

GWC Valve International



PROVEN TECHNOLOGY FOR INDIVIDUAL VALVE SOLUTIONS - WORLDWIDE



CAST STEEL PRESSURE SEAL VALVES

Gate, Globe & Swing Check

Pressure Classes: 600 - 2500

Size Range: 2" - 24"

API Standards: API 600 / ASME B16.34

CATALOG NUMBER PS-1001



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STANDARD FEATURES

DESIGN

GWC pressure seal valves are intended for high pressure, high temperature application in all types of fluid except where serve coking is a factor.

The design and material selections provide excellent service in nuclear steam generating stations, industrial and chemical plants and thermal power plants. Our pressure seal valves provide the most efficient flow passage and sealing features possible resulting in significant weight savings, ease of installation and maintenance features. Manufacturing and quality assurance procedures include extra controls on dimensional, nondestructive examination and testing of critical areas such as the gasket sealing, butt-weld ends, and stellite sealing surfaces.

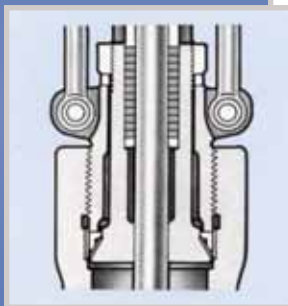
CONSTRUCTION

1. BODY AND BONNET

BODY: Flow areas are designed for minimum turbulence and pressure drop.

BONNET: Ample stuffing box and stellite stem guide and back seat shoulder are provided for accurate guiding of the stem and back seat. Cast body and bonnet quality requirements are considered in design of GWC valves.

BONNET TYPE



TYPE A GATE

Class 600, 900, 1500 & 2500
Size 4" & smaller

GLOBE

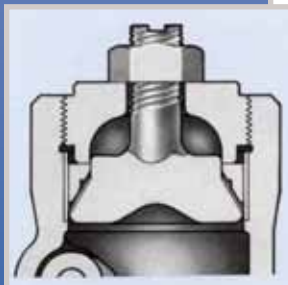
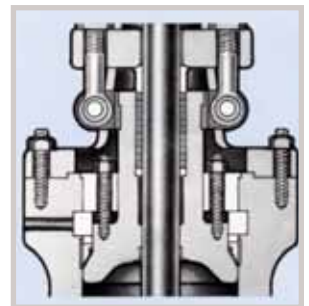
Class 600, 900, 1500
Size 4" & smaller
Class 2500
Size 3" & smaller

TYPE B GATE

Class 600, 900, 1500 & 2500
Size 6" & larger

GLOBE

Class 600, 900, 1500
Size 6" & larger
Class 2500
Size 4" & large



TYPE C SWING CHECK

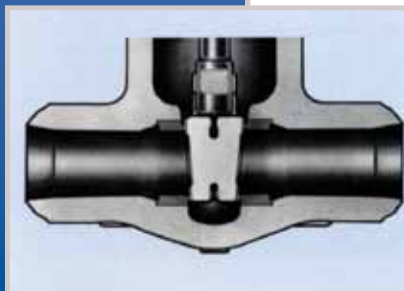
Class 600, 900 & 1500
Size 4" & smaller
Class 2500
Size 3" & smaller

TYPE D SWING CHECK

Class 600, 900 & 1500
Size 6" & larger
Class 2500
Size 4" & larger



2. WEDGE (GATE VALVE)



The flexible wedge is a one piece, fully guided cast wedge with a central hub to allow the seating faces to move relative to each other thus compensating for distortion of the body seats due to thermal expansion or piping loads. Seat ring and wedge seating surface are set at a nine degree angle from vertical to minimize sliding contact of the wedge and seat ring during opening and closing.

Wedging actions help effect a tight seal in low differential pressure services. Flexible wedge construction resists wedge sticking or binding in services where the valve may be closed when hot and opened when cold. Seating surfaces are stellite to provide high cycle capability.

3. DISC (GLOBE & SWING CHECK VALVE)

Globe and check type discs are accurately fitted and guided to minimize vibration. Seating surfaces are stellite.

