GATE VALVES CATALOGUE

BOLTED BONNET AND PRESSURE SEAL
FCA SB AND SP MODEL GATE VALVES

FLOW CONTROL APPLICATIONS

FLOW CONTROL APPLICATIONS

FCA - WORKING CLOSELY WITH YOU TO ACHIEVE EXCELLENCE

Even with the most careful and meticulous planning, the success of a project can only be assured with good execution after the contract is signed. **FCA** team of engineering designers, production specialists, logistics experts and process engineers, plays its role to ensure quality products, timely delivery, smooth start-up and plant optimization.

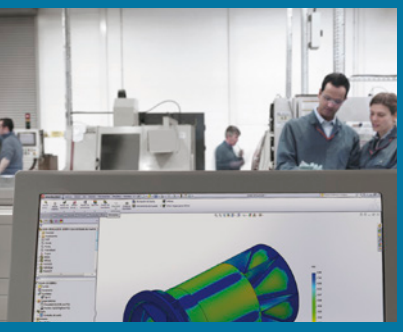
More and more customers trust our DNV certified solutions. **FCA** innovation-driven valves find solutions to any customer challenge or toughest application.

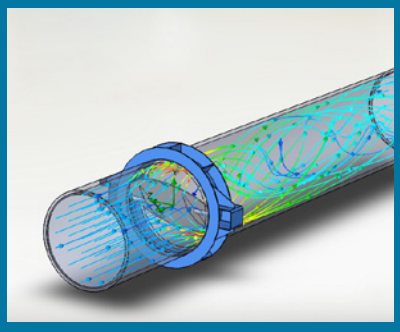
Our target-oriented dynamic team provides **FCA** with enough expertise to efficiently handle highly customized orders. Knowledge of how to manage our resources and capabilities ensures **FCA** to bring customers' expectations further.

Advanced software applications including Finite Element Analysis (FEA), computational fluid dynamics and three-dimensional solid modeling, and our proven know-how, help **FCA** designing high specification valves that meet the most demanding working requirements.

FCA aims partnering with major EPCs and End Users to develop innovative solutions for their valving needs. **FCA** specific capabilities include valve design; stress and finite element analysis; flow analysis; MAST and torque calculation; actuator sizing; testing and test data analysis; and validation of retrofit changes.

FCA offers a wide range of solutions for the toughest industry applications to meet each customer's requirements. This target is only achievable having a flexible multidisciplinary team focused on each customer's particular needs. **FCA** puts effort and makes sure that offers the most complete package assuring the highest quality.





WORLDWIDE

THERE WHERE OUR CUSTOMER IS

From a global vision of the sector and development dynamics of each country, **FCA** offers revolutionary supply alternatives to the customer, preserving the quality from its full design in Ibarra (Spain). Thanks to innovative applications, a professional team and its experience, **FCA** ensures quick response and results tailored to the needs of the customers anywhere in the world.

Its international service network is geared towards local attention in order provide flexible, close and customized solutions; getting so successful responses to new market needs and continuing to expand the activity at a geographical and sectorial level.

FCA valves are used in a wide range of applications such as Hydro Power plants and dams, mineral processing, Oil and Gas, Chemical and Petrochemical plants, Pulp and Paper, Steel industry, Thermal Power plants, Water treatment, Water distribution and Water pump stations as principal applications. Oriented according to main **OIL & GAS, MINERALS**, **POWER** and **WATER** sectors.

FCA® OIL&GAS FCA® MINERALS FCA® POWER FCA® WATER

QUALITY

Due to the applications where our products are installed, our standards are highly demanding. **FCA** valves are engineered to meet most industry's or key player's requirements, providing full code compliance solutions.

FCA comply with ISO 9001-2000 quality standard, guaranteed and certified by DNV. Additionally, international certifications are met such as CE for Pressure Equipment Directive (97/23/EC), Directive 2006/42/EC for machinery, ATEX Directive 94/9/EC, GOST TR/CU, etc...

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BOLTED BONNET DESIGN GATE VALVES

- CLASS 150#
- CLASS 300#
- CLASS 600#
- CLASS 900#
- CLASS 1500#

PRESSURE SEAL BONNET DESIGN GATE VALVES

- CLASS 600#
- CLASS 900#
- CLASS 1500#
- CLASS 2500#

SPECIFICATIONS AND STANDARDS

Gate valves have an extended use in many industrial applications such as oil&gas, chemical and petrochemical plants, thermal applications, fertilizer plants, etc... They serve as on-off valves with bi-directional flow capacity and offers an straight-through unobstructed bore at full open position. Therefore, the head loss of the valve is small and provide a high flow rate capacity.

Metal to metal sealing design is available with different wedge configurations such as solid wedge, flexible wedge or with an splitted configuration wedge in order to best meet the specific service conditions. Parallel slide gate design is also available for more severe working thermal operations.

SB bolted bonnet design model ensures a perfect performance and sealing for pressure ratings up to ASME Class 1500#. For high sizes and pressure ratings up to 2500# **SP** Pressure seal bonneted desing model is available, performing a higher sealing force as internal pressure is increased.

