

PBV® SERIES 61 SLAB GATE THROUGH CONDUIT VALVES

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MANUFACTURER OF QUALITY VALVE PRODUCTS AROUND THE GLOBE

Forum Energy Technologies (FET) is committed to improving our clients' operational and financial performance by supplying the most comprehensive range of valve products in the industry through our family of trusted valve brands.



ABOUT FET

Engineering Expertise

FET uses the latest state-of-the-art engineering software to provide custom design services for any application. Finite element analysis is just one of many Design Verification Tools FET uses to design valves to specific customer requirements.

CAD & CNC Capabilities

With FET's fast and efficient workflow, CAD drawings are releasable to the network for manufacturing and purchasing. Computer-generated machine programs can be quickly changed for weld overlays or other processes, resulting in faster deliveries.

Accurate Inventories

Daily cycle counting and order picking using barcode and automated part delivery systems results in more accurate inventories and faster product delivery.

Quality Control

All FET Companies manufacture quality products designed and tested to meet the standards of Qualifying Authorities worldwide. Advanced engineering and our Quality Management System ensure that our valve products continue to exceed your expectations for performance.

Customer Service

FET staffs its Customer Service Department with trained representatives ready to help you with ordering information, technical specifications, and logistics.

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Due to upgrades in industry standards, material innovations, and FET/PBV's constant commitment to product advancement, data presented in this brochure are subject to change. Please contact your PBV sales representative for updated and current drawings and material compliance. This information is available on our website and www.f-e-t.com.

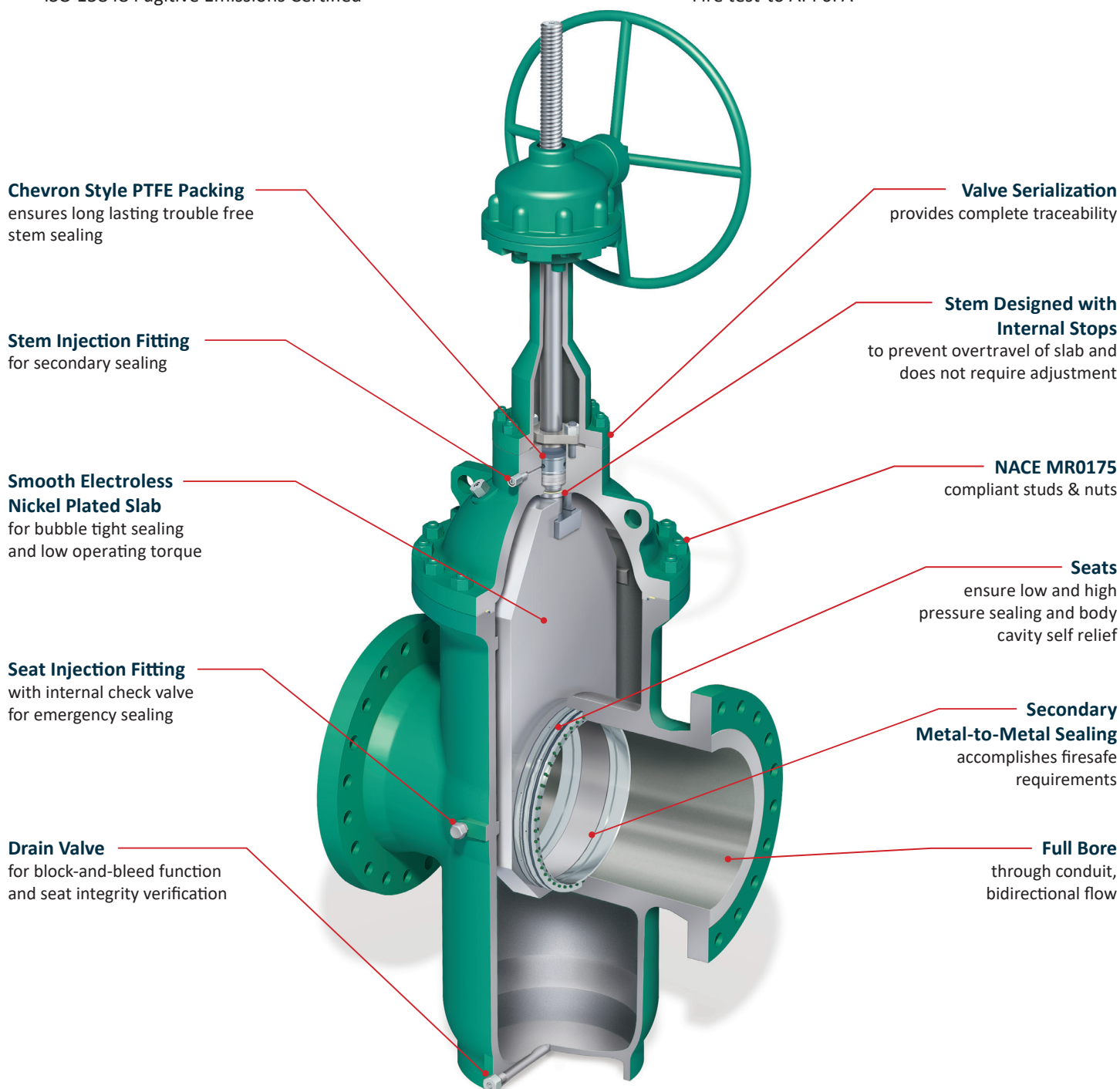
Note: Data contained in this document is for informational purposes and shall not be used for design purposes.

