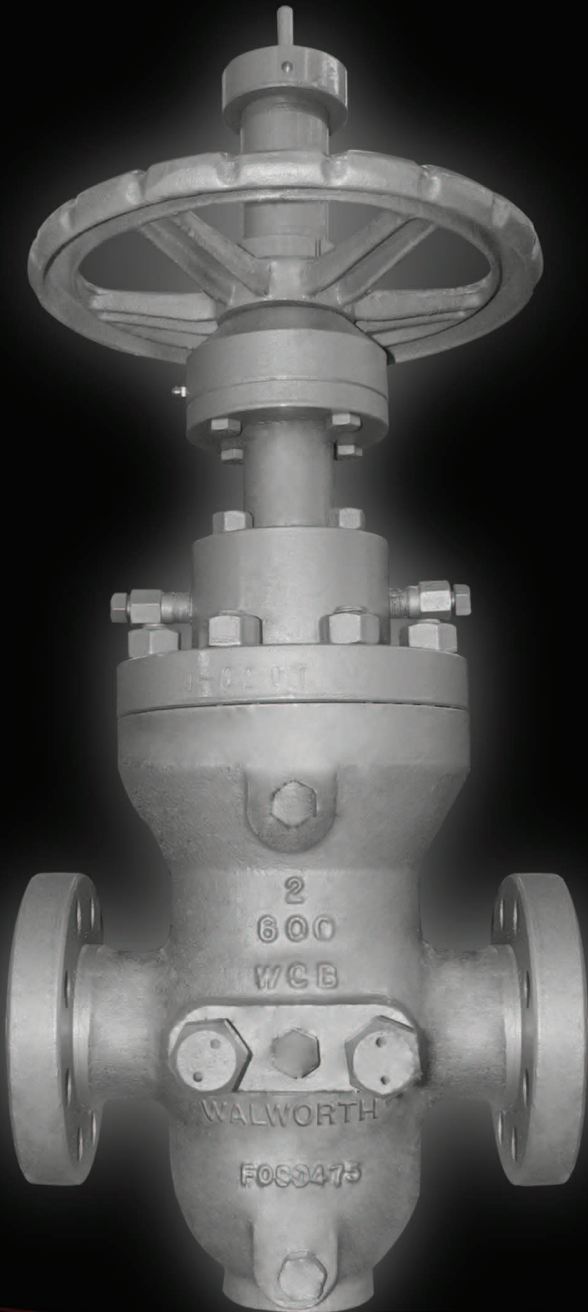




**WALWORTH**®

*Since 1842*



**EXPANDING GATE  
CATALOG**

# INDEX

## Introduction

WALWORTH Engineering Control.....4

WALWORTH Quality System.....4

Quality Control Equipment.....6

## Expanding Gate Valves

ASME/ ANSI Pipeline Expanding Gate Valve-Through Conduit.....8

Features & Benefits.....9

Grease Fitting .....9

Operation Design.....10

Control Arm .....11

Soft Seat-Metal Expanding Gate Valve.....12

Metal to Metal Seat Expanding Gate Valve.....13

Expanding Gate Valve ASME Pressure Class 150#.....14

Expanding Gate Valve ASME Pressure Class 300#.....17

Expanding Gate Valve ASME Pressure Class 600#.....20

Expanding Gate Valve ASME Pressure Class 900#.....22

Expanding Gate Valve ASME Pressure Class 1500#.....24

Most Common Trim Arrangements.....26

Stem Information & Mounting Flanged Dimensions Class 150#.....27

Stem Information & Mounting Flanged Dimensions Class 300#.....28

Stem Information & Mounting Flanged Dimensions Class 600#.....29

Design Basis.....30

## How to order



YARMOUTH RESEARCH AND TECHNOLOGY



# WALWORTH COMPANY

**WALWORTH** Company is one of the most important industrial valve manufacturers all over the world. Founded in 1842 by James Walworth, the Company has dedicated itself to the design and manufacture of an array of valves for the fluid control. We satisfy different industries and Customer requirements by adhering to the highest quality standards. **WALWORTH** relies on its broad experience in supplying valves to the petrochemical, oil & gas, petroleum, power generation, pulp and paper, cryogenic and geothermal industries, among others.

Over the years it has produced more than 40, 000 different types of products and serve as a global Company in all different markets with the expertise of over 500 Employees.

**WALWORTH** has its facilities in the United States of America, Mexico and China for the complete manufacturing ranges of valves for a complete flow operation system including areas of raw material warehouses, machining in different types, welding processes as SMAW, GMAW, SAW, PAW; assembly, testing for low pressure, high pressure, at low or high temperature, painting process, crating and shipment. With its own facilities and Stock warehouses in the United States of America and Mexico **WALWORTH** is capable of attending North America, Central America, South America, Europe & Africa markets. With its own facilities in China **WALWORTH** is serving Asia, Middle East, Far East & Australia.



## WALWORTH VALUES

### MISSION

To satisfy needs to Customers in terms of quality and service and comply with expectations of employees, suppliers and share holders.

### VISION

To maintain the good reputation in terms of service, delivery and quality which has been the main goal during all these years that have positioned **WALWORTH** brand as a reliable Company over 167 years in the market and to continue developing new products according to the needs of the market in terms of technology, environment and quality requirements.

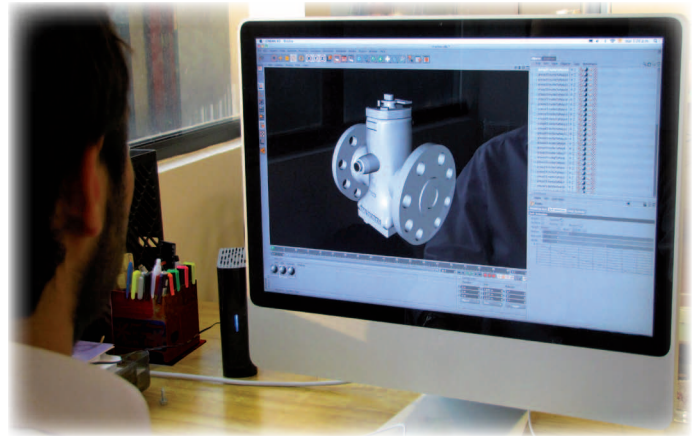
**WALWORTH** does manufacture valves, but at the same time gives service to our Customers.



## WALWORTH ENGINEERING CONTROL

WALWORTH products are manufactured following strictly the most recognized international standards all over the world, such as **API**, ANSI, ASME, ASTM, MSS, NACE, AWWA, BSI, CSA, among others. Our Engineering team is always studying the new updates of these standards to incorporate any changes that may affect the design, regulations or performance of our products, being leaders in the new developments achieved.

Design is made using the most advance technology and equipment, using finite elements and CAD system programs to ensure the proper assembly and performance of products from the concept, calculation and detailed drawings for manufacturing. **WALWORTH** is a leader in the development of products according to the needs of these days in the valve product market.

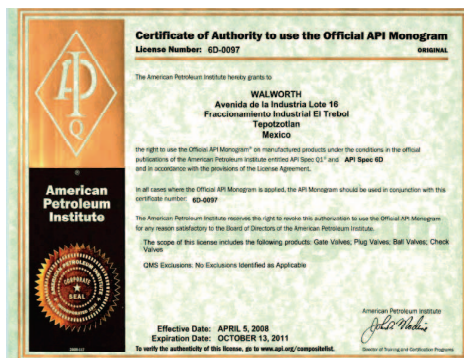


## WALWORTH QUALITY SYSTEM

Throughout the years, **WALWORTH** has developed its Quality System which is used not as an additional system, but as its main Administration System focused on Quality. In this sense, **WALWORTH** is an ISO-9001 Approved Company and keeps the major certifications all around the world. The system requires a rigorous quality control and selection of raw materials from approved vendors, as well as control over the manufacturing process. With the serial number, **WALWORTH** is able to monitor the product as it goes through the production process and provides information about traceability of materials used in the manufacture of each valve. A summary of the main certifications obtained are:



- Certificate ISO-9001 No. 038 issued by American Petroleum Institute since April 1999.



- Certificate **API-6D** No. 6D-0097 issued by American Petroleum Institute to apply on Gate valves, Plug valves, Ball valves and Check valves manufactured in accordance with **API-6D** specification.



- Certificate **API-6A** No. 6A-0234 from American Petroleum Institute to apply on valves at PSI, 1 through 4.



- Certificate as per PED 97/23/EC Module H to stamp CE products.



- Certificate of Reliable Supplier No. 199/07 issued by CFE in accordance with ISO-9001 Quality Assurance System.

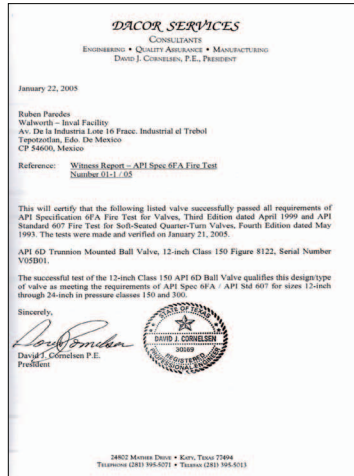


- Certificate NMX-CC-9001 (Mexican Standards ISO-9001) No. 0552/2007 issued by PEMEX in accordance with ISO-9001 Quality Assurance System.

Besides the Quality System Certifications, **WALWORTH** has achieved the following specific product certifications:



- Certificates of Ultra Low Fugitive Emissions No. 20985-3, 8 & 16 in accordance with ISO-15848-1 "Industrial Valves"-Measurement, Test and Qualification Procedures for Fugitive Emissions" "Part 1: Classification System and Qualification Procedures for Type Testing of Valves".



- Fire Test Certificate No. 04/04 in accordance with API-6FA and API Standard API-607 for Trunnion Ball Valves in accordance with API-6D.



- TA Luft Certificate (Fugitive Emission) Approval ISO-5211 Top Flange, Anti-Static Device.

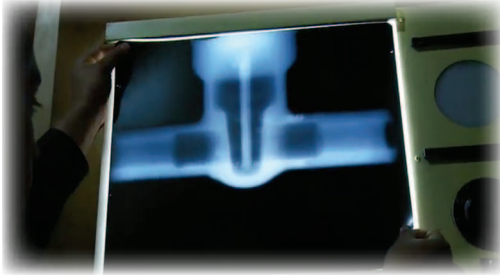
- Emissions after 500 cycles at ambient and 350 °F issued by Yarmouth Research and Technology Lab. After 500 cycles the measurement result was less than 50 ppm.





## QUALITY CONTROL EQUIPMENT

In order to assure that **WALWORTH** products comply with quality international standards, in-house equipments are kept for monitoring control, some of these equipment are:



**X-Ray Examination Equipment.** **WALWORTH** has its own Ir-92 source in-house for the radiographic examination (RT) of castings from 0.100" up to 2 1/2 " wall thickness to verify the soundness of the casting raw material.



**PMI Equipment.-** New generation of Positive Material Identification Equipment to perform quick chemical analysis during incoming inspection of raw materials and over pieces which will be assembled or after assembly to certify that materials used for specific valves were produced and assembled in accordance with Customer's specifications.



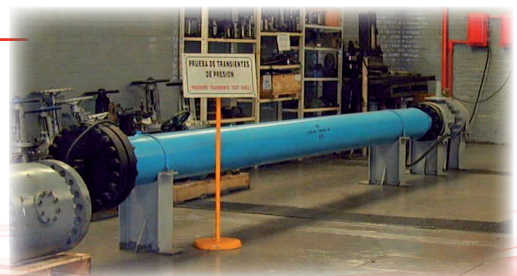
**Magnetic Particle Test.-** In a random basis for standard products or when a Customer request MT Certification, **WALWORTH** has the Magnetic Particle Test Equipment to perform on Ferrous materials susceptible to magnetism.



**Penetrant Test Examination.-** **WALWORTH** has the personnel and materials to perform the PT examination by oil or water washable techniques. The personnel is ASNT Certified and only certified consumable materials are used.



**Test Loop.-** A complete Laboratory Test loop exists for design validation of **WALWORTH** products performing the test at maximum design pressure and cycling the valves from 3000 to 5000 cycles. The test expends more than 4 months to be finished.



**Pressure Transient Test Loop.-** This test exposes Plug valves to the extremes of both positive and negative pressure transients to verify that the plug in a balanced plug design will not lock-up into the body.



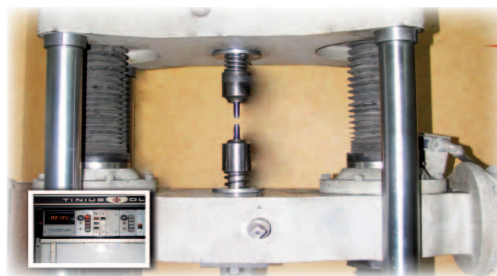
**Metrologic Laboratory.** - WALWORTH developed a calibration and / or verification system in all the equipment used in its facilities to ensure the traceability of measurements to as per international standards. In this way, WALWORTH gets measurement control of its products to comply with international standards

**Fire Test Facilities.** - Facilities to perform fire test in accordance to API requirements. The test exposes the valve to a fire flame at 1400 to 1800 °F (761 to 980 °C) to verify proper seal of the valve after certain time of the test.



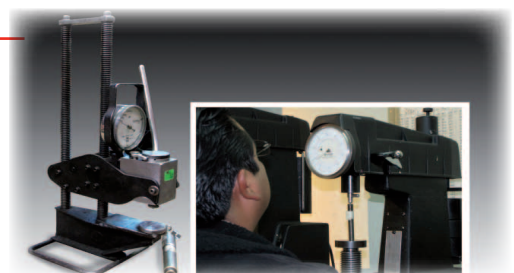
**Low Fugitive Emissions Test.** - When a Customer requires low fugitive emissions certification, The Lab has its own LFE Test Equipment capable to measure less than 20 ppm either in both static or Mechanical conditions at ambient temperature or thermal cycle operations.

**Wall thickness Measurement Equipment.** - Using ultrasonic technique, we can measure the wall thickness of different metallic materials, including ferritic and stainless steel.



**Tensile Test Equipment.** - To ensure the mechanical properties of materials used for manufacturing, WALWORTH test samples in random basis even though we receive MTR's from our suppliers.

