Control Flow
Gate Valve Catalog

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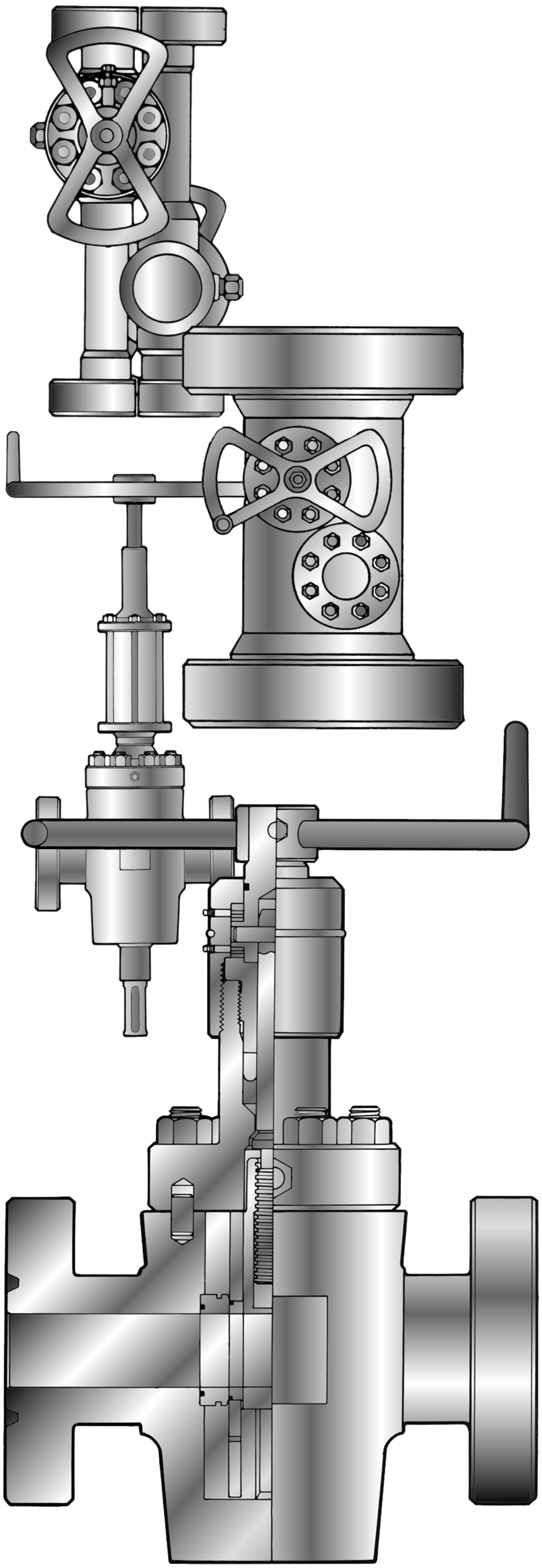
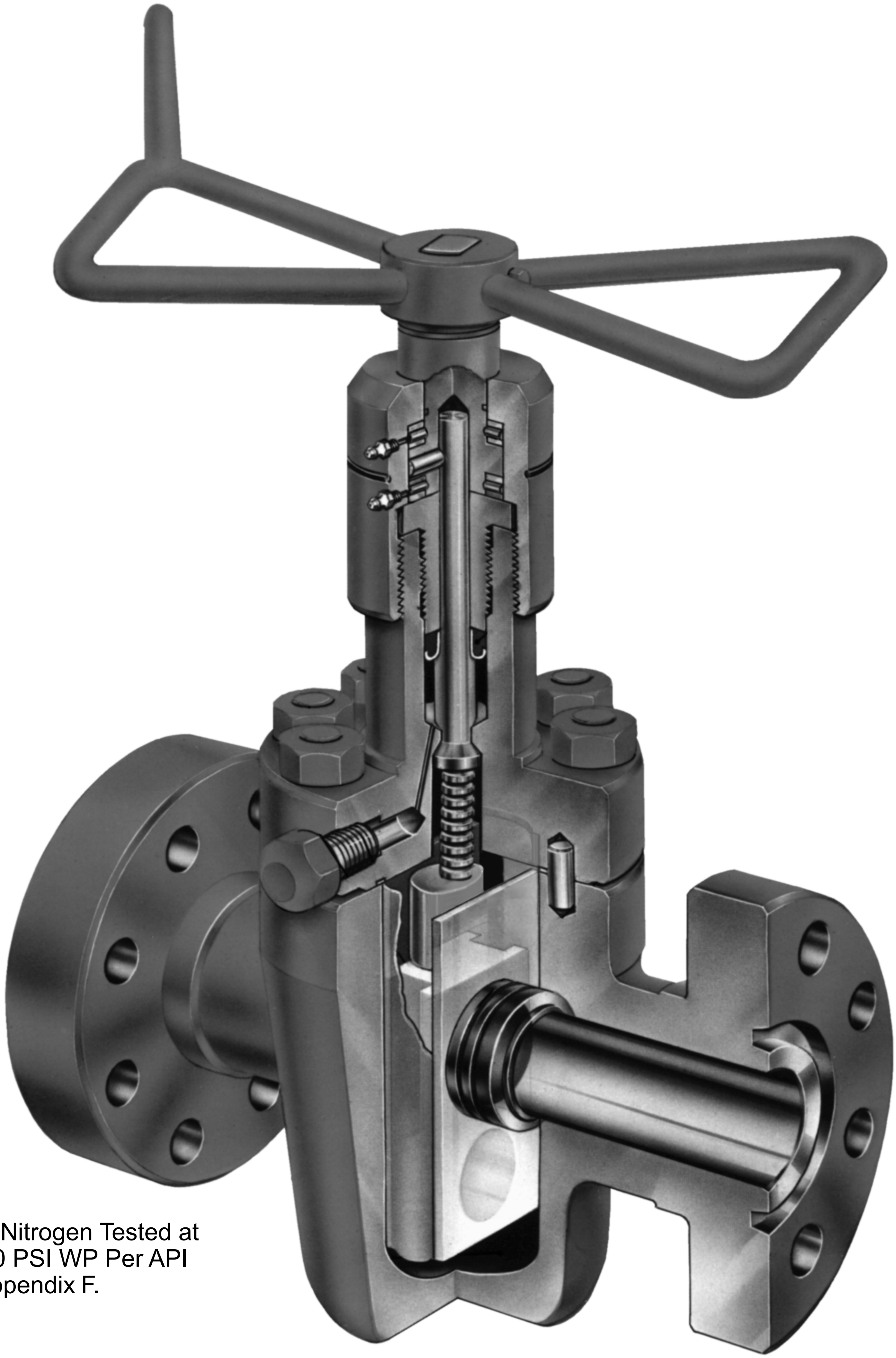
CONTROL FLOW INC.





PR-2 Nitrogen Tested at 15000 PSI WP Per API 6A Appendix F.

CONTROL FLOW INC.

A new approach to dependable sealing, long life, corrosion resistance and easy operation.

The “BW” gate valve is approved for severe services such as choke-and-kill manifolds and Christmas trees. By applying the newest technology in the most critical area, the sealing surfaces of the gate and seats, Flocon engineers have gained many advantages over other gate valve designs.

1. Hard-faced, alloy steel gate. The gate facing has a high resistance to wear and corrosion. It also reduces friction between the gate and seats, so less effort is required to open and close the valve.

2. Solid tungsten carbide seats. These seats also are highly resistant to wear and corrosion, with longer life expectancy than seats made of other materials.

3. Holds pressure from either direction. Line pressure forces the gate against the downstream seat for a positive seal from either side.Therefore, the valve can be mounted facing either way in your line.

4. Venting prevents valve damage. the body cavity is vented to the valve’s upstream side. Since there is no danger of a pressure lock . . no chance of trapped fluids damaging the valve due to heat expansion.

5. Stress on the stem is minimal. Once the gate is closed, no further tightening or wedging is required for a positive seal. This reduces the hazard of stress corrosion cracking the stem.

6. Gate guides keep body cavity clear. Metal guides run the full length of the gate’s travel.

7. Alloy steel valve body is heat-treated to NACE specifications.

8. Easy opening and closing. The combination of hard facing on the gate, pressure energized stem packing and needle thrust bearings reduces the effort required to turn the handwheel.

9. Stem packing is pressure energized.
Reduced friction between the packing and stem during valve opening and closing prolongs packing life. Stem packing can be replaced with pressure in the line. The operating stem backseats, so all packing can be changed under pressure, if necessary.

10. Maintenance is simple. The gate, gate guides and seats can be replaced without removing the valve body from the line. They do not require a selective fit, and no special tools are needed.

11. Bonnet seal is a metal gasket in 5,000 psi valves. A BX-type ring gasket is used in 10,000 and 15,000 psi valves.

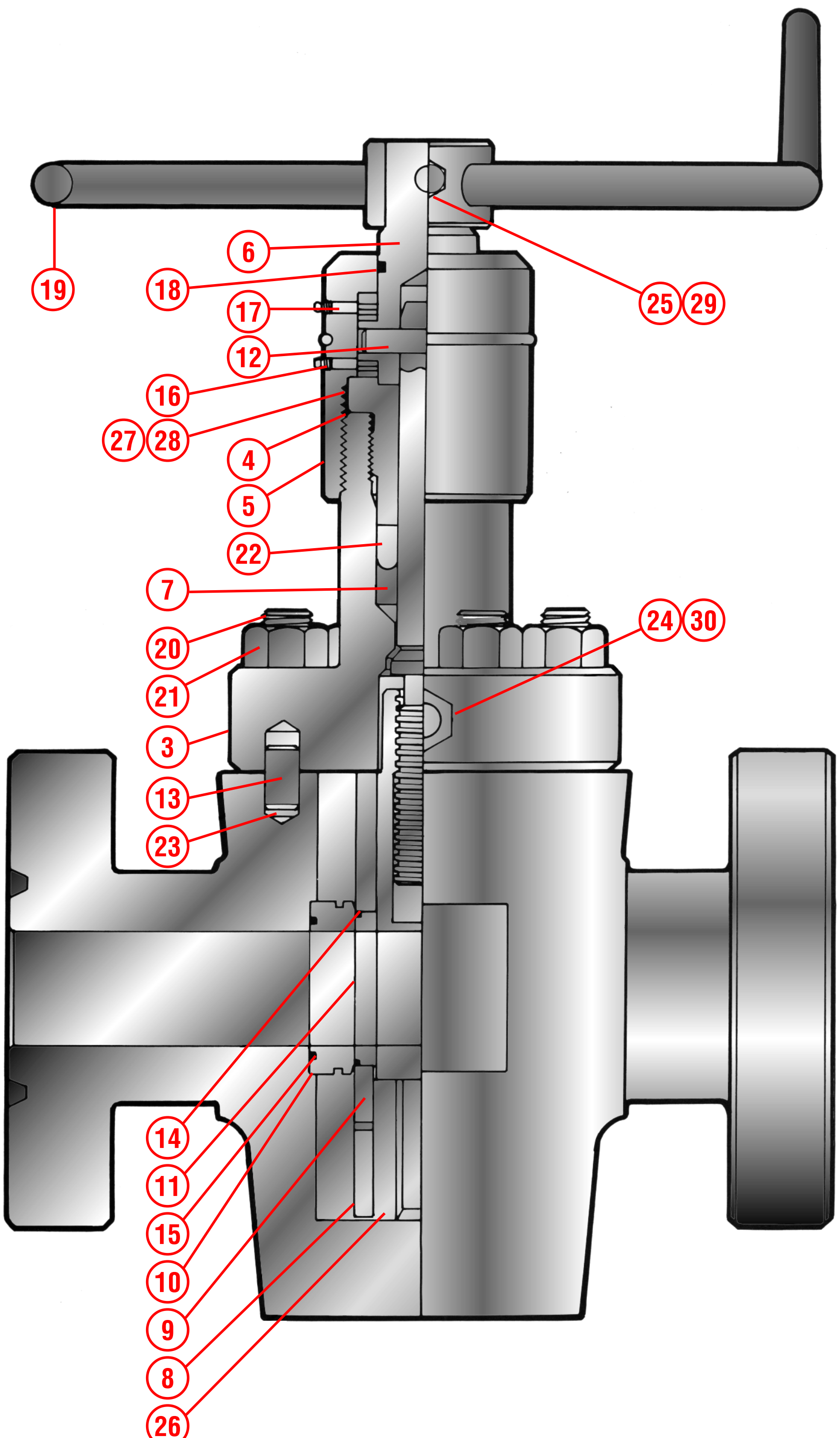
12. Interchangeable with API gate valves. “BW” valves can be substituted for other gate valves of comparable size and pressure rating in existing manifolds and Christmas trees.

13. Selection. Flocon’s Type “BW” gate valves are available in pressure ratings to 15,000 psi, in a full array of trims, with manual or hydraulic operators. High temperature models (manual only) are available.

For details contact the Flocon office nearest you.

CONTROL FLOW INC.

MANUAL TYPE BW GATE VALVES



PR-2 Nitrogen Tested at 15000 PSI WP Per API 6A Appendix F.