FCA Gate valves come with a variety of end connections: Flanged type, as standard, comes with Raised Face (RF) according to ASME Class 150#, 300# and 600#, and with Ring-Type-Joint flanges (RTJ) for Class ratings of 900#, 1500# and 2500#. Buttwelded ends can also be supplied, with schedule according to customer specifications.

COVERING STANDARDS

FCA Gate Valves are mainly designed and manufactured according to API 600 "Bolted Bonnet Steel Gate Valves" and considering standards such as ASME BPVC "Boiler and Pressure Vesel Code", ASME B16.34 "Valves Flanged, Threaded and Welding Ends", ASME B16.10 "Face to Face dimensions of Flanged valves", ANSI B16.5 "Pipe Flanges and Flanged Fittings", ANSI B16.25 "Buttwelding Ends". API 598 "Valve Inspection and Testing" is applied for valve testing.

GENERAL FEATURES

HIGHLIGHTS

· Design and Manufacture according to API 600.
· OS&Y Risign stem configuration.
· Solid, Flexible or split wedge design.
· Metal seated.
· Hardfacing coating with Stellite.
· Suitable for pigging operations.
· Forged T-Stem design.
· Hadnwheel, gearbox, electric, pneumatic or hidraulic actuation.
· Wide range of body, bonnet and trim materials.
· Extended stem availability.
· Bi-directional flow.
· Bolted or Pressure seal bonnet configuration.
· Two piece contrustion gland for better alignment.
· Bellows stem sealing on request.

SECTORS

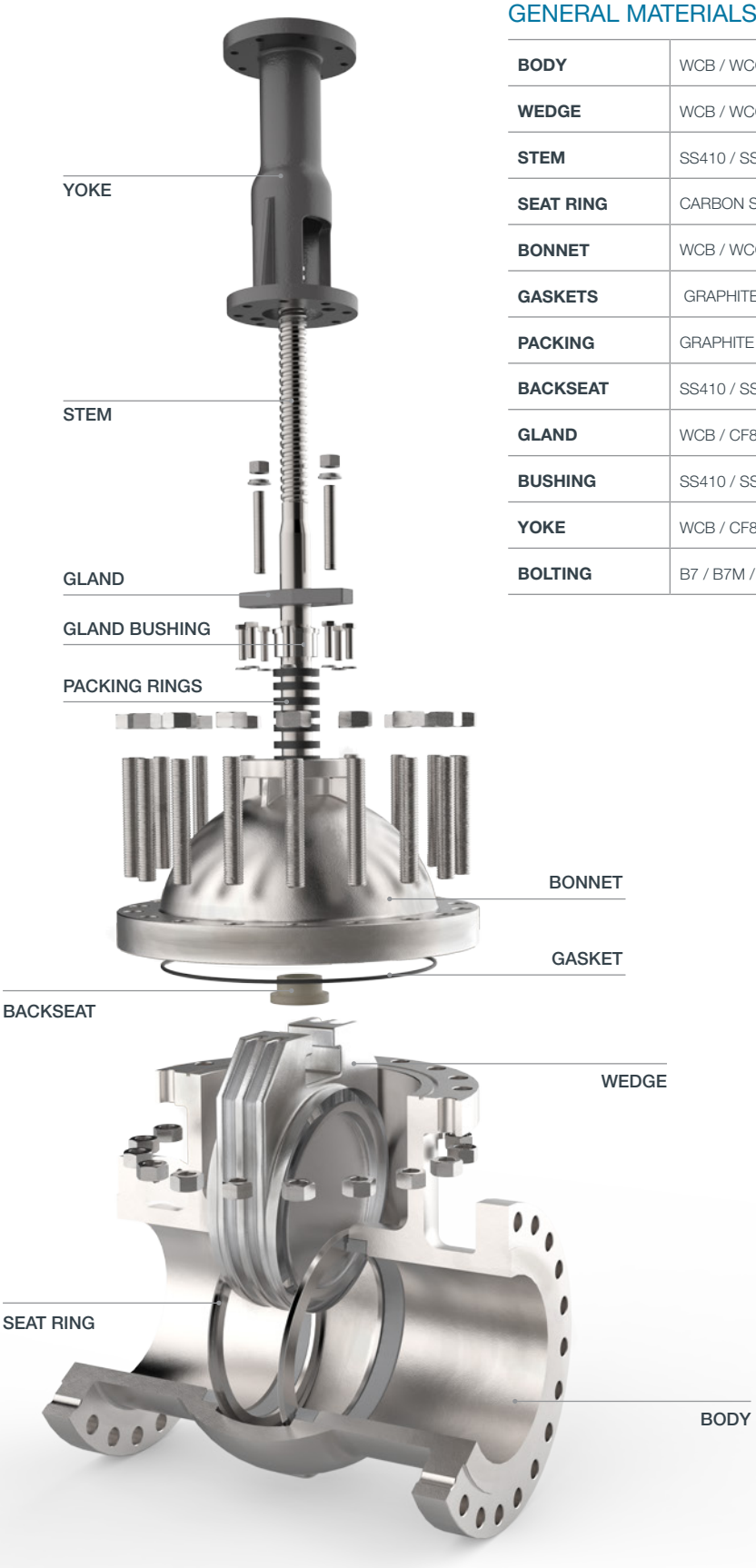
· Oil & Gas.
· Mineral Processing.
· Petrochemical plants.
· Thermal Power plants.
· Water distribution.
· Pump stations.
· etc...