**Hardness Test Equipments.** - Either for Lab test or Shop test, we count with hardness tester equipments to ensure hardness of raw material or finished product components.





# ASME/ANSI PIPELINE EXPANDING GATE VALVES

## WALWORTH EXPANDING GATE VALVE THROUGH CONDUIT WITH ENERGIZED GATE

**Principle of Design:** The WALWORTH Expanding Gate valve is manufactured in accordance with API-6D. This type of valve is suitable for onshore and offshore applications where suspended and abrasive solids are present in the fluid or for oil and gas transportation and isolation service. The double block and bleed design offers a proper seal in between both seats and the gate in high and low pressure, for this reason, line pressure is not needed to seal the valve. The principle of operation is based in two segment members of a disc which at an opened or closed position are capable to seal in both directions and isolate the bonnet cavity.

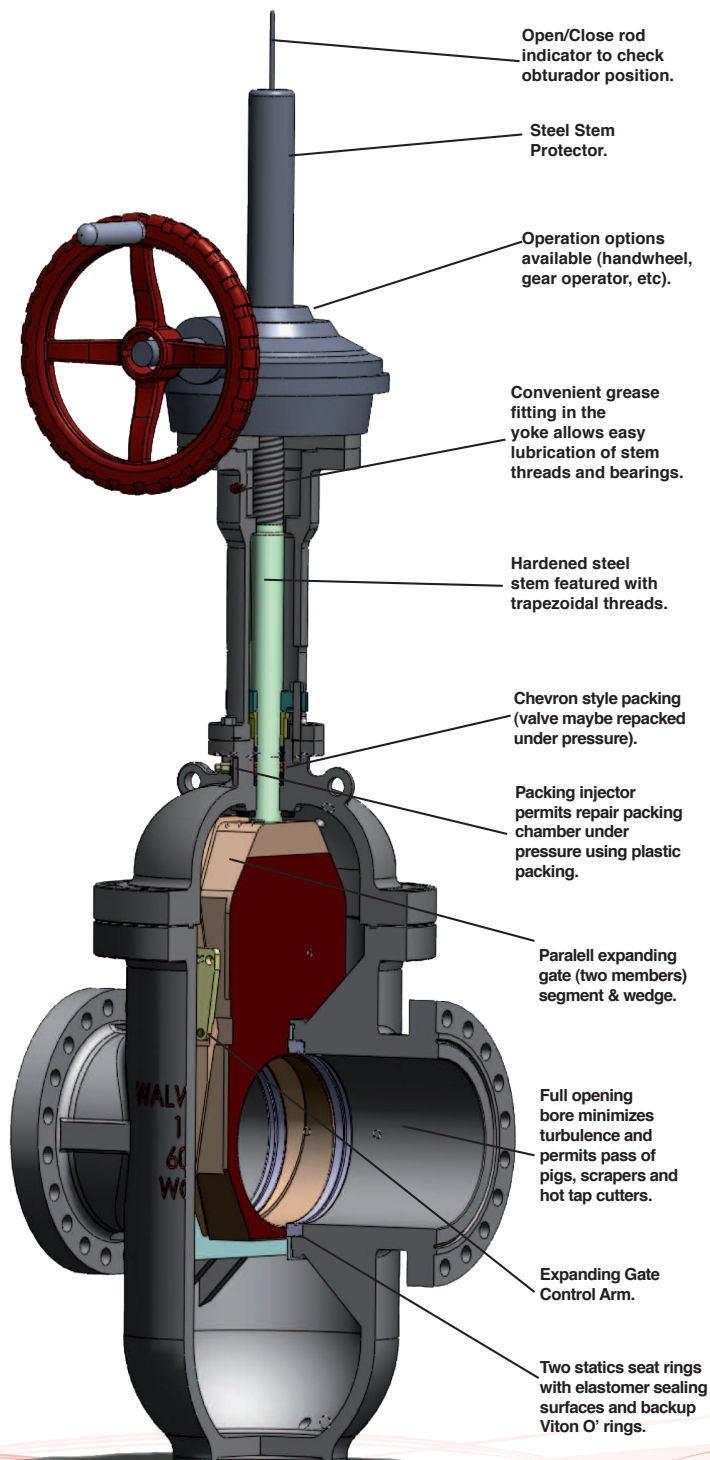
**Full opening flow.-** The smooth bore design of the Expanding Gate Valve allows pipeline fluids to flow smoothly with minimum turbulence. Pigs, scrappers and hot tap cutters may be run through the valve without any damage of the internal components. Full-flow design keeps line scrappers from becoming stuck into the valve and prevents metal cuttings from jamming the moving parts.

**Easy field maintenance.-** Even with its sophistication, the WALWORTH Expanding Gate Valve can be completely overhauled without removal from the line. The seats of the valve can be removed, serviced and/or replaced with the valve installed.

**Statics Seal Seats.-** The standard design of WALWORTH Expanding Gate valve provide static seal seats due it is not needed line pressure to seal the valve. This design includes seat rings sealing surface made from elastomer materials to seal properly against the surfaces of the wedge/segment. There is also available options for metal to metal seal.

**No lubrication needed.** The WALWORTH Expanding Gate Valve does not require lubrication for normal operation. However, if a sealing member becomes to be damage, a sealant can be injected into valve to seal the sealing area waiting for future repairs.

**Relief valve to protect the valve when over pressure is inside the bonnet cavity.**





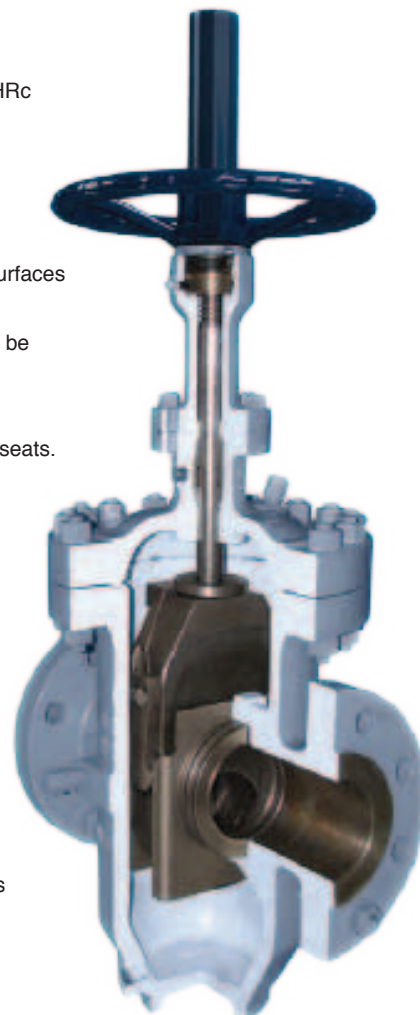
## FEATURES & BENEFITS

**WALWORTH** offers this product line in the following base materials.

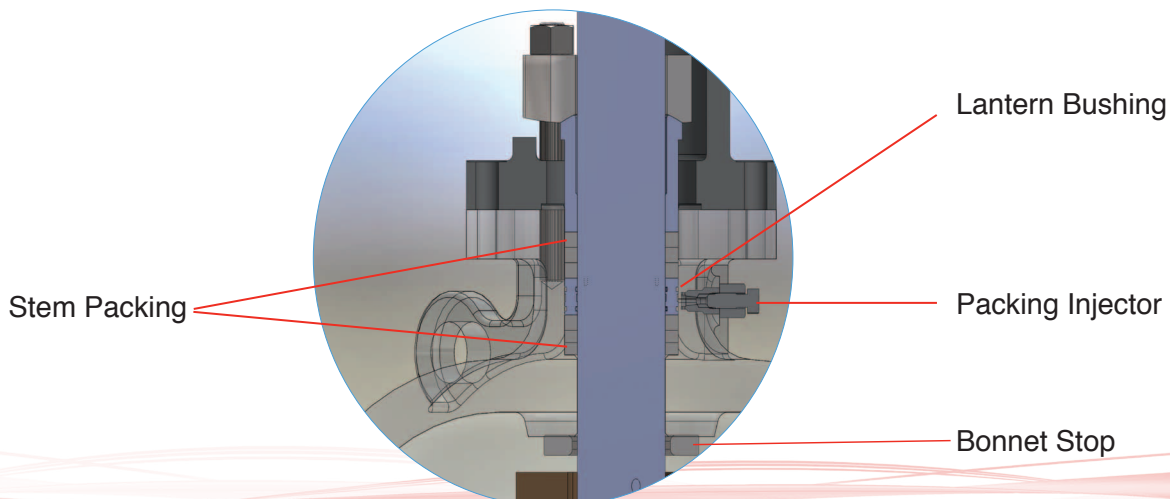
- a) Carbon steel like ASTM A216 grades WCB, WCC.
- b) Carbon steel for NACE applications like ASTM A216 grade WCB with 0.25% maximum and 22 HRc maximum hardness. CE= 0.43% maximum.

### DESIGN FEATURES

- a) Design in accordance with API-6D.
- b) Double block & bleed (DDB) because in closed position, the valve is capable to block both seat ports; the fluid can be released through the drain plug located in the middle of the seal sealing surfaces as per MMS-SP-61 specification.
- c) With double isolation & vent system (DIB) the valve block both ports. Then internal pressure can be released using the pressure relief valve located on the bonnet.
- d) Designed for positive sealing with Expanding Gate.
- e) Expanding gate design minimize friction between closure members (gate and segment) against seats.
- f) Full through conduit port and full opening to permit pass of scrappers, pigs and wipers.
- g) Secondary Reinforced viton o'rings to provide corrosion-resistance seal.
- h) Top entry, studded bonnet and replaceable seats for easy maintenance even in line.
- i) This valve comply with API-6D technical requirements for double isolation and bleed.
- j) 100% interchangeability of parts.
- k) Non lubricated.
- l) Bi-direccional seats due offer double piston effect.
- m) Multi-position installation
- n) Rising stem
- o) Handwheel, chainwheel, gear operation, electric, pneumatic or hydraulic actuation is available as per Customer requirements.
- p) Hard faced options are available for severe service with Tungsten carbide, Chromium carbide applied by HVOF. Stellite coating also available upon request.
- q) Test in accordance with API-6D.
- r) Availability on raised face, butt weld or ring type joint ends.
- s) Valves from 8" nominal diameter and over are supplied with lifting lugs.



## GREASE FITTING



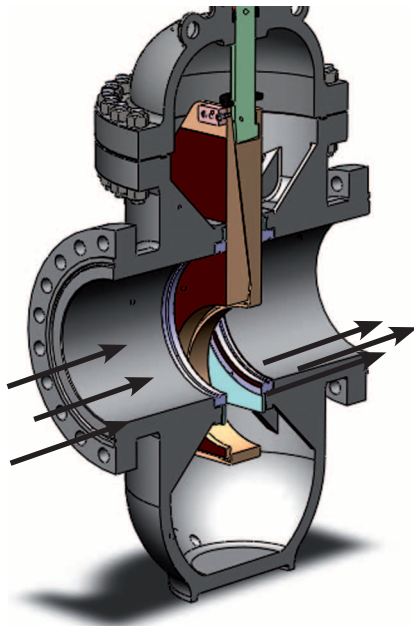
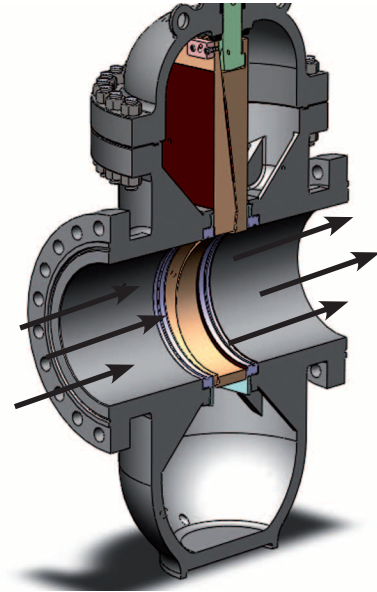
# OPERATION DESIGN

## VALVE POSITIONS

### OPEN POSITION

To explain properly this operation design, let's define the two members of the parallel Expanding Gate as wedge (closure member) preferable installed on downstream at the right side and segment which is in the left side. When the valve is in the open position, the bottom angles of two members (wedge and segment) are in contact.

During opening operation the stem forces the wedge and the segment to come up, during the last stage of the travel, the segment makes contact with the bonnet stop and cannot move up anymore, then the wedge keep rising, and due the forces related to the angle in between wedge and segment, both components of the closure member expand outward, forcing them (wedge and segment) against the seats.

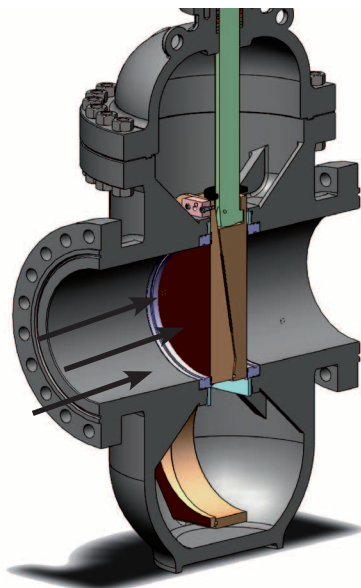


### TRAVELLING POSITION

During opening or closing travel of the closure member (wedge and segment), both of them are compressed themselves in the middle of the seats. In this compressed travelling position, their total width is less than the distance in between the valve seats avoiding friction in between the closure member (wedge and segment) and the valve seats.

### CLOSED POSITION

When the valve is in closed position, the top angles of the two members are in contact. The stem forces the wedge and segment down; during the last stage of the travel, the segment contact with the body stop and cannot move down anymore, then the wedge keeps going down and due the forces related to the angle in between wedge and segment, both components expand outward, forcing them against the seats.