PBV SERIES 61 SLAB GATE THROUGH CONDUIT VALVES

Engineering Excellence at Work

PBV bidirectional double block-and-bleed slab gate valves are designed to use line pressure to ensure mechanical tight sealing on the upstream side during high differential pressure. For low-pressure sealing, internal springs push the seat ring against the gate. These through conduit, piggable and top entry slab gate valves are ideal for transportation pipelines carrying gas, crude oil, and oil products. They come in various materials and configurations to meet your specific project needs.

- Product Range: Sizes 2" through 24" full port, ANSI class 150, 300, & 600
- Flanges in accordance with ASME/ANSI B16.5 and B16.47
- ISO 15848 Fugitive Emissions Certified
- Face-to-face dimensions meet API 6D
- Basic design, inspections and testing to API 6D
- Fire test to API 6FA



HOW TO ORDER

Specifying PBV Series 61 Valve, Figure Numbers

Example: 6" C-6110-71-2214-MUT-NG This number represents a 6" ANSI Class 150, Full Port Slab Gate Valve, Fire Tested with Emergency Grease Seals, Raised Face, Carbon Steel Body Material, Carbon Steel ENP Trim with 17-4 PH Stem, Reinforced PTFE Seats, Viton® GLT Body and Seat Seals, PTFE Stem Seals, for NACE MR0175/ISO 15156 Service and Gear Operated.

Material Code	Port Config.	Valve Type	Pressure Class	Fire Tested	End Conn.	Body Material	Trim Material	Seat Material	Seal Material		NACE Option	Operator
									Body & Seat	Stem		
C Carbon Steel	6 Full	1 Slab Gate Through Conduit Rising Stem Valve	10 CL 150 30 CL 300 60 CL 600	7 Fire Tested with Emergency Grease Seals	1 RF 3 RTJ 5 WE	22 WCC 28 LCC	14 CS with ENP Gate and Seat with 17-4PH Stem	M Reinforced PTFE D Devlon®	V Viton A H HNBR U Viton GLT	T PTFE	N NACE S Non NACE	A Actuator B Bare Stem G Gear Operator V Hand-wheel

Design Standards & Specifications

Valve designs covered in this catalog conform to the following industry standards and specifications.

American Petroleum Institute

- API 6D • Specifications for pipeline valves
- API 6FA • Fire test for valves (Div. of Production)
- API Q1 • Specifications for quality programs

Manufacturers Standardization Society

- MSS SP-25 • Standard marking system for valves
- MSS SP-55 • Quality Standard for steel castings for valves

American National Standard

- ASME B 16.25 • Butt welding ends
- ASME/ANSI B 16.34 • Valves-flanged threaded and welding end
- ASME/ANSI B 16.47 • Large diameter steel flanges
- ASME/ANSI B 16.5 • Steel pipe flanges and flanged fittings

National Association of Corrosion Engineers

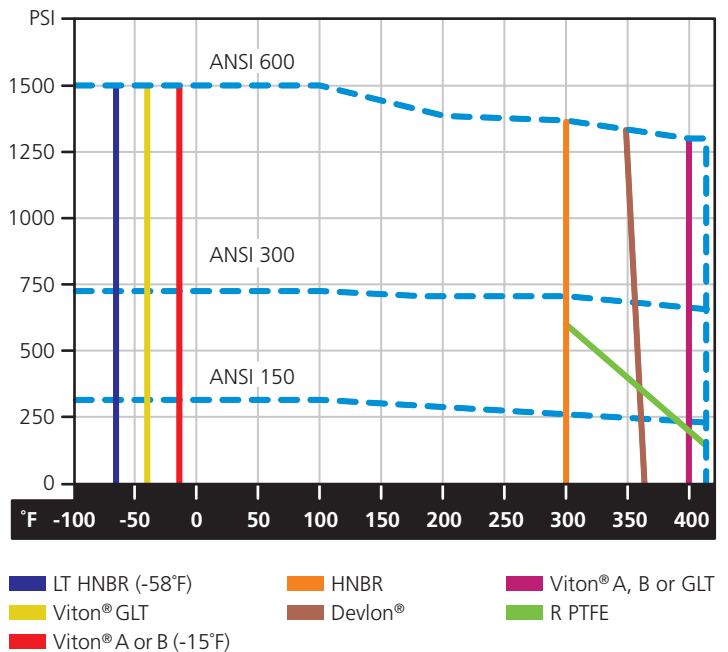
- NACE MR0175 2015 • Sulfide stress cracking resistant metallic materials for oilfield equipment