APPLICATIONS

· Natural Gas pipelines.
· Cogeneration.
· Combustion zone.
· Combined cycle.
· etc...

MANUFACTURING PROGRAM

TYPE	CLASS	2''	3''	4''	6''	8''	10''	12''	14''	16''	18''	20''	24''	28''	30''	36''
Bolted bonnet API 600 design [SB Mod.]	150#	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	300#	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	600#	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	900#	●	●	●	●	●	●	●	●	●	●	●	●			
	1500#	●	●	●	●	●	●	●	●	●	●	●	●			
Pressure seal design [SP Mod.]	600#		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	900#		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1500#		●	●	●	●	●	●	●	●	●	●	●	●	●	●
	2500#		●	●	●	●	●	●	●	●	●	●	●	●	●	●



GENERAL MATERIALS

BODY	WCB / WCC / A105 / LCB / LCC / LF2/ WC6 / CF8M / CF3M / F316 / F51 / F44
WEDGE	WCB / WCC / A105 / LCB / LCC / LF2/ WC6 / CF8M / CF3M / F316 / F51 / F44
STEM	SS410 / SS316 / SS630
SEAT RING	CARBON STEEL + STL 6 / STAINLESS STEEL+STL 6
BONNET	WCB / WCC / A105 / LCB / LCC / LF2/ WC6 / CF8M / CF3M / F316 / F51 / F44
GASKETS	GRAPHITE / SS304+GRAPHITE / VITON
PACKING	GRAPHITE / PTFE
BACKSEAT	SS410 / SS316 / SS630
GLAND	WCB / CF8 / LCB
BUSHING	SS410 / SS316 / SS630
YOKE	WCB / CF8 / LCB
BOLTING	B7 / B7M / B8 / B8M / L7

Stellite or tugnsten faced for seat ring and wedge availability.
Special applications available under request.

BODY AND BONNET

FCA designed various body-bonnet constructions such as bolted bonnet, pressure seal design or welded bonnet.

Bodies and bonnets are high quality with uniform section cast and then precisely machined, offering high performance and preventing stress concentrations.

The bodies provide a straight through port that ensures minimal turbulences, reduces erosion effect and minimizes resistance to flow. Guide slots accommodate the wedge during opening or closing operations of the valve for accurate alignment and guidance.

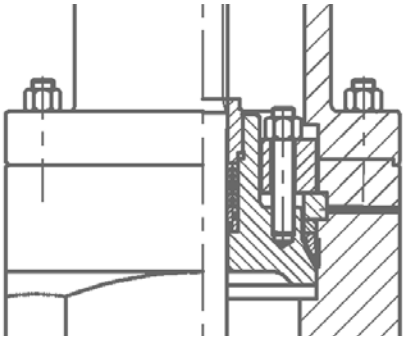
Depending on the size of the valve, bonnets are made either of one piece only, the yoke being and integral part of the bonnet, or have two pieces. This ensures accurate alignment of the stem and a smooth operation.

BODY AND BONNET JOINT

Body and bonnet joints of **FCA** valves are designed with a more than adequate number of bonnet bolts. The standard joint varies, depending on valve Class. For Class 150# gate valves consist of a square joint or oval design depending on size. According to valve service it can be supplied flat-face gasket with graphite or PTFE. Class 300# and 600# valves consist of a circular spiral wound gasket. For class 900# and above consist of a ring type joint.

PRESSURE SEAL BONNET DESIGN

In pressure seal bonnet designs the sealing is achieved through a graphite gasket that takes advantage of the internal pressure of the line. This configuration reduces the weight of the valve, sinze avoids large diameter body bonnet connection flange and large size body-bonnet bolting.



OS&Y CONSTRUCTION

Outside Screw and Yoke construction (OS&Y) is used as standard for **FCA** gate valves. The yoke is designed in order to easilly access valve stem.

STEM

All wedges are provided with one piece forged and threaded stems. Are accuratelly machined and finally smoothed in order to minimize friction and reduce torque.

The wedge and stem union is reached by a T-shaped design that prevents stem disengaging itself from the wedge. The design also allows the wedge to self-align, eliminating the possibility of a bent stem jamming the wedge. The conical raised surface design presses the seat against the bonnet backseat in the fully open position.

LIVE LOAD PACKING AND LEAK-OFF

In services that requires frequent cycling or high pressure and temperature variations, live loading extends the service life between maintenance periods by less frequent gland packing adjustments. Belleville springs can be provided to give a constant packing gland stress.

For critical services, a lantern ring with leak-off fittings connection and double packing stack can be provided to allow collection of leakage from the lower packing set.

BELLOWS

High-pressure resistance valve stem bellows can be provided to reduce external leakage and give a more reliable sealing. A zero fugitive emission system can be achieved by this configuration.

