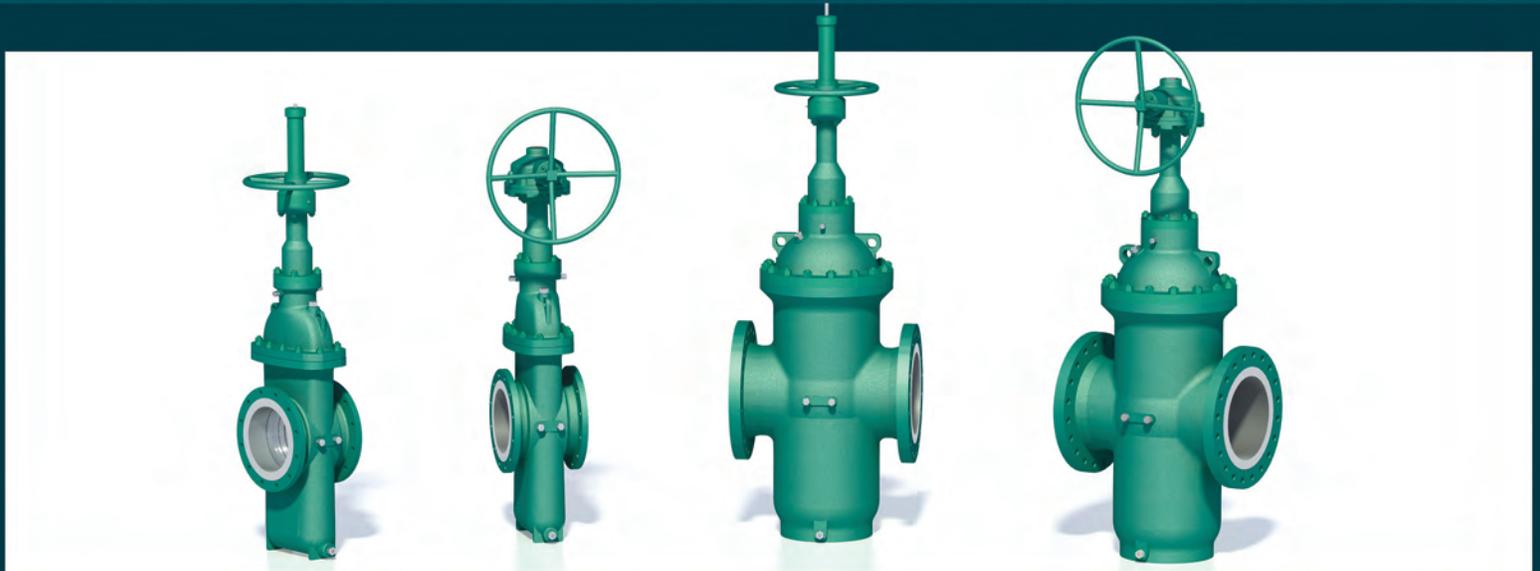
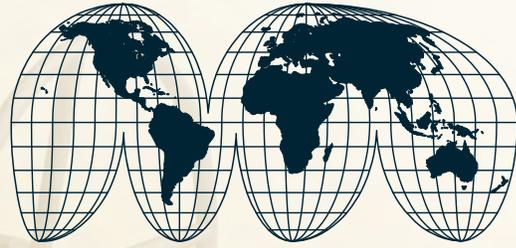


Smart Solutions. Powerful Products.

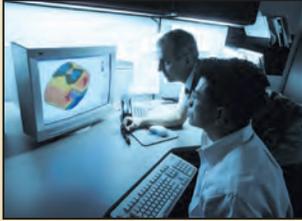


PBV[®] Series 6100 Slab Gate Through Conduit Valves



Manufacturer of Quality Valve Products Around the Globe

At Forum™ Energy Technologies we are 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.



Engineering Expertise

Forum™ utilizes 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 for designing valves to specific customer requirements.



CAD & NC Capabilities

With FET's fast and efficient workflow, CAD drawings can be released to the network for manufacturing and purchasing. All computer generated machine programs can be quickly changed for weld overlays or other processes. The result is faster deliveries.



Accurate Inventories

Daily cycle counting & order picking using wireless barcode guns 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 around the world. Advanced engineering and our Quality Management System assure that our valve products continue to exceed your expectations for performance.



Customer Service

Forum™'s Customer Service Department is fully staffed with trained customer service representatives ready to help you with your ordering information, technical specifications and logistics.



PBV® Series 6100 Slab Gate Through Conduit Valves

Engineering Excellence at Work

PBV® bi-directional double block-and-bleed slab gate valves are engineered to use line pressure force to provide mechanical tight sealing on the upstream side when high differential pressure occurs. Low pressure sealing is achieved by internal springs that assist in pushing the seat ring against the gate. This slab gate valve is through conduit, piggable and top entry. Applications include transportation pipelines for gas, crude oil and oil products. Available in a variety of materials and configurations to meet your specific project requirements.