International Standards

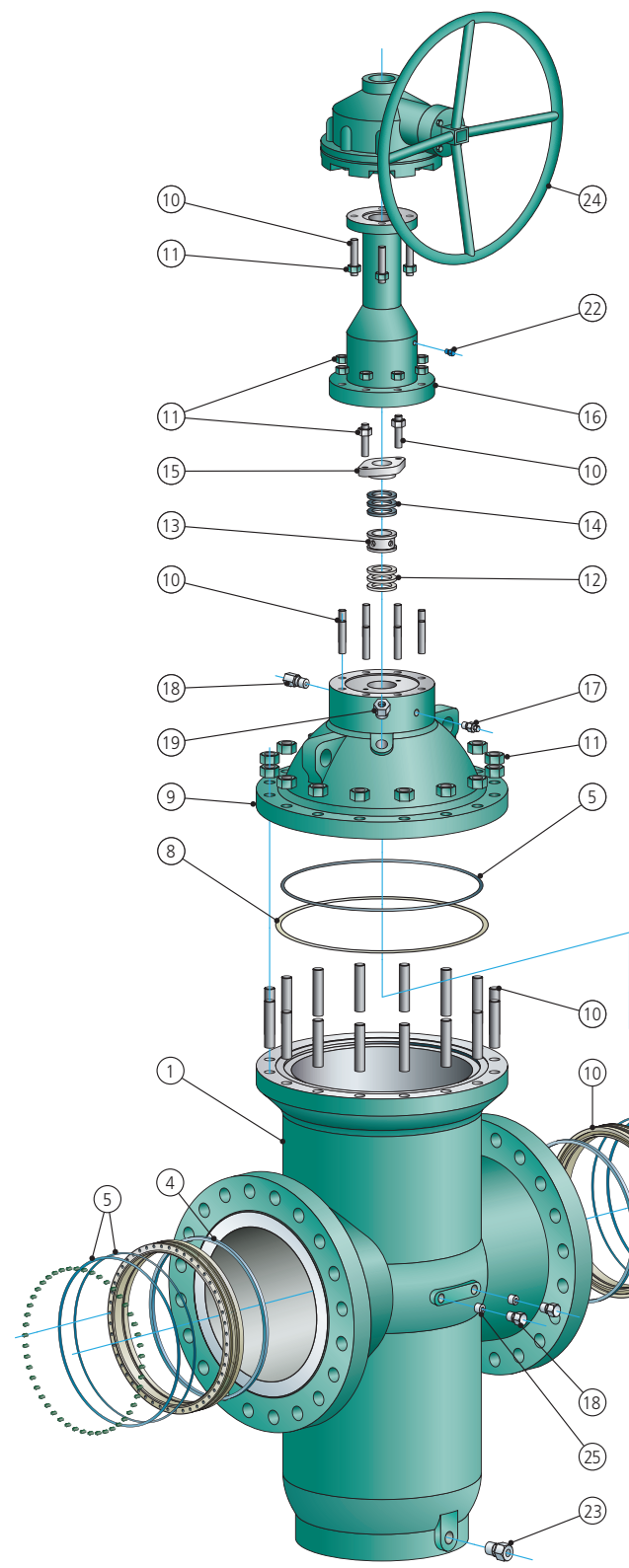
- ISO 15848 • Fugitive Emissions Certification

Pressure Temperature

The chart below depicts pressure and temperature ratings for common plastics and elastomers used in PBV slab gate valves.

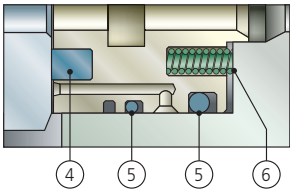


PARTS & MATERIALS

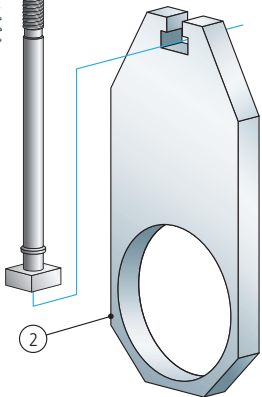


Parts & Materials

No.	Description	Material
1	Body	A216 WCC
2	Gate	A105 + ENP
3	Seat Insert	R PTFE (Class 150 -300) Devlon (Class 600)
4	Seat	A105 + ENP
5	O-Ring	Viton GLT
6	Seat Springs	X750
7	Stem	17-4 PH
8	Special Spiral Wound Gasket	316SS + Graphite
9	Bonnet	A216 WCC
10	Stud	A193 B7M
11	Nut	A194 2HM
12	Packing	PTFE
13	Lantern Ring	316SS
14	Packing	Graphite
15	Gland	316SS
16	Yoke	Carbon Steel
17	Packing Relief Fitting	Carbon Steel
18	Packing Injection Fitting	Carbon Steel
19	Vent Valve	Carbon Steel
22	Plug	PTFE
23	Drain Valve	Carbon Steel
24	Gear	Commercial
25	Internal Check Valve	Stainless Steel



Seat Detail



DESIGN FEATURES

Construction Materials

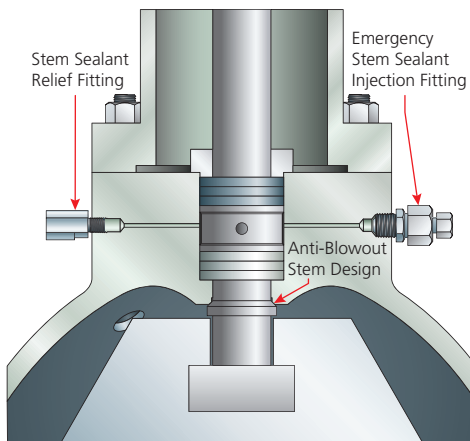
PBV offers a wide range of options when it comes to the construction of slab gate valves. Our standard valves are crafted using A216 Gr. WCC body and bonnet, B7M/2HM fasteners, and 3 mil ENP carbon steel trim with 17-4 PH stem. These materials are chosen for their superior strength, corrosion resistance, and durability in harsh environments. We also provide material test reports in accordance with EN10204 3.1b for each serialized valve, ensuring transparency and quality.

NACE Compliance

With the increasing demand for valves that can resist sulfide stress cracking and perform in corrosive hydrocarbon environments, NACE compliance has become a crucial factor. Our valves are designed and manufactured to meet the stringent requirements of NACE, ensuring they can withstand the harsh conditions of H₂S bearing hydrocarbons. Factors such as hydrogen sulfide concentration, total system pressure, application temperature, existence of elemental sulfur, and chloride content all play a role in the selection of appropriate materials in this severe environment. All materials used by PBV are in accordance with the prequalified materials identified in NACE MR0175/ISO 15156. To ensure compliance, customers must provide application-specific operating conditions.