4. HAMMER BLOW TYPE HAND WHEEL & BALL BEARING TYPE YOKE SLEEVE

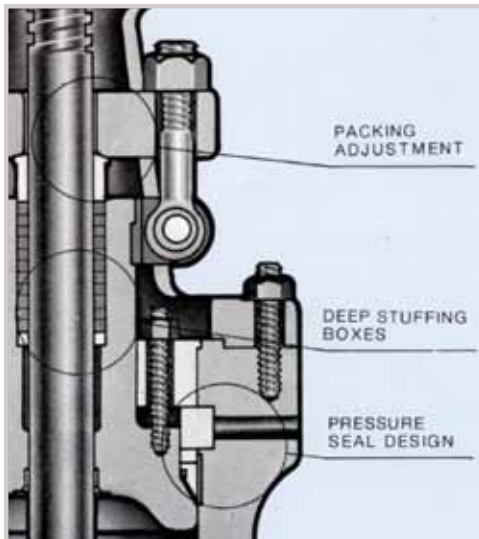
HAMMER BLOW TYPE HAND WHEEL

All globe valves are equipped with hammer blow type hand wheel. Two integrally cast lugs on the upside of hand wheel simultaneously strike a steel crossbar which is connected directly to valve stem on smaller sizes or to the yoke sleeve on large sizes.

BEARING INSERT TYPE YOKE SLEEVE

Large, high pressure valves can require a tremendous amount of torque to open and close the valve. Use of ball bearings in the yoke sleeve reduce the operating torque of these difficult-to-operate valves by as much as 50 percent.

Class	GATE	GLOBE
600	Size 6" & Larger	
900	Size 2", 2-1/2", 6" & Larger	Size 6" & Larger
1500	Size 2" & Larger	
2500		Size 3" & Larger



5. STANDARD PRESSURE SEAL DESIGN

The segmental thrust ring absorbs all the thrust applied by internal pressure. A hardened stainless steel protective ring prevents deformation of the top surface of the soft metallic gasket. The gasket can be removed freely without the sealing surface of the body damaging.

6. PACKING ADJUSTMENT

All gate and globe valves are provided with a two piece packing gland to minimize the possibility of scoring the stem if the gland is tightened unevenly. Eye bolt remains fastened to the bonnet. They swing out of the way to simplify packing replacement and are oriented so they can be adjusted from one side of the valve.

7. DEEP STUFFING BOXES

Deep stuffing boxes are standard on gate and globe valves. The design provides extra packing for a more reliable stem seal, or sufficient depth for packing with an optional lantern ring in the middle. When equipped with a lantern ring, a tapped and plugged hole is provided. When specified, it can be fitted with a ball grease injector.

Example: 6" Figure #7907-I-5-GO

7 90 7 - I - 5 - GO
 1. 2. 3. 4. 5. 6.

6" Gate Valve, PSB, ANSI Class 900, BW, WC6 Body, 13CR Full Stellite Trim,
Bevel Gear Operator

1. MODEL

- 7 - API 600/ASME B16.34 PRESSURE SEAL BONNET GATE VALVE
- 8 - ASME B16.34 PRESSURE SEAL BONNET GLOBE VALVE
- 9 - ASME B16.34 PRESSURE SEAL BONNET SWING CHECK VALVE
- 12 - ASME B16.34 PRESSURE SEAL BONNET TILTING DISC CHECK VALVE
- 14 - ASME B16.34 PRESSURE SEAL BONNET PISTON CHECK VALVE
- 16 - ASME B16.34 PRESSURE SEAL BONNET STOP CHECK VALVE

2. RATING

- 60 - CLASS 600
- 90 - CLASS 900
- 150 - CLASS 1500
- 250 - CLASS 2500

3. END CONNECTION

- 0 - RF FLANGED
- 7 - BUTTWELD
- 9 - RING JOINT
- X - OTHER

4. MATERIAL (BODY + BONNET/CAP)

- | | | |
|---------|----------|-------------|
| A - WCB | K - C5 | R - CN7M |
| B - WCC | L - C12 | S - A890 4A |
| C - LCC | M - CF8 | T - A890 5A |
| D - LCB | N - CF8M | U - A890 6A |
| H - WC1 | O - CF3 | X - OTHER |
| I - WC6 | P - CF3M | |
| J - WC9 | Q - CF8C | |