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

Chevron Style PTFE Packing
ensures long lasting trouble free stem sealing.

Stem Injection Fitting
for secondary sealing.

Smooth Electroless Nickel Plated Slab
for bubble tight sealing and low operating torque.

Seat Injection Fitting
with internal check valve for emergency sealing.

Drain Valve
for block-and-bleed function and seat integrity verification.

Valve Serialization
provides complete traceability.

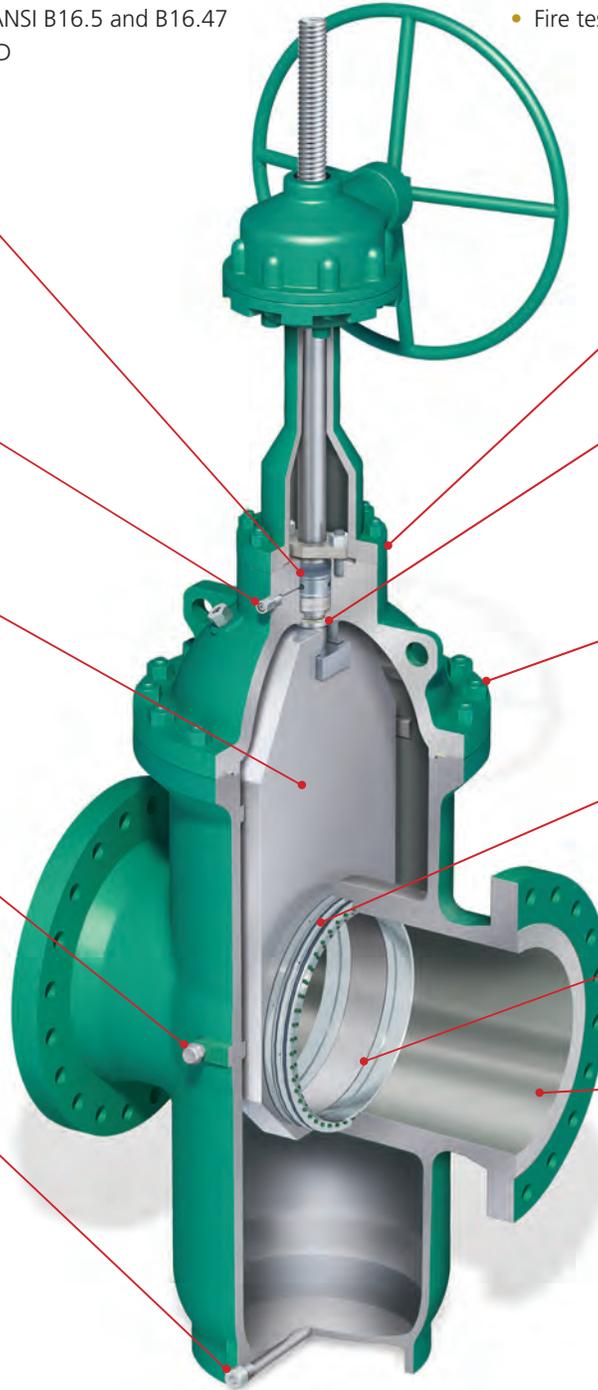
Stem Designed with Internal Stops
to prevent overtravel of slab and does not require adjustment.

NACE MR0175
compliant studs & nuts.

Seats
ensure low and high pressure sealing and body cavity self relief.

Secondary Metal-to-Metal Sealing
accomplishes firesafe requirements.

Full Bore
through conduit, bi-directional flow.



Contents

How to Order, Specifying Series 6100 Valve Figure Numbers, Design Standards and Pressure Temperature	4
Parts & Materials	5
Valve Operation and Design Features	7
Dimensional Data (in.)	8
Top Works, Stem Torque and Thrust Data	11

PBV® Series 6100 Slab Gate Through Conduit Valves

How to Order

Specifying Series 6100 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.

C - 6 1 10 - 7 1 - 22 14 - M U T - N G

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 17-4 PH 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

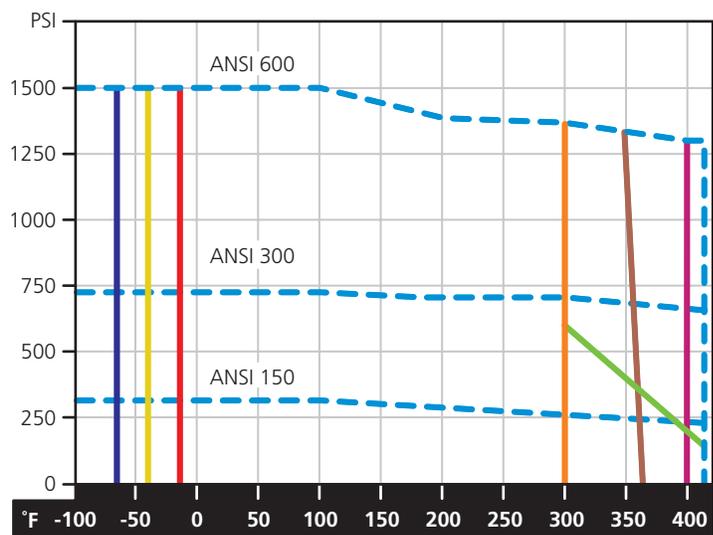
- ASME B 16.25 • Butt welding ends
- ASME/ANSI B 16.34 • Valves-flanged threaded and welding end
- ASME/ANSI B 16.47 • Large diameter steel flanges
- ASME/ANSI B 16.5 • Steel pipe flanges and flanged fittings