Part	Qty	1$\frac{13}{16}$" 10M	1$\frac{13}{16}$" 15M
3. Bonnet	1	564857	565102
4. Packing Gland	1	564207	564207
5, Bearing Cap	1	564202	564202
6. Stem Adapter	1	564205	564205
7. Stem	1	564213	564213
8. Retainer Plate	2	564861	564861
9. Gate	1	564860	564860
10. Body Bushing	2	564868	564868
11. Seat Ring	2	564862	564862
12. Stem Pin	1	564206	564206
13. Bonnet Gasket	1	564858	564858
14. Seal Ring, Seat	2	564863	564863
15. Seal Ring, Body Bushing	2	564867	564867
16. "O" Ring, Bearing Cap	1	030606	030606
17. Grease Fitting	2	564225	564225
18. "O" Ring, Stem Adapter	1	030591	030591
19. Handwheel	1	564251	564251
20. Stud, Tap End	8, 12* or 16*	564256	565106
21. Nut, Bonnet	8, 12* or 16*	020003	020010
22. Stem Packing	1	564208	564208
23. Alignment Pin	2	N/A	N/A
24. Injector Plug	1	564226	564226
25. Bolt, Hex, Head	1	010239	010239
26. Gate Guide	2	564869	564869
27. Bearing, Thrust	2	564204	564204
28. Race, Thrust Bearing	4	564203	564203
29. Nut, Hex	1	020006	020006
30. Check Valve	1	564379	564379

*12 Required **16 Required

ASSEMBLY PART NUMBERS FOR TYPE BW HANDWHEEL OPERATED GATE VALVES

CONTROL FLOW INC.

Assembly Part Numbers For Type BW Handwheel Operated Gate Valves

Size & Pressure Rating Flanged Ends	T-2 Trim w/ Standard Ring Grooves
$1\frac{13}{16}$"-10000	564850
$1\frac{13}{16}$"-15000	565100
$2\frac{1}{16}$"-5000	564200
$2\frac{1}{16}$"-10000	564350
$2\frac{1}{16}$"-15000	565150
$2\frac{9}{16}$"-5000	564750
$2\frac{9}{16}$"-10000	564800
$2\frac{9}{16}$"-15000	565200
$3\frac{1}{8}$"-3000	565000
$3\frac{1}{8}$"-5000	564250
$3\frac{1}{16}$"-10000	564400
$3\frac{1}{16}$"-150000	565250
$4\frac{1}{16}$"-3000	565050
$4\frac{1}{16}$"-5000	564300
$4\frac{1}{16}$"-10000	564450
$4\frac{1}{16}$"-15000	565300
$7\frac{1}{16}$"-2000	564600
$7\frac{1}{16}$"-3000	564650
$7\frac{1}{16}$"-5000	564700

Part Numbers by Pressure & Sizes (inches - psi)

$2\frac{1}{16}$" 5M	$2\frac{1}{16}$" 10M	$2\frac{1}{16}$" 15M	$2\frac{9}{16}$" 5M	$2\frac{9}{16}$" 10M	$2\frac{9}{16}$" 15M	$3\frac{1}{8}$" 5M	$3\frac{1}{16}$" 10M	$3\frac{1}{16}$" 15M	$4\frac{1}{16}$" 5M	$4\frac{1}{16}$" 10M	$14\frac{1}{16}$" 5M	$7\frac{1}{16}$" 2M	$7\frac{1}{16}$" 3M	$7\frac{1}{16}$" 5M
564211	564357	565152	564757	564807	565202	564257	564407	565258	564307	564457	565302	564607	564657	564707
564207	564207	564207	564207	564207	564469	564207	564207	565257	564207	564469	565303	564469	564469	564469
564202	564202	564202	564202	564202	564470	564202	564202	565262	564202	564470	565304	564470	564470	564470
564205	564205	564205	564205	564205	564471	564205	564205	565263	564205	564471	565305	564471	564471	564471
564213	564213	564213	564759	564759	565203	564259	564259	565256	564309	564473	565306	564609	564609	564609
564215	564215	564215	564761	564761	565204	564261	564261	565259	564311	564472	565307	564611	564611	564611
564214	564214	564214	564760	564760	565205	564260	564260	565260	564310	564460	565308	564610	564610	564610
564222	564222	564222	564768	564768	565206	564268	564413	565252	564318	564463	565309	564618	564618	564618
564216	564216	564216	564762	564762	565207	564262	564262	564261	564312	564468	565310	564612	564612	564612
564206	564206	564206	564206	564206	564467	564206	564206	565311	564206	564467	565311	564467	564467	564467
564212	564358	564358	564758	564808	565208	564258	564409	565253	564308	564459	565312	564608	564608	564608
564217	564217	564217	564763	564763	565209	564263	564263	565255	564313	564313	565313	564613	564613	564613
564221	564221	564221	564767	564767	565210	564267	564267	565255	564317	564317	565314	564617	564617	564617
030606	030606	030606	030606	030606	030182	030606	030606	030359	030606	030182	030362	030182	030182	030182
564225	564225	564225	564225	564225	564225	564225	564225	564225	564225	564225	564225	564225	564225	564225
030591	030591	030591	030591	030591	030655	030591	030591	030114	030591	030655	030602	030655	030655	030655
564201	564251	564251	564201	564251	564251	564251	564401	564401	564251	564401	564401	564251	564251	564401
564210	564356	565153	564756	564806	565211	564256*	564406	565271**	564306	564456	565315	564606*	564356*	564706*
020009	020003	020010	020001	020010	020003	020003	020011	565268**	020010	020012	020013	020001	020003*	020011*
564208	564208	564208	564208	564208	564454	564208	564208	565316	564208	564454	565316	564454	564454	564454
050090	N/A	N/A	050090	N/A	N/A	050460	N/A	N/A	050460	N/A	N/A	050460	050460	050460
564226	564226	564226	564226	564226	564226	564226	564226	564226	564226	564226	564226	564226	564226	564226
010239	010239	010239	010239	010239	010239	010239	010239	010239	010239	010239	010239	010239	010239	010239
564223	564223	564223	564769	564769	565212	564269	564414	565251	564319	565317	565317	564619	564619	564619
564204	564204	564204	564204	564204	564453	564204	564204	565318	564204	564453	565318	564453	565453	564453
564203	564203	564203	564203	564203	564452	564203	564203	565319	564203	564452	565319	564452	564452	564452
020006	020006	020006	020006	020006	020006	020006	020006	020006	020006	020006	020006	020006	020006	020006
N/A	564379	564379	N/A	564379	564379	N/A	564379	564379	N/A	564379	564379	N/A	N/A	N/A

CONTROL FLOW INC.

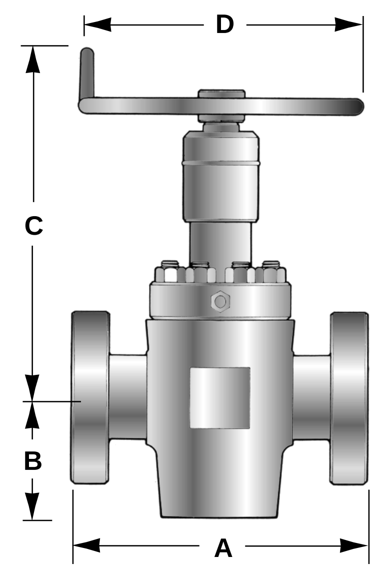
TYPE BW GATE VALVES

Gate Valve For Production Service Dimensional Data And Specifications

Working Pressure	3000				5000				10000					15000			
Size & Bore	**2¹⁄₁₆**	**2⁹⁄₁₆**	**3⅛**	**4⅛**	**2¹⁄₁₆**	**2⁹⁄₁₆**	**3⅛**	**4⅛**	**1¹³⁄₁₆**	**2¹⁄₁₆**	**2⁹⁄₁₆**	**3¹⁄₁₆**	**4¹⁄₁₆**	**1¹³⁄₁₆**	**2¹⁄₁₆**	**2⁹⁄₁₆**	**3¹⁄₁₆**
E to E Thd	10⅝	12⅜	13⅝	N/A	10⅝	12⅜	13⅝	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E to E FLG	14⅝	16⅝	17⅛	20⅛	14⅝	16⅝	18⅝	21⅝	18¼	20½	22¼	24⅜	26⅜	18	19	21	23⁹⁄₁₆
Width	6¾	7⅝	7½	10½	7	8³⁄₁₆	9¼	10¹³⁄₁₆	9¹⁄₁₆	9⅜	9¹³⁄₁₆	10¼	12¹³⁄₁₆	9⅞	9⅞	11½	13⁹⁄₁₆
CL to Top	13	N/A	16¹³⁄₁₆	18⁷⁄₁₆	15⅛	15¹⁵⁄₁₆	16¹³⁄₁₆	18⁷⁄₁₆	15⅛	15⅛	15¹³⁄₁₆	16⅞	19¹¹⁄₁₆	15⅛	15⅛	17³⁄₁₆	20¹⁵⁄₁₆
CL to Bottom	5⅝	6½	7⅜	9⅛	5⅝	6½	7⅜	9⅛	5¾	5⅞	6¹³⁄₁₆	8¹⁄₁₆	10¹⁄₁₆	5⅞	6⅛	7⁵⁄₁₆	9¼
CL to H/W	15⅜	16⅛	19¹⁄₁₆	20¹¹⁄₁₆	17⅜	18⅛	19¹⁄₁₆	20¹¹⁄₁₆	17⅜	17⅜	18⅛	18¹⁄₁₆	20¹⁵⁄₁₆	17⅜	17⅜	19⁹⁄₁₆	22³⁄₁₆
H/W O.D.	14	14	14	18½	14	14	18½	18½	14	18!/2	18½	24	24	18½	18½	18½	24
API Ring	R-24	R-27	R-31	R-37	R-24	R-27	R-35	R-39	151	152	153	154	155	151	152	153	154
Weight FLG	180	249	282	450	182	255	360	545	270	275	485	680	1057	275	350	800	1065
Weight THD	130	185	210	N/A	130	190	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Lubrication Chart

Operational Properties	Lubricant Name		
	CF #1	**CF #3**	**CF Artic 70**
Standard Crude	E	G	E
Low Temp. to - 70º	P	F	E
High Temp. to - 650º	P	E	P
H_2S (Sour Gas)	G	F	F
CO_2	G	F	F
Diesel	E	P	P
Gass Well Condensates	G	F	F
E - Excellent	**G - Good**	**F - Fair**	**P - Poor**



Lubricant Type	Pail		Drum	
	10 LB	**40 LB**	**100 LB**	**400 LB**
CF - #1	564241-1	564241-2	564241-3	564241-4
CF - #3	564441-1	564441-2	564441-3	564441-4
CF - Artic 70	564641-1	564641-2	564641-3	564641-4

Bore Size (Inches)	Pressure	Lubricant Weight (Pounds)
1¹³⁄₁₆	ALL	2.0
2¹⁄₁₆	ALL	2.1
2⁹⁄₁₆	To 10,000	3.4
2⁹⁄₁₆	15,000	5.4
3⅛	To 5,000	5.3
3¹⁄₁₆	10-15,000	8.0
4¹⁄₁₆	To 5,000	10.8
4¹⁄₁₆	10-15,000	11.4
6⅛	ALL	26.0
7¹⁄₁₆	ALL	
9	3,000	
11	3,000	
13⅝	3,000	

CONTROL FLOW INC.

Control Flow Inc., Standard Materials Used In type 'BW', 'BR' & 'DW' Gate Valves

Service	Trim Code	Pressure Rating (PSI)	1, 3 Body	1, 3 Bonnet	Bonnet Seal	Gate	Seat	Body Bushing	Stem
Oil and Gas General Service	T-1	5000	API II	API II	316 SS	2 4130	Stainless Steel	17-4PH	718PH
		10,000 & 15,000	API III	API III					
Oil and Gas H_2S Per NACE MR-01-75	T-2	5000	API II	API II	316 SS	2 4130	Tungsten Carbide	17-4PH	718PH
		10,000 & 15,000	API III	API III					
Oil and Gas H_2S and CO_2	T-3	5000	API II CA-15	API II 410 SS	316 SS	2 410 SS	Tungsten Carbide	17-4PH	718PH
		10,000 & 15,000	API III 410 SS	API III 410 SS					

Notes:
1. Controlled Hardness is 235 BHN MAX
2. Tungsten carbide hardface
3. Charpy V-Notch test per API/DNV required for any trim at low temperature service. Temperature to be specified if above 250°F

Type 'BW' and Type 'BWH' Gate Valves

Size	No. of Turns to Open Gate
1¹³⁄₁₆" - 10000	12½
1¹³⁄₁₆" - 15000	12½
2¹⁄₁₆" - 5000	12½
2¹⁄₁₆" - 10000	12½
2¹⁄₁₆" - 15000	12½
2⁹⁄₁₆" - 5000	15¼
2⁹⁄₁₆" - 10000	15¼
2⁹⁄₁₆" - 15000	15¾
3⅛" - 5000	18¼
3¹⁄₁₆" - 10000	18¼
3¹⁄₁₆" - 15000	15½
4¹⁄₁₆" - 5000	23⅛
4¹⁄₁₆" - 10000	23⅛
4¹⁄₁₆" - 15000	29½
7¹⁄₁₆" - 2000*	33⅛
7¹⁄₁₆" - 3000*	33⅛
7¹⁄₁₆" - 5000*	33⅛

Operating Recommendations

Overtightening the type BW Gate Valve does not assist in affecting a seal.

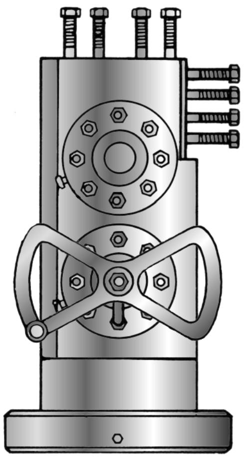
Jamming the gate may prevent the valve from sealing.