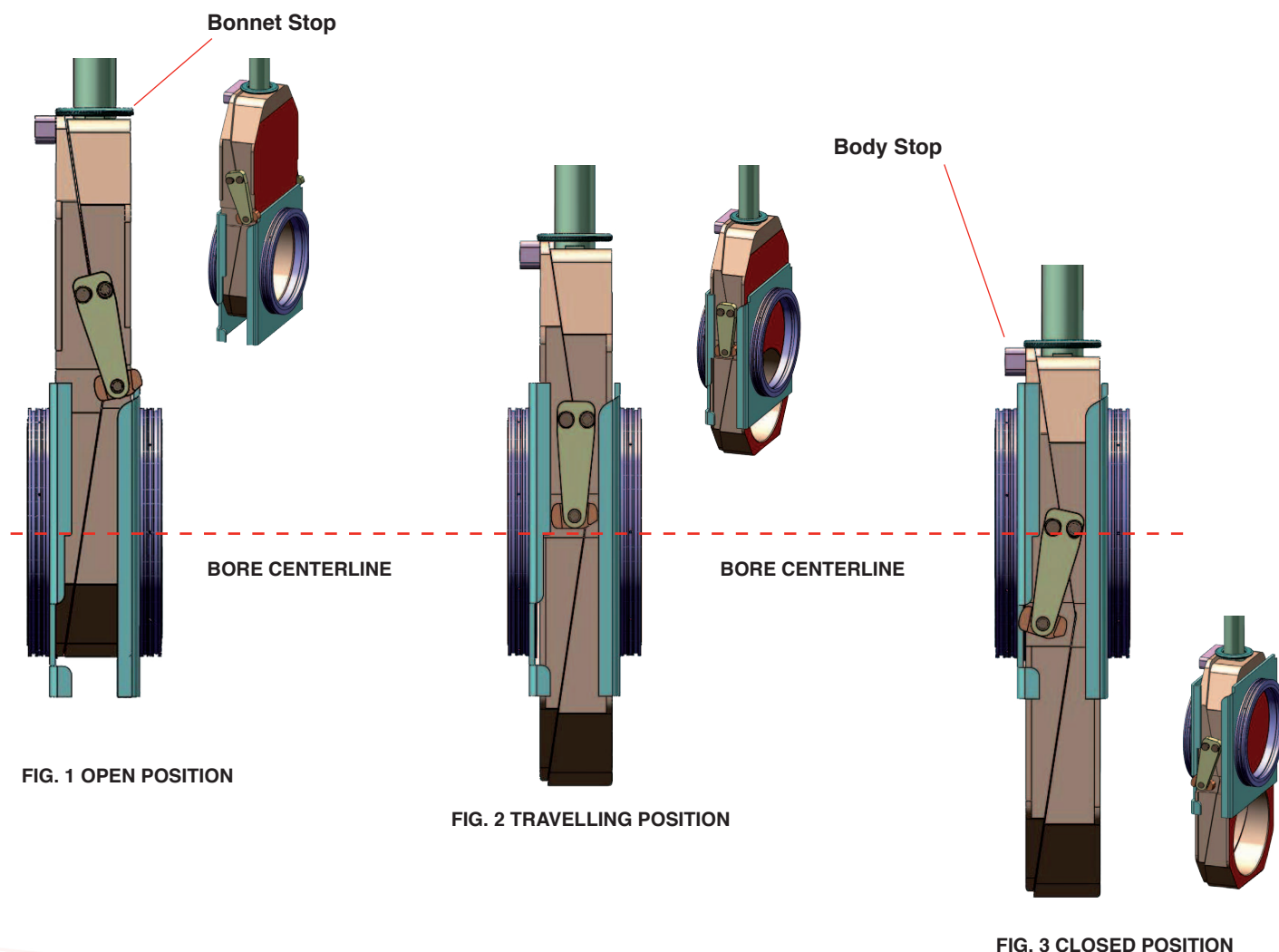
# CONTROL ARM

The two members of the parallel Expanding Wedge are the wedge (closure member) preferable installed on downstream side of the valve and segment which is in the left side as shown in the figures from below. The stem is attached to the wedge but the stem force acts also through the control arm to move the segment.

In figure 1 below, the valve is open. Note that segment is stopped by contact with the bonnet stop. The stem is attached to the wedge and continuous the travel up allowing it to have a lower angle than segment, expanding both of them against the seats. In this position, the Control Arm swings to the right side through a gap in the wedge guide rails which permit relative vertical movement in between wedge and segment.

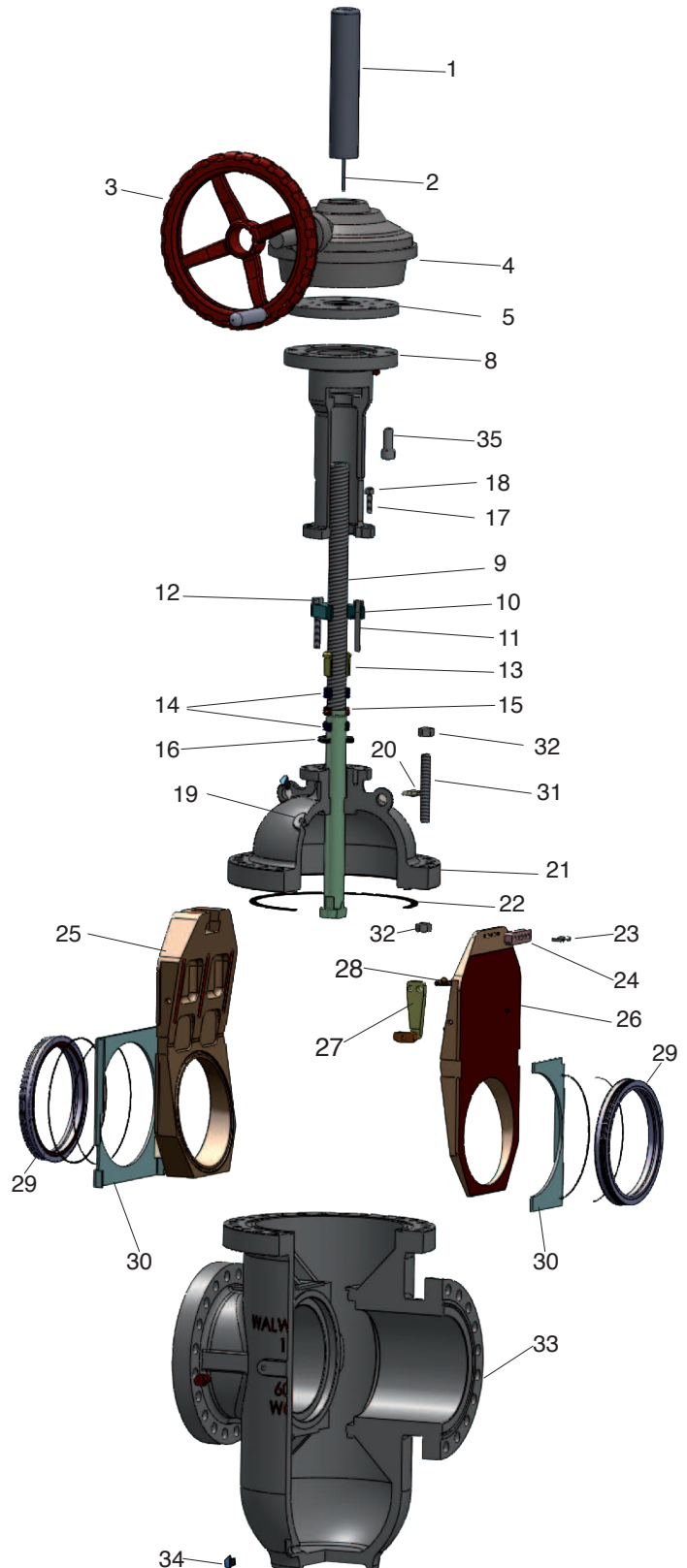
During the opening or closing travel as shown in figure 2, the Control Arm tends to swing to the left side, but is stopped at mid position by the left wedge guide rail. This holds the wedge and segment in the "nested" position where neither back angles act; therefore there is no forced contact in between closure member (wedge and segment) against the seats which minimize friction during travel operation.

The figure 3 below shows the valve during closing operation. The segment going down is stopped by a lug on its upper end by contact with the body stop. At this point, there is a gap in the left -hand guide rail, then the Control Arm can swing to the left side and allow the wedge continuous moving down. The upper wedge and segment back becomes in contact and expand both wedge and segment against the seats.



# SOFT SEAT-METAL SEAT EXPANDING GATE VALVE

Regular Bill of Materials		
No.	Description	Material
1	Stem Protector	Carbon Steel A106
2	Rod indicator	ASTM A108 Grade 1020
3	Handwheel	ASTM A 65-45-12
4	Gear Operator*	Commercial
5	Cover plate	ASTM A515 Grade 70
6	Thrust Bearings (not shown)	Commercial
7	Stem Nut** (not shown)	ASTM A439 Grade D2 or plate
8	Stem Sleeve	ASTM A216 Grade WCB
9	Stem	ASTM A 182 Grade F6A
10	Packing Flange	ASTM A515 Grade 70
11	Packing Flange Bolts	ASTM A193 Grade B7
12	Packing Flange Nuts	ASTM A194 Grade 2H
13	Bonnet Stem Bushing	ASTM A276 Grade 410
14	Stem Packing	Graphite Chevron Style
15	Lantern Bushing	AISI 1020
16	Bonnet Stop	ASTM A515 Grade 70 or ASTMA105
17	Stem Sleeve Studs	ASTM A193 Grade B7
18	Stem Sleeve Nuts	ASTM A194 Grade 2H
19	Relief Valve	Carbon Steel Nickel Platted
20	Packing Injector	ASTM A316
21	Bonnet	ASTM A216 Grade WCB
22	Gasket	Graphite
23	Cap Screws	Commercial
24	Body Stop Lug	ASTM A515 Grade 70 or ASTM A 105
25	Segment	ASTM A515 Grade 70 or ASTM 105+ENP
26	Wedge	ASTM A515 Grade 70 or ASTM 105+ENP
27	Control Arm	ASTM A515 Grade 70
28	Control Arm Screw	AISI 1045
29	Seat Rings	ASTM A515 Grade 70 or ASTM A105
30	Guide rails	ASTM A36
31	Bonnet Studs***	ASTM A193 Grade B7
32	Bonnet Nuts***	ASTM A194 Grade 2H
33	Body	ASTM A216 Grade WCB
34	Drain Plug	ASTM A105
35	Stem Sleeve Cap Screw	Commercial



\* Handwheel Operator as standard; gear operation as per customer request.

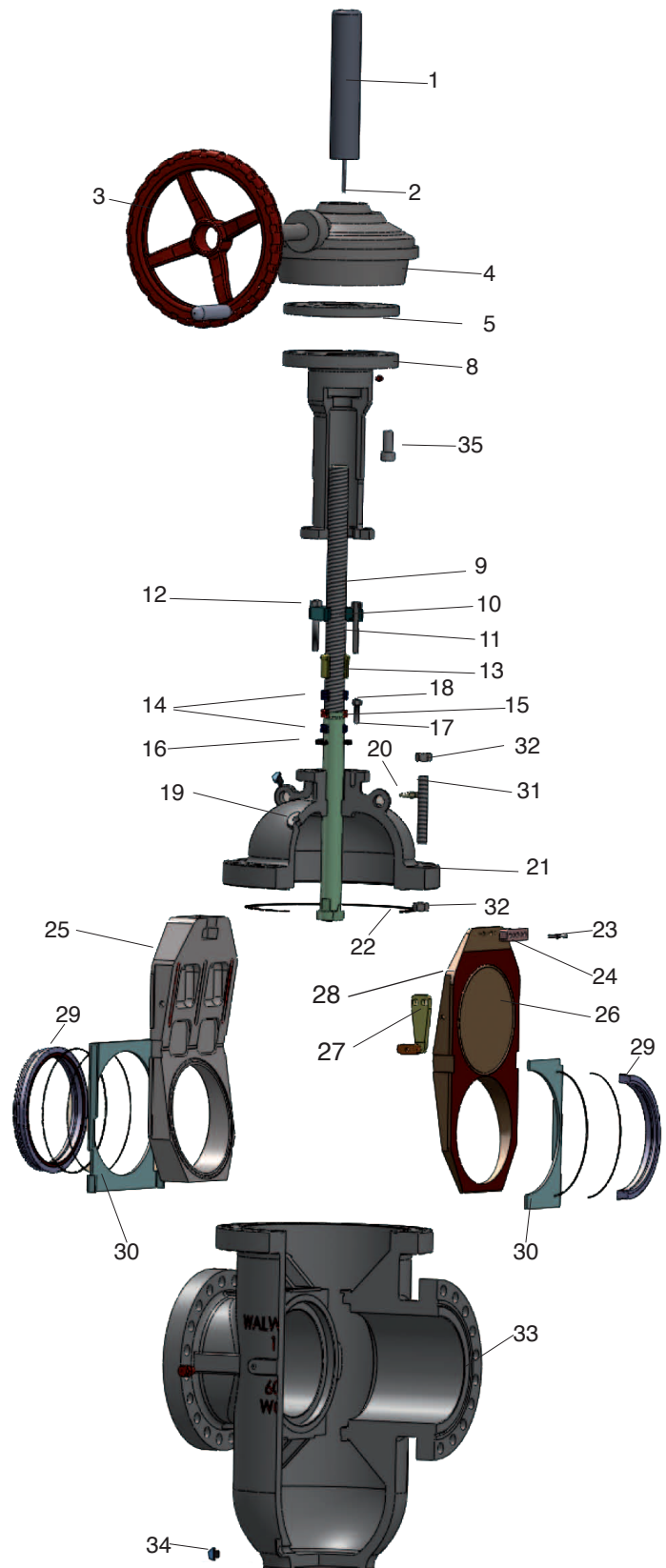
\*\* For handwheel operation Ni-resist grade D2; for Gear Operation ASTM A515 grade 70.

\*\*\* For NACE Service Bolting/Nuts to be B7M/2HM.