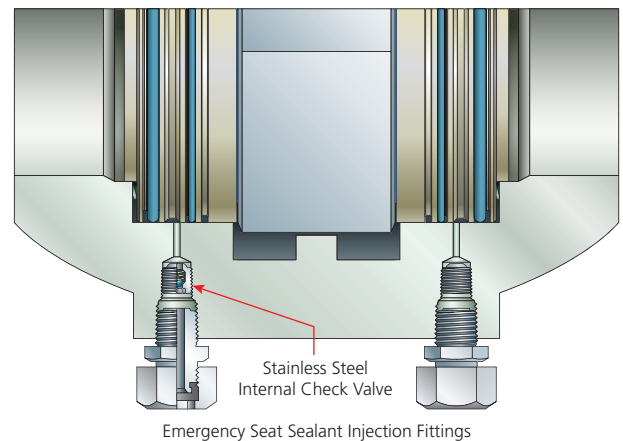
Certification of Quality and Design

Quality systems are a way of life at PBV. Additionally, we function under the requirements of an API Q1 quality program. Our facilities and quality programs are always open to customer audits. PBV slab gates have been tested in accordance with API 6FA. All API 6D, CE PED, and other licenses are maintained on a current basis. Every PBV slab gate valve is API 6D monogrammed and serialized.



Stem Design

PBV stems are blowout-proof and designed with an internal stop feature to prevent overtravel of the slab.



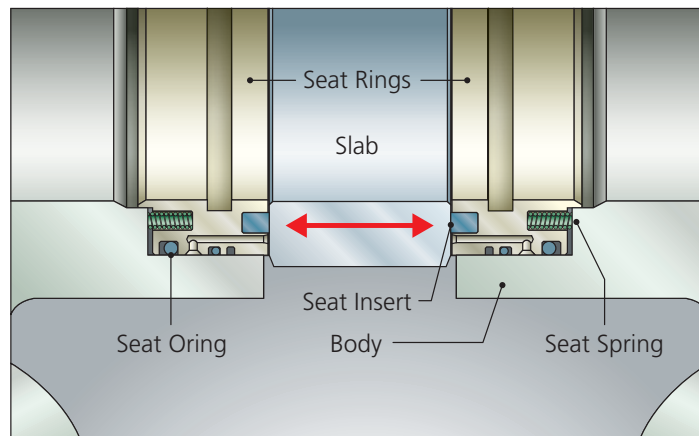
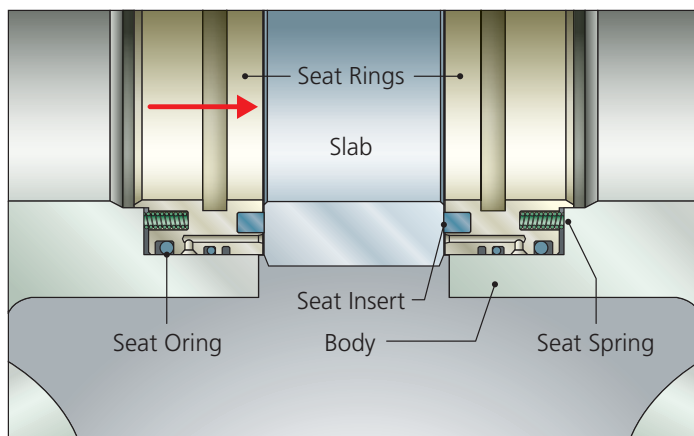
Secondary Sealant Injection System

All sizes have secondary sealant injection fittings for the stem and seats. If the seat inserts become damaged, you can prevent leakage from the seat and stem by injecting sealant into the fittings.

DESIGN FEATURES

Soft and Metal Seats

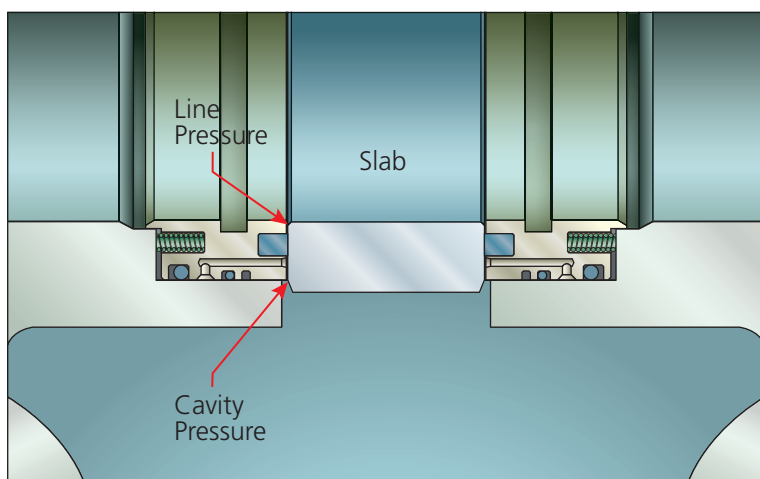
The spring-loaded double O-ring seat design provides positive sealing for low- and high-pressure applications. The soft seat insert ensures primary sealing to the slab gate. In the event of soft seat damage, metal-to-metal sealing will function as a secondary seal.



Double Block

When the valve is closed, both seats can shut off line pressure independently of upstream and downstream pressure via the piston effect on the seat, creating a double-block scenario.

When line pressure is applied, the pressure forces the slab gate to float against the downstream seat and form a tight seal. At the same time, the upstream line pressure forces the upstream seat on the slab gate to create an upstream seal.