National Association of Corrosion Engineers

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

Pressure Temperature

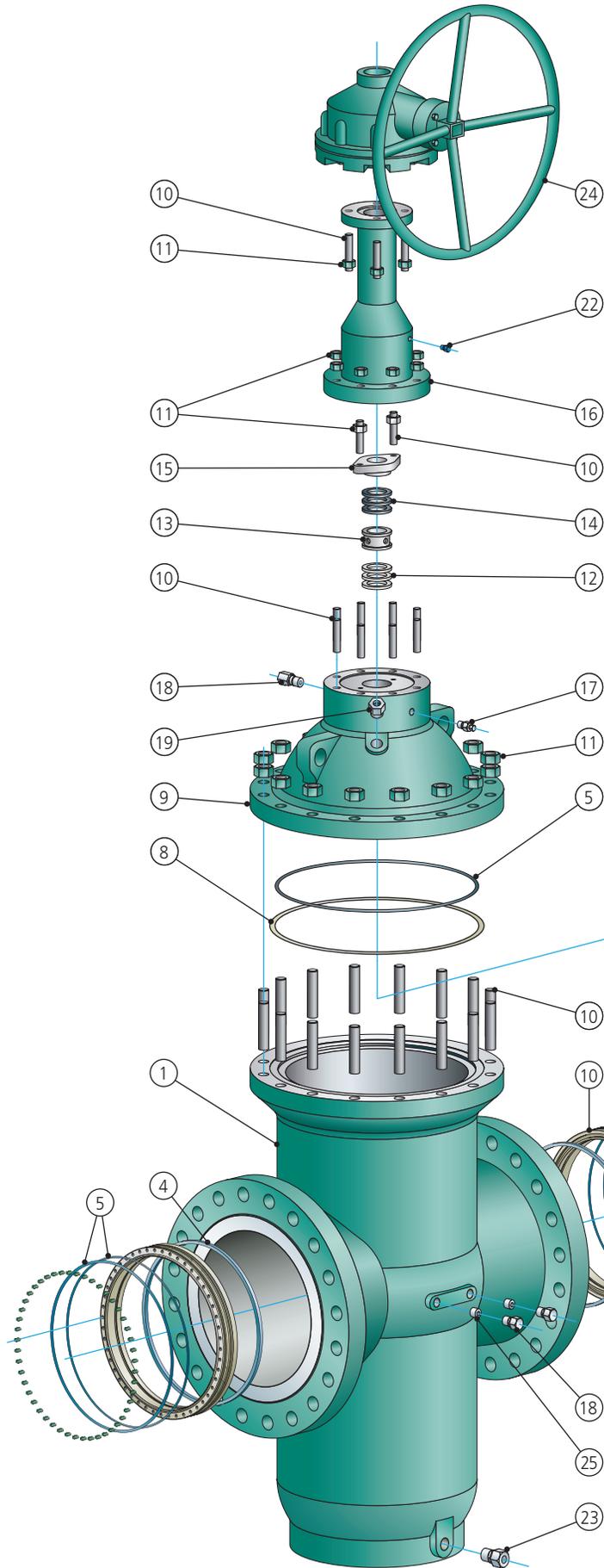
The chart below depicts pressure and temperature ratings for common plastics and elastomers used in PBV® slab gate valves.



- LT HNBR (-58°F)
- Viton® GLT
- Viton® A or B (-15°F)
- HNBR
- Devlon®
- Viton® A, B or GLT
- R PTFE

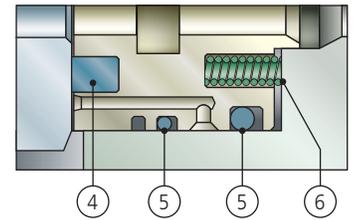
PBV® Series 6100 Slab Gate Through Conduit Valves