BACKSEAT

FCA gate valves are provided with backseat threaded in the bonnet, or directly welded to the bonnet for pressure seal designs. This allows to change the packing even when the valve is under pressure.

WEDGE

As standard flexible wedge design is featured on **FCA** gate valves unless otherwise specified. A selection of wedge types can be selected instead to match the specific operating service conditions.

The **flexible wedge** design is casted and machined with a circunferencialgroove to allow the seating faces to move independently and adjust to movement of the body seats. Generally used for when line loads or thermal expansion is produced and can deform the seat face of the valve. Suited for steam or other high temperature services.

Split wedge design provides complete flexibility between the two halfs of the wedge to compensate seat distorsions, specially in light weight and low pressure valves.

The **solid wedge** option is the strongest and simplest type selection. Offers a high resistance to corrosion and vibrations but the design do not compensate seat distorsions caused by thermal expansions or bending moments and may cause the wedge to stick in the seats.

BY-PASS VALVE

A By-pass valve can be furnished with the cast steel valves for equalizing pressure around the main valve or for warning up the line before opening the valve.

ANTI-CORROSIVE TREATMENTS

As standard, iron or carbon steel components are painted with an anti-corrosive treatment, providing the necessary protection against corrosion and an excellent surface finish.

Painting consists of:

- Epoxy primer with excellent corrosive protection and adhesion on every type of metal.
- BLUE RAL-5019 painting.

Depending on the valve application, FCA offers special treatments for specific abrasive and corrosive solutions like hardening, valve or component protective coating, etc... More information on request.

MATERIAL SELECTION

For material selection fluid type characteristic, pressure and working temperature shall be considered. FCA carries many years of experience with special materials such as duplex, superduplex, hastelloy, inconel, nickel alloys, etc... Moreover standard forged or casted steels are daily work standard for our engineers. Other materials could be considered and provided on request according to customer specifications.

For internal parts such as seat rings and wedge, corrosion and wear resistant materials are considered in addition to pressure drop values and temperature working range specifications. Stainless steel materials are provided as standard, considering Stellite contribution for seat components, and hardened stainless steels for higher corrosion resistance.

The following table presents frequently used materials for FCA gate valves, generally selected for severe service working applications:

MATERIAL	**CASTED** (ASTM)	**FORGED** (ASTM)
Carbon Steel	A216 Gr. WCB	A105
Stainless Steel	A351 Gr. CF8 / CF8M	A182 F316
Duplex Steel	A890 Gr. 4A	A182 F51
Superduplex Steel	A890 Gr. 5A / Gr. 6A	A182 F53 / F55
Inconel	-	Alloy 718

*Other materials on request.

ACTUATION DEVICES

All valves are available with different actuators. FCA has close cooperation with many world leader actuator manufactories and can offer a wide variety of interchangeable actuators:

· Bevel gear - handwheel.
· Electric motor.
· Pneumatic cylinder.
· Hydraulic cylinder.





TRIM NUMBER CHART

Different combinations of trim materials and hardenings are available according to API 600 Standard. the table below shows the trim number options for informational purposes only. Always consult current API publications to verify information and trim data.

API TRIM NUMBER	MATERIAL	SEAT	WEDGE	BACKSEAT	STEM
1	410	410	410	410	410
2	304	304	304	304	304
3	F310	310	310	310	310
4	Hard 410	Hard 410	Hard 410	410	410
5	Hardfaced	Stellite	Stellite	410	410
5A	Hardfaced	Ni-Cr	Ni-Cr	410	410
6	410 and Cu-Ni	Cu-Ni	Cu-Ni	410	410
7	410 and Hard 410	Hard 410	Hard 410	410	410
8	410 and Hardfaced	Stellite	410	410	410
8A	410 and Hardfaced	Ni-Cr	410	410	410
9	Monel	Monel	Monel	Monel	Monel
10	316	316	316	316	316
11	Monel and Hardfaced	Stellite	Monel	Monel	Monel
12	316 and Hardfaced	Stellite	316	316	316
13	Alloy 20	Alloy 20	Alloy 20	Alloy 20	Alloy 20
14	Alloy 20 and Hardfaced	Stellite	Alloy 20	Alloy 20	Alloy 20
15	304 and Hardfaced	Stellite	Stellite	304	304
16	316 and Hardfaced	Stellite	Stellite	316	316
17	347 and Hardfaced	Stellite	Stellite	347	347
18	Alloy 20 and Hardfaced	Stellite	Stellite	Alloy 20	Alloy 20

Cv FLOW COEFFICIENT VALUES

Cv is known as flow coefficient value of a valve. This coefficient Cv is related to the flow and pressure conditions by the following basic liquid equation:

$$Cv=Q^*(SG/\Delta P)^{1/2}$$

It is a relative measure of valves efficiency at allowing fluid flow. Q determines the flow rate (in gpm), SG refers to fluid specific gravity and Pressure drop is considered in psi. It describes the relationship between the pressure drop across the valve and the corresponding flow rate. In more practical terms, the flow coefficient Cv is the volume (in US gallons) of water at 60°F that will flow per minute through a valve with a pressure drop of 1 psi across the valve.