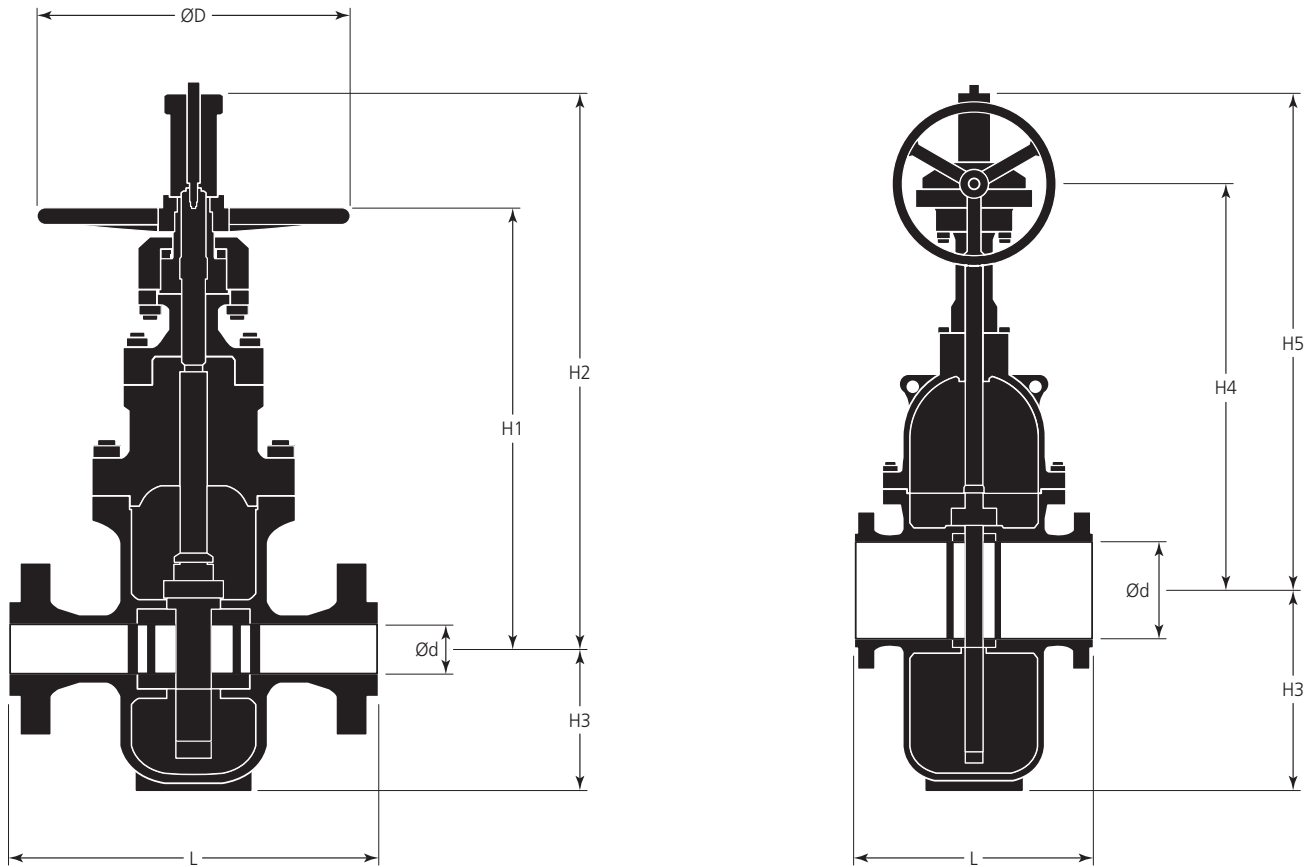


Self-Relieving Cavity

Media gets trapped in the body cavity when a slab gate valve is closed. If this media is not drained, it will undergo thermal expansion and contraction. As the temperature rises, the trapped media expands, causing an increase in pressure. PBV designs self-relieving seats to prevent excessive pressure build-up, allowing the media to escape into the pipeline. This self-relieving seat design is a standard feature on all PBV slab gate valves.

DIMENSIONAL DATA & FLOW COEFFICIENT

2" - 24" — Class 150



Dimensional Data (in.)