# METAL TO METAL SEAT EXPANDING GATE VALVE

Regular Bill of Materials		
No.	Description	Material
1	Stem Protector	Carbon Steel A106
2	Rod indicator	ASTM A108 Grade 1020
3	Handwheel	ASTM A 65-45-12
4	Gear Operator*	Commercial
5	Cover plate	ASTM A515 Grade 70
6	Thrust Bearings (not shown)	Commercial
7	Stem Nut** (not shown)	ASTM A439 Grade D2 or plate
8	Stem Sleeve	ASTM A216 Grade WCB
9	Stem	17-4pH or A276 Grade 410
10	Packing Flange	ASTM A515 Grade 70
11	Packing Flange Bolts	ASTM A193 Grade B7
12	Packing Flange Nuts	ASTM A194 Grade 2H
13	Bonnet Stem Bushing	ASTM A276 Grade 410
14	Stem Packing	Graphite Chevron Style
15	Lantern Bushing	AISI 1020
16	Bonnet Stop	ASTMA515 Grade 70 or ASTMA105
17	Stem Sleeve Studs	ASTM A193 Grade B7
18	Stem Sleeve Nuts	ASTM A194 Grade 2H
19	Relief Valve	Carbon Steel Nickel Platted
20	Packing Injector	AISI SS-316
21	Bonnet	ASTM A216 Grade WCB
22	Gasket	Graphite
23	Cap Screws	Commercial
24	Body Stop Lug	ASTM A515 Grade 70 or ASTM A 105
25	Segment****	ASTMA105 + ENP (030") + Special Coat
26	Wedge****	ASTMA105 + ENP (030") + Special Coat
27	Control Arm	ASTM A515 Grade 70
28	Control Arm Screw	AISI 1045
29	Seat Rings	ASTMA105 + ENP (030") + Special Coat
30	Guide rails	ASTM A36
31	Bonnet Studs***	ASTM A193 Grade B7
32	Bonnet Nuts***	ASTM A194 Grade 2H
33	Body	ASTM A216 Grade WCB
34	Drain Plug	ASTM A105
35	Stem Sleeve Cap Screw	Commercial



\* Handwheel Operator as standard; gear operation as per customer request.  
 \*\*For handwheel operation Ni-Resist.grade D2/; for Gear Operation ASTM A515 grade 70.  
 \*\*\* For NACE service Bolting / Nuts to be B7M / 2HM.  
 \*\*\*\* Either tungsten carbide HFOV or Stellite Sealing areas.  
 Note: Other special coatings as chromium carbide can be supplied upon request.

## EXPANDING GATE VALVE ASME PRESSURE CLASS 150#

FIGURE No.	OPERATION	TYPE OF ENDS
1DE12	Handwheel	RF
1DE13	Handwheel	RTJ
1DE14	Handwheel	WE
1DE22	Gear Operated	RF
1DE23	Gear Operated	RTJ
1DE24	Gear Operated	WE

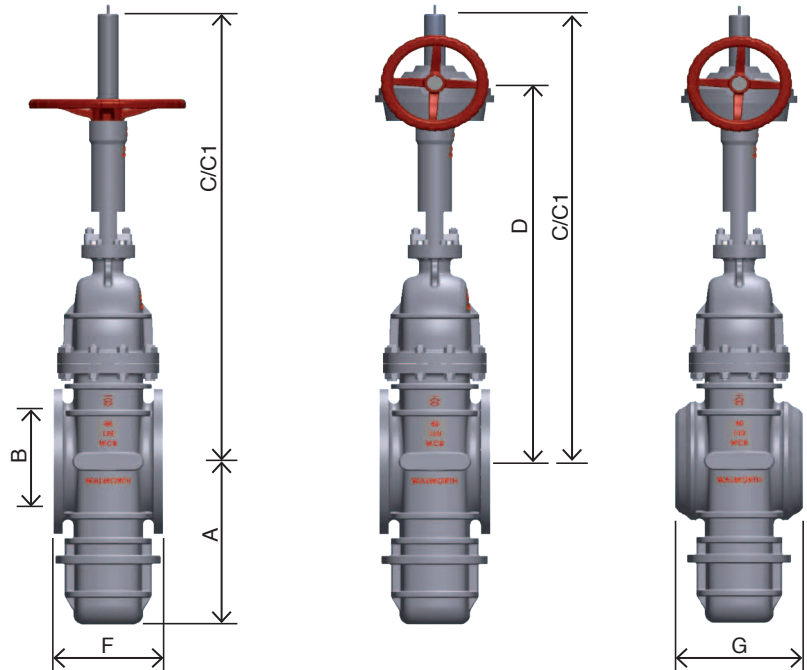
**C**= Closed Position

**C1**= Open Position

Flanged Dimensions conform to ASME/ANSI B16.34, B16.5 & B16.47

**HWO**=Handwheel

**BGO**= Bevel Gear Operation



150#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT	
							FLANGE DIMENSIONS		WE		KG (lbs)
							RF	RTJ			
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)		G (mm) (inch)		
2	HWO	152	49	592	662	N/A	178	191	216	46 101	
		5.98	1.93	23.32	26.08	N/A	7.013	7.52	8.51		
3	HWO	195	74	687	782	N/A	203	216	283	76 167	
		7.68	2.91	27.06	30.81	N/A	7.99	8.51	11.15		
4	HWO	237	100	775	895	N/A	229	241	305	114 251	
		9.33	3.94	30.53	35.26	N/A	9.02	9.49	12.01		
6	HWO	340	150	1067	1239	N/A	267	279	403	193 425	
		13.39	5.91	42.03	48.81	N/A	10.51	10.99	15.87		
8	HWO	435	201	1170	1395	N/A	292	305	419	320 705	
		17.13	7.91	46.09	54.96	N/A	11.50	12.01	16.50		
10	BGO	525	252	1450	1730	1067	330	343	457	480 1058	
		20.68	9.92	57.13	68.16	42.03	13.00	13.51	18.00		
12	BGO	610	303	1665	2001	1220	356	368	502	615 1355	
		24.03	11.93	65.601	78.83	48.06	14.02	14.49	19.77		
14	BGO	635	334	1873	2240	1392	381	394	572	815 1796	
		25.01	13.15	73.7962	88.25	54.84	15.01	15.52	22.53		
16	BGO	722	385	2010	2430	1500	406	419	610	1000 2204	
		28.44	15.16	79.194	95.74	59.1	15.99	16.50	24.03		

Continue...

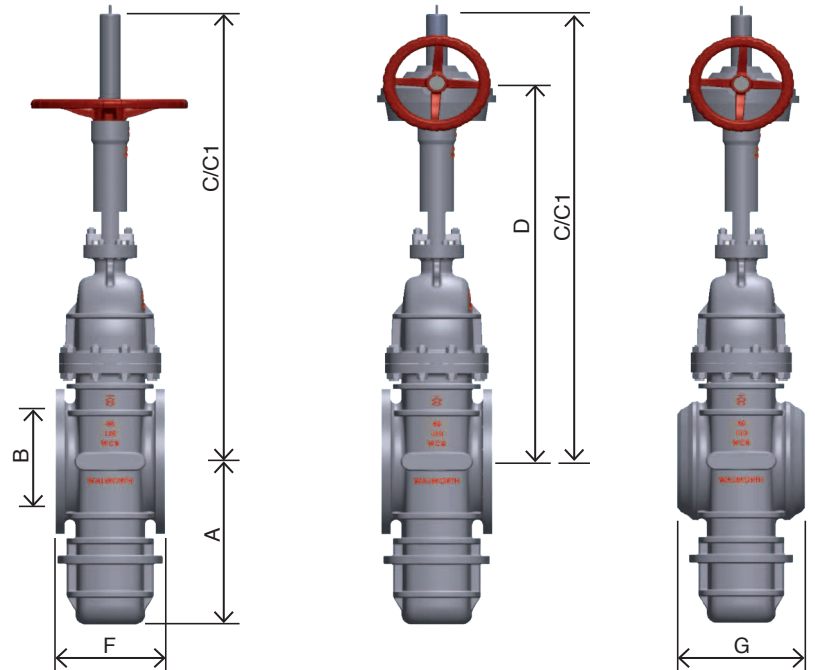


## EXPANDING GATE VALVE ASME PRESSURE CLASS 150#

FIGURE No.	OPERATION	TYPE OF ENDS
1DE12	Handwheel	RF
1DE13	Handwheel	RTJ
1DE14	Handwheel	WE
1DE22	Gear Operated	RF
1DE23	Gear Operated	RTJ
1DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
 ASME/ANSI B16.34, B16.5 & B16.47  
**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



150#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT	
							FLANGE DIMENSIONS		WE		KG (lbs)
							RF	RTJ			
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)		G (mm) (inch)		
18	BGO	808	436	2188	2660	1646	432	445	660	1210 2667	
		31.83	17.17	86.2072	104.80	64.85	17.02	17.53	26.00		
20	BGO	950	487	2555	3082	1916	457	470	711	1520 3350	
		37.43	19.18	100.667	121.43	75.49	18.00	18.51	28.01		
24	BGO	1130	589	2895	3530	2145	508	521	813	2730 6018	
		44.52	23.20	114.06	139.08	84.51	20.01	20.52	32.03		
26	BGO	1205	633	3120	3803	2296	559	N/A	864	3150 6944	
		47.47	24.94	122.92	149.83	90.46	22.02	N/A	34.04		
28	BGO	1255	684	3250	3988	2355	610	N/A	914	3600 7936	
		49.44	26.94	128.05	157.12	92.78	24.03	N/A	36.01		
30	BGO	1330	735	3486	4276	2532	660	N/A	914	3800 8377	
		52.40	28.95	137.34	168.47	99.76	26.00	N/A	36.01		
32	BGO	1400	779	3691	4521	2706	711	N/A	965	4860 10714	
		55.16	30.69	145.42	178.12	106.61	28.01	N/A	38.02		
34	BGO	1480	830	3913	4798	2872	762	N/A	1016	5820 12830	
		58.31	32.70	154.17	189.04	113.15	30.02	N/A	40.03		
36	BGO	1540	874	4135	5070	3044	813	N/A	1016	7300 16093	
		60.67	34.43	162.91	199.75	119.93	32.03	N/A	40.03		

Continue...

## EXPANDING GATE VALVE ASME PRESSURE CLASS 150#

FIGURE No.	OPERATION	TYPE OF ENDS
1DE12	Handwheel	RF
1DE13	Handwheel	RTJ
1DE14	Handwheel	WE
1DE22	Gear Operated	RF
1DE23	Gear Operated	RTJ
1DE24	Gear Operated	WE

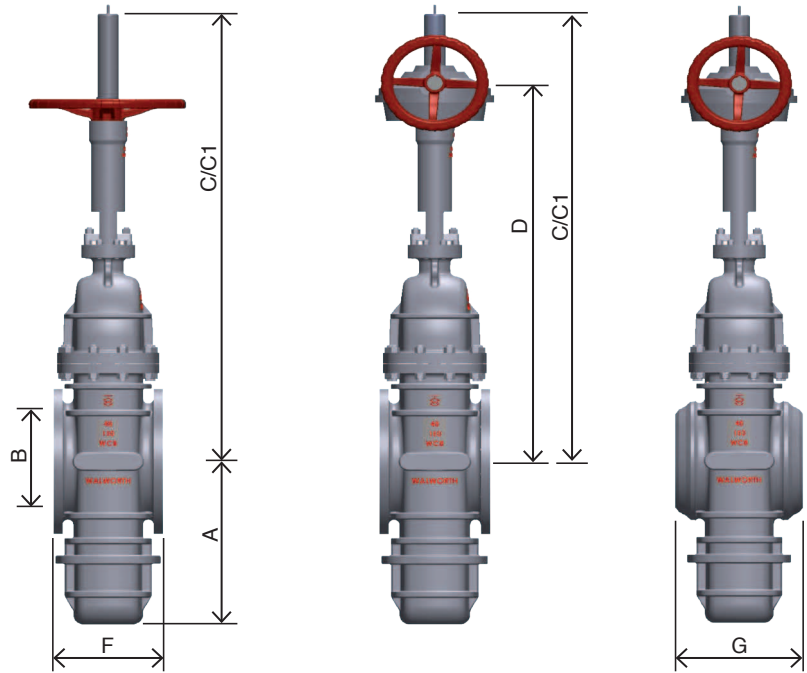
**C**= Closed Position

**C1**= Open Position

Flanged Dimensions conform to ASME/ANSI B16.34, B16.5 & B16.47

**HWO**=Handwheel

**BGO**= Bevel Gear Operation



150#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
							FLANGE DIMENSIONS		WE	
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	RF	RTJ		G (mm) (inch)
38	BGO	1720	925	4267	5252	3129	864	N/A	1067	8400 18518
		67.76	36.44	168.11	206.92	123.28	34.04	N/A	42.03	
40	BGO	1795	976	4579	5614	3393	914	N/A	1118	9260 20414
		70.72	38.45	180.41	221.19	133.68	36.01	N/A	44.04	
42	BGO	1970	1020	4841	5926	3577	965	N/A	1168	10150 22376
		77.61	40.18	190.73	233.48	140.93	38.02	N/A	46.01	
48	BGO	2120	1166	5243	6478	3828	1118	N/A	1321	14220 31349
		83.52	45.94	206.57	255.23	150.82	44.04	N/A	52.04	

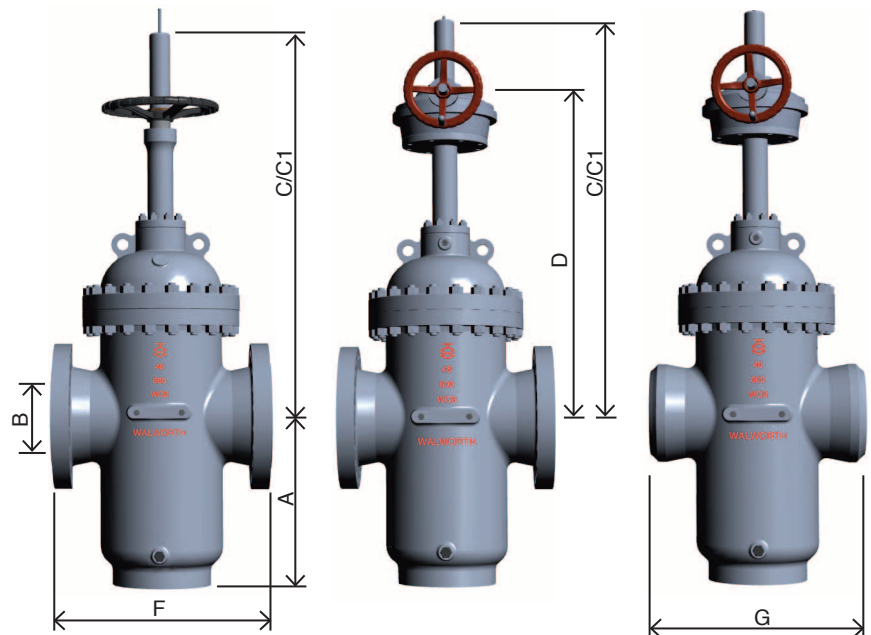
## EXPANDING GATE VALVE ASME PRESSURE CLASS 300#