Recommended operative procedure is:

1. Opening the valve
   Turn the handwheel counter-clockwise until the gate shoulders, then clockwise one quarter turn.

2. Closing the valve
   Turn the handwheel clockwise until the gate shoulders in the bottom of the body, then counter-clockwise one quarter turn.

SINGLE SOLID BLOCK MASTER VALVES



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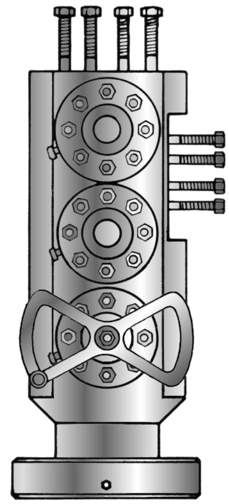

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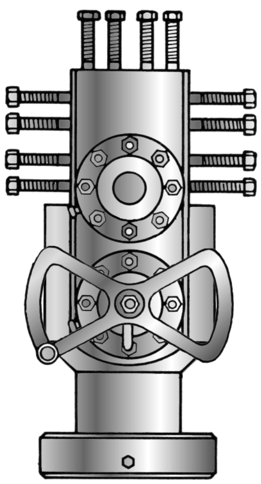

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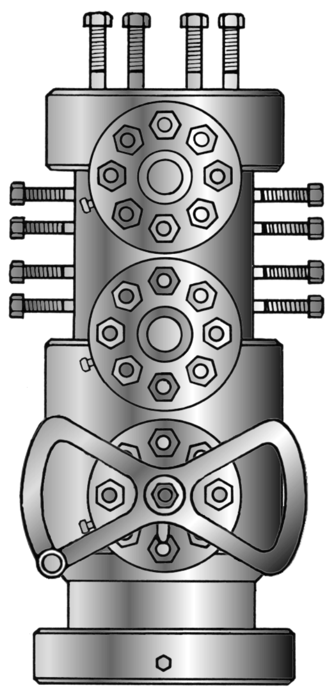


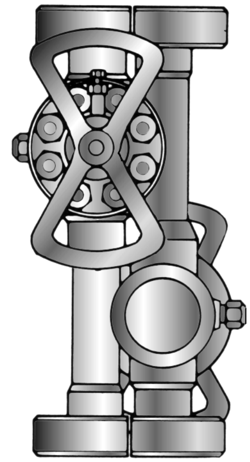
Style C-FH

Run	Working Pressure	Style	Bottom Flange	Top Connection	Outlet Connection	Overall Height
2¹⁄₁₆"	5000	C-FB/C-FG	7¹⁄₁₆"-5000	2¹⁄₁₆"-5000	2¹⁄₁₆"-5000	28"
2⁹⁄₁₆"	5000	C-FB/C-FG	7¹⁄₁₆"-5000	2⁹⁄₁₆"-5000	2¹⁄₁₆"-5000	28½"
2¹⁄₁₆"	10000	C-FB/C-FG	7¹⁄₁₆"-10000	2¹⁄₁₆"-10000	2¹⁄₁₆"-10000	28"
2⁹⁄₁₆"	10000	C-FB/C-FG	7¹⁄₁₆"-10000	2⁹⁄₁₆"-10000	2¹⁄₁₆"-10000	28½"
2¹⁄₁₆"	5000	C-FF/C-FH	7¹⁄₁₆"-5000	2¹⁄₁₆"-5000	2¹⁄₁₆"-5000	36"
2⁹⁄₁₆"	5000	C-FF/C-FH	7¹⁄₁₆"-5000	2⁹⁄₁₆"-5000	2¹⁄₁₆"-5000	36"
2¹⁄₁₆"	10000	C-FF/C-FH	7¹⁄₁₆"-10000	2¹⁄₁₆"-10000	2¹⁄₁₆"-10000	36"
2⁹⁄₁₆"	10000	C-FF/C-FH	7¹⁄₁₆"-10000	2⁹⁄₁₆"-10000	2¹⁄₁₆"-10000	36"

DUAL VALVES

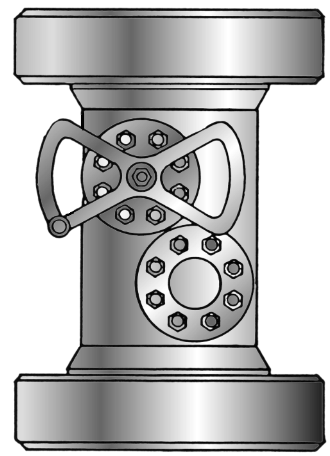
CONTROL FLOW INC.

Dual 5 Bolt Flanged Valves

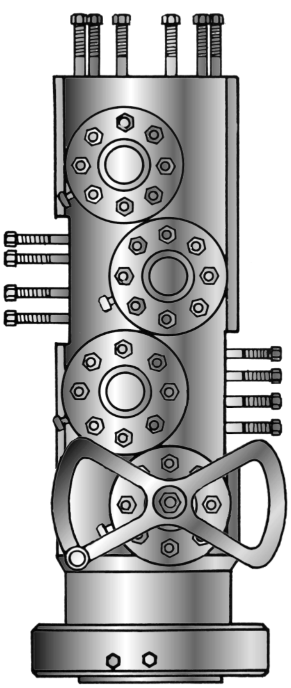


Size & Bore	Working Pressure	5 Bolt FLG Size	Ring Gasket	Min. CL Spacing	Overall Height
2 1/16	2000	2 1/16-5000	BX-20	3 35/64	24
2 1/16	3000	2 1/16-5000	BX-20	3 35/64	24
2 1/16	5000	2 1/16-5000	BX-20	3 35/64	24
2 9/16	2000	2 1/2-5000	RX-210	4 1/2	24
2 9/16	3000	2 1/2-5000	RX-210	4 1/2	24
2 9/16	5000	2 1/2-5000	RX-210	4!/2	24

Dual Block Valves



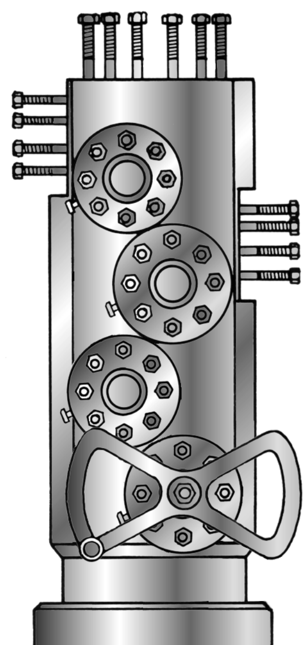
End Flanges & Max. W.P.	Bores	Centerline Spacing	Overall Height
7 1/16-3000	2 1/16 x 2 1/16	3 35/64	25 5/8
7 1/16-5000	2 1/16 x 2 1/16	3 35/64	27 7/8
7 1/16-10000	2 1/16 x 2 1/16	3 35/64	28



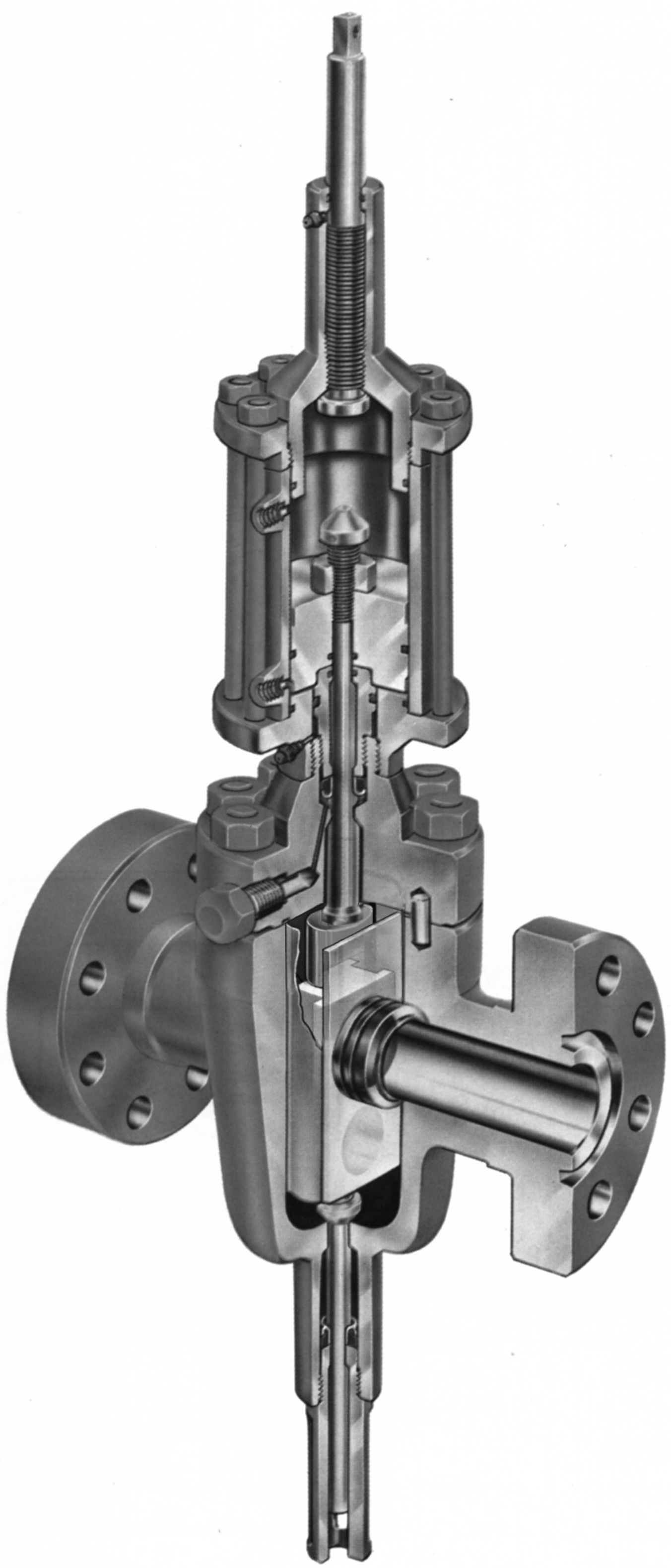
Style C-FA

Dual Solid Block Cross Valves

Lower Connection	Bores	Center Line Spacing	Style	Overall Height
7 1/16"-5000	2 1/16" x 2 1/16	3 35/64"	C-FA	28
7 1/16"-5000	2 1/16" x 2 1/16	3 35/64"	C-FB	33
7 1/16"-10000	2 1/16" x 2 1/16	3 35/64"	C-FA	30
7 1/16"-10000	2 1/16" x 2 1/16	3 35/64"	C-FB	35
9"-5000	2 9/16" x 2 9/16"	4 1/2"	C-FA	41
9"-5000	2 9/16" x 2 9/16"	4 1/2"	C-FB	46
9"-10000	2 9/16" x 2 9/16"	4 1/2"	C-FA	43
9"-10000	2 9/16" x 2 9/16"	4 1/2"	C-FB	48
11"-5000	3 1/8" x 3 1/8"	5 3/64"	C-FA	41
11"-5000	3 1/8" x 3 1/8"	5 3/64"	C-FB	47
11"-10000	3 1/16" x 3 1/16"	5 3/64"	C-FA	43
11"-10000	3 1/16" x 3 1/16"	5 3/64"	C-FB	48



Style C-FB



Hydraulic Operated Gate Valve

For Drilling and Production Service

Features:

1 The hydraulic valve is available with a manual closing and locking screw.

2 The adjusting nut in the blind cylinder head absorbs the overload or test pressures applied to the opening side of the valve, preventing the pressure from reaching the stem.

3 The cylinder ports are positioned such that the piston covers the exhaust port before the end of the stroke. This arrangement provides enough damping to protect the valve from shock loading.

4 The overload or test pressures applied to the closing side of the cylinder are absorbed by the piston bottoming out against the packing gland of the stem.

5 The tail rod and the operating stem have backseating shoulders to allow changing the stem packing while the valve is under pressure.

6 Hydraulic-operated valves have a special body containing a stuffing box through which a tail rod passes, and is attached to the gate. The tail rod serves the following purposes:

- ❑ Acts as a pressure balance for the stem which connects the gate to the operating piston.
- ❑ Compensates for the volume displaced by the operating stem.

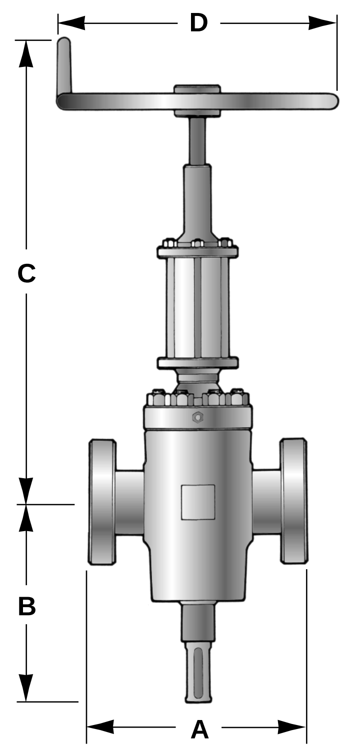
Assembly Part Numbers for Type BWH Hydraulic Operated Gate Valves

Size and Pressure Rating Flanged Ends	T-2 Trim w/ Standard Ring Grooves
1 13/16"-10000	566200
1 13/16"-15000	566075
2 1/16"-5000	565600
2 1/16"-10000	565800
2 1/16"-15000	565950
2 9/16"-5000	565650
2 9/16"-10000	565850
2 9/16"-15000	566000
3 1/8"-3000	565450
3 1/8"-5000	565700
3 1/16"-10000	565840
3 1/16"-15000	565215
4 1/16"-3000	565500
4 1/16"-5000	564500
4 1/16"-10000	564550
7 1/16"-2000[1]	566150
7 1/16"-3000[1]	565550
7 1/16"-5000[1]	565750

[1]Restricted Bore 6 1/8" I.D.