5. MATERIAL (TRIM)

- | | |
|--------------------------|----------------------------|
| 1 - 13CR | 11 - MONEL 1/2 STELLITE |
| 8 - 13CR 1/2 STELLITE | 13 - ALLOY 20 |
| 5 - 13CR FULL STELLITE | 14 - ALLOY 20 1/2 STELLITE |
| 2 - 304SS | 17 - 347SS |
| 2S - 304SS 1/2 STELLITE | 17H - 347SS 1/2 STELLITE |
| 15 - 304SS FULL STELLITE | 17S - 347SS FULL STELLITE |
| 10 - 316SS | 21 - F51 |
| 12 - 316SS 1/2 STELLITE | 22 - F53 |
| 16 - 316SS FULL STELLITE | 23 - F55 |
| 9 - MONEL | O - OTHER |

6. OPERATOR

- HANDWHEEL OPERATOR
- GO - BEVEL GEAR OPERATOR
- B - BARE STEM

7. SPECIAL REQUIREMENT

- N - NACE MR-01-75
- S - SUPPLY COMPLETE INFORMATION
- Y - "Y" PATTERN

MOTOR OPERATED VALVES

All GWC valves can be equipped with electric, pneumatic motor operators. Customers are asked, when ordering, to specify the following requirements that may enable us to supply the correct size of operator.

1. Medium
2. Working temperature
3. Working pressure
4. Differential pressure across the valve
5. Nominal diameter of the valve
6. Type of actuator
7. Voltage and frequency, or air pressure
8. Closing time
9. The need for position indicators or position transmitter etc.
10. Number and type of any auxiliary contact required.
11. Special classes of insulation
12. Waterproof or explosion proof



BEVEL GEAR OPERATED VALVES

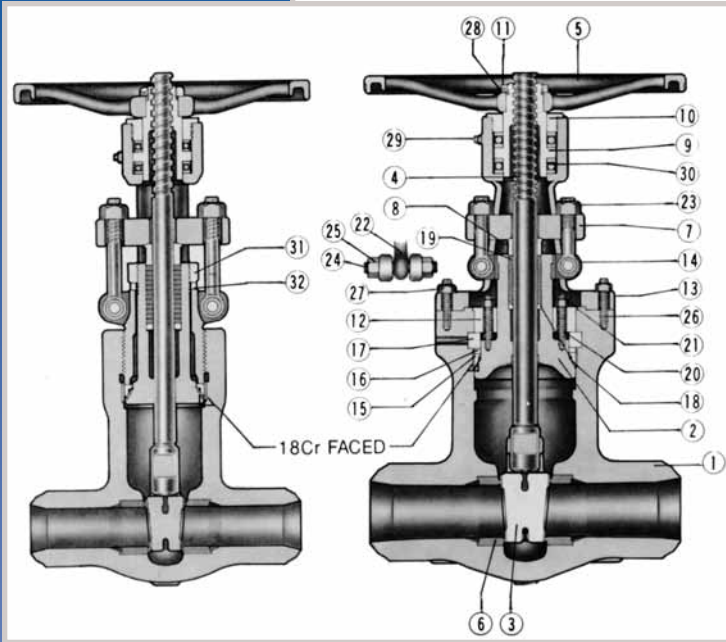
GWC bevel gear, valve operators are directly mounted to the gate and globe valves which receive the thrust loads. This results in easy manual opening and closing of the valves. The unit is of compact design with integral thrust bearings.

Characteristics

1. The unit is of fully enclosed construction, filled with high pressure grease and ready for immediate use.
2. The unit results in easy valve operation and has a hammer blow device.
3. The stem nut is driven by involute splines. The stem nut may be easily removed from the unit for machining the threads.
4. The stem cover and stem plug are all optional equipment.