Parts & Materials

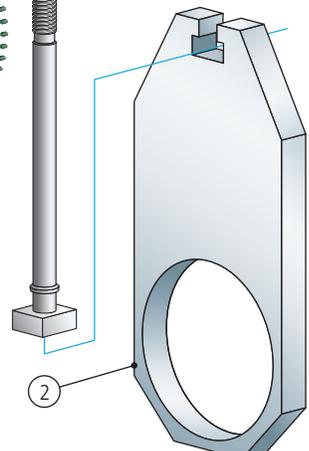


Parts & Materials

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



PBV® Series 6100 Slab Gate Through Conduit Valves

Design Features

Materials of Construction

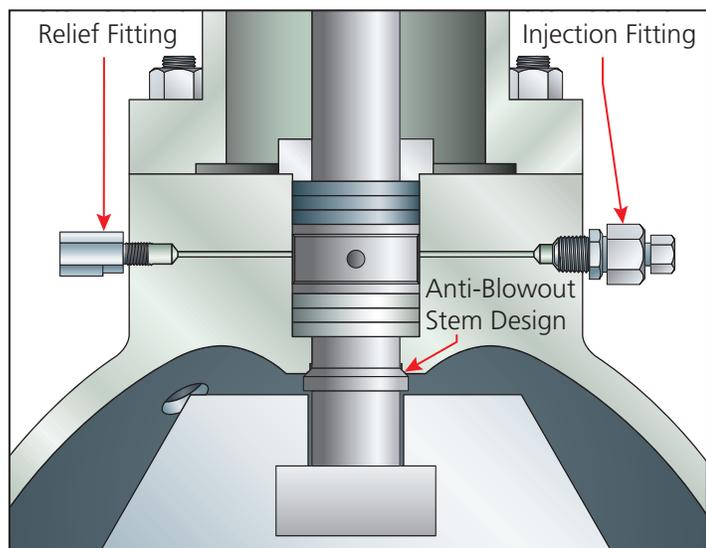
PBV® manufactures slab gate valves using a full range of carbon, alloy and stainless materials. Our standard valves are manufactured using A216 Gr. WCC body and bonnet, B7M/2HM fasteners and 3 mil ENP carbon steel trim with 17-4 PH stem. Material test reports in accordance with EN10204 3.1b are available on each serialized valve.

NACE Compliance

The demand for valves to be resistant to sulfide stress cracking, and to perform in corrosive hydrocarbon environments, has become commonplace. Facilities handling H₂S bearing hydrocarbons have increased dramatically over recent years. Hydrogen sulfide concentration, total system pressure, application temperature, existence of elemental sulfur, and chloride content all have a bearing on appropriate material selection in this severe environment. All materials used by PBV® are in accordance with the prequalified materials identified in NACE MR0175/ISO 15156. In order to ensure compliance customers must provide application specific operating conditions.

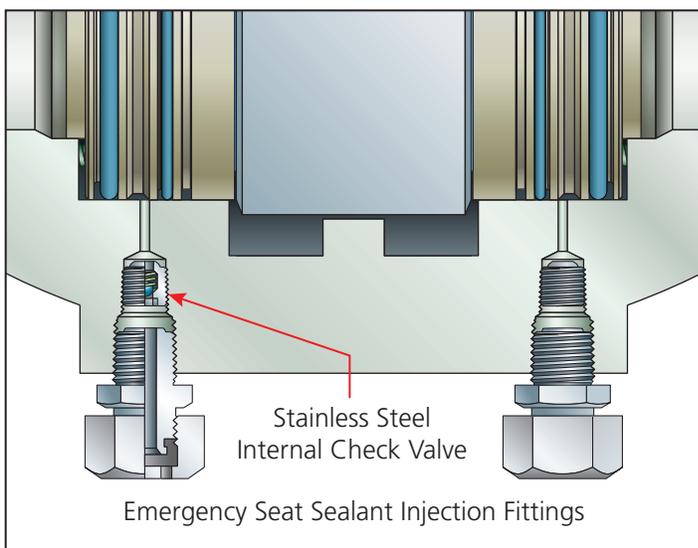
Certification of Quality and Design

Quality systems are a way of life at PBV®. In addition, PBV® functions 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 to API 6FA. All API 6D, CE PED and other licenses are maintained on a current basis. Each and 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, leakage from the seat and stem can be prevented by injecting sealant into the fittings.

