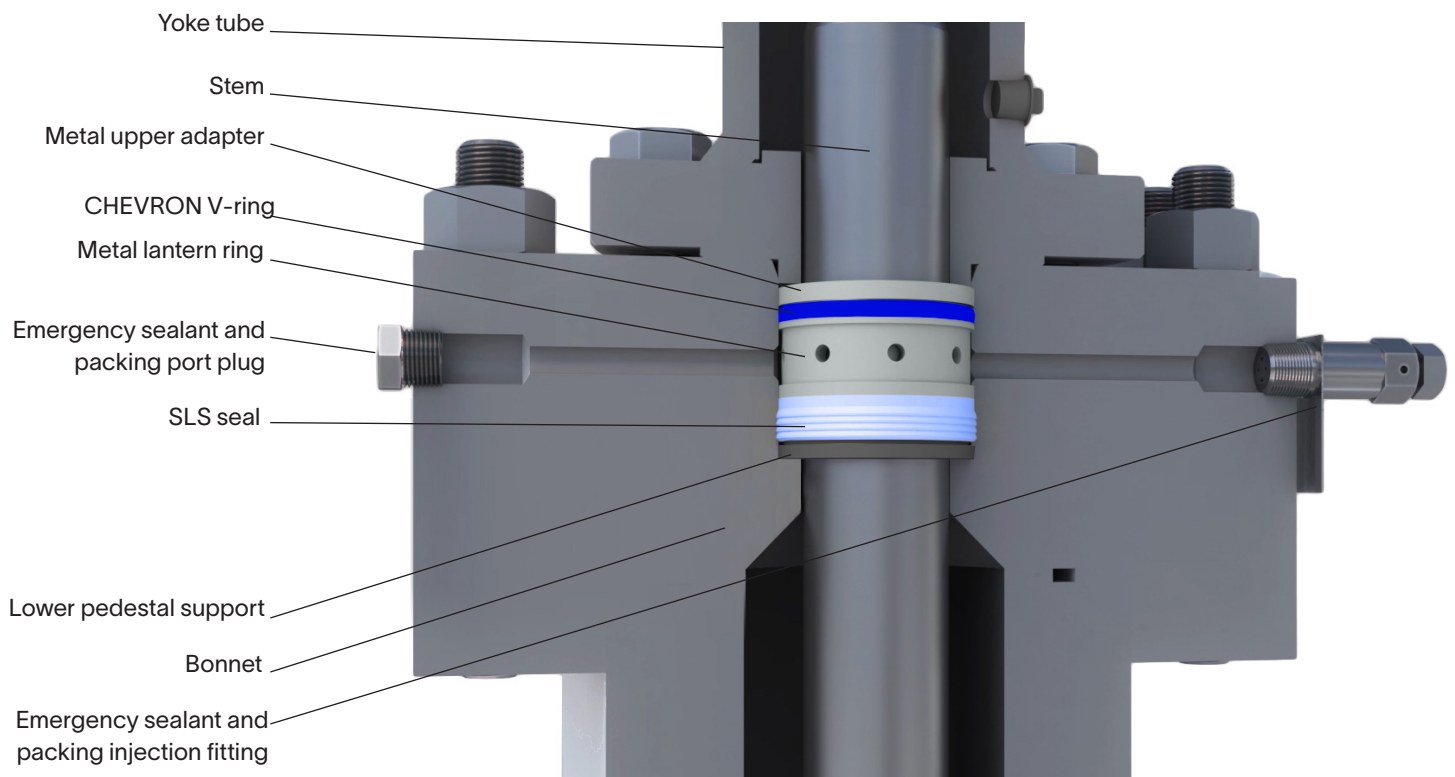
The SLS spring-loaded lip seal is designed to provide optimal performance and reduce maintenance requirements. It is extensively tested across the temperature range -50 to 350 degF [-46 to 177 degC]. The valve design, including the SLS seal, is certified to low fugitive emissions standard ISO 15848-1.

Features

- Self-energizing seal designed to reduce maintenance
- No vulnerable plastic packing required to establish an effective seal
- Four separate sealing bands that promote reliability
- Filled PTFE shell backed with a corrosion-resistant alloy spring, making it suitable for virtually all line media

Design

- A metal spring provides an initial seal while assisting with uniform loading over a wide pressure and temperature range.
- Metal lantern ring acts as a spacer in conjunction with the metal upper adapter, which serves as a bearing to center the stem.
- CHEVRON V-ring acts as an emergency seal, should it be necessary to inject plastic packing. It also protects the SLS seal from external contaminants.
- Lower pedestal support centers the stem, supports the SLS seal, and acts as a stem wiper to keep internal contaminants away from sealing members.