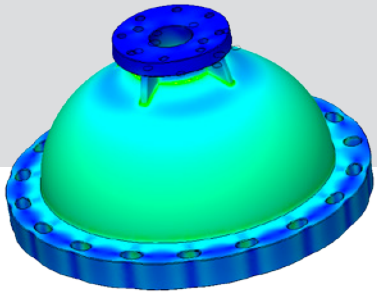
TYPE	CLASS	2''	3''	4''	6''	8''	10''	12''	14''	16''	18''	20''	24''	28''	30''	36''
Full Bore Gate Valves	150#	270	610	1100	2620	4800	7700	11500	14000	18500	23500	31000	45000	61500	73000	106000
	300#	270	610	1100	2600	4500	7400	10800	13500	18000	23000	30000	44200	60200	71500	102000
	600#	270	580	1050	2500	4400	7350	10700	13200	17500	22500	28800	43200	59000	68500	99000
	900#	230	550	1000	2400	4350	7200	10000	13000	16000	21500	27000	41000	55000	65000	95000
	1500#	230	500	900	2200	4300	7000	9500	12400	15600	20100	26000	40000	-	-	-
	2500#	220	450	850	2100	4100	6800	9000	11400	15000	19500	25400	38900	-	-	-

For reference only. Contact FCA for value confirmation.

CAE ENGINEERING TOOLS

Advanced software applications including Finite Element Analysis (FEA), computational fluid dynamics (CFD) and three-dimensional solid modeling, and our proven know-how, help FCA designing high specification valves to meet most demanded working requirements.

FCA SB and SP gates valves are engineered to meet high pressure working conditions, up to Class 2500#, considering the most cost effective design. For this aim, parametric studies with finite element analysis are performed by FCA engineering team.



BOLTED BONNET DESIGN GATE VALVES - SB MODEL

Standard version available form DN50/2'' to DN900/36'' and pressure rating up to Class 1500#. Other sizes and pressure on request.

ACCESORIES AND OPTIONS

· Solid, Flexible or split wedge design.

· Hardfacing coating with Stellite.

· Handwheel, gearbox, electric, pneumatic or hidraulic actuation.

· Wide range of body, bonnet and trim materials according to API 600 trim chart.

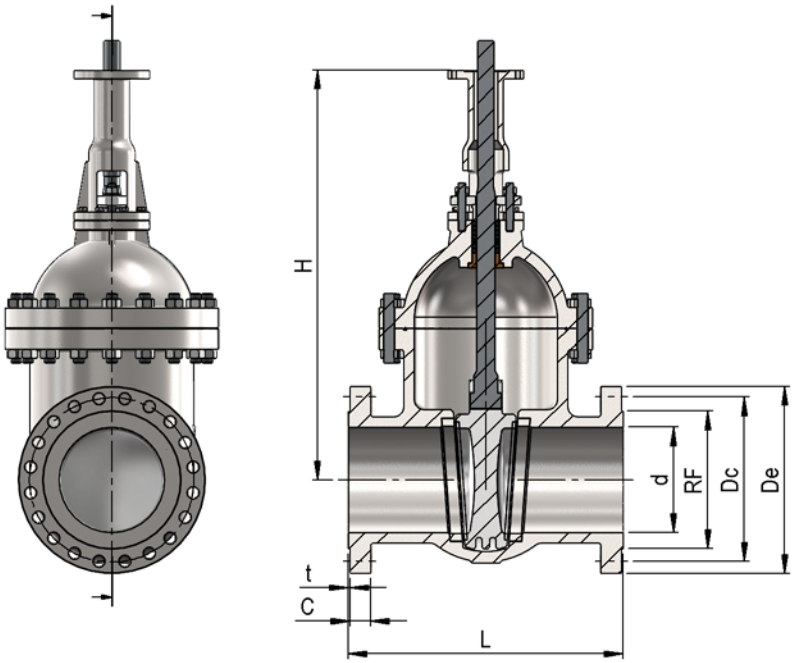
· Extended stem availability.

· By-pass valves.

· Different end connections and flange drillings.

· Superior sizes and pressure.

· Bellows stem sealing.



DIMENSIONS - CLASS 150#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
2''	50	178	190	216	50	350	152	120.7	91.9	4-Ø19.1	15.8	1.6
3''	80	203	216	283	76	420	191	152.4	127	4-Ø19.1	19.1	1.6
4''	100	229	241	305	100	500	229	190.5	157.2	8-Ø19.1	23.9	1.6
6''	150	267	279	403	150	650	279	241.3	215.9	8-Ø22.2	25.4	1.6
8''	200	292	305	419	200	830	343	298.5	269.7	8-Ø22.2	28.4	1.6
10''	250	330	343	457	250	980	406	362	323.9	12-Ø25.4	30.2	1.6
12''	300	356	368	502	300	1070	483	431.8	381	12-Ø25.4	31.8	1.6
14''	350	381	394	572	336	1215	533	476.2	412.8	12-Ø28.6	35.1	1.6
16''	400	406	419	610	387	1380	597	539.8	469.9	16-Ø28.6	36.6	1.6
18''	450	432	445	660	438	1600	635	577.9	533.4	16-Ø31.8	39.6	1.6
20''	500	457	470	711	488	1704	699	635	584.2	20-Ø31.8	42.9	1.6
24''	600	508	521	813	590	2090	813	749.3	692.2	20-Ø34.9	47.8	1.6
28''	700	610	622	914	-	2450	927	863.6	800.1	28-Ø34.9	71.4	1.6
30''	750	610	622	914	-	2700	984	914.4	857.3	28-Ø34.9	74.7	1.6
36''	900	711	724	1016	-	2850	1168	1085.9	1022.4	32-Ø41.3	90.4	1.6