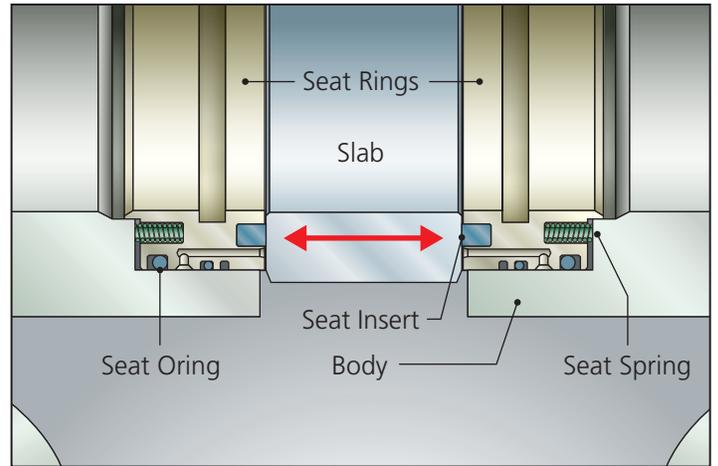
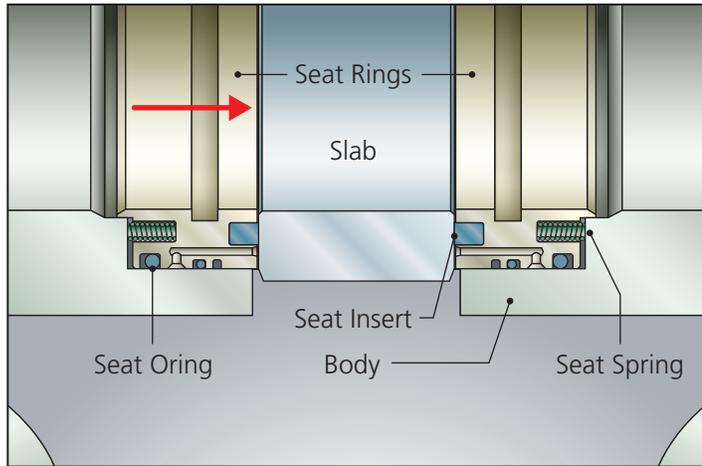
PBV® Series 6100 Slab Gate Through Conduit Valves

Design Features

Soft and Metal Seats

The spring loaded double o-ring seat design provides positive sealing for both low pressure and high pressure applications. The soft seat insert ensures primary sealing to the slab gate.

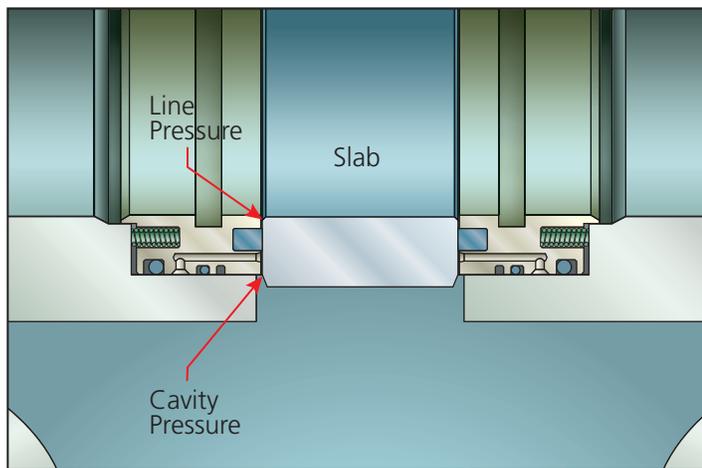
In the event of soft seat damage, the sealing of metal-to-metal will function as a secondary seal.



Double Block

When the valve is in the closed position, both seats can shut off line pressure independently of upstream and downstream pressure via the piston effect on the seat. This creates 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 form an upstream seal.