FIGURE No.	OPERATION	TYPE OF ENDS
3DE12	Handwheel	RF
3DE13	Handwheel	RTJ
3DE14	Handwheel	WE
3DE22	Gear Operated	RF
3DE23	Gear Operated	RTJ
3DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
 ASME/ANSI B16.34, B16.5 & B16.47

**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



300#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
							FLANGE DIMENSIONS		WE	
							RF	RTJ		
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)		G (mm) (inch)	KG (lbs)
2	HWO	152	49	592	662	N/A	216	232	216	73
		5.98	1.93	23.32	26.08	N/A	8.51	9.14	8.51	161
3	HWO	195	74	687	782	N/A	283	298	283	115
		7.68	2.91	27.06	30.81	N/A	11.15	11.74	11.15	253
4	HWO	237	100	775	895	N/A	305	321	305	155
		9.33	3.94	30.53	35.26	N/A	12.01	12.64	12.01	341
6	HWO	340	150	1067	1239	N/A	403	419	403	330
		13.39	5.91	42.03	48.81	N/A	15.87	16.50	15.87	727
8	HWO	435	201	1170	1395	N/A	419	435	419	500
		17.13	7.91	46.09	54.96	N/A	16.50	17.13	16.50	1102
10	BGO	525	252	1450	1730	1067	457	473	457	680
		20.68	9.92	57.13	68.16	42.03	18.00	18.63	18.00	1499
12	BGO	610	303	1665	2001	1220	502	518	502	1030
		24.03	11.93	65.60	78.83	48.06	19.77	20.40	19.77	2270
14	BGO	667	334	1905	2272	1422	762	778	762	2300
		26.27	13.15	75.05	89.51	56.02	30.00	30.625	30.00	5070

Continue...



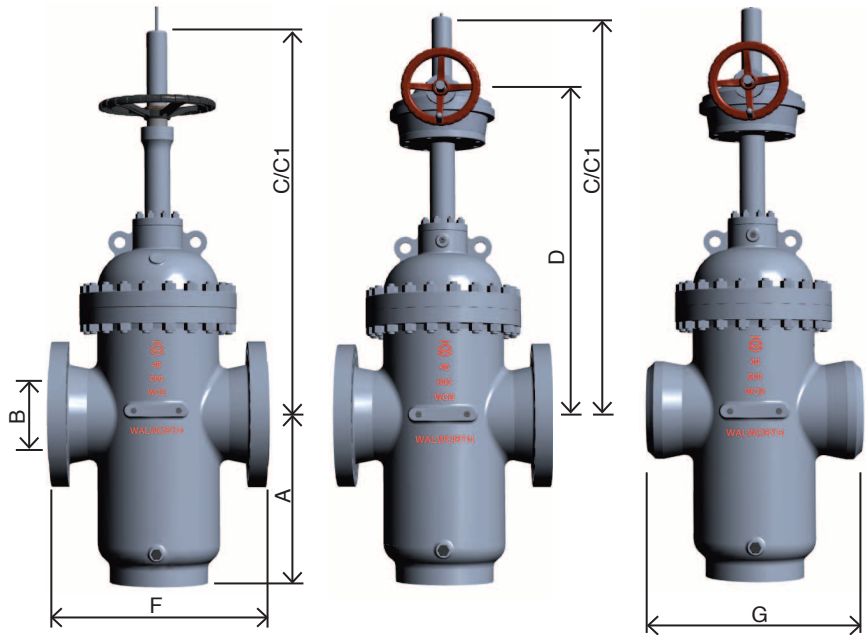
## EXPANDING GATE VALVE ASME PRESSURE CLASS 300#

FIGURE No.	OPERATION	TYPE OF ENDS
3DE12	Handwheel	RF
3DE13	Handwheel	RTJ
3DE14	Handwheel	WE
3DE22	Gear Operated	RF
3DE23	Gear Operated	RTJ
3DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
 ASME/ANSI B16.34, B16.5 & B16.47

**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



300#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
							FLANGE DIMENSIONS		WE	
							RF	RTJ		
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)		G (mm) (inch)	KG (lbs)
16	BGO	756	385	2044	2464	1531	838	854	838	3190
		29.78	15.16	80.53	97.08	60.32	33.00	33.62	33.00	7032
18	BGO	808	436	2188	2660	1646	914	930	914	2770
		31.83	17.17	86.20	104.80	64.85	36.01	36.64	36.01	6106
20	BGO	950	487	2555	3082	1916	991	1010	991	3560
		37.43	19.18	100.66	121.43	75.49	39.04	39.79	39.04	7848
24	BGO	1130	589	2895	3530	2145	1143	1165	1143	5780
		44.52	23.20	114.06	139.08	84.51	45.03	45.90	45.03	12742
26	BGO	1205	633	3120	3803	2296	1245	1270	1245	6560
		47.47	24.94	122.92	149.83	90.46	49.05	50.03	49.05	14462
28	BGO	1255	684	3250	3988	2355	1346	1372	1346	7500
		49.44	26.94	128.05	157.12	92.78	53.03	54.05	53.03	16534
30	BGO	1330	735	3486	4276	2532	1397	1422	1397	8600
		52.40	28.95	137.34	168.47	99.76	55.04	56.02	55.04	18959
32	BGO	1400	779	3691	4521	2706	1524	1553	1524	9500
		55.16	30.69	145.42	178.12	106.61	60.04	61.18	60.04	20943

Continue...

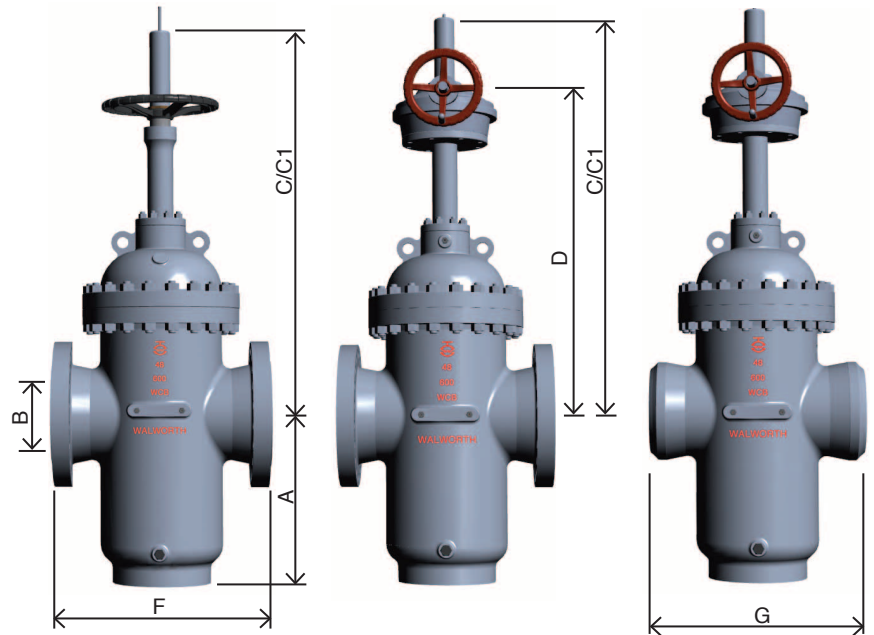
## EXPANDING GATE VALVE ASME PRESSURE CLASS 300#

FIGURE No.	OPERATION	TYPE OF ENDS
3DE12	Handwheel	RF
3DE13	Handwheel	RTJ
3DE14	Handwheel	WE
3DE22	Gear Operated	RF
3DE23	Gear Operated	RTJ
3DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
ASME/ANSI B16.34, B16.5 & B16.47

**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



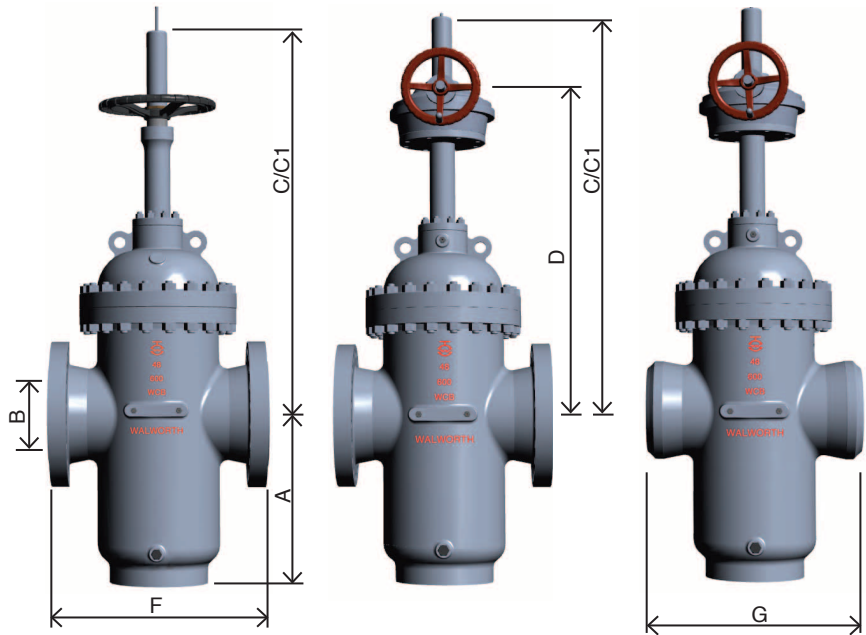
300#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
							FLANGE DIMENSIONS		WE	
							RF	RTJ		
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)		G (mm) (inch)	KG (lbs)
34	BGO	1480	830	3913	4798	2872	1626	1654	1626	10800
		58.31	32.70	154.17	189.04	113.15	64.06	65.16	64.06	23809
36	BGO	1540	874	4135	5070	3044	1727	1756	1727	12100
		60.67	34.43	162.91	199.75	119.93	68.04	69.18	68.04	26675
38	BGO	1720	925	4267	5252	3129	1829	N/A	1829	13600
		67.768	36.44	168.11	206.92	123.28	72.06	N/A	72.06	29982
40	BGO	1795	976	4579	5614	3393	1946	N/A	1946	17400
		70.72	38.45	180.41	221.19	133.68	76.67	N/A	76.67	38360
42	BGO	1970	1020	4841	5926	3577	2032	N/A	2032	20350
		77.61	40.18	190.73	233.48	140.93	80.06	N/A	80.06	44863
48	BGO	2120	1166	5243	6478	3828	2337	N/A	2337	30260
		83.52	45.94	206.57	255.23	150.82	92.07	N/A	92.07	66711

## EXPANDING GATE VALVE ASME PRESSURE CLASS 600#

FIGURE No.	OPERATION	TYPE OF ENDS
6DE12	Handwheel	RF
6DE13	Handwheel	RTJ
6DE14	Handwheel	WE
6DE22	Gear Operated	RF
6DE23	Gear Operated	RTJ
6DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to B16.47  
 ASME/ANSI B16.34, B16.5 &  
**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



600#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT	
							FLANGE DIMENSIONS		WE		KG (lbs)
							RF	RTJ			
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)	G (mm) (inch)			
2	HWO	173	49	615	685	N/A	292	295	292	90	
		6.8162	1.9306	24.231	26.989	N/A	11.5048	11.623	11.5048	198.414	
3	HWO	215	74	687	782	N/A	356	359	356	150	
		8.471	2.9156	27.0678	30.8108	N/A	14.0264	14.1446	14.0264	330.69	
4	HWO	260	100	785	909	N/A	432	435	432	215	
		10.244	3.94	30.929	35.8146	N/A	17.0208	17.139	17.0208	473.989	
6	HWO	362	150	1089	1261	N/A	559	562	559	405	
		14.2628	5.91	42.9066	49.6834	N/A	22.0246	22.1428	22.0246	892.863	
8	BGO	459	201	1244	1469	927	660	664	660	870	
		18.0846	7.9194	49.0136	57.8786	36.5238	26.004	26.1616	26.004	1918.002	
10	BGO	525	252	1450	1730	1067	457	473	457	680	
		20.68	9.92	57.13	68.16	42.03	18.00	18.63	18.00	1499	
12	BGO	610	303	1665	2001	1220	838	841	838	1030	
		24.03	11.93	65.60	78.83	48.06	33	33.12	33	2270	
14	BGO	635	334	1873	2240	1392	762	778	762	1430	
		25.01	13.15	73.79	88.25	54.84	30.02	30.65	30.02	3152	
16	BGO	756	385	2044	2464	1531	991	994	991	3190	
		29.78	15.16	80.53	97.08	60.32	39.04	39.16	39.04	7032	
18	BGO	808	436	2188	2660	1646	914	930	914	2770	
		31.83	17.17	86.20	104.80	64.85	36.01	36.64	36.01	6106	
20	BGO	950	487	2555	3082	1916	991	1010	991	3560	
		37.43	19.18	100.66	121.43	75.49	39.04	39.79	39.04	7848	

Continue...