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5/B16.47

DIMENSIONS - CLASS 300#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
2''	50	216	232	216	50	400	165	127	91.9	8-Ø19.1	22.4	1.6
3''	80	283	299	283	76	480	210	168.3	127	8-Ø22.2	28.4	1.6
4''	100	305	321	305	100	570	254	200.2	157.2	8-Ø22.2	31.8	1.6
6''	150	403	419	403	150	730	318	269.8	215.9	12-Ø22.2	36.6	1.6
8''	200	419	435	419	200	890	381	330.2	269.7	12-Ø25.4	41.1	1.6
10''	250	457	473	457	250	1050	445	387.4	323.9	16-Ø28.6	47.8	1.6
12''	300	502	518	502	300	1140	521	450.9	381	16-Ø31.8	50.8	1.6
14''	350	762	778	762	336	1285	584	514.4	412.8	20-Ø31.8	53.8	1.6
16''	400	838	854	838	387	1460	648	571.5	469.9	20-Ø34.9	57.2	1.6
18''	450	914	930	914	431	1680	711	628.7	533.4	24-Ø34.9	60.5	1.6
20''	500	991	1010	991	482	1810	775	685.8	584.2	24-Ø34.9	63.5	1.6
24''	600	1143	1165	1143	584	2210	914	812.8	692.2	24-Ø41.3	69.9	1.6
28''	700	1346	1372	1346	-	2600	1035	939.8	800.1	28-Ø44.5	85.9	1.6
30''	750	1397	1422	1397	-	2820	1092	991	857.3	28-Ø47.6	91.9	1.6
36''	900	1727	1756	1727	-	2980	1270	1168.4	1022.4	32-Ø54	104.6	1.6

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5/B16.47

DIMENSIONS - CLASS 600#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
2''	50	292	295	292	50	420	165	127	91.9	8-Ø19.1	25.4	6.4
3''	80	356	359	356	76	500	210	168.3	127	8-Ø22.2	31.8	6.4
4''	100	432	435	432	100	590	273	215.9	157.2	8-Ø25.4	38.1	6.4
6''	150	559	562	559	150	750	356	292.1	215.9	12-Ø28.6	47.8	6.4
8''	200	660	664	660	199	710	419	349.2	269.7	12-Ø31.8	55.6	6.4
10''	250	787	791	787	247	1080	508	431.8	323.9	16-Ø34.9	63.5	6.4
12''	300	838	841	838	298	1190	559	489	381	20-Ø34.9	66.5	6.4
14''	350	889	892	889	326	1325	603	527.1	412.8	20-Ø38.1	69.9	6.4
16''	400	991	994	991	374	1490	686	603.2	469.9	20-Ø41.3	76.2	6.4
18''	450	1092	1095	1092	419	1730	743	654.1	533.4	20-Ø44.5	82.6	6.4
20''	500	1194	1200	1194	463	1890	813	723.9	584.2	24-Ø44.5	88.9	6.4
24''	600	1397	1407	1397	558	2310	940	838.2	692.2	24-Ø50.8	101.6	6.4
28''	700	1549	1562	1549	-	2680	1073	965.2	800.1	28-Ø54	111.3	6.4
30''	750	1651	1664	1651	-	2920	1130	1022.4	857.3	28-Ø54	114.3	6.4
36''	900	2083	2099	2083	-	3050	1314	1193.8	1022.4	32-Ø66.7	124	6.4

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5/B16.47

DIMENSIONS - CLASS 900#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
2''	50	368	371	368	47	520	216	165.1	91.9	8-Ø25.4	38.1	6.4
3''	80	381	384	381	72	590	241	190.5	127	8-Ø25.4	38.1	6.4
4''	100	457	460	457	98	680	292	235	157.2	8-Ø31.8	44.5	6.4
6''	150	610	613	610	146	850	381	317.5	215.9	12-Ø31.8	55.6	6.4
8''	200	737	740	737	190	830	470	393.7	269.7	12-Ø38.1	63.5	6.4
10''	250	838	841	838	238	1130	546	469.9	323.9	16-Ø38.1	69.9	6.4
12''	300	965	968	965	282	1380	610	533.4	381	20-Ø38.1	79.2	6.4
14''	350	1029	1038	1029	311	1425	641	558.8	412.8	20-Ø41.3	85.9	6.4
16''	400	1130	1140	1130	355	1720	705	616	469.9	20-Ø44.5	88.9	6.4
18''	450	1219	1232	1219	400	1990	787	685.8	533.4	20-Ø50.8	101.6	6.4
20''	500	1321	1334	1321	444	2110	857	749.3	584.2	20-Ø54	108	6.4
24''	600	1549	1568	1549	533	2580	1041	901.7	692.2	20-Ø66.7	139.7	6.4