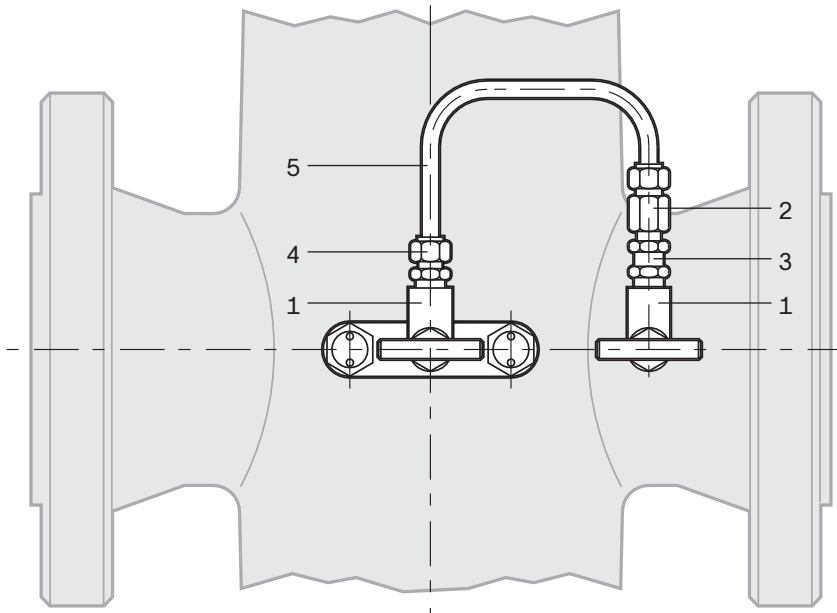


SLS spring-loaded lip seal placement.

Thermal relief system

Operation

Because of the expanding gate and segment design, excess pressure may develop in the body cavity of a closed valve—usually because of heating while the valve is in liquid service. A thermal relief system is provided to bleed off this excess pressure. Relief systems that direct excess body pressure to the upstream conduit are standard. This system consists of two needle valves, one check valve, tubing, and two connectors. Body pressure greater than the conduit pressure causes the check valve to unseat and relieve excess pressure to the upstream conduit. The needle valves must be kept open while the valve is in service. They can be used to isolate line pressure to service the relief system as needed.



Typical body cavity thermal relief arrangement.



Thermal Relief System Components

Item	Part	Quantity
1	Needle valve	2
2	Female tubing connector	1
3	Check valve	1
4	Male tubing connector	1
5	Tubing	1
	Tag (not shown)	2
	Wire (not shown)	1

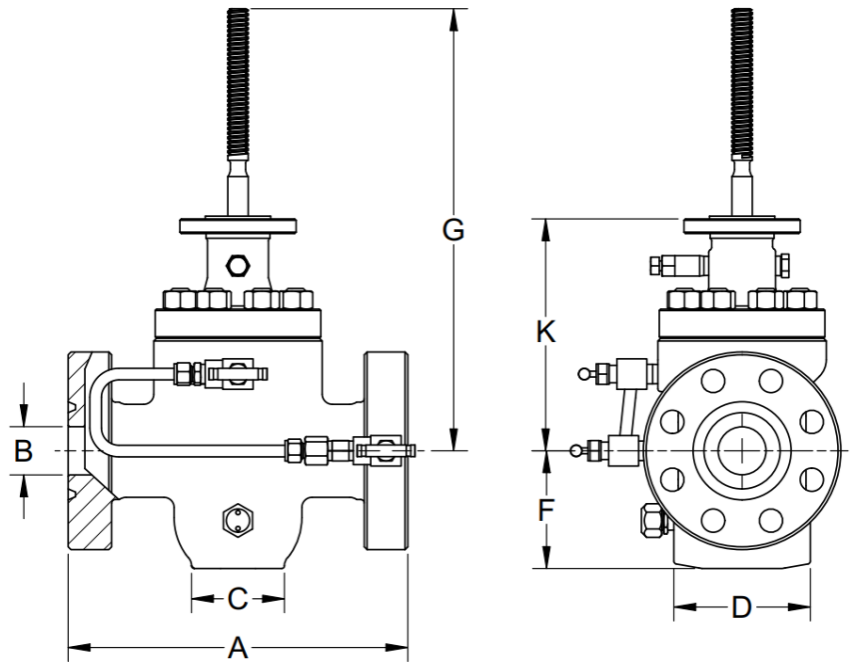
Model M

2–4 in [50–100 mm]; Classes 150–1500

Max. Working Pressure at 100 degF [38 degC]

Class 150	290 psi (cold) 450 psi (test)
Class 300	750 psi (cold) 1,125 psi (test)
Class 600	1,500 psi (cold) 2,250 psi (test)
Class 900	2,250 psi (cold) 3,375 psi (test)
Class 1500	3,750 psi (cold) 5,625 psi (test)

RF—Raised face
WE—Weld end
FE—Flanged end



Principal valve dimensions.

Class 150 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE x FE
2 [50]	11.5 [292]	11.5 [292]	2.06 [52]	4.0 [102]	5.63 [143]	4.94 [125]	19.22 [488]	9.97 [253]	72.2 [35]	67.2 [30]	72.2 [33]
3 [80]	14 [356]	14 [356]	3.19 [81]	5.25 [133]	7.38 [187]	7.06 [179]	24.75 [629]	12.75 [324]	153 [69]	142 [64]	148 [67]
4 [100]	17 [432]	17 [432]	4.13 [105]	7.25 [184]	9.38 [238]	8.94 [227]	30.01 [762]	15.01 [381]	284 [129]	253 [115]	269 [122]

All specifications are subject to change without notice.