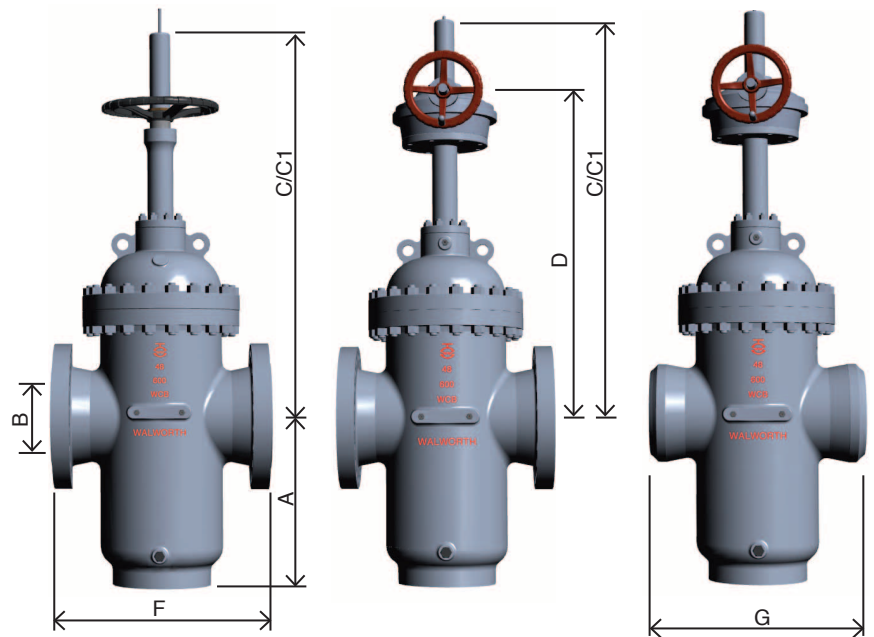
## EXPANDING GATE VALVE ASME PRESSURE CLASS 600#

FIGURE No.	OPERATION	TYPE OF ENDS
6DE12	Handwheel	RF
6DE13	Handwheel	RTJ
6DE14	Handwheel	WE
6DE22	Gear Operated	RF
6DE23	Gear Operated	RTJ
6DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
 ASME/ANSI B16.34, B16.5 & B16.47

**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



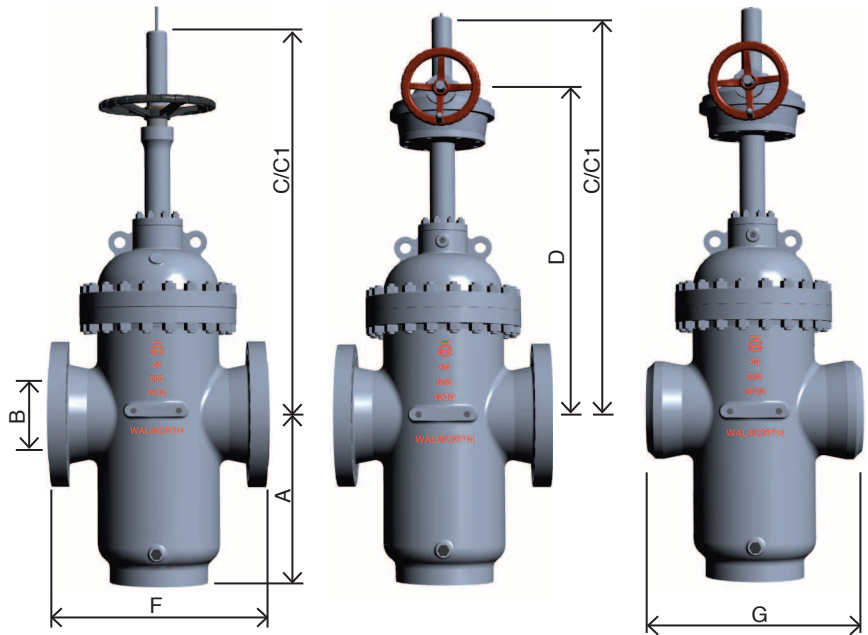
600#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	FLANGE DIMENSIONS		WE	KG (lbs)
							RF	RTJ		
							F (mm) (inch)		G (mm) (inch)	
24	BGO	1170	589	2935	3570	2179	1397	1407	1397	7500
		46.09	23.20	115.63	140.65	85.85	55.04	55.43	55.04	16534
26	BGO	1247	633	3162	3845	2331	1448	1461	1448	9770
		49.13	24.94	124.58	151.49	91.84	57.05	57.56	57.05	21538
28	BGO	1299	684	3294	4032	2391	1549	1562	1549	11600
		51.18	26.94	129.78	158.86	94.20	61.03	61.54	61.03	25573
30	BGO	1376	735	3532	4322	2569	1651	1664	1651	13600
		54.21	28.95	139.16	170.28	101.21	65.04	65.56	65.04	29982
32	BGO	1448	779	3739	4569	2744	1778	1794	1778	15600
		57.05	30.69	147.31	180.01	108.11	70.05	70.68	70.05	34391
34	BGO	1530	830	3963	4848	2911	1930	1946	1930	17800
		60.28	32.70	156.14	191.01	114.69	76.04	76.67	76.04	39241
36	BGO	1592	874	4187	5122	3084	2083	2099	2083	20600
		62.72	34.43	164.96	201.80	121.50	82.07	82.70	82.07	53241
38	BGO	1774	925	4321	5306	3170	2184	N/A	2184	24150
		69.89	36.44	170.24	209.05	124.89	86.04	N/A	86.04	53241
40	BGO	1851	976	4635	5670	3435	2286	N/A	2286	25235
		72.92	38.45	182.61	223.39	135.33	90.06	N/A	90.06	55633
42	BGO	2028	1020	4899	5984	3620	2438	N/A	2438	27950
		79.90	40.18	193.02	235.76	142.62	96.05	N/A	96.05	61618
48	BGO	2180	1166	5303	6538	3872	2794	N/A	2794	38700
		85.89	45.94	208.93	257.59	152.55	110.08	N/A	110.08	85318

## EXPANDING GATE VALVE ASME PRESSURE CLASS 900#

FIGURE No.	OPERATION	TYPE OF ENDS
9DE12	Handwheel	RF
9DE13	Handwheel	RTJ
9DE14	Handwheel	WE
9DE22	Gear Operated	RF
9DE23	Gear Operated	RTJ
9DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
 ASME/ANSI B16.34, B16.5 & B16.47  
**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



900#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
							FLANGE DIMENSIONS		WE	
							RF	RTJ		
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)		G (mm) (inch)	KG (lbs)
2	HWO	206	49	609	680	N/A	368	371	368	105
		8.11	1.93	23.99	26.79	N/A	14.49	14.61	14.49	231
3	HWO	233	74	672	774	N/A	381	384	381	220
		9.18	2.91	26.47	30.49	N/A	15.01	15.12	15.01	485
4	HWO	261	100	807	939	N/A	457	460	457	390 859
		10.28	3.94	31.79	36.99	N/A	18.00	18.12	18.00	
	BGO	261	100	858	990	648	457	460	457	
		10.28	3.94	33.80	39.00	25.53	18.00	18.12	18.00	
6	BGO	367	150	1125	1310	844	610	613	610	725
		14.45	5.91	44.32	51.61	33.25	24.03	24.15	24.03	1598
8	BGO	459	201	1327	1567	985	737	740	737	1320
		18.08	7.91	52.28	61.73	38.80	29.03	29.15	29.03	2910
10	BGO	556	252	1633	1927	1223	838	841	838	1770
		21.90	9.92	64.34	75.92	48.18	33.01	33.13	33.01	3902
12	BGO	658	303	1838	2186	1368	965	968	965	2720
		25.92	11.93	72.41	86.12	53.89	38.02	38.13	38.02	5996
14	BGO	724	322	1936	2307	1439	1029	1038	1029	3530
		28.52	12.68	76.27	90.89	56.69	40.54	40.89	40.54	7782

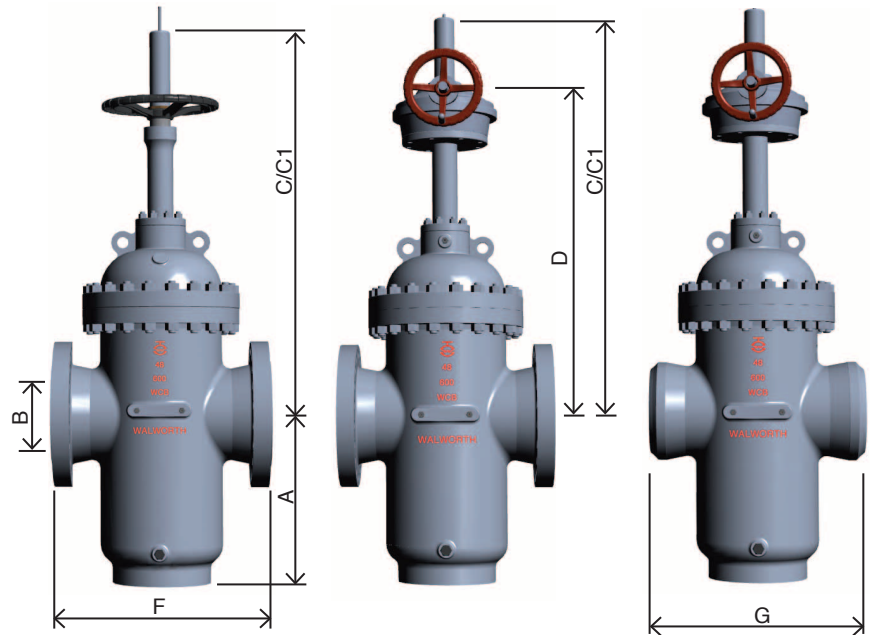
Continue...

## EXPANDING GATE VALVE ASME PRESSURE CLASS 900#

FIGURE No.	OPERATION	TYPE OF ENDS
9DE12	Handwheel	RF
9DE13	Handwheel	RTJ
9DE14	Handwheel	WE
9DE22	Gear Operated	RF
9DE23	Gear Operated	RTJ
9DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
 ASME/ANSI B16.34, B16.5 & B16.47  
**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



900#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
							FLANGE DIMENSIONS		WE	
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	RF	RTJ		G (mm) (inch)
16	BGO	810	373	2215	2638	1658	1130	1140	1130	4360
		31.91	14.69	87.27	103.93	65.32	44.52	44.91	44.52	9612
18	BGO	906	423	2436	2911	1833	1219	1232	1219	5430
		35.69	16.66	95.97	114.69	72.22	48.02	48.54	48.02	11970
20	BGO	1007	471	2622	3149	1960	1321	1334	1321	6950
		39.67	18.55	103.30	124.07	77.22	52.04	52.55	52.04	15321
24	BGO	1208	570	2978	3606	2207	1549	1568	1549	12750
		47.59	22.45	117.33	142.07	86.95	61.03	61.77	61.03	28108

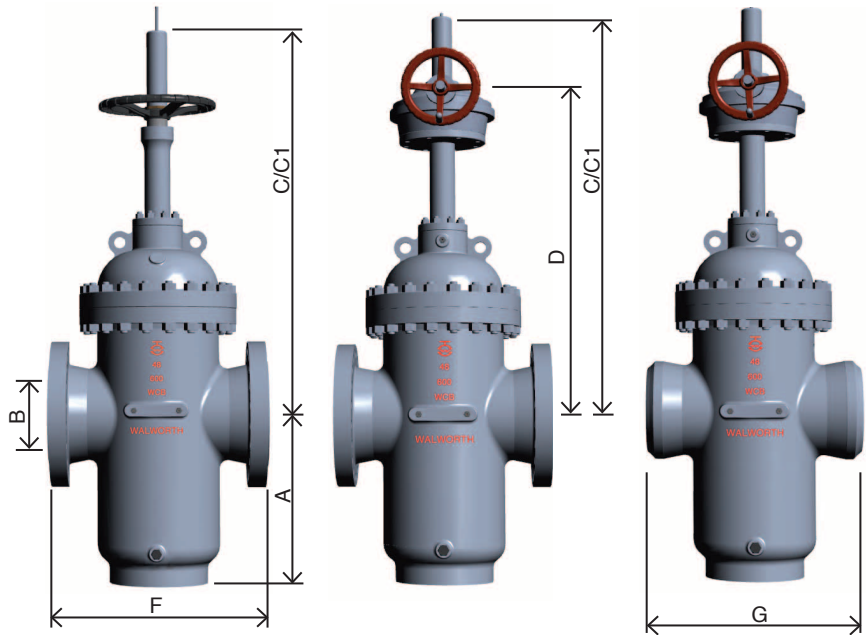


## EXPANDING GATE VALVE ASME PRESSURE CLASS 1500#

FIGURE No.	OPERATION	TYPE OF ENDS
5DE12	Handwheel	RF
5DE13	Handwheel	RTJ
5DE14	Handwheel	WE
5DE22	Gear Operated	RF
5DE23	Gear Operated	RTJ
5DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
 ASME/ANSI B16.34, B16.5 & B16.47  
**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



1500#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
							FLANGE DIMENSIONS		WE	
							RF	RTJ		
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)		G (mm) (inch)	KG (lbs)
2	HWO	200	49	586	656	N/A	368	371	368	165
		7.88	1.93	23.08	25.84	N/A	14.49	14.61	14.49	363
3	HWO	225	74	647	748	N/A	470	473	470	355
		8.86	2.91	25.49	29.47	N/A	18.51	18.63	18.51	782
4	BGO	251	100	780	910	N/A	546	549	546	520
		9.88	3.94	30.73	35.85	N/A	21.51	21.63	21.51	1146
6	BGO	355	144	1095	1273	832	705	711	705	1230
		13.98	5.67	43.14	50.15	32.78	27.77	28.01	27.77	2711
8	BGO	445	192	1295	1524	977	832	841	832	2060
		17.53	7.56	51.02	60.04	38.49	32.78	33.13	32.78	4541
10	BGO	540	239	1600	1879	1223	991	1000	991	3090
		21.27	9.41	63.04	74.03	48.18	39.04	39.4	39.04	6812
12	BGO	640	287	1800	2129	1361	1130	1146	1130	4500
		25.21	11.30	70.92	83.88	53.62	44.52	45.15	44.52	9920
14	BGO	704	315	1892	2251	1416	1257	1276	1257	6250
		27.73	12.41	74.54	88.68	55.79	49.52	50.27	49.52	13778

Continue...