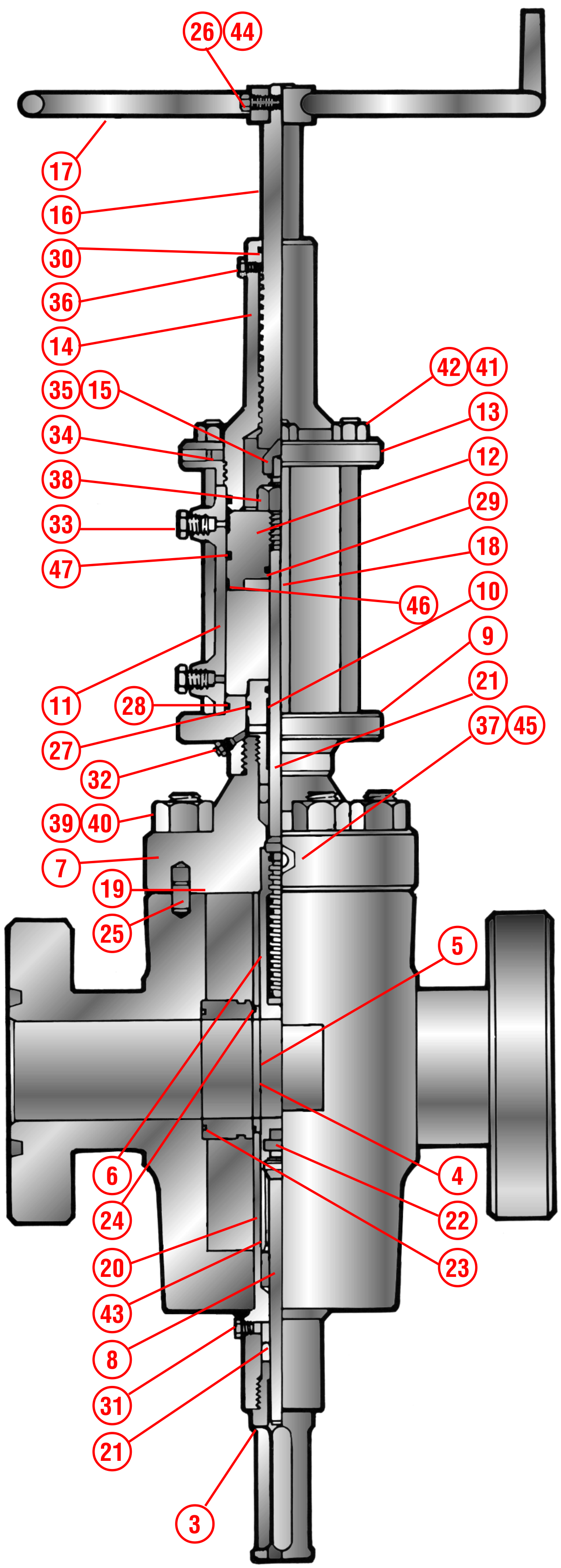
Dimensional Data Hydraulic Operated Valve

Size & Working Pressure	A	B	C	D
1 13/16"-10000	18 1/4"	14 1/4"	35 3/8"	18"
1 13/16"-15000	18"	14 1/4"	35 3/8"	18"
2 1/16"-5000	14 5/8"	14 1/2"	35 3/8"	14"
2 1/16"-10000	20 1/2"	14 1/2"	35 3/8"	18"
2 1/16"-15000	19"	14 1/2"	35 3/8"	18"
2 9/16"-5000	16 5/8"	15 15/16"	37 7/8"	14"
2 9/16"-10000	22 1/4"	15 15/16"	37 7/8"	18"
2 9/16"-15000	21"	15 1/2"	42 1/2"	18"
3 1/8"-5000	18 5/8"	17 1/4"	40 3/8"	18"
3 1/16"-10000	24 3/8"	17 1/4"	41 3/4"	24"
3 1/16"-15000	23 9/16"	20 5/8"	50 1/8"	18"
4 1/16"-5000	21 5/8"	19 3/4"	44 7/8"	18"
4 1/16"-10000	26 3/8"	19 3/4"	48 7/8"	24"
7 1/16"-2000*	22 1/8"	25 7/8"	58 1/16"	18"
7 1/16"-3000*	24 1/8"	25 7/8"	58 3/16"	18"
7 1/16"-5000*	28"	25 7/8"	58 3/16"	24"



CONTROL FLOW INC.

PART NUMBERS FOR HYDRAULIC OPERATED TYPE BWH GATE VALVES



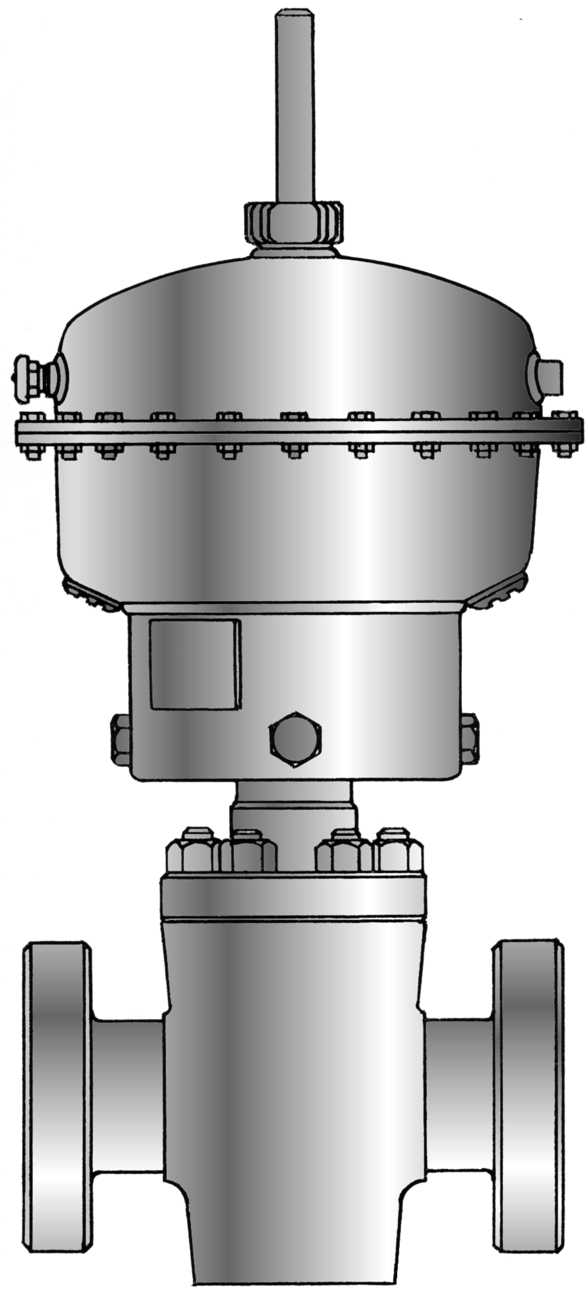
Part	Qty	1¹³⁄₁₆" 10M	1¹³⁄₁₆" 15M	2¹⁄₁₆" 5M
3. Protector & indicator	1	565625	565625	565625
4. Body Bushing	2	564868	564868	564222
5. Seat Ring	2	564862	564862	564216
6. Gate	1	566208	566208	565608
7. Bonnet	1	564857	565102	564211
8. Stem Extension	1	565626	565626	565626
9. Headf, Lower Cylinder	1	564533	564533	564533
10. Packing Gland	1	564519	564519	564519
11. Cylinder	1	565628	565628	565628
12. Piston	1	564527	564527	564527
13. Head Bld. Cylinder	1	564530	564530	564530
14. Adjusting Nut	1	566228	566228	566228
15. Centering Pin	1	564532	564532	564532
16. Locking Screw	1	566229	566229	566229
17. Handwheel	1	564251	564201	564201
18. StemGate	1	565607	565607	565607
19. Bonnet Gasket	1	564858	564858	564212
20. Retainer Plate	2	564861	564861	564215
21. Stem Packing	2	564208	564208	564208
22. Stem Pin	1	564518	564518	564518
23. Seal Ring, Body	2	564867	564867	564221
24. Seal Ring, Seat	2	564863	564863	564217
25. Alignment Pin	2	N/A	N/A	050090
26. Bolt, Hex. Head	1	010239	010239	010239
27. "O" Ring, Packing Gland	1	030071	030071	030071
28. "O" Ring, Cylinder	2	030014	030014	030014
29. "O" Ring, Stem	2	030058	030058	030058
30. "O" Ring, Locking Screw	1	030591	030591	030591
31. Pipe Plug	1	066324	066324	066324
32. Relief Fitting	1	564542	564542	564542
33. Pipe Plug	2	066326	066326	066326
34. Set Screw	2	010012	010012	010012
35. Set Screw, Centering Pin	1	010015	010015	010015
36. Grease Fitting	1	050267	050267	050267
37. Injector Plug	1	564226	564226	564226
38. Nut, Heavy Hex., (Nylon)	1	564538	564538	564538
39. Nut, Bonnet	8, 12*	020003	020010	020009
40. Stud, Tap End, Bonnet	8, 12*	564256	565106	564210
41. Nut, Heavy Hex., Cylinder	6	020004	020004	020004
42. Stud, All Threqad, Cylinder	6	565639	565639	565639
43. Gate Guide	2	564869	564869	564223
44. Nut, Hex	1	020006	020006	020006
45. Check Valve	1	564379	564379	N/A
46. Wear Ring	2	070029-1	070029-1	070029-1
47. Piston Seal	1	070010-5	070010-5	070010-5

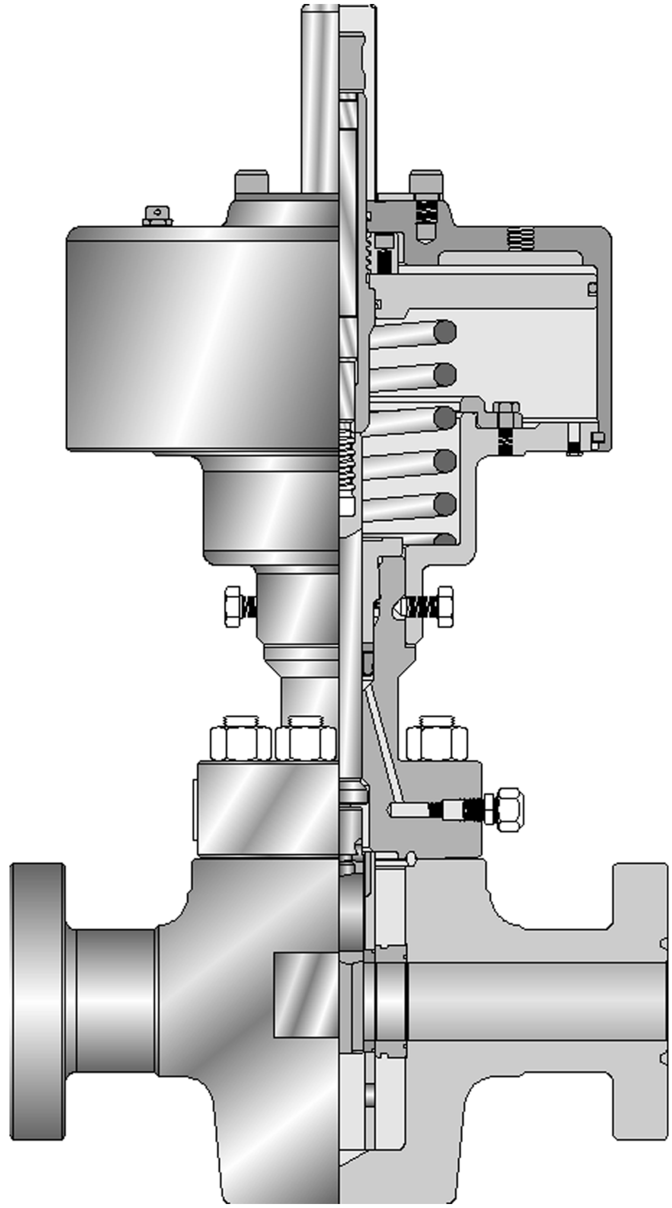
PART NUMBERS FOR HYDRAULIC OPERATED TYPE BWH GATE VALVES

CONTROL FLOW INC.