Class 300 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE x FE
2 [50]	11.5 [292]	11.5 [292]	2.06 [52]	4 [102]	5.63 [143]	4.94 [125]	19.22 [488]	9.97 [253]	80 [36]	70 [32]	75 [34]
3 [80]	14 [356]	14 [356]	3.19 [81]	5.25 [133]	7.38 [187]	7.06 [179]	12 [305]	12.75 [324]	153 [69]	142 [64]	148 [67]
4 [100]	17 [432]	17 [432]	4.13 [105]	7.25 [184]	9.38 [236]	8.94 [227]	18 [457]	15.01 [381]	299 [136]	268 [122]	284 [129]

All specifications are subject to change without notice.

Class 600 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE x FE
2 [50]	11.5 [292]	11.5 [292]	2.06 [52]	4 [102]	5.63 [143]	4.94 [125]	19.22 [488]	9.97 [253]	86 [39]	73 [33]	79 [36]
3 [80]	14 [356]	14 [356]	3.19 [81]	5.25 [133]	7.38 [187]	6.94 [176]	24.75 [629]	12.75 [324]	153 [69]	142 [64]	148 [67]
4 [100]	17 [432]	17 [432]	4.13 [105]	7.25 [184]	9.38 [236]	8.94 [227]	30.01 [762]	15.01 [381]	334 [151]	283 [128]	309 [140]

All specifications are subject to change without notice.

Class 900 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE x FE
2 [50]	14.5 [368]	14.5 [368]	2.06 [52]	4 [102]	5.88 [149]	5.06 [129]	19.22 [488]	9.97 [253]	156 [71]	123 [56]	139 [63]
3 [80]	15 [381]	15 [381]	3.19 [81]	5.75 [146]	7.38 [187]	7.32 [186]	24.75 [629]	12.75 [324]	234 [106]	194 [88]	214 [97]
4 [100]	18 [457]	18 [457]	4.13 [105]	7.75 [197]	9.38 [236]	9.06 [230]	30.13 [765]	16.50 [419]	472 [214]	409 [186]	441 [200]

All specifications are subject to change without notice.

Class 1500 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE x FE
2 [50]	14.5 [368]	14.5 [368]	2.06 [52]	4 [102]	5.88 [149]	5.06 [129]	19.22 [488]	9.97 [253]	156 [71]	123 [56]	139 [63]
3 [80]	18.5 [470]	18.5 [470]	3.19 [81]	5.76 [146]	7.76 [197]	7.32 [186]	24.75 [629]	12.63 [321]	287 [130]	215 [98]	251 [114]
4 [100]	21.5 [546]	21.5 [546]	4.13 [105]	7.75 [197]	9.80 [249]	9.06 [230]	30.13 [765]	16.50 [419]	551 [250]	448 [203]	499 [226]

All specifications are subject to change without notice.

Model E1C

6–36 in [150–900 mm]; Classes 150–1500

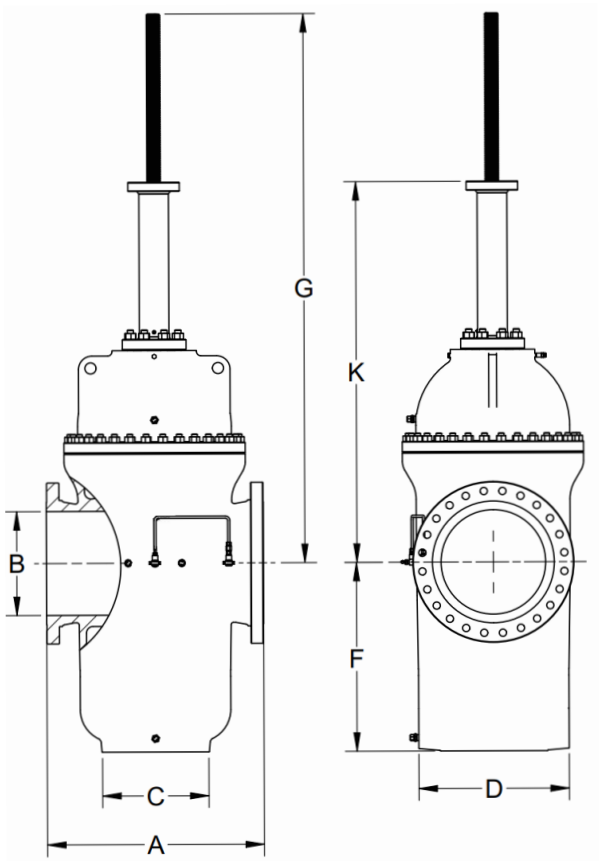
Max. Working Pressure at 100 degF [38 degC]

Class 150	290 psi (cold) 450 psi (test)
Class 300	750 psi (cold) 1,125 psi (test)
Class 600	1,500 psi (cold) 2,250 psi (test)
Class 900	2,250 psi (cold) 3,375 psi (test)
Class 1500	3,750 psi (cold) 5,625 psi (test)

RF—Raised face

WE—Weld end

FE—Flanged end



Principal valve dimensions.