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5

DIMENSIONS - CLASS 1500#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
2''	50	368	371	368	47	570	216	165.1	91.9	8-Ø25.4	38.1	6.4
3''	80	470	473	470	69	650	267	203.2	127	8-Ø31.8	47.8	6.4
4''	100	546	549	546	92	780	311	241.3	157.2	8-Ø34.9	53.8	6.4
6''	150	705	711	705	136	1050	394	317.5	215.9	12-Ø38.1	82.6	6.4
8''	200	832	841	832	177	1140	483	393.7	269.7	12-Ø44.5	91.9	6.4
10''	250	991	1000	991	222	1430	584	482.6	323.9	12-Ø50.8	108	6.4
12''	300	1130	1146	1130	263	1680	673	571.5	381	16-Ø54	124	6.4
14''	350	1257	1276	1257	288	1755	749	635	412.8	16-Ø60.3	133.4	6.4
16''	400	1384	1407	1384	330	1930	826	704.9	469.9	16-Ø66.7	146.1	6.4
18''	450	1537	1559	1537	371	2110	914	774.7	533.4	16-Ø73	162.1	6.4
20''	500	1664	1686	1664	415	2300	984	831.9	584.2	16-Ø79.4	177.8	6.4
24''	600	1943	1972	1943	498	2770	1168	990.6	692.2	16-Ø92	203.2	6.4

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5

PRESSURE SEAL BONNET DESIGN GATE VALVES - SP MODEL

Standard version available form DN80/3'' to DN900/36'' and pressure rating up to Class 2500#. Other sizes and pressure on request.

ACCESORIES AND OPTIONS

· Solid, Flexible or split wedge design.

· Hardfacing coating with Stellite.

· Handwheel, gearbox, electric, pneumatic or hidraulic actuation.

· Wide range of body, bonnet and trim materials according to API 600 trim chart.

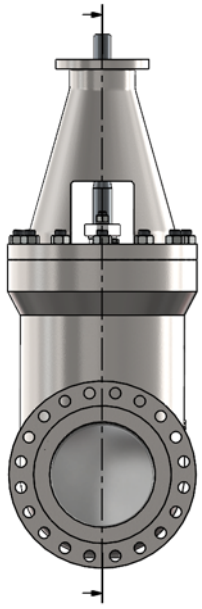
· Extended stem availability.

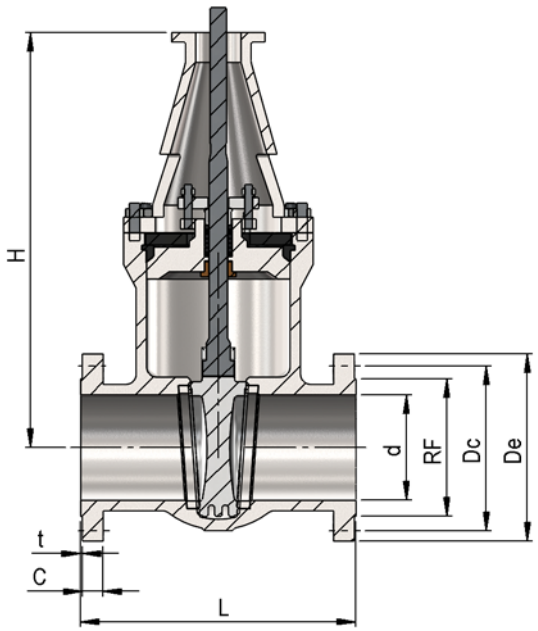
· By-pass valves.

· Different end connections and flange drillings.

· Superior sizes and pressure.

· Bellows stem sealing.





DIMENSIONS - CLASS 600#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
3''	80	356	359	356	76	550	210	168.3	127	8-Ø22.2	31.8	6.4
4''	100	432	435	432	100	720	273	215.9	157.2	8-Ø25.4	38.1	6.4
6''	150	559	562	559	150	820	356	292.1	215.9	12-Ø28.6	47.8	6.4
8''	200	660	664	660	199	1050	419	349.2	269.7	12-Ø31.8	55.6	6.4
10''	250	787	791	787	247	1120	508	431.8	323.9	16-Ø34.9	63.5	6.4
12''	300	838	841	838	298	1220	559	489	381	20-Ø34.9	66.5	6.4
14''	350	889	892	889	326	1400	603	527.1	412.8	20-Ø38.1	69.9	6.4
16''	400	991	994	991	374	1556	686	603.2	469.9	20-Ø41.3	76.2	6.4
18''	450	1092	1095	1092	419	1600	743	654.1	533.4	20-Ø44.5	82.6	6.4
20''	500	1194	1200	1194	463	1840	813	723.9	584.2	24-Ø44.5	88.9	6.4
24''	600	1397	1407	1397	558	2210	940	838.2	692.2	24-Ø50.8	101.6	6.4
28''	700	1549	1562	1549	-	2400	1073	965.2	800.1	28-Ø54	111.3	6.4
30''	750	1651	1664	1651	-	2650	1130	1022.4	857.3	28-Ø54	114.3	6.4
36''	900	2083	2099	2083	-	3250	1314	1193.8	1022.4	32-Ø66.7	124	6.4