Part Numbers by Pressures and Sizes

2-1/16" 10M	2-1/16" 15M	2-9/16" 5M	2-9/16" 10M	2-9/16" 15M	3-1/8" 5M	3-1/16" 10M	3-1/16" 15M	4-1/16" 5M	4-1/16" 10M	7-1/16" 2M[1]	7-1/16" 3M[1]	7-1/16" 5M[1]
565625	565625	565675	565675	566006	565725	565725	565218	564525	564574	565575	565575	565575
564222	564222	564768	564768	565206	564268	564413	565252	564318	564463	564618	564618	564618
564216	564216	564762	564762	565207	564262	564262	565261	564312	564468	564612	564612	564612
565608	565608	565658	565658	566009	565708	565708	565219	564508	564558	565558	565558	565558
564357	565152	564757	564807	565202	564257	564407	565258	564307	564457	564607	564657	564707
565626	565626	565676	565676	566007	565726	565726	565220	564526	564575	565576	565576	565576
564533	564533	564533	564533	564582	564533	565913	565221	564533	564582	564582	564582	564582
564519	564519	564519	564519	564568	564519	565916	565222	564519	564568	564568	564568	564568
565628	565628	565678	565678	566013	565728	565728	564577	564528	564577	565578	565578	565578
564527	564527	564527	564527	564576	564527	564527	564576	564527	564576	564576	564576	564576
564530	564530	564530	564530	564579	564530	564530	564579	564530	564579	564579	564579	564579
566228	566228	565729	565729	564578	565729	565729	565223	564529	564578	565598	565598	565598
564532	564532	564532	564532	564581	564532	564532	564581	564532	564581	564581	564581	564581
566229	566229	565731	565731	564531	565731	565731	564531	564531	564531	565580	565580	565580
564251	564251	564201	564251	564251	564251	564401	564401	564251	564401	564251	564251	564401
565607	565607	565657	565657	566011	565707	565914	565224	564507	564557	565557	565557	565557
564358	564358	564758	564808	565208	564258	564409	565253	564308	564459	564608	564608	564608
564215	564215	564761	564761	566020	564261	564261	565259	564311	564472	564611	564611	564611
564208	564208	564208	564208	564454	564208	564208	565316	564208	564454	564454	564454	564454
564518	564518	564518	564518	050045	564518	564518	566103	564518	050045	564567	564567	564567
564221	564221	564767	564767	565210	564267	564267	565254	564317	564317	564617	564617	564617
564217	564217	564763	564763	565209	564263	564263	565255	564313	564313	564613	564613	564613
N/A	N/A	050090	N/A	N/A	050460	N/A	N/A	050460	N/A	050460	050460	050460
010239	010239	010239	010239	010239	010239	010239	010239	010239	010239	010239	010239	010239
030071	030071	030071	030071	030000	030071	030071	030016	030071	030000	030000	030000	030000
030014	030014	030014	030014	030088	030014	030014	030088	030014	030088	030088	030088	030088
030058	030058	030058	030058	030061	030058	030058	030061	030058	030061	030061	030061	030061
030591	030591	030591	030591	030591	030591	030591	030591	030591	030591	030591	030591	030591
066324	066324	066324	066324	066324	066324	066324	066324	066324	066324	066324	066324	066324
564542	564542	564542	564542	564542	564542	564542	564542	564542	564542	564542	564542	564542
066326	066326	066326	066326	066326	066326	066326	066326	066326	066326	066326	066326	066326
010012	010012	010012	010012	010012	010012	010012	010012	010012	010012	010012	010012	010012
010015	010015	010015	010015	010015	010015	010015	010015	010015	010015	010015	010015	010015
050267	050267	050267	050267	050267	050267	050267	050267	050267	050267	050267	050267	050267
564226	564226	564226	564226	564226	564226	564226	564226	564226	564226	564226	564226	564226
564538	564538	564538	564538	564587	564538	564538	564587	564538	564587	564587	564587	564587
020003	020010	020001	020010	020003	020003	020011	565268	020010	020012	020001*	020003*	020011*
564356	565153	564756	564806	565211	564256	564406	565271	564306	564456	564606*	564356*	564706*
020004	020004	020004	020004	020001	020004	020004	020001	020004	020001	020001	020001	020001
565639	565639	565689	565689	566014	565740	565740	565225	564540	564589	565589	565589	565589
564223	564223	564769	564769	565212	564269	564414	565251	564319	564464	564619	564619	564619
020006	020006	020006	020006	020006	020006	020006	020006	020006	020006	020006	020006	020006
564379	564379	N/A	564379	564379	N/A	564379	564379	N/A	564379	N/A	N/A	N/A
070029-1	070029-1	070029-1	070029-1	070029-1	070029-1	070029-1	070029-1	070029-1	070029-2	070029-2	070029-2	070029-2
070010-5	070010-5	070010-5	070010-5	070010-4	070010-5	070010-5	070010-4	070010-5	070010-4	070010-4	070010-4	070010-4

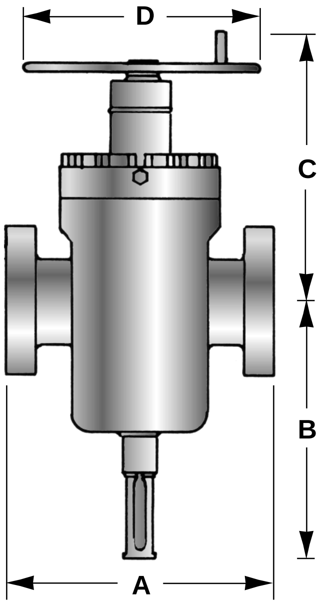




The SSV is an automatic wellhead valve which shuts off the flowstream upon loss of supply pressure. The API 6A specifies that the SSV must be assembled as the second valve in the wellhead flowstream.

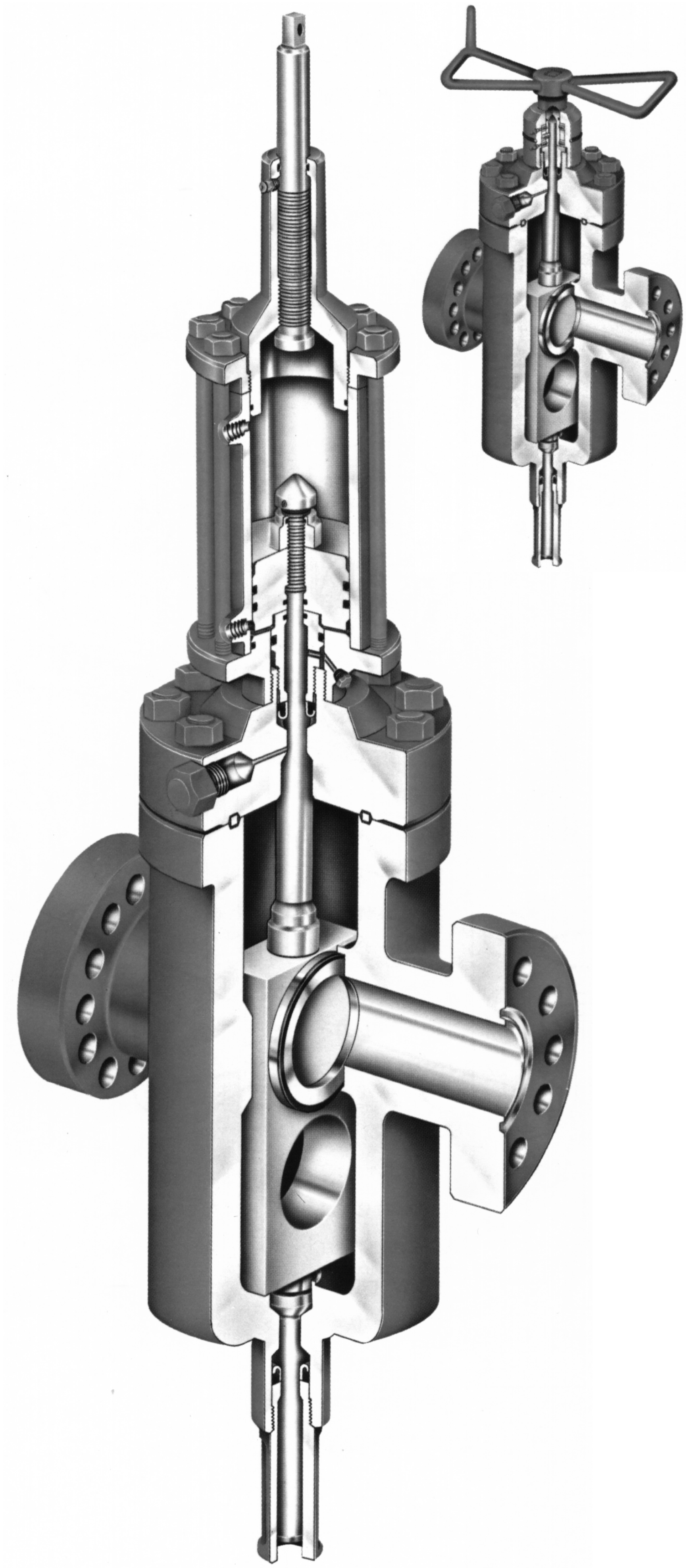
FULL BORE DIVERTER VALVES

CONTROL FLOW INC.



Diverter Valve
Full Bore Diverter Valves
3000 PSI Working Prressure

Size & Bore	9"	11"	13⅝"
A	35	37	42
B	30	32	37
C	22	24	29
D	30	30	30
API Ring	R-49	R-53	R-57



Full Bore Diverter Valve

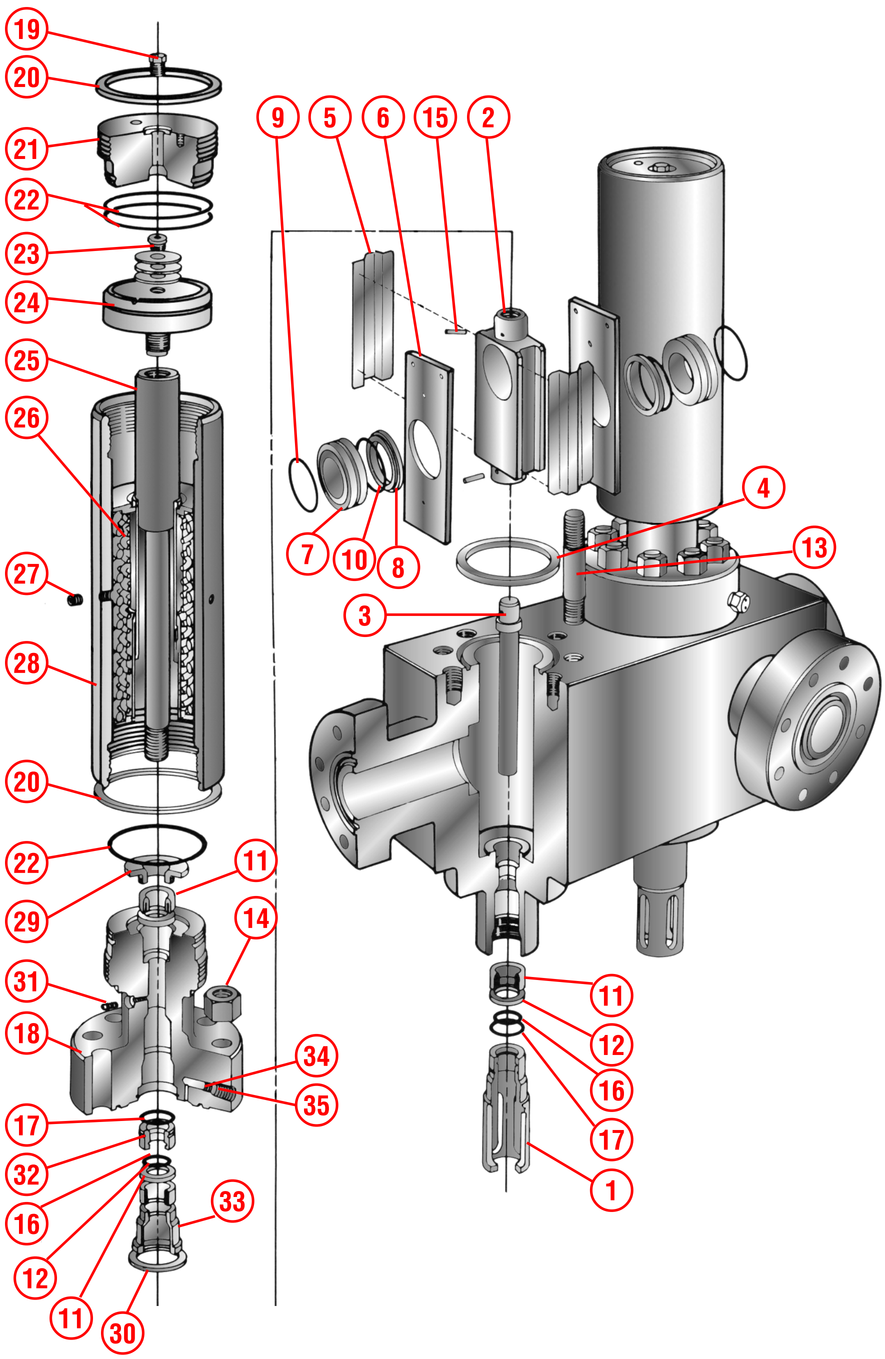
Since the early days of offshore drilling, contractors have used almost every type of valve for diverter service. This included ball valves, butterfly valves, and etc. Some have used large bore ANSI pipeline valves. None of these valves have proven successful.

Control Flow now introduces a valve designed for diverter service. This valve design is field proven in mud and pressure control applications.

The valve has API 6A diameter full bores. Sizes available are 9", 11" and 13 5/8" flanged ends at working pressures to 3000 PSI.

Full Bore Diverter Valves are available as handwheel operated or hydraulic operated.