SERVICE RECOMMENDATION



1. Gate valves are normally used for on-off service. They are not recommended for throttling service.
2. Gate valves are normally installed in horizontal pipe runs with the valve stem vertically up. They can also be installed in vertical or horizontal pipe runs with the valve stem other than vertical, but special construction may be required depending on valve size, service, conditions, and material. When purchasing valves for other than the normal installation, valve orientation should be specified.
3. After closing a gate valve with sufficient force to develop shutoff, the stem should be backed off slightly (1/8 to 1/4 turn) to relieve stem load. This will enable the stem to expand slightly-without bending or damaging the valve and will not affect valve shutoff.

MODEL NUMBER

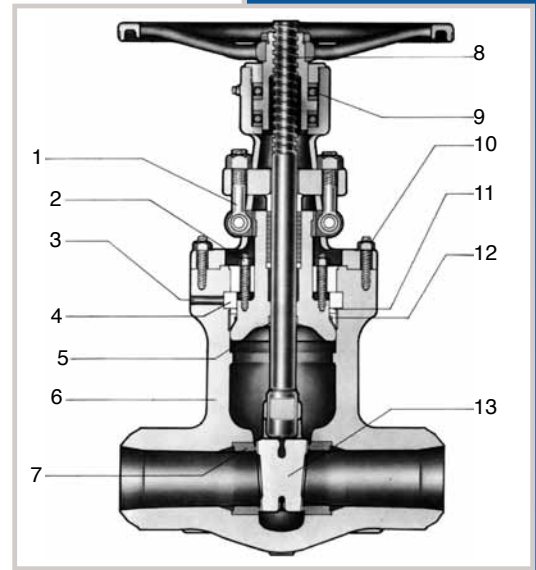
Class 600	7607
Class 900	7907
Class 1500	71507
Class 2500	72507

STANDARD PARTS AND MATERIALS

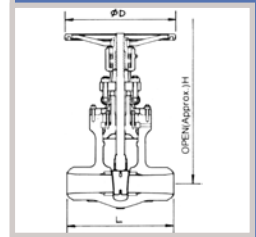
No.	PART NAME	Carbon Steel	1-1/4 Chromium 1/2 Molybdenum	2-1/2 Chromium 1 Molybdenum	5 Chromium 1/2 Molybdenum	316 Stainless Steel
1	Body	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
2	Bonnet	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
3	Wedge	A216 WCB + STL No. 6	A216 WCB + STL No. 6	A217 WC9 + STL No. 6	A217 C5 + STL No. 6	A351 CF8M + STL No. 6
4	Stem	A479-410	A479-410	A479-410	A479-410	A479-316
5	Hand Wheel	A197 or WCB	A197 or WCB	A197 or WCB	A197 or WCB	A197 or WCB
6	Body Seat Ring	C/S1020 + STL No. 6	A182F11 + STL No. 6	A182F22 + STL No. 6	A182F5a + STL No. 6	A182F316 + STL No. 6
7	Gland Flange	A283-D	A283-D	A283-D	A283-D	A283-D
8	Packing Gland	C/S 1020 + Cr Plate	C/S 1020 + Cr Plate	C/S 1020 + Cr Plate	C/S 1020 + Cr Plate	A479-316
9	Yoke Sleeve	A439-D2C	A439-D2C	A439-D2C	A439-D2C	A439-D2C
10	Yoke Cap	C/S1020	C/S1020	C/S1020	C/S1020	C/S1020 + Cr Plate
11	Hand Wheel Nut	C/S1020	C/S1020	C/S1020	C/S1020	C/S1020 + Cr Plate
12	Bonnet Clamp	C/S 1045	C/S1045	C/S1045	C/S1045	A351 CF8M
13	Yoke	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
14	Hinge Clamp	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
15	Gasket	Soft Steel	Soft Steel	Soft Steel	Soft Steel	316S S
16	Adapter Ring	A479-410	A479-410	A479-410	A479-410	A479-316
17	Retainer	A479-410	A479-410	A479-410	A479-410	A479-316
18	Stuffing Ring	A479-410	A479-410	A479-410	A479-410	A479-316
19	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
20	Bonnet Bolt	A193-B7	A193-B16	A193-B16	A193-B16	A193-B8
21	Nut	A194-2H	A194Gr4	A194Gr4	A194Gr4	A194Gr8
22	Gland Bolt	A307 B	A193-B7	A193-B7	A193-B7	A193-B8
23	Nut	A307 B	A194-2H	A194-2H	A194-2H	A194-9
24	Gland Clamp Bolt	A307 B	A193-B7	A193-B7	A193-B7	A193-B8
25	Nut	A307 B	A194-2H	A194-2H	A194-2H	A194-9
26	Yoke Bolt	A193-B7	A193-B7	A193-B7	A193-B7	A193-B8
27	Nut	A194-2H	A194-2H	A194-2H	A194-2H	A194-8
28	Set Screw	C/S1020	C/S1020	C/S1020	C/S1020	C/S1020
29	Grease Nipple	Steel	Steel	Steel	Steel	Steel
30	Bearing	Steel	Steel	Steel	Steel	Steel
31	Bonnet Clamp	C/S1045	C/S1045	C/S1045	C/S1045	A351CF8M
32	Washer	A479-410	A479-410	A479-410	A479-410	A479-304