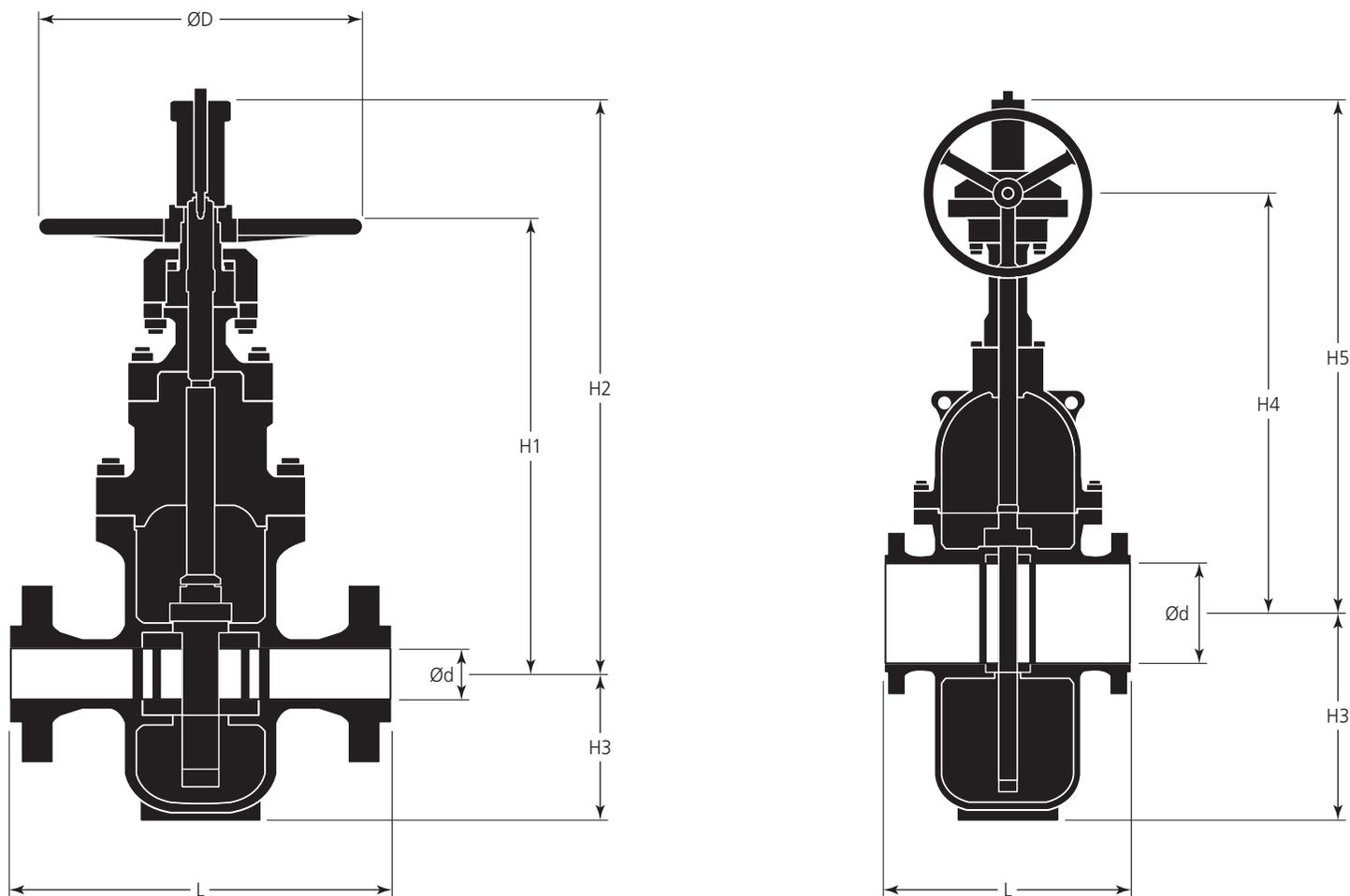


Self Relieving Cavity

When a slab gate valve is in the closed position, media will be trapped in the body cavity. Unless this media is drained, it will be subjected to thermal expansion and contraction. As the temperature rises, the trapped media desires to expand and the pressure increases. In order to avoid excessive pressure build-up, the PBV® seats are designed to self-relieve, allowing the media in the body to escape to the pipeline. This self-relieving seat design feature is standard on all PBV® slab gate valves.

PBV® Series 6100 Slab Gate Through Conduit Valves

Dimensional Data (in.) & Flow Coefficient (C_v) • 2"-24", Class 150



Dimensional Data (in.)

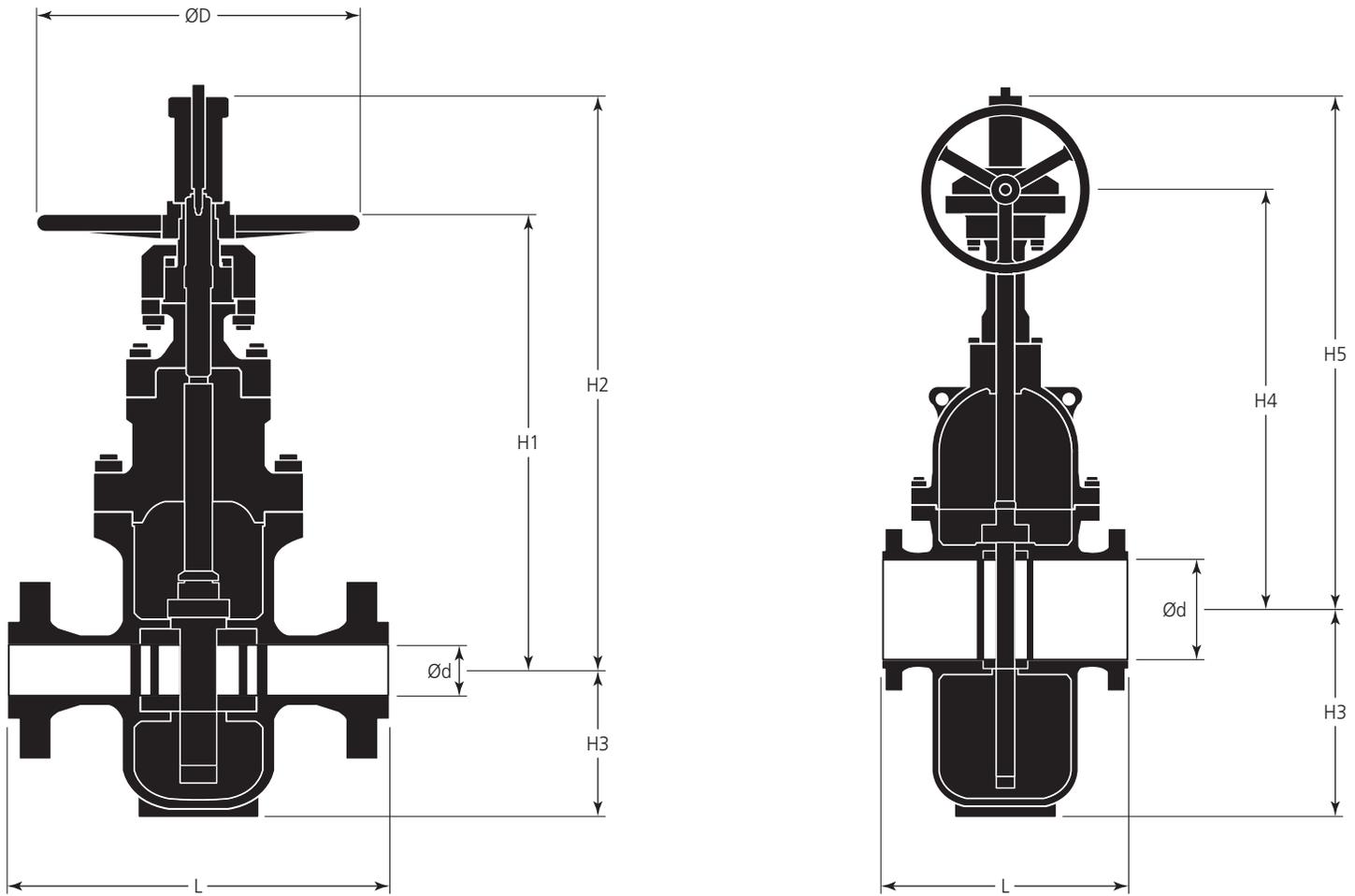
Size (in.)	d	L		H1	H2	H3	H4	H5	D	Weight (lbs.)	
		RF	RTJ							RF	RTJ
2	1.93	7.01	7.52	16.73	20.93	5.31	16.73	20.93	9.84	110	110
3	2.91	7.99	8.50	19.88	25.31	7.09	19.88	25.31	11.81	150	157
4	3.94	9.02	9.49	22.05	27.76	8.46	22.28	27.76	11.81	218	231
6	5.91	10.51	10.98	28.15	31.89	11.73	27.76	31.89	—	388	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 (C_v)