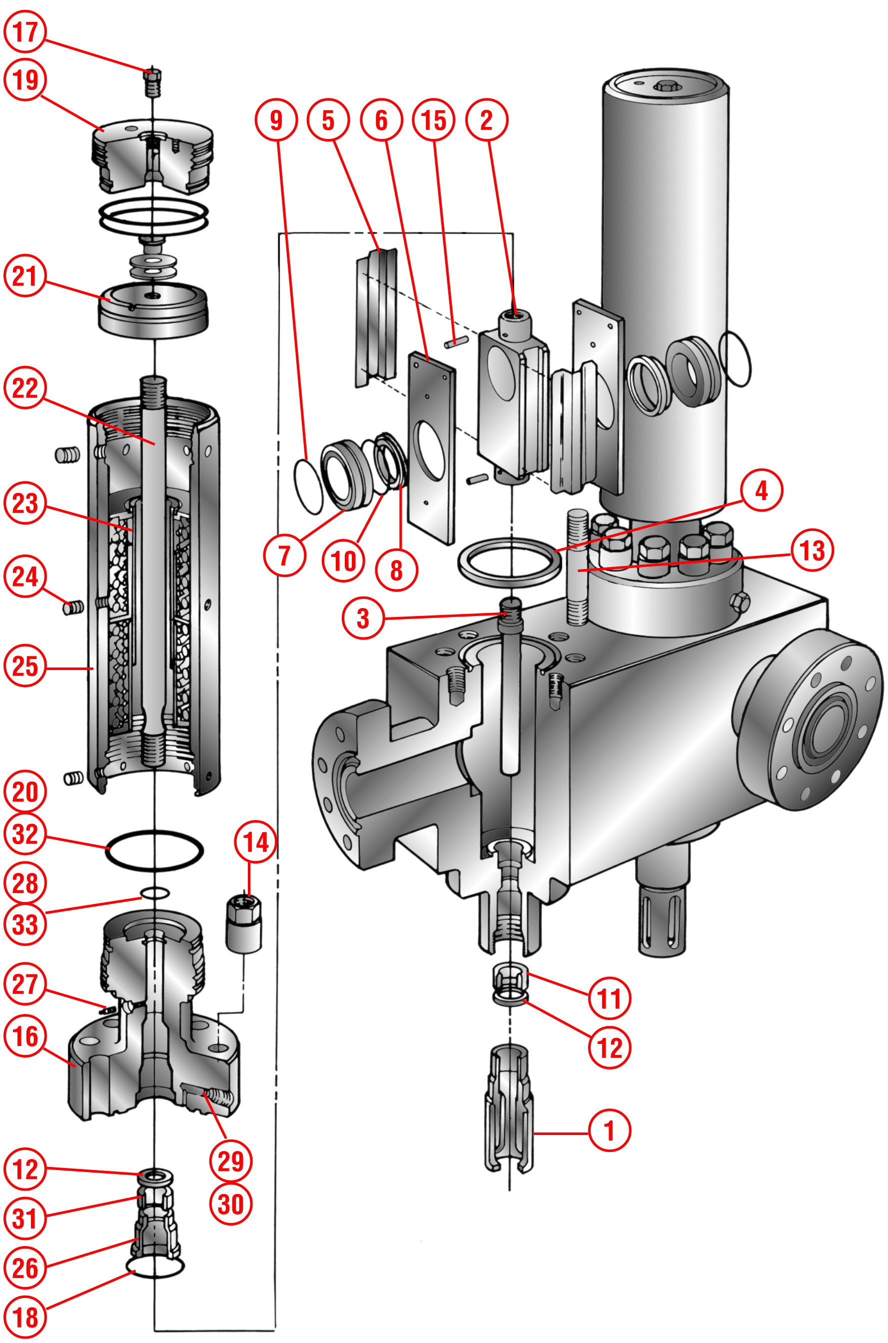
3 1⁄16" 10,000 PSI WP TYPE DW SUBSEA FAIL SAFE VALVES



Item	Description	Qty*	Part Number
1	STEM PROTECTER	1	565352
2	GATE	1	565354
3	STEM EXTENSION	1	565726
4	BONNET GASKET	1	564409
5	GATE GUIDE	2	564414
6	RETAINER PLATE	2	564261
7	BODY BUSHING	2	564413
8	SEAT RING	2	564262
9	SEAL-BODY BUSHING	2	564267
10	SEAL-SEAT RING	2	564263
11	STEM PACKING	3	564208
12	BACK UP RING	3	070028-02
13	BONNET STUD	8	564706
14	BONNET NUT	8	02001
15	SPRING PIN	2	070027-01
16	O-RING	2	030583
17	O-RING	2	030591
18	BONNET	1	565353
19	PIPE PLUG	1	066326
20	RETAINING RING	2	070012-2
21	HEAD	1	565357
22	O-RING	3	070021-1
23	CAP SCREW	1	565367
24	PISTON	1	565370
25	STEM	1	565356
26	SPRING CARTRIDGE ASSY	1	565371
27	S.H. PIPE PLUG	3	065001
28	CYLINDER	1	565355
29	LOAD RING	1	565362
30	RETAINING RING	1	070012-4
31	RELIEF VALVE	1	564542
32	SEAL RING	1	565373
33	SLEEVE	1	565363
34	CHECK VALVE	1	564379
35	GREASE FITTING	1	564226

3 1/16" 15,000 PSI WP TYPE DW SUBSEA FAIL SAFE VALVES

CONTROL FLOW INC.

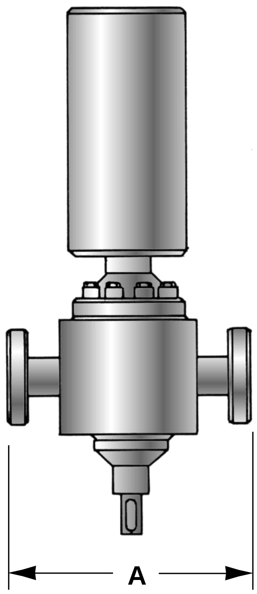


Item	Description	Qty*	Part Number
1	STEM PROTECTER	1	565388
2	GATE	1	565387
3	STEM EXTENSION	1	565385
4	BONNET GASKET	1	565253
5	GATE GUIDE	2	565251
6	RETAINER PLATE	2	565364
7	BODY BUSHING	2	565252
8	SEAT RING	2	565261
9	SEAL-BODY BUSHING	2	565254
10	SEAL-SEAT RING	2	565255
11	STEM PACKING	2	565401
12	BACK UP RING	1	070028-3
13	BONNET STUD	16	565271
14	BONNET CAP NUT	16	565383
15	SPRING PIN	2	070027-2
16	BONNET	1	565393
17	PIPE PLUG	2	066326
18	RETAINING RING	1	070012-12
19	HEAD	1	565391
20	O-RING	3	030098
21	PISTON	1	565395
22	STEM	1	565396
23	SPRING CARTRIDGE ASSY	1	565374
24	S.H. PIPE PLUG	3	010012
25	CYLINDER	1	565392
26	PACKING RETAINER SLEEVE	1	565398
27	RELIEF VALVE	1	564542
28	O-RING	1	030067
29	CHECK VALVE	1	564379
30	GREASE FITTING	1	564226
31	BACK UP RING	1	565365
32	BACK UP RING	4	070007-4
33	BACK UP RING	2	070007-5

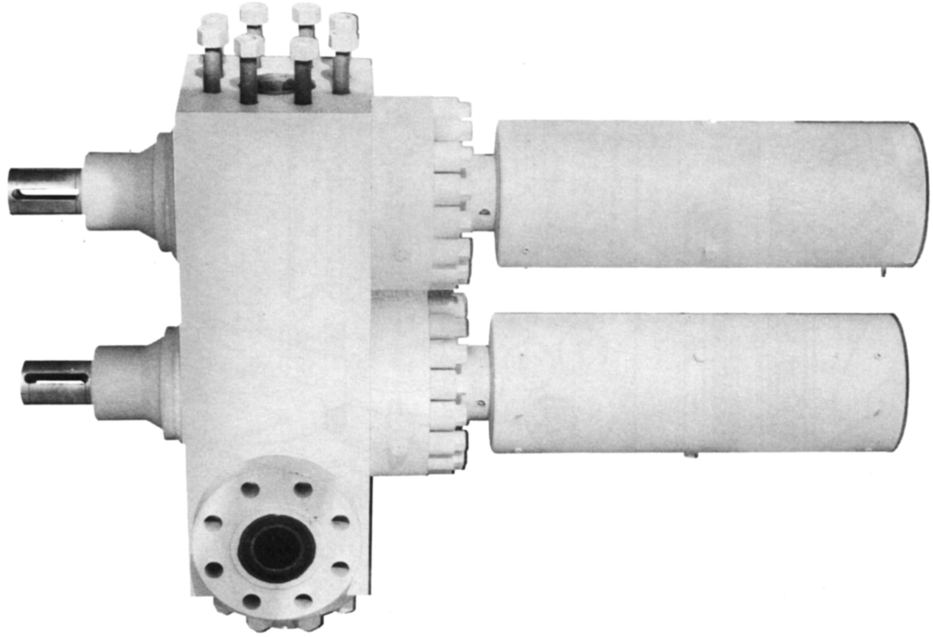
TYPE DW SUBSEA FAIL SAFE VALVES

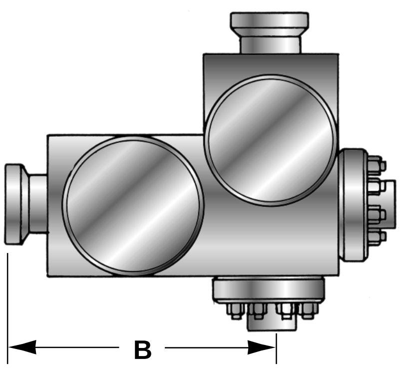
Dimensional Data for Type 'DW' Subsea Fail Safe Valve

Size	End Connection	A	B	C	D	E
3 1/16"-10000	Flange	20 3/4"	20	15 7/16"	15 7/16"	25 3/4"
	Hub	16 3/8"	17 3/4"	13 3/16"	13 3/16"	26
	Studded	10 3/4"	15	10 7/16"	10 7/16"	21 1/8"
3 1/16"-15000	Flange	23 9/16"	26	20	16	1 3/8"
	Hub	19 3/8"	23 1/4"	17 1/4"	16 1/2"	31 1/4"
		13 3/8"	20 1/4"	14 1/4"	14 1/8"	28 1/4"

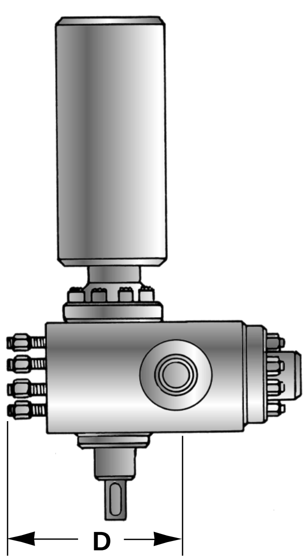


Straight

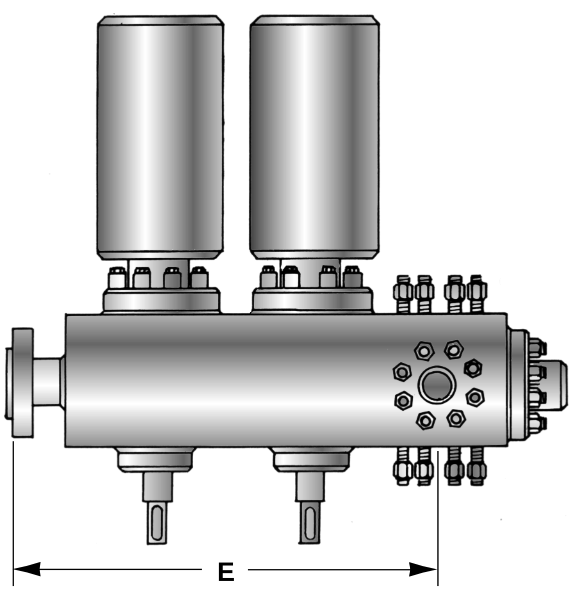




Tee Type Dual



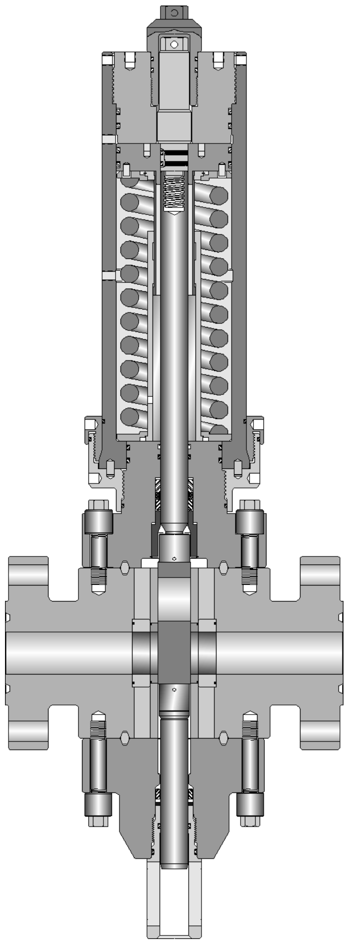
Single Target Type

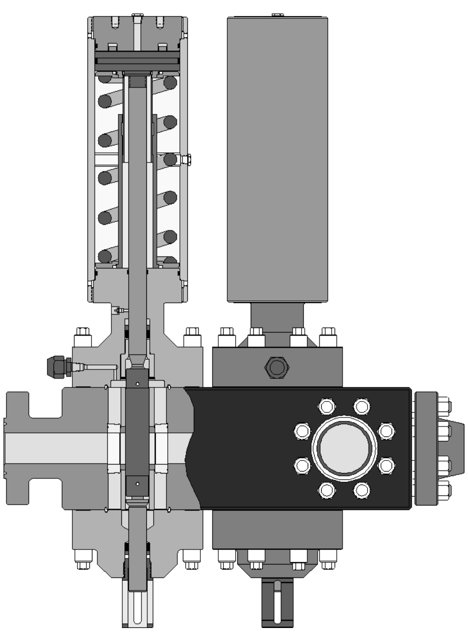


Dual Target Type

TYPE DW-10 SUBSEA VALVE

CONTROL FLOW INC.