Class 150 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE × FE
6 [150]	15.88 [403]	15.88 [403]	6.00 [152]	5.00 [127]	10.75 [143]	12.60 [321]	42.38 [1,076]	26.88 [683]	517 [235]	493 [224]	505 [229]
8 [200]	16.50 [419]	16.5 [419]	8.00 [203]	4.50 [114]	14.38 [365]	15.94 [405]	49.56 [1,259]	32.00 [813]	740 [336]	700 [318]	720 [327]
10 [250]	18.00 [457]	18.00 [457]	10.00 [254]	7.00 [178]	17.00 [432]	20.00 [508]	62.82 [1,596]	42.13 [1,070]	1,308 [593]	1,255 [569]	1,282 [582]
12 [300]	30.00 [762]	30.00 [762]	12.00 [305]	10.00 [254]	18.62 [473]	22.75 [578]	70.32 [1,786]	45.44 [1,154]	2,190 [993]	2,117 [960]	2,154 [977]
14 [350]	32.50 [826]	32.50 [826]	13.25 [337]	13.00 [330]	21.62 [549]	25.75 [654]	74.82 [1,900]	50.44 [1,281]	2,570 [1,166]	2,309 [1,047]	2,439 [1,106]
16 [400]	33.00 [838]	33.00 [838]	15.25 [387]	14.25 [362]	22.84 [580]	28.09 [713]	83.56 [2,122]	56.50 [1,435]	2,932 [1,330]	2,788 [1,265]	2,860 [1,297]
18 [450]	36.00 [914]	36.00 [914]	17.25 [438]	14.75 [375]	25.60 [650]	31.88 [810]	92.13 [2,340]	63.88 [1,623]	4,771 [2,164]	4,355 [1,975]	4,563 [2,070]
20 [500]	39.00 [991]	39.00 [991]	19.25 [489]	16.00 [406]	28.34 [720]	34.88 [886]	102.93 [2,614]	70.31 [1,786]	5,865 [2,660]	5,710 [2,590]	5,788 [2,625]
24 [600]	48.50 [1,232]	48.50 [1,232]	23.25 [591]	24.00 [610]	34.38 [873]	42.19 [1,072]	122.81 [3,119]	85.19 [2,164]	11,001 [4,990]	10,781 [4,890]	10,891 [4,940]
30 [750]	60.00 [1,524]	60.00 [1,524]	29.00 [724]	28.50 [724]	45.00 [1,143]	53.50 [1,359]	140.77 [3,576]	97.19 [2,469]	19,400 [8,800]	19,025 [8,630]	19,213 [8,715]
36 [900]	68.00 [1,727]	68.00 [1,727]	34.50 [876]	32.50 [826]	49.00 [1,245]	62.06 [1,576]	164.77 [4,185]	114.39 [2,906]	30,727 [13,938]	29,861 [13,545]	30,294 [13,741]

All specifications are subject to change without notice.

Class 300 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE × FE
6 [150]	15.88 [403]	15.88 [403]	6.00 [152]	5.00 [127]	10.75 [143]	12.60 [321]	42.38 [1,076]	26.88 [683]	552 [250]	500 [227]	526 [239]
8 [200]	16.50 [419]	16.50 [419]	8.00 [203]	4.50 [114]	14.38 [365]	15.94 [405]	49.56 [1,259]	32.00 [813]	788 [357]	710 [322]	749 [340]
10 [250]	18.00 [457]	18.00 [457]	10.00 [254]	7.00 [178]	17.00 [432]	20.00 [508]	62.82 [1,596]	42.13 [1,070]	1,398 [634]	1,291 [586]	1,344 [610]
12 [300]	30.00 [762]	30.00 [762]	12.00 [305]	10.00 [254]	18.62 [473]	22.75 [578]	70.32 [1,786]	45.44 [1,154]	2,295 [1,041]	2,099 [952]	2,198 [997]
14 [350]	32.50 [826]	32.50 [826]	13.25 [337]	13.00 [330]	21.62 [549]	25.75 [654]	74.82 [1,900]	50.44 [1,281]	2,680 [1,216]	2,419 [1,097]	2,549 [1,156]
16 [400]	33.00 [838]	33.00 [838]	15.25 [387]	14.25 [362]	22.84 [580]	28.12 [714]	83.56 [2,122]	56.50 [1,435]	4,177 [1,895]	3,853 [1,748]	4,015 [1,821]
18 [450]	36.00 [914]	36.00 [914]	17.25 [438]	14.75 [375]	25.60 [650]	31.88 [810]	92.13 [2,340]	63.88 [1,623]	4,959 [2,249]	4,543 [2,061]	4,751 [2,155]
20 [500]	39.00 [991]	39.00 [991]	19.25 [489]	16.00 [406]	28.34 [720]	34.88 [886]	102.93 [2,614]	70.31 [1,786]	6,108 [2,771]	5,576 [2,529]	5,843 [2,650]
24 [600]	48.50 [1,232]	48.50 [1,232]	23.25 [591]	24.00 [610]	34.38 [873]	42.27 [1,074]	122.81 [3,119]	85.19 [2,164]	11,580 [5,253]	10,874 [4,932]	11,227 [5,092]
30 [750]	60.00 [1,524]	60.00 [1,524]	29.00 [724]	28.50 [724]	45.00 [1,143]	53.50 [1,359]	140.77 [3,576]	97.19 [2,469]	20,050 [9,095]	19,115 [8,670]	19,523 [8,855]
36 [900]	68.00 [1,727]	68.00 [1,727]	34.50 [876]	32.50 [826]	49.00 [1,245]	62.06 [1,576]	164.77 [4,185]	114.39 [2,906]	31,512 [14,294]	29,861 [13,545]	30,686 [13,919]