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

PBV® Series 6100 Slab Gate Through Conduit Valves

Dimensional Data (in.) & Flow Coefficient (C_v) • 2"-24", Class 300



Dimensional Data (in.)

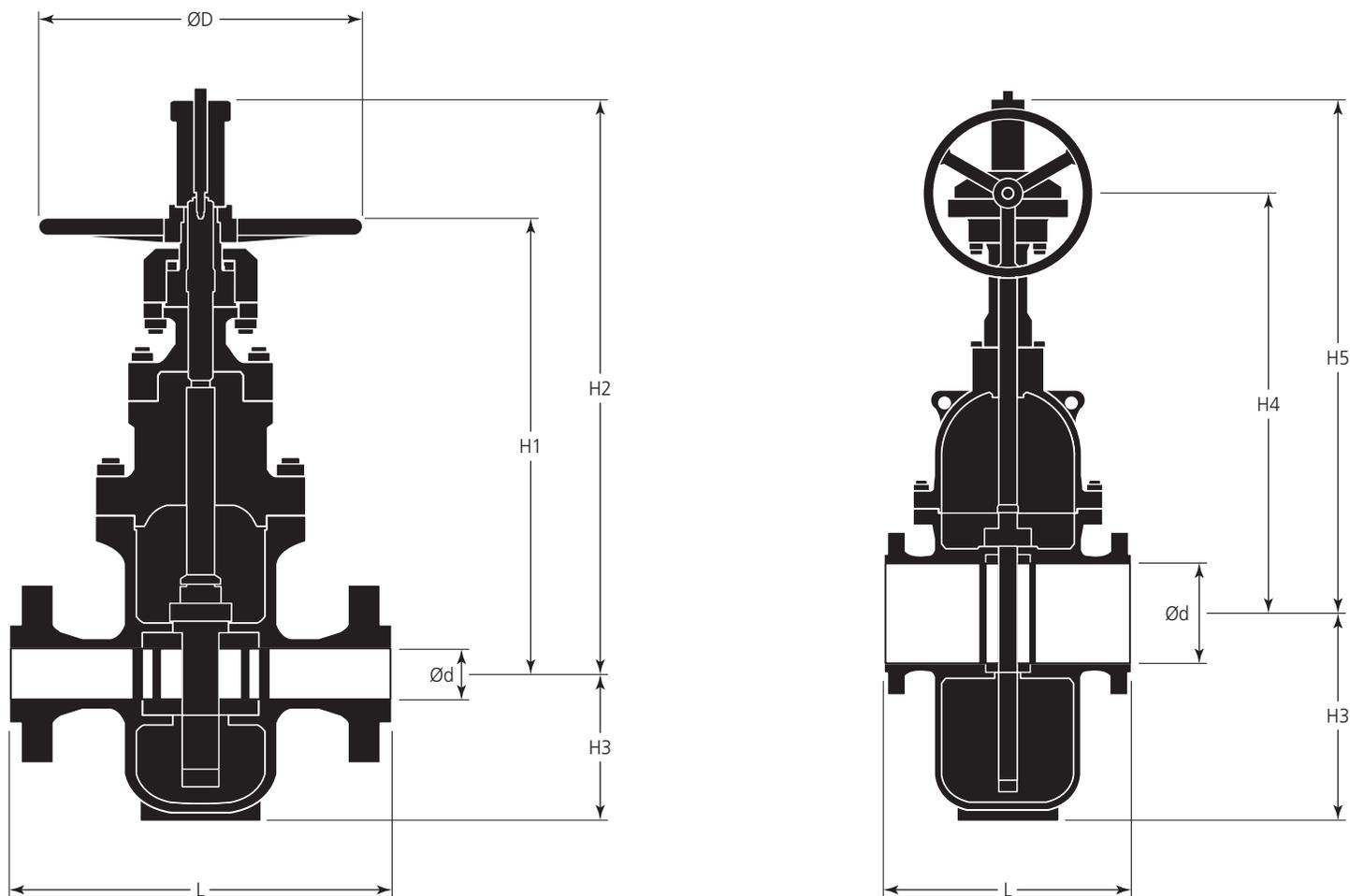
Size (in.)	d	L		H1	H2	H3	H4	H5	D	Weight (lbs.)	
		RF	RTJ							RF	RTJ
2	1.93	8.50	9.13	16.73	20.96	5.31	16.73	20.96	9.84	1.21	1.28
3	2.91	11.14	11.73	19.88	25.41	6.89	19.88	25.41	11.81	165	168
4	3.94	12.01	12.64	22.28	27.76	8.78	22.52	27.76	11.81	342	364
6	5.91	15.87	16.50	28.15	31.89	12.20	27.76	31.89	—	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