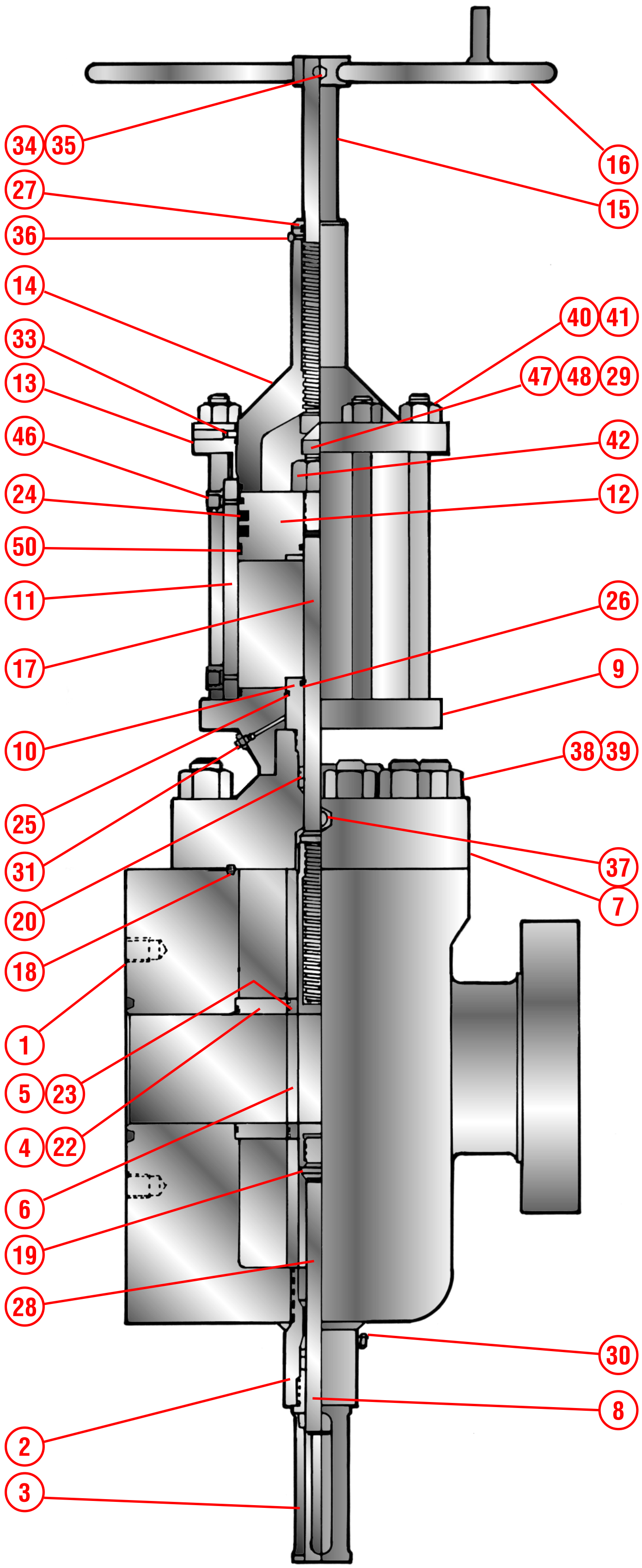


The Control Flow DW-10 gate valve is a compact design especially suited for the harsh service requirements of subsea choke and kill lines in water depths up to 13,000 feet. DW-10 valves are available in a variety of sizes, trims, and pressure ranges up to 15,000 psi. The DW-10 features a balanced stem design which prevents fluid displacement in the valve body during opening and closing along with bi-directional sealing. These features prevent the valve from opening when line pressure is less than sea pressure, and allow several valves to be placed together in the same block or line without the possibility of pressure lock between the valves. As with all Control Flow slab style gate valves, metal to metal sealing ensures reliability under extreme conditions and seats are especially designed to prevent body erosion.

The DW-10 valve is easily maintained and features a detachable actuator completely separate from the valve body, bonnet, stem, and packing thereby maintaining the integrity of the valve even with the actuator removed. Typically the operating pressure of the actuator cylinder is 1500 psi, however a maximum pressure rating of 3000 psi can be applied under certain circumstances. All DW-10 subsea valves can be easily converted to an R.O.V. override.

CONTROL FLOW INC.

TYPE BR, 7¹⁄₁₆" 5/10,000 HYDRAULIC GATE VALVES, FLANGED OR STUDDED

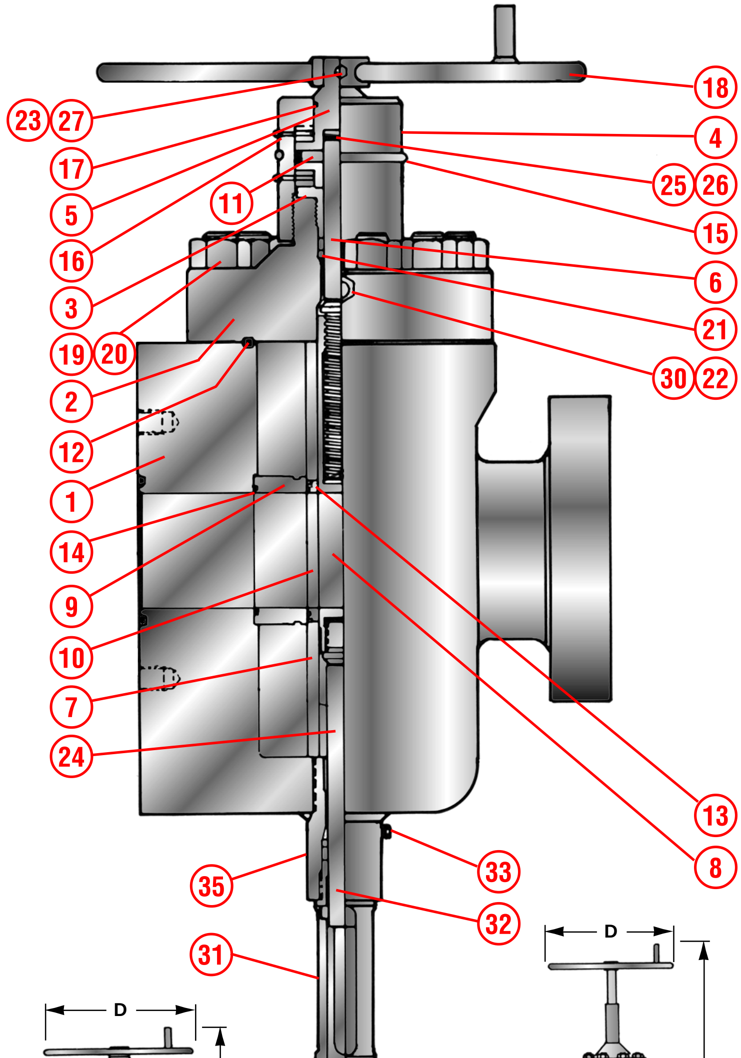


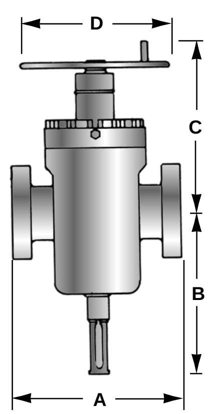
Item No.	Part	Qty.	7¹⁄₁₆" 5M	7¹⁄₁₆" 10M
1	Body	1	565157	564901
2	Body Extension	1	565158	564914
3	Stem Protector/Indicator	1	565159	564915
4	Body Bushing	2	564906	564906
5	Seat Ring	2	564907	564907
6	Gate	1	565162	564905
7	Bonnet	1	565163	564902
8	Stem Extension	1	565164	564916
9	Lower Cylinder Head	1	565165	564917
10	Packing Gland	1	565166	564918
11	Cylinder	1	565167	564919
12	Piston	1	565168	564920
13	Blind CylinderHead	1	565169	564921
14	Adjusting Nut	1	565170	564922
15	Locking Screw	1	565171	564924
16	Handwheel	1	565172	564925
17	Stem	1	565173	564926
18	Ring Gasket, Bonnet	1	564927	564927
19	Retainer Plate	2	564928	564928
20	Stem Packing	2	565316	564937
21	Stem Pin	1	566103	070019
22	Seal Ring, Body Bushing & Seat	4	564929	564929
23	Seal Ring, Seat	2	564930	564930
24	O-Ring, Cylinder	2	030040	030100
25	O-Ring, Packing Gland	1	030610	030019
26	O-Ring Stem	2	030065	030023
27	O-Ring, Adjustintg Nut	1	030067	030023
28	Gate Guide	2	565160	564933
29	Centering Pin	1	565161	564940
30	Pipe Plug	1	066324	066324
31	Relief Fitting	1	564542	564542
32	Pipe Plug	2	066326	066326
33	Set Screw	2	010012	010012
34	Hex Bolt	1	010239	070016
35	Hex Nut	1	020006	020006
36	Grease Fitting	1	050267	050267
37	Injector Plug	1	564226	564226
38	Hex Nut	12	020000	020014
39	Stud	12	565174	564934
40	Nut	6	020001	020010
41	Stud	6	565175	564932
42	Hex Nut	1	020106	020106
43	Set Screw, Hex, Cup Point	1	010015	010012
44	Nameplate	1	564220	564220
45	Rivet	4	010658	010658
46	Half Coupling	2	564547	070015
47	Thrust Bearing	1	N/A	564938
48	Race Bearing	2	N/A	564939
49	Check Valve	1	N/A	564379
50	Wear Ring	2	49223-11	49223-9
51	Lip Seal	2	070018-4	070018-3

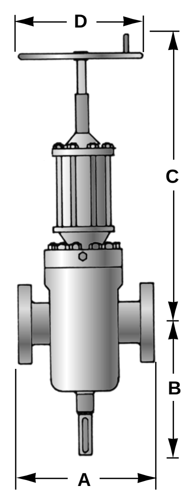
TYPE BR, 7 1/16" 5/10,000 MANUAL GATE VALVES

CONTROL FLOW INC.

Item No.	Part	Qty	7 1/16" 5M	7 1/16" 10M
1	Body	1	565157	564901-3
2	Bonnet	1	565163	564902
3	Packing Gland	1	565182	564976
4	Bearing Cap	1	565183	564977
5	Stem Adapter	1	565305	564981
6	Stem	1	565184	564978
7	Retainer Plate	2	564928	564928
8	Gate	1	565185	564980
9	Body Bushing	2	564906	564906
10	Seat Ring	2	564907	564907
11	Stem Pin	1	565311	564982
12	Bonnet Gasket	1	564927	564927
13	Seal Ring, Seat	2	564930	564930
14	Seal Ring, Body Bushing	4	564929	564929
15	O-Ring, Bearing Cap	1	030362	030371
16	Grease Fitting	2	564225	564225
17	O-Ring, Stem Adapter	1	030072	030016
18	Handwheel	1	565172	564984
19	Tap End Stud	12	565174	564934
20	Hvy. Hex Nut	12	020000	020014
21	Stem Packing	2	565316	564937
22	Injector Plug	1	564226	564226
23	Hex Head Bolt	1	010242	070016
24	Gate Guide	2	565160	564933
25	Thrust Bearing	2	565318	070017-2
26	Bearing, Race	4	565319	070013-3
27	Hex Nut	1	020006	020006
28	Nameplate	1	564220	564220
29	Rivet	4	010658	010658
30	Check Valve	1	N/A	564379
31	Protector/Indicator, Stem	1	N/A	564915
32	Extension, Stem	1	N/A	564979
33	Pipe Plug, Hex, HD.	1	N/A	066324
34	Screw, Anti-Rotation	1	N/A	564908
35	Body Extension	1	N/A	564914