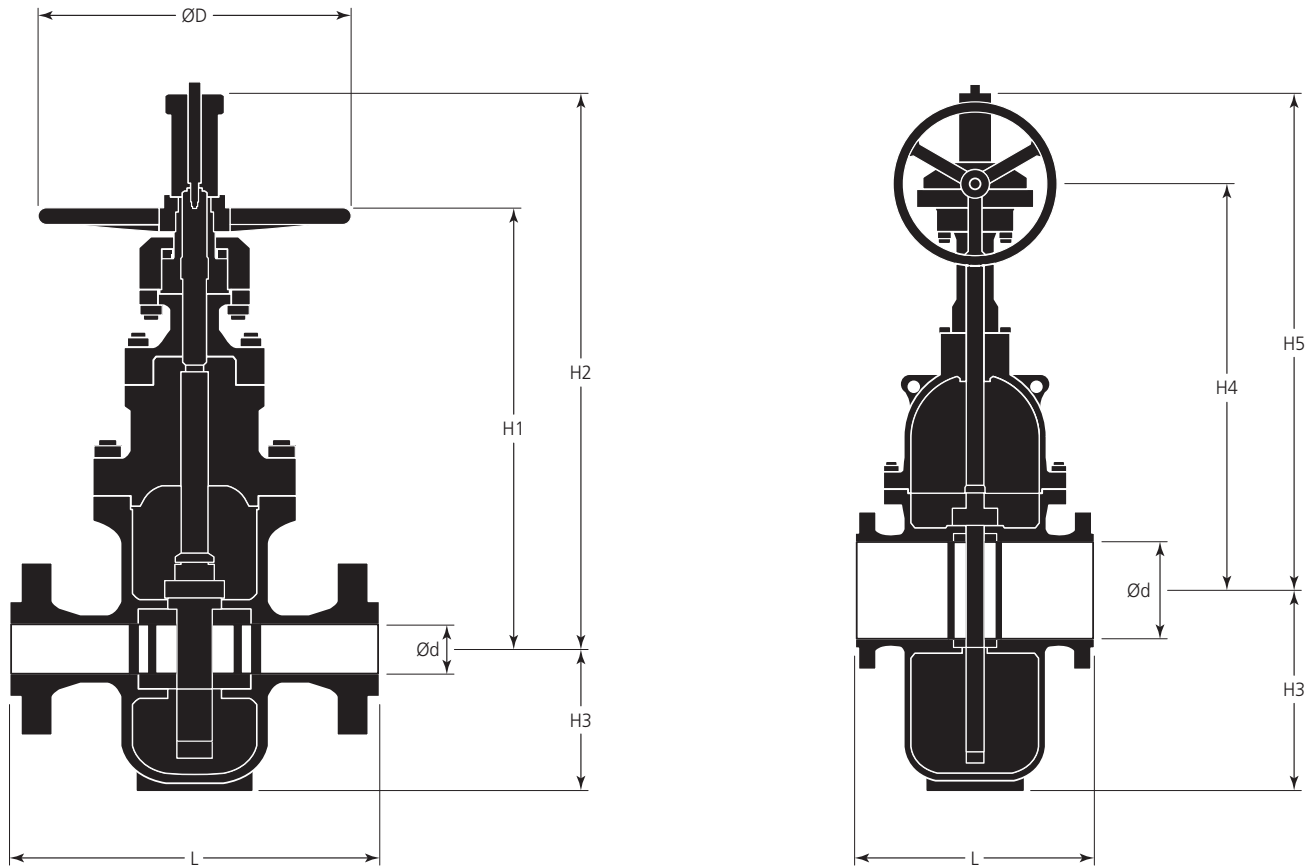
Size (in.)	d	L		H1	H2	H3	H4	H5	D	Weight (lbs.)	
		RF	RTJ							RF	RTJ
2	1.93	7.01	7.52	16.73	20.93	5.31	16.73	20.93	9.84	110	110
3	2.91	7.99	8.50	19.88	25.31	7.09	19.88	25.31	11.81	150	157
4	3.94	9.02	9.49	22.05	27.76	8.46	22.28	27.76	11.81	218	231
6	5.91	10.51	10.98	28.15	31.89	11.73	27.76	31.89	—	388	397
8	7.91	11.50	12.01	35.83	45.28	15.24	35.35	45.28	—	639	661
10	9.92	12.99	13.50	41.73	52.95	18.70	40.98	52.95	—	728	750
12	11.93	14.02	14.49	45.47	59.84	21.65	45.79	59.84	—	1058	1080
14	13.15	15.00	15.51	48.82	67.13	24.02	49.09	67.13	—	1609	1620
16	15.16	15.98	16.50	54.33	72.64	27.95	54.41	72.64	—	2183	2200
18	17.17	17.01	17.52	63.39	84.25	32.28	63.19	84.25	—	2800	2800
20	19.17	17.99	18.50	65.16	87.40	33.27	65.83	87.40	—	3594	3616
24	23.19	20.00	20.51	77.95	106.69	39.57	78.43	106.69	—	5798	5842

Flow Coefficient (Cv)

Size (in.)											
2	3	4	6	8	10	12	14	16	18	20	24
412	1175	2170	4673	9742	16,592	25,463	30,800	43,234	57,228	72,547	110,654

DIMENSIONAL DATA & FLOW COEFFICIENT

2" - 24" — Class 300



Dimensional Data (in.)