PBV® Series 6100 Slab Gate Through Conduit Valves

Dimensional Data (in.) & Flow Coefficient (C_v) • 2"-24", Class 600



Dimensional Data (in.)

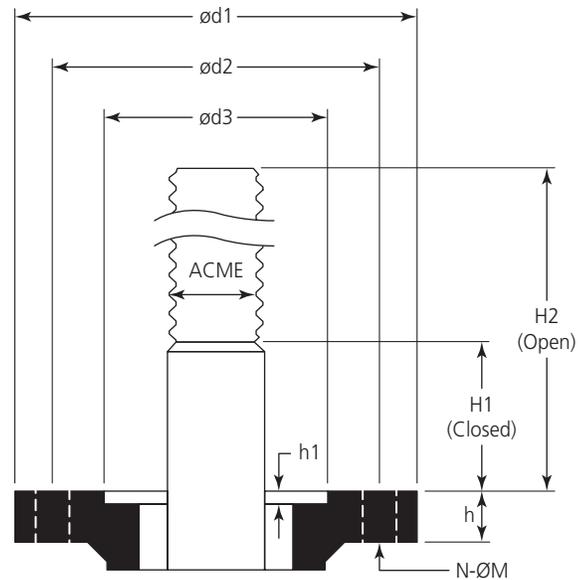
Size (in.)	d	L		H1	H2	H3	H4	H5	D	Weight (lbs.)	
		RF	RTJ							RF	RTJ
2	1.93	11.50	11.61	16.73	20.96	5.31	16.73	20.96	9.84	176	176
3	2.91	14.02	14.13	19.88	25.31	7.01	19.88	25.31	11.81	243	243
4	3.94	17.01	17.13	22.28	27.76	8.66	22.52	27.76	19.69	342	342
6	5.91	22.01	22.13	29.33	39.61	12.20	28.62	36.61	—	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

PBV® Series 6100 Slab Gate Through Conduit Valves

Topworks, Stem Torque & Operating Thrust Data



Size (in.)	Class	MSS SP-102	Thread (ACME-2G-LH)	d1	d2	d3	N-ØM	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-Ø0.35	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-Ø0.35	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-Ø0.35	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-Ø0.35	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-Ø0.35	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-Ø0.35	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-Ø0.43	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-Ø0.43	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-Ø0.43	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-Ø0.43	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-Ø0.43	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-Ø0.75	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-Ø0.43	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-Ø0.43	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.87	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.75	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-Ø0.87	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 goal is to become the leading provider of mission critical oilfield products and related services in terms of customer satisfaction, safety and financial performance.

Our experienced management team and employees are dedicated to solving our customers' problems. We invest in long term relationships and cooperate on product development with our clients, we consider them our partners.

OUR CORE VALUES

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

Long-term view: We are building our company for the long-term, a company that we can be proud of.

Open communication: We believe partnerships with our customers and co-workers must be based on trust, professionalism and transparency.

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.

No one gets hurt: The safety of our employees and customers is our first priority coupled with a healthy respect for the environment.

For more information about our products and full Terms & Conditions please visit www.f-e-t.com.



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