GATE VALVES – CONSTRUCTION SPECIFICATION

- Swing eyebolts and gland flange facilitate repacking.
- Inner row of studs establish the initial seal of the Pressure Seal Joint.
- By inserting knockout pin in drilled hole, segmental thrust ring can be easily driven out of retaining groove.
- Segmental thrust ring absorbs all the thrust applied by internal pressure.
- Stellited back seat seal area provides accurate guiding of stem.
- Streamline contour of body simplifies application and reduces cost of insulation, and effects marked savings in space and weight.
- Seat rings are stellite faced and securely welded in place.
- Accurately machined Acme threads prolong the life of the stem and bushing.
- Bearings for ease of operation.
- Outer row of studs secures the yoke-arm to the body.
- A hardened stainless steel protective ring prevents deformation of the top portion of the soft metallic gasket.
- The bonnet joint remains tight under all operating conditions as the sealing pressure is always many times greater than the pressure of the fluid in the line, thereby eliminating leakage. The higher the internal pressure, the greater the sealing pressure. The gasket can be removed freely without damage to the sealing area in the body.
- Stellite faced flexible "H" type wedge prevents sticking due to temperature changes and pipe line stresses. One piece flexible wedge with weld deposited stellite facings insures pressure tightness, prevents wedge from sticking and reduces operating torque needed to open valve. It also offers less resistance to unseating due to temperature changes.



INSTALLATION DIMENSIONS



DESIGN DATA FEATURE

- Complies with requirement of applicable standard: ASME B 16.25, 16.34, MSS-SP-25, Optional API 600.
- OS & Y construction, rising stem, non-rising handwheel.
- Sealing surface of body seat ring and wedge in all sizes are hard face with stellite.
- Flexible wedge with, TEE-HEAD STEM-TO-WEDGE connection.
- Buttwelding end details of GWC std. will be prepared in accordance with ASME B 16.25.

ACCESSORIES

Accessories such as gear operators, actuators, bypasses, locking devices, and chainwheels are available to meet the customers requirements.

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20	600	24
L	215.9	8.5	254	10	304.8	12	457.2	18	585.2	23	711.2	28	812.8	32	889	35	990.6	39	1092.2	43	1193.8	47	1397	55
D	200	7.87	315	12.40	355	13.98	450	17.72	500	19.69	630	24.80	710	27.95	800	31.50	900	35.43	900	35.43	1092	43	1092	43
H	507	19.96	583	22.95	710	28	906	35.67	1161	45.71	1348	53.07	1528	60.16	1685	66.34	2006	78.98	2192	86.30	2480	97.63	2869	112.95

CLASS 600

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20	600	24
L	215.9	8.5	304.8	12	355.6	14	508	20	660.4	26	787.4	31	914.4	36	990.6	39	1092.2	43	1219.4	48	1320.8	52		
D	315	12.50	355	13.98	355	13.98	500	19.69	630	24.80	710	27.95	800	31.50	900	35.43	900	35.43	1092	43	1092	43		
H	586	23.07	628	24.72	740	29.13	946	37.24	1185	46.65	1455	57.28	1655	65.16	1775	69.88	2135	84.05	2318	91.26	2577	101.46		

CLASS 900

DIMENSIONS (MM/INCH)