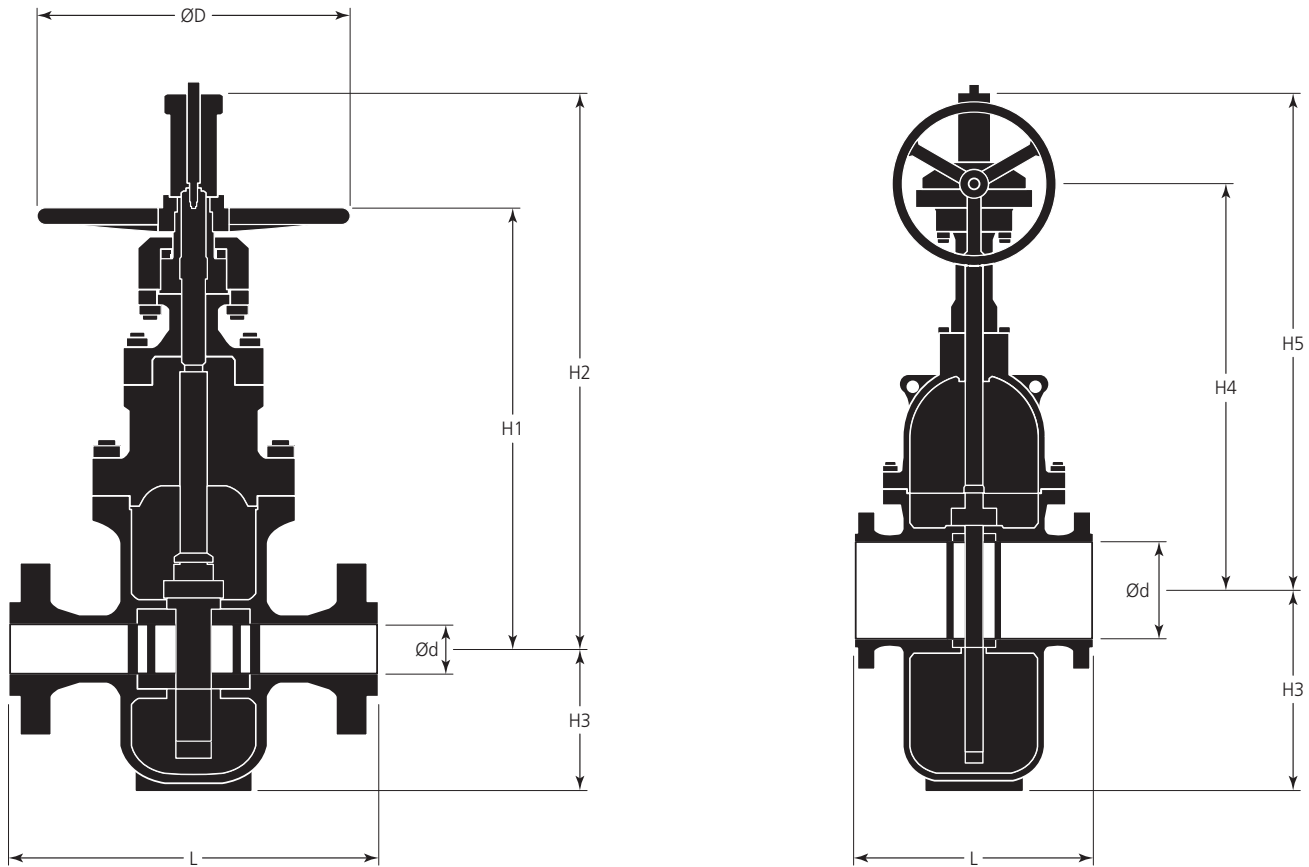
Size (in.)	d	L		H1	H2	H3	H4	H5	D	Weight (lbs.)	
		RF	RTJ							RF	RTJ
2	1.93	8.50	9.13	16.73	20.96	5.31	16.73	20.96	9.84	1.21	1.28
3	2.91	11.14	11.73	19.88	25.41	6.89	19.88	25.41	11.81	165	168
4	3.94	12.01	12.64	22.28	27.76	8.78	22.52	27.76	11.81	342	364
6	5.91	15.87	16.50	28.15	31.89	12.20	27.76	31.89	—	419	441
8	7.91	16.50	17.13	36.02	45.87	15.75	35.71	45.87	—	728	750
10	9.92	17.99	18.62	41.93	53.54	18.90	41.26	53.54	—	1080	1135
12	11.93	19.76	20.39	45.67	60.43	22.24	46.14	60.43	—	1521	1543
14	13.15	30.00	30.63	48.82	67.13	24.02	49.09	67.13	—	2205	2238
16	15.16	32.99	33.62	54.72	73.23	26.77	55.16	73.23	—	3109	3153
18	17.17	35.98	36.61	63.39	84.25	32.28	63.62	84.25	—	4211	4255
20	19.17	39.02	39.76	65.16	87.40	33.27	66.22	87.40	—	5313	5357
24	23.19	45.00	45.87	77.95	106.69	39.57	78.11	106.69	—	8267	8289

Flow Coefficient (C_v)

Size (in.)											
2	3	4	6	8	10	12	14	16	18	20	24
373	999	1882	4585	9562	16,312	25,070	26,715	36,526	48,218	60,888	92,417

DIMENSIONAL DATA & FLOW COEFFICIENT

2" - 24" — Class 600



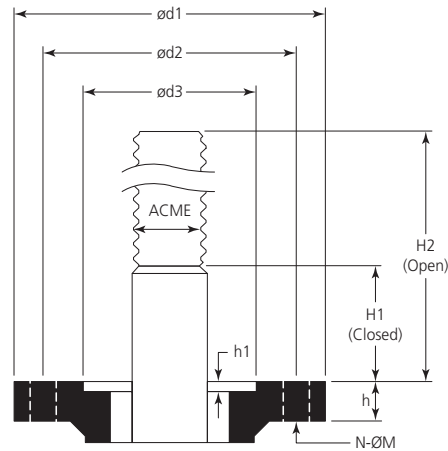
Dimensional Data (in.)

Size (in.)	d	L		H1	H2	H3	H4	H5	D	Weight (lbs.)	
		RF	RTJ							RF	RTJ
2	1.93	11.50	11.61	16.73	20.96	5.31	16.73	20.96	9.84	176	176
3	2.91	14.02	14.13	19.88	25.31	7.01	19.88	25.31	11.81	243	243
4	3.94	17.01	17.13	22.28	27.76	8.66	22.52	27.76	19.69	342	342
6	5.91	22.01	22.13	29.33	39.61	12.20	28.62	36.61	—	679	679
8	7.91	25.98	26.14	36.81	46.26	15.55	36.06	46.26	—	1067	1067
10	9.92	30.98	31.14	42.52	54.13	19.09	41.89	54.13	—	1653	1653
12	11.93	32.99	33.11	51.38	63.78	22.44	47.32	63.78	—	2976	3858
14	13.15	35.00	35.12	49.02	67.32	24.02	49.57	67.32	—	3704	3704
16	15.16	39.02	39.13	58.27	78.74	27.95	58.86	78.74	—	4442	4442
18	17.17	42.99	43.11	63.39	84.25	32.28	63.62	84.25	—	5908	5908
20	19.17	47.01	47.24	68.90	91.73	34.06	70.87	91.73	—	6603	6603
24	23.19	76.26	55.39	81.50	109.84	42.52	83.58	109.84	—	10,670	10,714