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5/B16.47

DIMENSIONS - CLASS 900#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
3''	80	381	384	381	72	550	241	190.5	127	8-Ø25.4	38.1	6.4
4''	100	457	460	457	98	680	292	235	157.2	8-Ø31.8	44.5	6.4
6''	150	610	613	610	146	830	381	317.5	215.9	12-Ø31.8	55.6	6.4
8''	200	737	740	737	190	970	470	393.7	269.7	12-Ø38.1	63.5	6.4
10''	250	838	841	838	238	1050	546	469.9	323.9	16-Ø38.1	69.9	6.4
12''	300	965	968	965	282	1300	610	533.4	381	20-Ø38.1	79.2	6.4
14''	350	1029	1038	1029	311	1500	641	558.8	412.8	20-Ø41.3	85.9	6.4
16''	400	1130	1140	1130	355	2080	705	616	469.9	20-Ø44.5	88.9	6.4
18''	450	1219	1232	1219	400	2250	787	685.8	533.4	20-Ø50.8	101.6	6.4
20''	500	1321	1334	1321	444	2350	857	749.3	584.2	20-Ø54	108	6.4
24''	600	1549	1568	1549	533	2890	1041	901.7	692.2	20-Ø66.7	139.7	6.4
28''	700	1663	-	1663	-	3150	1169	1022.4	800.1	20-Ø80	171.5	6.4
30''	750	1778	-	1778	-	3900	1232	1085.9	857.3	20-Ø80	182.4	6.4
36''	900	2032	-	2032	-	4360	1461	1289	1022.3	20-Ø92	214.4	6.4

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5/B16.47

DIMENSIONS - CLASS 1500#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
3''	80	470	473	470	69	610	267	203.2	127	8-Ø31.8	47.8	6.4
4''	100	546	549	546	92	730	311	241.3	157.2	8-Ø34.9	53.8	6.4
6''	150	705	711	705	136	850	394	317.5	215.9	12-Ø38.1	82.6	6.4
8''	200	832	841	832	177	1020	483	393.7	269.7	12-Ø44.5	91.9	6.4
10''	250	991	1000	991	222	1090	584	482.6	323.9	12-Ø50.8	108	6.4
12''	300	1130	1146	1130	263	1400	673	571.5	381	16-Ø54	124	6.4
14''	350	1257	1276	1257	288	1560	749	635	412.8	16-Ø60.3	133.4	6.4
16''	400	1384	1407	1384	330	2130	826	704.9	469.9	16-Ø66.7	146.1	6.4
18''	450	1537	1559	1537	371	2350	914	774.7	533.4	16-Ø73	162.1	6.4
20''	500	1664	1686	1664	415	2500	984	831.9	584.2	16-79.4	177.8	6.4
24''	600	1943	1972	1943	498	2920	1168	990.6	692.2	16-Ø92	203.2	6.4
28''	700	2209	-	2209	-	3350	-	-	-	-	-	-
30''	750	2286	-	2286	-	4080	-	-	-	-	-	-
36''	900	2565	-	2565	-	4510	-	-	-	-	-	-

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5

DIMENSIONS - CLASS 2500#

SIZE		L			d	H	De	Dc	ØRF	Drilling	C	t
NPS	DN	RF	RTJ	BW								
3''	80	-	-	368	57	580	305	228.6	127	8-Ø34.9	66.5	6.4
4''	100	-	-	457	72	710	356	273.1	157.2	8-Ø41.3	76.2	6.4
6''	150	-	-	610	111	820	483	368.3	215.9	8-Ø54	108	6.4
8''	200	-	-	762	146	1000	552	438.2	269.7	12-Ø54	127	6.4
10''	250	-	-	914	184	1050	673	539.7	323.9	12-Ø66.7	165.1	6.4
12''	300	-	-	1041	218	1350	762	619.2	381	12-Ø73	184.2	6.4
14''	350	-	-	1118	241	1480	-	-	-	-	-	-
16''	400	-	-	1245	276	2100	-	-	-	-	-	-
18''	450	-	-	1397	311	2260	-	-	-	-	-	-
20''	500	-	-	1397	342	2460	-	-	-	-	-	-
24''	600	-	-	1625	412	2820	-	-	-	-	-	-
28''	700	-	-	1905	-	3190	-	-	-	-	-	-
30''	750	-	-	2032	-	3880	-	-	-	-	-	-
36''	900	-	-	2413	-	4300	-	-	-	-	-	-

Notes: Dimensions in (mm). Flange drilling according to ASME B16.5

NOTES

NOTES

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