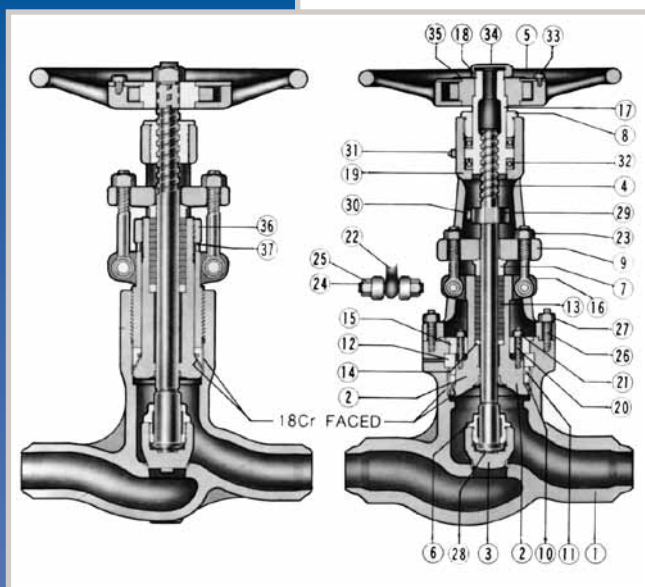
Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20	600	24
L	215.9	8.5	304.8	12	406	16	559	22	711.2	28	863.6	34	990.6	39	1066.8	42	1193.8	47	1346.2	53	1473.2	58		
D	315	12.40	355	13.98	400	15.75	630	24.80	710	27.95	710	27.95	800	31.50	900	35.43	1092	43	1092	43	1296	51.02		
H	586	23.07	712	28.03	856	33.70	1061	41.77	1138.5	44.82	1397	55	1518	59.76	1640	64.57	2089	82.24	2247	88.46	2624	103.3		

CLASS 1500

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12
L	279.4	11	368.3	14.5	457.2	18	610	24	762	30	914.2	36	1041.4	41
D	355	13.97	400	15.75	450	17.72	630	24.80	710	27.95	710	27.95	800	31.5
H	674	26.53	692.5	27.26	805	31.69	1005	39.56	1341	52.79	1554	61.18	1689	66.49

CLASS 2500



SERVICE RECOMMENDATION

1. Globe valves are normally installed with flow and pressure under the disc. Always check with the factory before installing valves with flow in the other direction.

Under certain service conditions or when valves are equipped with cylinders or electric motor actuators, there may be a cost advantage in designing and installing the valves with flow over the disc. If actuators are sized for these conditions, care must be taken to assure valves are installed correctly.

2. Globe valves are suitable for most throttling applications; however, they should not be used for prolonged throttling at less than 10% open.

This can cause excessive vibration, noise and damage to disc and seats.

Use of smaller valves with lower flow capacity may avoid damage. Continuous severe throttling applications may require a control valve.

MODEL NUMBER

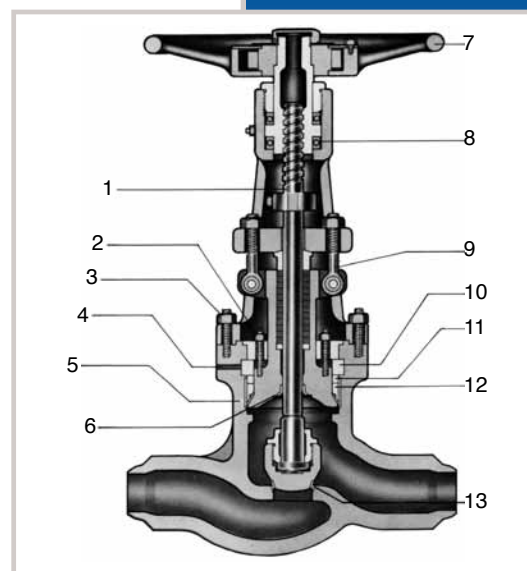
Class 600	8607	Class 1500	81507
Class 900	8907	Class 2500	82507