All specifications are subject to change without notice.

Class 600 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE × FE
6 [150]	22.00 [559]	22.00 [559]	6.00 [152]	5.00 [127]	11.00 [279]	12.62 [321]	42.38 [1,076]	26.88 [683]	643 [292]	523 [237]	583 [264]
8 [200]	26.00 [660]	26.00 [660]	8.00 [203]	7.00 [178]	13.62 [346]	15.44 [392]	49.56 [1,259]	32.00 [813]	1,029 [467]	852 [386]	941 [427]
10 [250]	31.00 [787]	31.00 [787]	10.00 [254]	8.00 [203]	16.38 [416]	19.75 [502]	62.82 [1,596]	42.13 [1,070]	1,838 [834]	1,545 [701]	1,692 [767]
12 [300]	33.00 [838]	33.00 [838]	12.00 [305]	10.00 [254]	19.00 [483]	23.00 [584]	70.32 [1,786]	45.44 [1,154]	2,569 [1,165]	2,272 [1,031]	2,420 [1,098]
14 [350]	35.00 [889]	35.00 [889]	13.25 [337]	13.00 [330]	21.62 [549]	25.75 [654]	74.82 [1,900]	50.44 [1,281]	2,926 [1,327]	2,563 [1,163]	2,745 [1,245]
16 [400]	39.00 [991]	39.00 [991]	15.25 [387]	14.75 [375]	23.63 [600]	28.13 [715]	83.56 [2,122]	56.50 [1,435]	5,008 [2,272]	4,459 [2,023]	4,734 [2,147]
18 [450]	43.00 [1,092]	43.00 [1,092]	17.25 [438]	15.00 [381]	26.12 [663]	32.28 [820]	92.13 [2,340]	63.88 [1,623]	6,615 [3,001]	5,829 [2,644]	6,222 [2,822]
20 [500]	47.00 [1,194]	47.00 [1,194]	19.25 [489]	17.00 [432]	29.34 [745]	35.31 [897]	102.93 [2,614]	70.31 [1,786]	7,943 [3,603]	7,191 [3,262]	7,572 [3,435]
24 [600]	55.00 [1,397]	55.00 [1,397]	23.25 [591]	23.50 [597]	34.87 [886]	42.31 [1,075]	122.81 [3,119]	85.19 [2,164]	12,813 [5,812]	11,806 [5,355]	12,310 [5,584]
30 [750]	65.00 [1,651]	65.00 [1,651]	29.00 [737]	28.50 [724]	45.50 [1,156]	53.50 [1,359]	140.77 [3,576]	97.19 [2,469]	24,877 [11,284]	23,229 [10,536]	24,053 [10,910]
36 [900]	82.00 [2,083]	82.00 [2,083]	34.50 [876]	32.50 [826]	58.38 [1,483]	62.13 [1,578]	164.93 [4,,189]	114.39 [2,906]	24,877 [11,284]	39,070 [17,722]	39,981 [18,135]

All specifications are subject to change without notice.