Flow Coefficient (C_v)

Size (in.)											
2	3	4	6	8	10	12	14	16	18	20	24
327	959	1682	3959	7687	12,572	19,662	24,945	33,862	44,436	55,847	84,117

TOPWORKS, STEM TORQUE, & OPERATING THRUST DATA



Size (in.)	Class	MSS SP-102	Thread (ACME-2G-LH)	d1	d2	d3	N- ϕ M	h1	h	H1	H2	Torque (ft.-lbs.)	Operate Thrust (lb.-force)
2	150	FA07	0.75-0.125P-0.25L	3.54	2.75	2.17	4- ϕ 0.35	0.16	0.59	3.64	6.28	4.4	507.7
	300	FA07	0.75-0.125P-0.25L	3.54	2.75	2.17	4- ϕ 0.35	0.16	0.59	3.68	6.28	9.6	1130.8
	600	FA07	0.75-0.125P-0.25L	3.54	2.75	2.17	4- ϕ 0.35	0.16	0.59	3.68	6.28	19.2	2283.8
3	150	FA07	0.75-0.125P-0.25L	3.54	2.75	2.17	4- ϕ 0.35	0.16	0.59	3.68	7.42	7.4	815.2
	300	FA07	0.75-0.125P-0.25L	3.54	2.75	2.17	4- ϕ 0.35	0.16	0.59	3.68	7.42	17.0	2037.6
	600	FA07	0.75-0.125P-0.25L	3.54	2.75	2.17	4- ϕ 0.35	0.16	0.59	3.68	7.42	36.1	4368.1
4	150	FA10	1-0.125P-0.25L	4.92	4.00	2.31	4- ϕ 0.43	0.16	0.79	2.42	7.07	11.1	1139.2
	300	FA10	1-0.125P-0.25L	4.92	4.00	2.31	4- ϕ 0.43	0.16	0.79	2.20	6.97	28.0	2847.5
	600	FA10	1-0.125P-0.25L	4.92	4.00	2.31	4- ϕ 0.43	0.16	0.79	2.36	7.13	59.0	6104.5
6	150	FA10	1.5-0.167P-0.333L	4.92	4.00	2.31	4- ϕ 0.43	0.16	0.79	3.41	10.10	29.5	2135.2
	300	FA10	1.5-0.167P-0.333L	4.92	4.00	2.31	4- ϕ 0.43	0.16	0.79	3.33	10.14	73.8	5338.0
	600	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.33	10.18	157.1	11,430.6
8	150	FA10	1.5-0.167P-0.333L	4.92	4.00	2.31	4- ϕ 0.43	0.16	0.79	3.33	12.07	42.0	3049.6
	300	FA10	1.5-0.167P-0.333L	4.92	4.00	2.31	4- ϕ 0.43	0.16	0.79	3.37	12.26	104.7	7623.9
	600	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.35	12.24	239.7	17,458.7
10	150	11.14	1.5-0.167P-0.333L	25.41	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.31	14.13	55.3	4010.8
	300	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.33	14.43	137.9	10,026.9
	600	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.39	14.33	300.2	21,850.4
12	150	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.33	16.16	74.5	5400.5
	300	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.35	16.38	187.3	13,633.3
	600	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.39	16.46	414.5	30,231.7
16	150	11.14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.35	19.53	104.7	7623.7
	300	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.35	19.61	276.6	20,162.5
	600	FA16	1.75-0.2P-0.4L	8.25	6.50	5.00	4- ϕ 0.87	0.24	1.18	3.84	20.10	669.0	46,001.7
20	150	FA14	1.5-0.167P-0.333L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.37	23.72	159.3	11,599
	300	FA25	1.75-0.2P-0.4L	11.38	10.02	6.00	8- ϕ 0.75	0.24	0.98	3.94	24.49	571.6	26,601.4
	600	FA25	2-0.25P-0.5L	11.38	10.02	6.00	8- ϕ 0.75	0.24	0.98	4.53	25.12	1295.2	67,063.9
24	150	FA14	1.75-0.2P-0.4L	6.89	5.50	3.75	4- ϕ 0.75	0.20	0.98	3.94	28.46	286.2	16,757.1
	300	FA25	2-0.25P-0.5L	11.38	10.02	6.00	8- ϕ 0.75	0.24	0.98	4.53	29.02	958.8	37,869.1
	600	FA30	2.375-0.333P-0.666L	13.50	11.75	7.00	8- ϕ 0.87	0.24	1.18	5.12	30.00	2452.4	102,617.2

Note: Torque and thrust values provided in this table are calculated for the following maximum working pressures: Class 150- 285 psi / Class 300- 740 psi / Class 600-1480 psi

OUR CORE VALUES

No One Gets Hurt

The safety of our employees and customers is our first priority coupled with a healthy respect for the environment.

Integrity

In everything we do, in every interaction, both internally and externally, we strive to operate with the utmost integrity and mutual respect.

Customer Focused

Our products enhance our customer's performance and we listen to their needs and work with them to solve their challenges.

Good Place To Work

We are committed to creating a workplace that fosters innovation, teamwork and pride. Every team member is integral to our success and is treated equally and fairly.

FORUM ENERGY TECHNOLOGIES



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