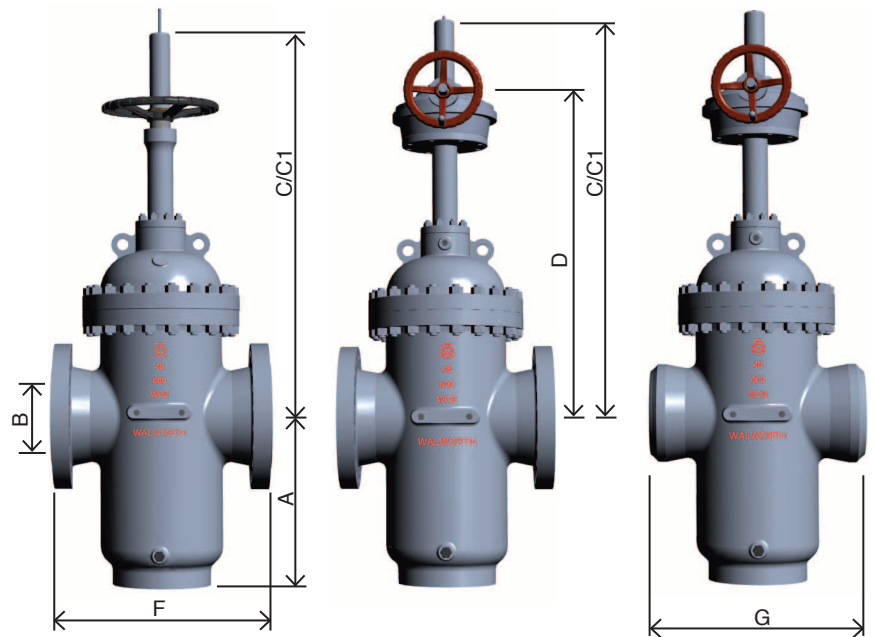
## EXPANDING GATE VALVE ASME PRESSURE CLASS 1500#

FIGURE No.	OPERATION	TYPE OF ENDS
5DE12	Handwheel	RF
5DE13	Handwheel	RTJ
5DE14	Handwheel	WE
5DE22	Gear Operated	RF
5DE23	Gear Operated	RTJ
5DE24	Gear Operated	WE

**C**= Closed Position  
**C1**= Open Position

Flanged Dimensions conform to  
 ASME/ANSI B16.34, B16.5 & B16.47

**HWO**=Handwheel  
**BGO**= Bevel Gear Operation



1500#		GENERAL DIMENSIONS					END TO END			APPROX WEIGHT
							FLANGE DIMENSIONS		WE	
							RF	RTJ		
NOM SIZE	OPERATION	A (mm) (inch)	B (mm) (inch)	C (mm) (inch)	C1 (mm) (inch)	D (mm) (inch)	F (mm) (inch)		G (mm) (inch)	KG (lbs)
16	BGO	788	360	2165	2572	1642	1384	1407	1384	8050
		31.04	14.18	85.30	101.33	64.69	54.52	55.43	54.52	17747
18	BGO	882	406	2380	2836	1803	1537	1559	1537	10200
		34.75	15.99	93.77	111.73	71.03	60.55	61.42	60.55	22486
20	BGO	981	454	2560	3046	1952	1664	1686	1664	14400
		38.65	17.88	100.86	120.01	76.90	65.56	66.42	65.56	31746
24	BGO	1180	546	2910	3511	2183	1943	1972	1943	23400
		46.49	21.51	114.65	138.33	86.01	76.55	77.69	76.55	51587

# MOST COMMON TRIM ARRANGEMENTS

CHARACTERISTICS	METAL TO SOFT SEAT				METAL TO METAL SEAT			
TRIM CODE	W1	W2	W3	W4	W5	W6	W7	W8
<b>TEMPERATURE</b>	-20° TO 250°F -29° TO 121°C	-20° TO 250°F -29° TO 121°C	-20° TO 250°F -29° TO 121°C	-20° TO 250°F -29° TO 121°C	-20° TO 550°F -29° TO 288°C	351° TO 550°F 177° TO 288°C	351° TO 550°F 177° TO 288°C	351° TO 550°F 177° TO 288°C
<b>SERVICE</b>	STANDARD TRIM FOR GENERAL SERVICE	FOR HYDROCARBON AROMATICS	FOR CORROSION RESISTANCE SERVICE 410 SS TRIM	NACE SERVICE FOR SOUR GAS&OIL HARDNESS CONTROL 22 RC MAX	HIGH TEMPERATURE AND ABRASIVE RESISTANCE	HIGH TEMPERATURE AND ABRASIVE RESISTANCE	HIGH TEMPERATURE, ABRASIVE AND CORROSION RESISTANCE TRIM 410 SS+TC	HIGH TEMPERATURE, ABRASIVE AND CORROSION RESISTANCE TRIM 410 STELLITE
<b>BODY BONNET YOKE</b>	WCB	WCB	WCB	WCB	WCB	WCB	WCB	WCB
<b>GATE &amp; SEGMENT</b>	A105N+ENP COATING 0.003"	A105N+ENP COATING 0.003"	410SS+ENP COATING 0.003"	A105N+ENP COATING 0.003"	A105N+TUNGSTEN CARBIDE COATING	A105N+STELLITE + ENP COATING 0.003"	410SS+TUNGSTEN CARBIDE COATING	410SS + STELLITE COATING
<b>SEAT RING</b>	A105N+ENP COATING 0.003"	A105N+ENP COATING 0.003"	410SS+ENP COATING 0.003"	A105N+ENP COATING 0.003"	A105N+TUNGSTEN CARBIDE COATING	A105N+STELLITE + ENP COATING 0.003"	41SS+TUNGSTEN CARBIDE COATING	410SS + STELLITE COATING
<b>SEAT INSERT</b>	ELASTOMER*	ELASTOMER*	ELASTOMER*	ELASTOMER*	NONE	NONE	NONE	NONE
<b>STEM</b>	4140 ALLOY STEEL	4140 ALLOY STEEL	410SS	4140 ALLOY STEEL	17-4PH	17-4PH	410SS	410SS
<b>STEM PACKING</b>	GRAPHITE PACKING	PTFE PACKING	GRAPHITE PACKING	PTFE PACKING	GRAPHITE PACKING	GRAPHITE PACKING	GRAPHITE PACKING	GRAPHITE PACKING
<b>BOLTS/NUTS</b>	B7M/2HM	B7M/2HM	B7M/2HM	B7M/2HM	B7M/2HM	B7M/2HM	B7M/2HM	B7M/2HM
<b>O-RING</b>	BUNA "N"	VITON	BUNA "N"	VITON	EPDM	EPDM	EPDM	EPDM
<b>GREASE FITTING</b>	SS316	SS316	SS316	SS316	SS316	SS316	SS316	SS316

\* Material of seat insert is different depending on pressure class.

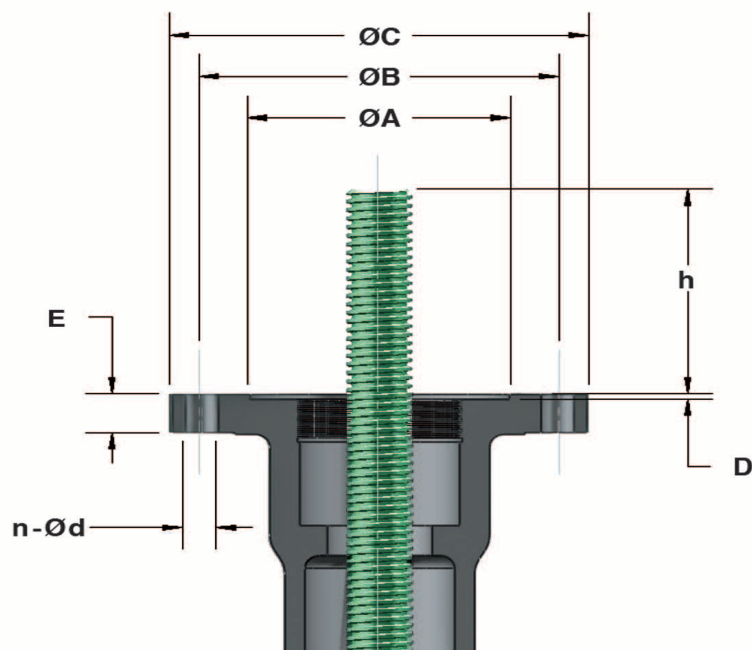
Note: Special arrangements can be supplied as per Customers request.





## STEM INFORMATION & MOUNTING FLANGED DIMENSIONS CLASS 150#

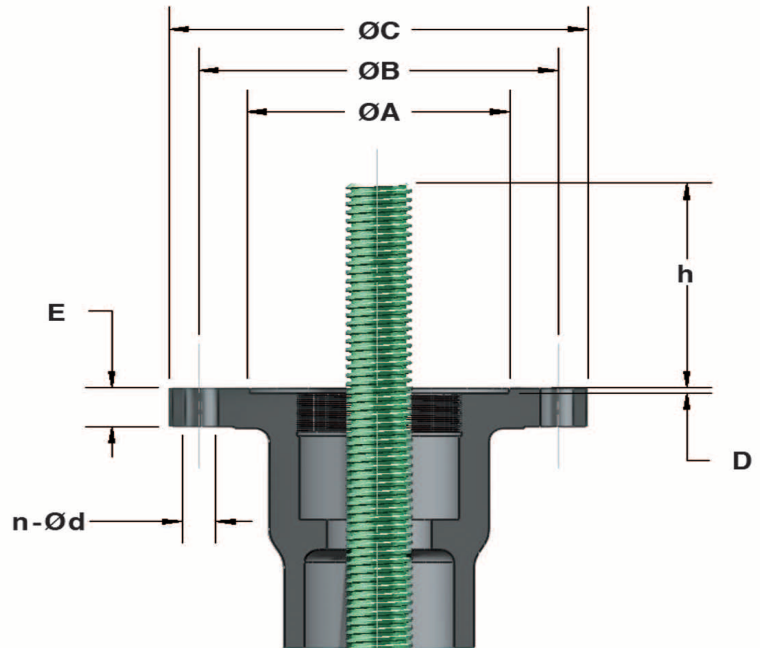
Stroke
Torque
Thrust
Stem Diameter
Pitch
Turns
ISO Flange Number
Mounting Flange Dimensions



CLASS 150								TOP WORK							
SIZE	STROKE	TORQUE	THRUST	STEM	PITCH	Turns	ISO 5210	øA	øB	øC	D	E	h	n	d
IN	IN	Lb-Ft	Lib	IN	IN			IN	IN	IN	IN	IN	IN		IN
2	3.189	62.697	10790.83	0.709	0.157	21	F10	2.8	4	4.9	0.16	0.6	3.1	4	0.472
2.5	3.543	88.513	12139.69	0.866	0.197	18	F12	3.3	4.9	5.9	0.16	0.7	3.7	4	0.551
3	4.173	129.082	16860.68	0.866	0.197	22	F12	3.3	4.9	5.9	0.16	0.7	3.7	4	0.551
4	5.157	154.898	18659.15	1.024	0.197	27	F12	3.3	4.9	5.9	0.16	0.7	3.7	4	0.551
5	6.102	169.65	19108.77	1.102	0.197	31	F12	3.3	4.9	5.9	0.16	0.7	3.7	4	0.551
6	7.283	206.531	23604.95	1.102	0.197	37	F14	3.9	5.5	6.9	0.2	0.8	4.3	4	0.709
8	9.409	228.659	24728.99	1.260	0.236	40	F14	3.9	5.5	6.9	0.2	0.8	4.3	4	0.709
10	11.732	309.796	27876.32	1.417	0.236	50	F16	5.1	6.5	8.3	0.24	1	5.3	4	0.866
12	13.937	354.053	30798.83	1.496	0.236	59	F16	5.1	6.5	8.3	0.24	1	5.3	4	0.866
14	15.059	457.318	37093.49	1.654	0.236	64	F16	5.1	6.5	8.3	0.24	1	5.3	4	0.866
16	17.283	590.088	42713.71	1.732	0.315	55	F25	7.9	10	12	0.24	1	5.9	8	0.709
18	19.272	752.362	54853.4	1.732	0.315	62	F25	7.9	10	12	0.24	1	5.9	8	0.709
20	21.457	958.893	61148.05	2.047	0.315	69	F30	9.1	12	14	0.24	1.2	6.9	8	0.866
24	25.394	1187.55	66093.85	2.165	0.315	81	F30	9.1	12	14	0.24	1.2	6.9	8	0.866

## STEM INFORMATION & MOUNTING FLANGED DIMENSIONS CLASS 300#

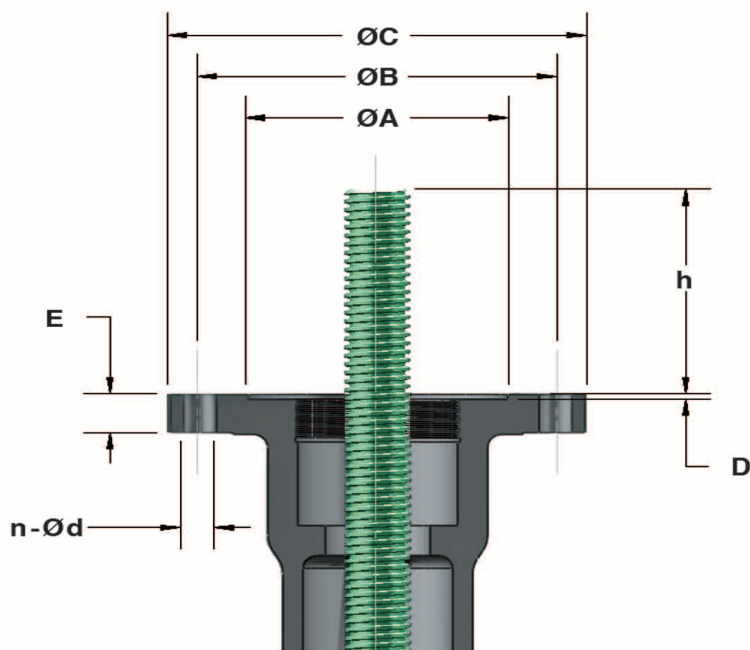
Stroke
Torque
Thrust
Stem Diameter
Pitch
Turns
ISO Flange Number
Mounting Flange Dimensions