Class 900 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE × FE
6 [150]	24.00 [610]	24.00 [610]	6.00 [152]	5.50 [140]	11.50 [292]	12.88 [327]	42.38 [1076]	26.88 [683]	849 [385]	727 [330]	788 [357]
8 [200]	29.00 [737]	29.00 [737]	8.00 [203]	7.00 [178]	13.62 [346]	15.75 [400]	49.56 [1,259]	32.00 [813]	1,424 [646]	1,222 [554]	1,323 [600]
10 [250]	33.00 [838]	33.00 [838]	10.00 [254]	8.00 [203]	17.38 [441]	20.12 [511]	62.82 [1,596]	42.13 [1,070]	2,460 [1,116]	2,189 [993]	2,325 [1,055]
12 [300]	38.00 [965]	38.00 [965]	12.00 [305]	10.00 [254]	20.12 [511]	23.57 [599]	70.31 [1,786]	45.56 [1,157]	3,450 [1,565]	3,075 [1,395]	3,263 [1,480]
14 [350]	40.50 [1,029]	40.50 [1,029]	12.75 [324]	14.00 [356]	22.50 [572]	26.13 [664]	72.55 [1,843]	50.10 [1,273]	4,478 [2,031]	3,933 [1,784]	4,205 [1,907]
16 [400]	44.50 [1,130]	44.50 [1,130]	14.75 [375]	16.00 [406]	26.13 [664]	30.25 [768]	84.42 [2,144]	56.69 [1,440]	6,495 [2,946]	6,003 [2,723]	6,249 [2,834]
18 [450]	48.00 [1,219]	48.00 [1,219]	16.75 [425]	18.00 [457]	28.25 [718]	33.81 [859]	97.17 [2,468]	64.67 [1,643]	11,016 [4,997]	10,219 [4,635]	10,618 [4,816]
20 [500]	52.00 [1,321]	52.00 [1,321]	18.63 [473]	20.12 [511]	31.20 [792]	37.25 [946]	103.19 [2,621]	71.26 [1,810]	13,000 [5,897]	11,984 [5,436]	12,492 [5,666]
24 [600]	61.00 [1,549]	61.00 [1,549]	22.50 [572]	24.00 [610]	37.50 [953]	46.00 [1,168]	122.96 [3,123]	82.96 [2,107]	20,088 [9,112]	18,427 [8,358]	19,257 [8,735]

All specifications are subject to change without notice.

Class 1500 Specifications

Size, in [mm]	Dimensions, in [mm]								Weight, lbm [kg]		
	A (RF)	A (WE)	B	C	D	F	G	K	FE	WE	WE × FE
6 [150]	27.75 [705]	27.75 [705]	5.75 [146]	6.00 [152]	15.06 [383]	14.75 [375]	40.23 [1,022]	28.23 [717]	1,428 [648]	1,217 [552]	1,323 [600]
8 [200]	32.75 [832]	32.75 [832]	7.63 [194]	13.50 [343]	19.50 [495]	19.75 [502]	57.36 [1,457]	38.86 [987]	3,141 [1,425]	2,789 [1,265]	2,965 [1,345]
10 [250]	39.00 [991]	39.00 [991]	9.50 [241]	12.00 [305]	21.13 [537]	22.31 [567]	66.04 [1,677]	45.00 [1,143]	4,278 [1,940]	3,758 [1,705]	4,018 [1,823]
12 [300]	44.50 [1,130]	44.50 [1,130]	11.38 [289]	16.00 [406]	25.75 [654]	30.25 [768]	74.19 [1,884]	53.38 [1,356]	7,587 [3,441]	6,745 [3,059]	7,166 [3,250]
14 [350]	49.50 [1,257]	49.50 [1,257]	12.50 [318]	13.00 [330]	23.88 [607]	25.56 [649]	82.95 [2107]	53.20 [1,351]	7,748 [3,514]	6,403 [2,904]	7,080 [3,211]

All specifications are subject to change without notice.

Pressure and temperature ratings

Standard WCC Material (customary units)

Temperature		Working Pressure by Class, psi					
degC	degF	150	300	400	600	900	1500
-29 to 38	-20 to 100	290	750	1,000	1,500	2,250	3,750
93	200	260	750	1,000	1,500	2,250	3,750
149	300	230	730	970	1,455	2,185	3,640
204	400	200	705	940	1,410	2,115	3,530
260	500	170	665	885	1,330	1,995	3,325
316	600	140	605	805	1,210	1,815	3,025
343	650	125	590	785	1,175	1,765	2,940
371	700	110	570	755	1,135	1,705	2,840
399	750	95	505	670	1,010	1,510	2,520
427	800	80	410	550	825	1,235	2,060

References: API Spec 6D and ASME B16.34

Standard WCC Material (SI units)

Temperature		Working Pressure by Class, MPa				
degC	degF	150	300	600	900	1500
-29 to 38	-20 to 100	1.98	5.17	10.34	15.51	25.86
50	122	1.95	5.17	10.34	15.51	25.86
100	212	1.77	5.15	103.0	15.46	25.76
150	302	1.58	5.02	100.3	15.05	25.08
200	392	1.38	4.86	9.72	14.58	24.32
250	482	1.21	4.63	9.72	13.90	23.18
300	572	1.02	4.29	8.57	12.86	21.44
325	617	0.93	4.14	8.26	12.40	20.66
350	662	0.84	4.00	8.00	12.01	20.01
375	707	0.74	3.78	7.57	11.35	18.92
400	752	0.65	3.47	6.94	10.42	17.36
425	797	0.55	2.88	5.75	8.63	14.38

References: API Spec 6D and ASME B16.34

Standard WC6 Material (customary units)