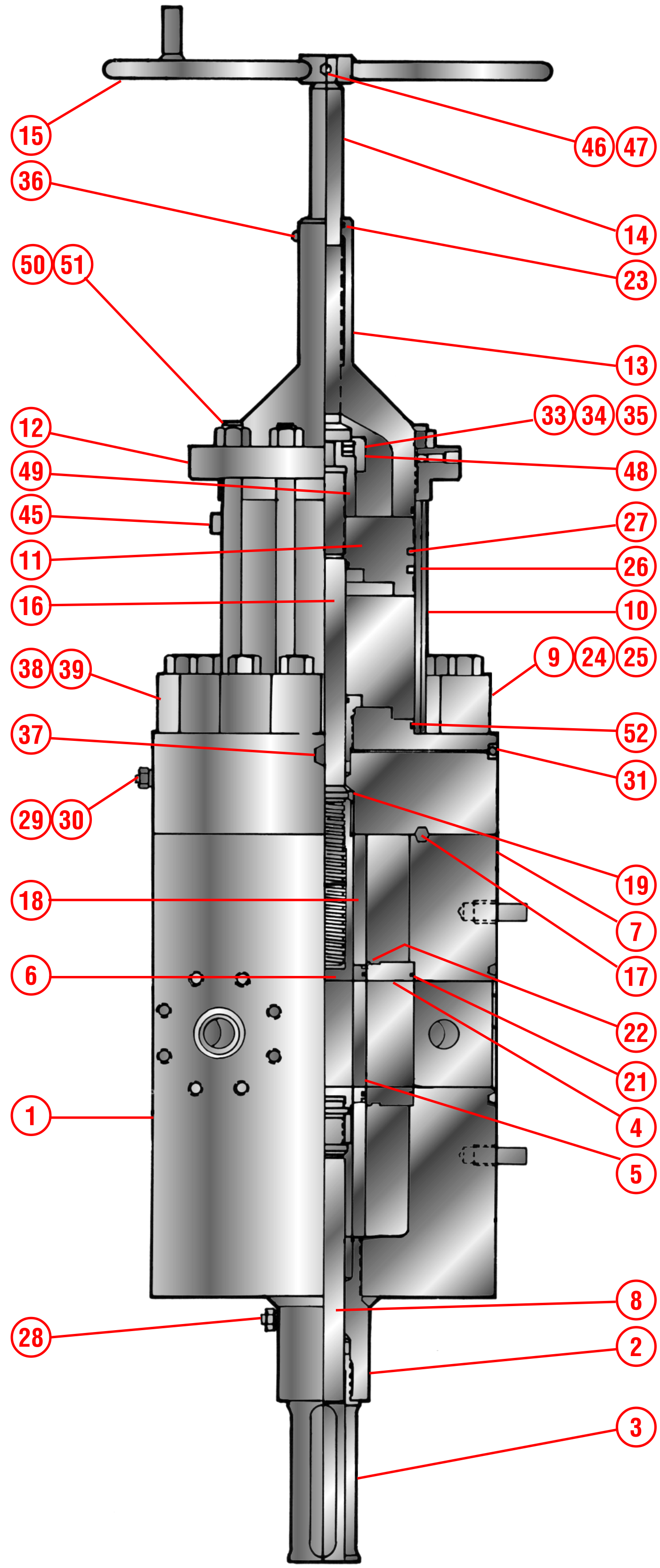


Size & Pressure (psi)	A	AA	B	C	D	E	F
7 1/16"-5000 Hyd./Man. Flanged	33	33	30⅝"	28	30	32	68½"
7 1/16"-5000 Hyd./Man. Studded	25	25	30⅝"	28	30	32	68½"
7 1/16"-10000 Hyd./Man. Flanged	34	34	32	34	30	32	68½"
7 1/16"-10000 Hyd./Man. Studded	25	25	32	34	30	32	68½"
7 1/16"-15000 Hyd./Studded	23	25	35⅞"	17 11/16"	30	34 9/16"	69⅛"

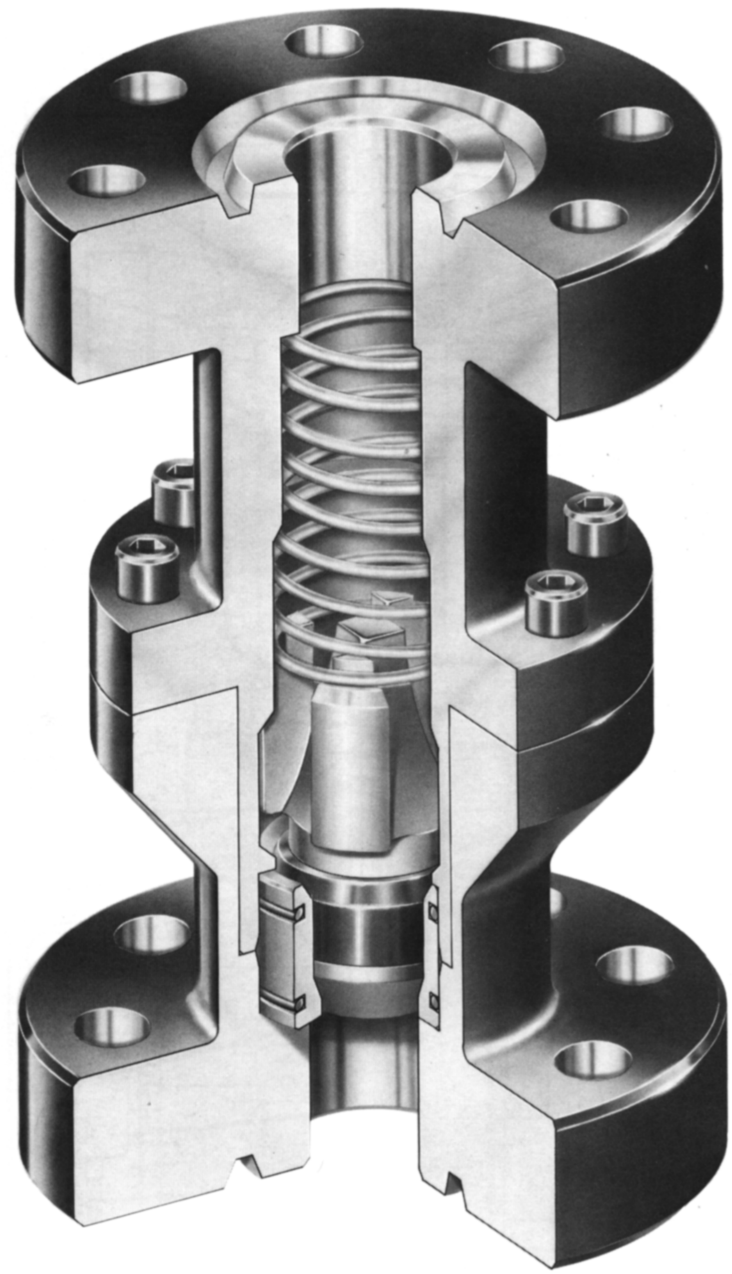
CONTROL FLOW INC.

TYPE BR, 7 1/16" 15,000 HYDRAULIC GATE VALVES

Item No.	Part	Qty.	7 1/16" 15M (Studded w/Ports)
1	Body	1	565110
2	Body Extension	1	565116
3	Stem Protector/Indicator	1	565117
4	Body Bushing	2	565118
5	Seat Ring	2	565119
6	Gate	1	565112
7	Bonnet	1	565111
8	Stem Extension	1	565114
9	Packing Gland	1	565120
10	Cylinder	1	565121
11	Piston	1	565115
12	Blind CylinderHead	1	565122
13	Adjusting Nut	1	565123
14	Locking Screw	1	565124
15	Handwheel	1	565925
16	Stem	1	565126
17	Ring Gasket, Bonnet	1	050909
18	Retainer Plate	2	565127
19	Stem Packing	2	565113
20	Stem Pin	1	565128
21	Seal Ring, Body Bushing	2	565129
22	Seal Ring, Seat	2	565130
23	O-Ring, Adjusting Nut	1	030023
24	O-Ring, Stem	2	030072
25	O-Ring, Packing Gland	1	030077
26	Cup Seal	2	070018 -1
27	Wear Ring	2	565132
28	Pipe Plug	2	066327
29	Gland	1	564148
30	Plug	1	564149
31	Relief Fitting	1	564542
32	Set Screw	2	010012
33	Thrust Bearing	2	070017-1
34	Thrust Washer	1	070013-1
35	Thrust Washer	1	070013-2
36	Grease Fitting	1	050267
37	Grease Fitting	1	070014
38	Cap Nut	16	565133
39	Stud, T.E.	16	565134
40	Hex Nut	8	020010
41	Stud, A.T.	8	014046
42	Gate Guide	2	565131
43	Nameplate	1	564220
44	Rivet	4	010658
45	Half Coupling	1	070015
46	Hex Nut	1	020006
47	Hex Bolt	1	070016
48	Bearing Retainer	1	565135
49	Piston Locknut	1	565136
50	A.T. Studs	32	010418
51	Hex Nut	32	020000
52	O-Ring, Cylinder	2	030639



CONTROL FLOW INC.



The Better Check Valve For In-Line Flow Control

Control Flow offers an in-line check valve that provides maximum flow, low turbulence, reduced slam, positive shutoff, and long life with minimum maintenance. A durable, spring-loaded check valve which seals effectively against back pressure in the line, but readily opens to normal pump or flow pressures.

The name is FloGuard

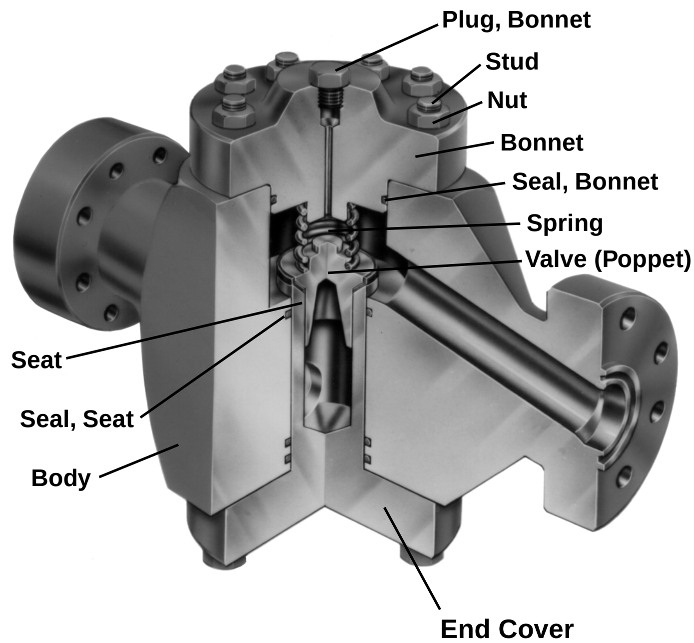
Exceptional Design Features Assure Dependable, Economical Operation

Each FloGuard valve utilizes an unthreaded, field-replaceable seat and Control Flow's exclusive inside blowout preventer design for its sealing poppet. This simple, yet reliable, sealing system has been field-proved for many years in the most demanding drilling environments.

FloGuard in-line check valves come in 2" through 8" sizes and working pressures up the 5,000 psi with a wide choice of body trims and end connections. The body, seat and poppet are manufactured from solid alloy steel, resulting in added strength and longer valve life than competitive cast valves.

FloCheck™ is a one-way drop type check valve especially designed to help you save on maintenance and valve replacement costs. It is fully repairable in-line and features an exclusive seat design that virtually eliminates wear on the valve body. NOTE: The seat can be resurfaced if wear is not excessive.

Each FloCheck™ valve is carefully manufactured, inspected and tested to ensure long, trouble-free service in the most demanding environmental conditions. All valve flanged face-to-face dimensions interchange with API 6A gate valves. Buttweld, clamped and studded end connections are provided on request. Spare parts, including all seals, are available from stock. And, since FloCheck incorporates the same poppet design used in many popular mud pumps, spares are available worldwide through numerous supply stores.



Item	Part	Qty.	2¹⁄₁₆" 5M	2¹⁄₁₆" 10M	2¹⁄₁₆" 15M	2⁹⁄₁₆" 5M	2⁹⁄₁₆" 10M	2⁹⁄₁₆" 15M	3⅛" 5M	3¹⁄₁₆" 10M	3¹⁄₁₆" 15M	4¹⁄₁₆" 5M	4¹⁄₁₆" 10M	4¹⁄₁₆" 15M
1	Assembly	1	560310	560325	560340	560579	560577	560575	560355	560370	560385	560405	560420	560435
2	Body	1	560450	560452	560464	560580	560578	560576	560471	560478	560485	560492	562499	560506
3	Bonnet	1	560513	560514	560515	560573	560516	560582	560516	560517	560518	560519	560520	560521
4	Seat	1	560523	560525	560527	560574	560528	560528	560528	560530	560532	560534	560536	560538
5	End Cover	1	560570	560571	560572	560570	560581	560581	560540	560541	560542	560543	560544	560545
6	Valve (Poppet)	1	560546	560546	560546	560546	560549	560549	560549	560549	560549	560552	560552	560552
7	Spring	1	560555	560555	560555	560555	560556	560556	560556	560557	560558	560559	560559	560559
8	Cap Screw	4	010725	010752	N/A	010725	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Seal, Bonnet	1	030606	560583	N/A	030606	560583	560583	030613	560590	N/A	030626	N/A	N/A
		2	N/A	N/A	560565	N/A	N/A	N/A	N/A	N/A	560566	N/A	560564	560564
10	Seal, Seat	1	030592	030118	N/A	030592	N/A	N/A	N/A	N/A	N/A	030684	N/A	N/A
		2	030604	560565	N/A	030604	N/A	N/A	N/A	N/A	N/A	030852	N/A	N/A
		3	N/A	N/A	560565	N/A	560584	560584	030672	560584	560566	N/A	030702	560564
11	Stud	8	011001	011042	N/A	011001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		12	N/A	N/A	N/A	N/A	011040	N/A	560567	N/A	N/A	N/A	N/A	N/A
		16	N/A	N/A	011004	N/A	N/A	011040	N/A	011007	011041	011040	011010	011014
12	Nut	8	020004	020001	N/A	020004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		12	N/A	N/a	N/A	N/A	020003	N/A	020003	N/A	N/A	N/A	N/A	N/A
		16	N/A	N/A	020009	N/A	N/A	020003	N/A	020001	020003	020003	020003	020011
13	Plug, Bonnet	1	066326	066326	564149	066326	066326	066326	066326	066326	564149	066326	066326	066326
14	Gland, Autoclave	1	N/A	N/A	564148	N/A	N/A	564148	N/A	N/A	564148	N/A	N/A	N/A
15	Screw, Seat Retainer	2	010630	0106331	N/A	010630	010663	010663	010663	010663	010699	010663	010697	010697
16	Back-Up Ring (Seat)	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	560589	N/A