CLASS 300								TOP WORK							
SIZE	STROKE	TORQUE	THRUST	STEM	PITCH	Turns	ISO 5210	ØA	ØB	ØC	D	E	h	n	d
IN	IN	Lb-Ft	Lib	IN	IN			IN	IN	IN	IN	IN	IN		IN
2	3.189	73.761	13038.92	0.709	0.157	21	F10	2.8	4.0	4.9	0.16	0.6	3.1	4	0.472
2.5	3.5433	118.018	15736.63	0.866	0.197	18	F12	3.3	4.9	5.9	0.16	0.7	3.7	4	0.551
3	4.1732	184.403	25178.61	0.866	0.197	22	F12	3.3	4.9	5.9	0.16	0.7	3.7	4	0.551
4	5.1575	236.035	28550.74	1.024	0.197	27	F14	3.9	5.5	6.9	0.2	0.8	4.3	4	0.709
5	6.1024	283.242	32597.31	1.102	0.197	31	F14	3.9	5.5	6.9	0.16	0.7	3.7	4	0.709
6	7.2835	306.846	35070.2	1.26	0.236	31	F16	5.1	6.5	8.3	0.2	0.8	4.3	4	0.866
8	9.4094	389.458	38667.15	1.417	0.236	40	F16	5.1	6.5	8.3	0.2	0.8	4.3	4	0.866
10	11.732	436.665	39566.38	1.654	0.236	50	F16	5.1	6.5	8.3	0.24	1	5.3	4	0.866
12	13.937	672.7	49008.36	1.732	0.315	45	F25	7.9	6.5	12	0.24	1	5.3	4	0.709
14	15.059	861.528	62721.71	1.89	0.315	48	F25	7.9	10	12	0.24	1	5.3	4	0.709
16	17.283	967.744	65869.04	2.047	0.315	55	F30	9.1	10	14	0.24	1	5.9	8	0.866
18	19.252	1298.19	82729.71	2.362	0.315	62	F30	9.1	12	14	0.24	1	5.9	8	0.866
20	21.457	1600.61	98016.72	2.559	0.394	55	F30	9.1	12	14	0.24	1.2	6.9	8	0.866
24	25.394	1888.2816	96443.06	2.756	0.394	65	F30	9.1	12	14	0.24	1.2	6.9	8	0.866

## STEM INFORMATION & MOUNTING FLANGED DIMENSIONS CLASS 600#

Stroke
Torque
Thrust
Stem Diameter
Pitch
Turns
ISO Flange Number
Mounting Flange Dimensions



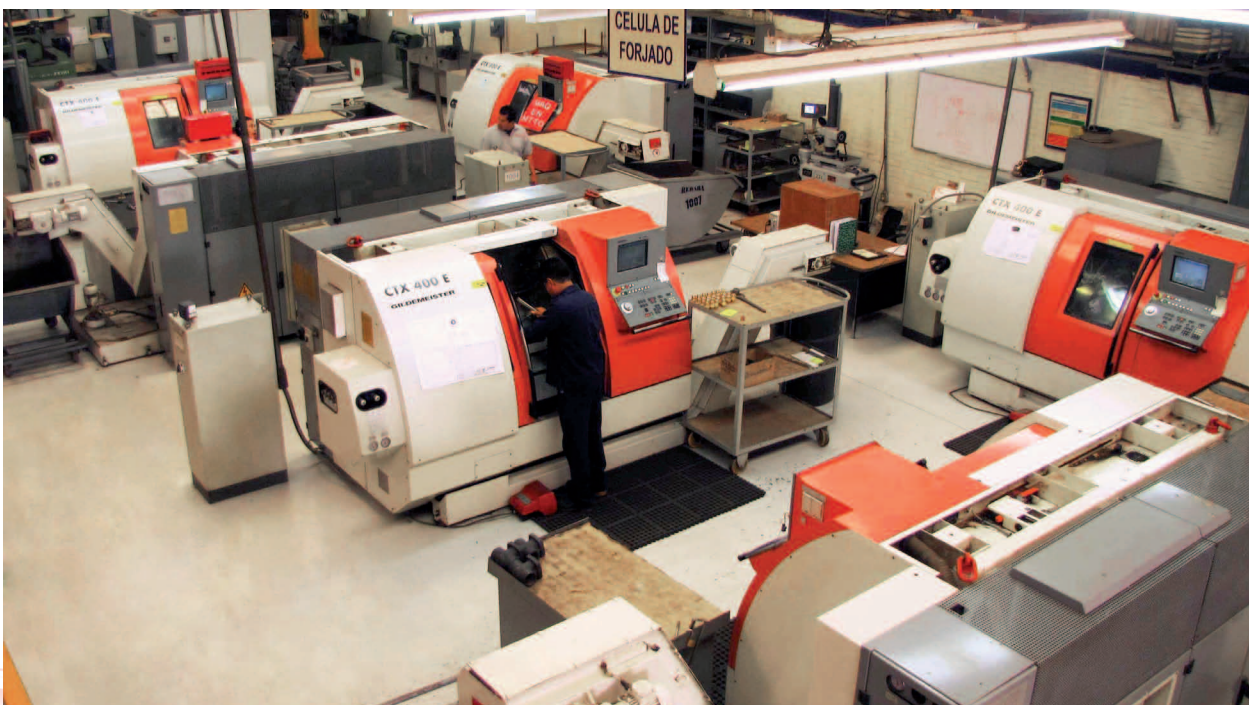
CLASS 600								TOP WORK							
SIZE	STROKE	TORQUE	THRUST	STEM	PITCH	Turns	ISO 5210	øA	øB	øC	D	E	h	n	d
IN	IN	Lb-Ft	Lib	IN	IN			IN	IN	IN	IN	IN	IN		IN
2	3.189	141.621	19558.38	0.866	0.197	17	F12	3.3	4.9	5.9	0.16	0.7	3.7	4	0.551
2.5	3.543	200.63	26527.46	0.866	0.197	18	F14	3.9	5.5	6.9	0.2	0.8	4.3	4	0.709
3	4.173	259.639	31473.26	1.024	0.197	22	F14	3.9	5.5	6.9	0.2	0.8	4.3	4	0.709
4	5.157	354.053	40465.62	1.102	0.197	27	F16	5.1	6.5	8.3	0.24	1	5.3	4	0.866
5	6.102	460.269	44961.8	1.260	0.236	26	F16	5.1	6.5	8.3	0.24	1	5.3	4	0.866
6	7.283	672.7	60698.43	1.417	0.236	31	F25	7.9	10	12	0.24	1	5.9	8	0.709
8	9.409	796.619	69690.79	1.890	0.236	40	F25	7.9	10	12	0.24	1	5.9	8	0.709
10	11.024	1032.65	70590.03	2.283	0.315	38	F30	9.1	12	14	0.24	1.2	6.9	8	0.866
12	13.937	1380.81	88125.13	2.362	0.315	45	F30	9.1	12	14	0.24	1.2	6.9	8	0.866
14	15.059	1770.26	107908.3	2.559	0.394	39	F30	9.1	12	14	0.24	1.2	6.9	8	0.866
16	17.283	2065.31	116900.7	2.756	0.394	44	F35	10	14	16	0.24	1.8	9.8	8	1.299
18	19.252	2581.64	132637.3	2.953	0.394	49	F35	10	14	16	0.24	1.8	9.8	8	1.299
20	21.457	3171.72	161862.5	2.953	0.394	55	F35	10	14	16	0.24	1.8	9.8	8	1.299
24	25.394	3688.05	173102.9	3.346	0.472	54	F35	10	14	16	0.24	1.8	9.8	8	1.299

Note: For class 900 & 1500# contact the plant.

## DESIGN BASIS

All of WALWORTH's Valve Designs, when applicable, follow one or more of the following standards.

- API** American Petroleum Institute.  
**6D** Steel gate, ball and plug valves for pipeline service.  
**6FA** Specification for Fire Test for Valves.
- ASME/ANSI** American National Standard Institute:  
**B2.1** Pipe threads.  
**B16.5** Steel pipe Flanges and flanged fittings.  
**B16.10** Length of ferrous flanged and welding end valves.  
**B16.25** Butt-welding ends.  
**B18.2** Square and hexagon bolts and nuts.  
**B16.47** Large Diameter Steel Flanges
- ASTM** American Society for Testing and Materials:  
**A-193** Alloy steel bolting material for high temperature service.  
**A-194** Carbon and alloy steel nuts for high pressure and high temperature service, class2.  
**A-216** Standard specification for steel castings, Carbon, Suitable for Fusion Welding, for High-temperature Service.
- MSS** Manufactures Standardization Society of the Valve and Fittings:  
**SP-25** Standard marking system for valves, fittings, flanges and unions.  
**SP-44** Steel pipe line flanges.  
**SP-47** Limiting dimensions of raised face flange gaskets.  
**SP-61** Pressure testing of steel valves.
- ASME** American Society of Mechanical Engineers:  
**Section II** Part A, B and C.  
**Section V** Non-destructive Tests.  
**Section VIII** Boiler and Pressure Vessel Code for Unfired Pressure Vessels, Divisions 1 and 2.  
**Section IX** Welding Qualifications.





# HOW TO ORDER

WALWORTH valves are designed by a catalog figure number which describes their main characteristics. The valve identification system shown below is intended to assist our Customers in valve specification to avoid mistakes in manufacturing and delivery. This figure number system describes in an easy way size, type of valve and pressure class, type of ends, trim arrangement, base material & special requirements to comply with. Type of operation (handwheel, gear, electric, pneumatic, etc) must be specified in the purchase order.

**10"-1DE12-W1-WCB-SP**

SUPPLEMENTARY REQUIREMENTS  
 BASE MATERIAL  
 TRIM ARRANGEMENT  
 TYPE OF VALVE & PRESSURE CLASS PER FIG N<sup>o</sup>.  
 SIZE OF THE VALVE IN INCHES

SIZE (INCH)	TYPE OF VALVE & PRESSURE CLASS	TRIM ARRANGEMENTS	BASE MATERIAL ASTM
2"	1DE12=EXP. GATE 150# RF HWO	SOFT SEAT TRIMS:	CARBON STEELS:
2 1/2"	1DE13= EXP. GATE 150# RTJ HWO	W1= A105+ENP+4140+GRAPHITE	A216-WCB (C-Si)
3"	1DE14= EXP. GATE 150# WE HWO	W2= A105+ENP+4140+PTFE	A216-WCC (C-Si)
4"	1DE22= EXP. GATE 150# RF BGO	W3= SS410+ENP+SS410+GRAPHITE	LOW TEMPERATURE SERVICE CARBON STEELS:
5"	1DE23= EXP. GATE 150# RTJ BGO	W4= A105+ENP+4140+PTFE-NACE	ASTM A352-LCB (0.03%C-0.6Si-1% MN)
6"	1DE24= EXP. GATE 150# WE BGO	<b>METAL TO METAL SEATS:</b>	ASTM A352-LCC (0.025%-0.6% Si-1% MN)
8"	3DE12= EXP. GATE 300# RF HWO	W5= A105+TC+17-4PH+GRAPHITE-NACE	LOW TEMPERATURE SERVICE LOW ALLOY STEELS:
10"	3DE13= EXP. GATE 300# RTJ HWO	W6= A105+ST+17-4pH+GRAPHITE-NACE	A352-LC2 (0.25%C-2.5%Ni-0.65%Mn)
12"	3DE14= EXP. GATE 300# WE HWO	W7= 410SS+TC+410SS+GRAPHITE-NACE	A352-LC3 (0.25%C-2.5%Ni-0.65%Mn)
14"	3DE22= EXP. GATE 300# RF BGO	W8= 410SS+ST+410SS+GRAPHITE-NACE	NOTE: ADDITIONAL BASE MATERIALS ARE AVAILABLE UPON REQUEST
16"	3DE23= EXP. GATE 300# RTJ BGO	XX= OTHER SUPPLEMENTARY REQUIREMENTS	
18"	3DE24= EXP. GATE 300# WE BGO	NOTE: TC= TUNGSTEN CARBIDE COATING	SUPPLEMENTARY REQUIREMENTS:
20"	3DE12= EXP. GATE 600# RF HWO	ST= STELLITE COATING (2D, 21 or 6)	GO= Gear Operator
22"	3DE13=EXP. GATE 600# RTJ HWO	NOTE: ADDITIONAL BASE MATERIALS AND TRIM ARRANGEMENTS ARE AVAILABLE UPON REQUEST	CW= Chainwheel Operator
24"	6DE14= EXP. GATE 600# WE HWO		BS= Bare Stem prepared for actuator
28"	6DE22= EXP. GATE 600# RF BGO		MOV= Motor operated valve
30"	6DE23= EXP. GATE 600# RTJ BGO		POV= Pneumatic Operated Valve
36"	6DE24= EXP. GATE 600# WE BGO		LD= Locking device
42"	9DE12= EXP. GATE 900# RF HWO		NACEMR-01-03 OR NACE MR-01-75
48"	9DE13= EXP. GATE 900# RTJ HWO		SP= Special Paint
	9DE14= EXP. GATE 900# WE HWO		SG= Special Gasket
	9DE22=EXP. GATE 900# RF BGO		SPK= Special packing
	9DE23= EXP. GATE 900# RTJ BGO		BP= By-pass
	9DE24= EXP. GATE 900# WE BGO	SE= Stem Extensions	
	5DE12= EXP. GATE 1500# RF HWO	FS= Floor Stands	
	5DE13= EXP. GATE 1500# RTJ HWO	TR= Thermal relief fixture	
	5DE14= EXP. GATE 1500# WE HWO	PR= Pressure relief fixture	
	5DE22= EXP. GATE 1500# RF BGO	XX= Additions requirements.	
	5DE23= EXP. GATE 1500# RTJ BGO		
	5DE24= EXP. GATE 1500# WE BGO		



# WALWORTH®

Since 1842



Visit our homepage for more detail information:  
[www.walworthmx.com](http://www.walworthmx.com)

## MEXICO

Industrial de Válvulas, S.A. de C.V.  
Av. de la Industria Lote 16  
Fracc. Industrial El Trébol, C.P. 54600  
Tepotzotlán, Estado de México

Phone: (52 55) 5899 1700  
Fax: (52 55) 5876 0156

e-mail: [info@walworth.com.mx](mailto:info@walworth.com.mx)

## USA

TWC The Valve Company  
Authorized Distributor  
13641 Dublin Court, Stafford, Texas 77477

Phone: (713) 996 9696  
Toll Free: (1 800) 697 1842 | Fax: (713) 996 9669

e-mail: [info@twcousa.com](mailto:info@twcousa.com)  
[www.twcousa.com](http://www.twcousa.com)