Temperature		Working Pressure by Class, psi				
degC	degF	150	300	600	900	1500
-29 to 38	-20 to 100	290	750	1,500	2,250	3,750
93	200	260	750	1,500	2,250	3,750
149	300	230	720	1,445	2,165	3,610
204	400	200	695	1,385	2,080	3,465
260	500	170	665	1,330	1,995	3,325
316	600	140	605	1,210	1,815	3,025
343	650	125	590	1,175	1,765	2,940
371	700	110	570	1,135	1,705	2,840
399	750	95	530	1,065	1,595	2,660
427	800	80	510	1,015	1,460	2,540
454	850	65	485	975	1,350	2,435
482	900	50	450	900	955	2,245
510	950	35	320	640	650	1,595
538	1,000	20	215	430	430	1,080

References: API Spec 6D and ASME B16.34

Standard WC6 Material (SI units)

Temperature		Working Pressure by Class, MPa				
degC	degF	150	300	600	900	1500
-29 to 38	-20 to 100	1.98	5.17	10.34	15.51	25.86
50	122	1.95	5.17	10.34	15.51	25.86
100	212	1.77	5.15	10.30	15.44	25.74
150	302	1.58	4.97	9.95	14.92	24.87
200	392	1.38	4.80	9.59	14.39	23.98
250	482	1.21	4.63	9.27	13.90	23.18
300	572	1.02	4.29	8.57	12.86	21.44
325	617	0.93	4.14	8.26	12.40	20.66
350	662	0.84	4.03	8.04	12.07	20.11
375	707	0.74	38.9	7.76	11.65	19.41
400	752	0.65	36.5	7.33	10.98	18.31
425	797	0.55	35.2	7.00	10.51	17.51
450	842	0.46	33.7	6.77	10.14	16.90
475	887	0.37	31.7	6.34	9.51	15.82
500	932	0.28	25.7	5.15	7.72	12.86
538	1,000	0.14	14.9	2.98	4.47	7.45

References: API Spec 6D and ASME B16.34

Trim chart

Service	Trim Code	Body and Bonnet	Gate and Segment	Seat	Stem Seal	Stem	Bolting	Fittings	Temperature Range, degF [degC]
Waterflood, corrosive	T-10	WCC carbon steel, internal plastic coating	Carbon steel* or low alloy,** nickel plated	Carbon steel, nickel plated, PTFE insert	FKM 2–4 in, PTFE 6+ in	Low-alloy steel, nickel plated	Alloy steel, NACE MR0175	Stainless steel	–20 to 250 [–29 to 121]
Standard, 2–4 in only	T-11	WCC carbon steel	Low-alloy steel, nickel plated	Carbon steel, nickel plated, PTFE insert	FKM	Low-alloy steel, nickel plated	Alloy steel	Carbon steel	–20 to 250 [–29 to 121]
Standard, 2–4 in only, fire tested	T-94	WCC carbon steel	Low-alloy steel, nickel plated	Carbon steel, nickel plated, PTFE insert	FKM	Low-alloy steel, nickel plated	Alloy steel	Carbon steel	–20 to 250 [–29 to 121]
Sour, mildly corrosive	T-24	WCC carbon steel	Carbon steel* or low alloy,** nickel plated	Carbon steel, nickel plated, PTFE insert	FKM 2–4 in, PTFE 6+ in	Low-alloy steel, nickel plated	Alloy steel, NACE MR0175	Stainless steel	–20 to 250 [–29 to 121]
High temperature	T-30	WCC carbon steel	CA6NM stainless steel, Stellite™ 6 hardfacing	Carbon steel, Stellite 6 hardfacing	Flexible graphite	400 series stainless steel	Alloy steel	Stainless steel	–20 to 650 [–29 to 343]
Geothermal steam and water	T-30G	WCC carbon steel	Carbon steel* or low alloy,** Stellite 6 hardfacing	Carbon steel, Stellite 6 hardfacing	Flexible graphite	17–4 PH, NACE	Alloy steel, NACE MR0175	Stainless steel	–20 to 550 [–29 to 288]
High temperature	T-31	WCC carbon steel	CA6NM stainless steel, Stellite 6 hardfacing	A182 F11, Stellite 6 hardfacing	Flexible graphite	400 series stainless steel	Alloy steel	Stainless steel	–20 to 1000 [–29 to 538]
Low temperature, non-sour	T-36	LCC carbon steel, impact tested	Carbon steel* or low alloy,** nickel plated	Carbon steel, nickel plated, PTFE insert	PTFE	Low-alloy steel, impact tested, nickel plated	Alloy steel, impact tested	Stainless steel	–50 to 250 [–46 to 121]
Low temperature, sour	T-37	LCC carbon steel, impact tested	Carbon steel* or low alloy,** nickel plated	Carbon steel, nickel plated, PTFE insert	PTFE	Low-alloy steel, impact tested, nickel plated	Alloy steel, impact tested	Stainless steel	–50 to 250 [–46 to 121]
Anhydrous ammonia	T-88	WCC carbon steel	Carbon steel* or low alloy,** nickel plated	Carbon steel, nickel plated, PTFE insert	PTFE	Low-alloy steel, nickel plated	Alloy steel, NACE MR0175	Stainless steel	–20 to 250 [–29 to 121]
Standard, 6 in and larger	T-101	WCC carbon steel	Carbon steel* or low alloy,** nickel plated	Carbon steel, nickel plated, PTFE insert	PTFE	Low-alloy steel, nickel plated	Alloy steel	Carbon steel	–20 to 250 [–29 to 121]
Standard special services, 6 in and larger	T-102	WCC carbon steel	Carbon steel* or low alloy,** nickel plated	Carbon steel, nickel plated, PTFE insert	PTFE	Low-alloy steel, nickel plated	Alloy steel	Carbon steel	–20 to 250 [–29 to 121]

All specifications are subject to change without notice.

* Pressure class 600 or less

** Pressure class 900 or more

Common trims

T-10: Waterflood (uninhibited)

Primarily intended for use in untreated or uninhibited brackish water typically associated with waterflood projects. Carbon steel body and bonnet with wetted surfaces plastic coated and internal parts nickel plated.

Temperature rating: –20 to 250 degF [–29 to 121 degC].

T-11: Standard (2–4 in, Class 150–2500)

For noncorrosive lading, either liquid or gaseous. Typical examples are crude and refined oils, natural or refined gases, and processed hydrocarbons. Typical uses are in pipelines, manifolds, scraper traps, and other similar installations.

Temperature rating: –20 to 250 degF [–29 to 121 degC].

T-24: Sour gas and oil

Complies with NACE MR0175 standard. Also suitable for small quantities of CO₂. Typical uses are in pipelines, manifolds, scraper traps, and other similar installations.

Temperature rating: –20 to 250 degF [–29 to 121 degC].

T-30: High temperature (up to 650 degF)

For higher-temperature service, where the corrosion and erosion resistance of the stainless steel internals with Stellite 6 overlay is suitable. Maximum operating pressure is a function of the body material and follows the appropriate pressure rating table (see page 15).

Temperature rating: –20 to 650 degF [–29 to 343 degC].

T-31: High temperature (up to 1,000 degF)

For service above 650 degF. Has same qualifications as T-30.

Temperature rating: –20 to 1,000 degF [–29 to 538 degC].

T-36: Low temperature

For noncorrosive lading, either liquid or gaseous, where resistance to temperatures below –20 degF is desired. The pressure-retaining components (body, bonnet, and bolting) are made of impact-tested materials.

Temperature rating: –50 to 250 degF [–46 to 121 degC].

T-37: Low-temperature sour gas and oil

Complies with NACE MR0175 standard. The pressure-retaining components (body, bonnet, and bolting) are made of impact-tested materials. Also suitable for other products when H₂S or small quantities of CO₂ are present.

Temperature rating: –50 to 250 degF [–46 to 121 degC].

T-88: Anhydrous ammonia service

Metallic and elastomeric components selected to resist metal embrittlement and seal degradation caused by ammonia service. Temperature rating: –20 to 250 degF [–29 to 121 degC].

T-94: High aromatics (2–4 in, Class 150–2500), fire tested

For non-sour, noncorrosive, aromatic ladings (non-MTBE*) requiring fire test qualification to API Std 6FA or ISO 10497. Elastomeric sealing components use FKM compounds, suitable for refined products, gasoline, benzene, ethylene, toluene, carbon tetrachloride, phosphate ester hydraulic fluids, and more. Temperature rating: –20 to 250 degF [–29 to 121 degC].

T-101: High aromatics (up to 40% MTBE)

For non-sour, noncorrosive, aromatic ladings or nonaromatic service with methanol- or ethanol-based corrosion inhibitors where up to 40% MTBE, ETBE,** or TAME† may be present. Elastomeric sealing components use high-fluorine FKM compounds, suitable for refined products, gasoline, benzene, ethylene, toluene, carbon tetrachloride, phosphate ester hydraulic fluids, and more.

Temperature rating: –20 to 250 degF [–29 to 121 degC].

T-102: High aromatics (up to 100% MTBE)

For non-sour, noncorrosive, aromatic ladings or nonaromatic service with methanol- or ethanol-based corrosion inhibitors where up to 100% MTBE, ETBE, or TAME may be present. Elastomeric sealing components use PFA-encapsulated FKM compounds, suitable for refined products, gasoline, benzene, ethylene, toluene, carbon tetrachloride, phosphate ester hydraulic fluids, and more.

Temperature rating: –20 to 250 degF [–29 to 121 degC].

T-30G: Geothermal steam and water, hardfaced trim

Primarily for geothermal flowline service, where the erosion and abrasion resistance of Stellite 6 hardfaced gate and seats is required.

Temperature rating: –20 to 550 degF [–29 to 288 degC].

* Methyl tert-butyl ether

** Ethyl tert-butyl ether

† Tert-Amyl methyl ether

Pow-R-Seal double expanding gate valve



slb.com/valves

WKM, Pow-R-Seal, Cameron T30 Series, Grove, Ring-O, Tom Wheatley, Entech, Orbit, General Valve, Texsteam, and SLS are marks of SLB.
Other company, product, and service names are the properties of their respective owners.
Copyright © 2025 SLB. All rights reserved. 25-VAL-1399785