STANDARD PARTS & MATERIALS

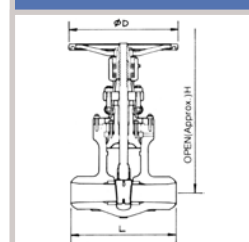
No.	PART NAME	Carbon Steel	1-1/4 Chromium 1/2 Molybdenum	2-1/2 Chromium 1 Molybdenum	5 Chromium 1/2 Molybdenum	316 Stainless Steel
1	Body	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
2	Bonnet	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
3	Disc	A216 WCB + STL No. 6	A217 WC6 + STL No. 6	A217 WC9 + STL No. 6	A217 C5 + STL No. 6	A351 CF8M + STL No. 6
4	Stem	A479-410	A479-410	A479-410	A479-410	A479-316
5	Hand Wheel	A216 WCB	A216 WCB	A216 WCB	A216 WCB	A216 WCB
6	Lock Nut	A479-410	A479-410	A479-410	A479-410	A479-316
7	Packing Gland	C/S 1020 + Cr Plate	C/S 1020 + Cr Plate	C/S 1020 + Cr Plate	C/S 1020 + Cr Plate	A479-316
8	Yoke Cap	C/S1020	C/S1020	C/S1020	C/S1020	C/S1020 + Cr Plate
9	Gland Flange	A283-D	A283-D	A283-D	A283-D	A351-CF8
10	Gasket	Soft Steel	Soft Steel	Soft Steel	Soft Steel	316S S
11	Adapter Ring	A479-410	A479-410	A479-410	A479-410	A479-316
12	Retainer	A479-410	A479-410	A479-410	A479-410	A479-316
13	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
14	Stuffing Box Ring	A479-410	A479-410	A479-410	A479-410	A479-410
15	Bonnet Clamp	C/S1045	C/S1045	C/S1045	C/S1045	A351CF8M
16	Hinge Clamp	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
17	Yoke Sleeve	A439-D2C	A439-D2C	A439-D2C	A439-D2C	A439-D2C
18	Hand Wheel Nut	C/S1020	C/S1020	C/S1020	C/S1020	C/S1020 + Cr Plate
19	Yoke	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
20	Bonnet Bolt	A193-B7	A193-B16	A193-B16	A193-B16	A193-B8
21	Nut	A194-2H	A194Gr4	A194Gr4	A194Gr4	A194Gr8
22	Gland Bolt	A307 B	A193-B7	A193-B7	A193-B7	A193-B8
23	Nut	A307 B	A194-2H	A194-2H	A194-2H	A194-8
24	Gland Clamp Bolt	A307 B	A193-B7	A193-B7	A193-B7	A193-B8
25	Nut	A307 B	A194-2H	A194-2H	A194-2H	A194-8
26	Yoke Bolt	A193-B7	A193-B7	A193-B7	A193-B7	A193-B8
27	Nut	A194-2H	A194-2H	A194-2H	A194-2H	A194-8
28	Disc Thrust Pad	A479-410	A479-410	A479-410	A479-410	A479-316
29	Stopper	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8
30	Stopper Bolt	A307 B	A307 B	A307 B	A307 B	A193-B8
31	Nipple	Steel	Steel	Steel	Steel	Steel
32	Bearing	Steel	Steel	Steel	Steel	Steel
33	Bolt	A307 B	A307 B	A307 B	A307 B	A307 B
34	Set Screw	C/S1020	C/S1020	C/S1020	C/S1020	C/S1020
35	Name Plate	S S Plate	S S Plate	S S Plate	S S Plate	S S Plate
36	Bonnet Clamp	C/S1045	C/S1045	C/S1045	C/S1045	A479-304
37	Washer	A479-410	A479-410	A479-410	A479-410	A479-304

GLOBE VALVES - CONSTRUCTION SPECIFICATION

1. Accurately machined Acme threads prolong the life of the stem and bushing.
2. Inner row of studs establish the initial seal of the Pressure Seal Joint.
3. Outer row of studs secures the yoke-arm to the body.
4. By inserting knockout pin in drilled hole, segmental thrust ring can be easily driven out of retaining groove.
5. Streamline contour of body simplifies application and reduces cost of insulation, and effects marked savings in space and weight.
6. Stellited back seat seal area provides accurate guiding of stem.
7. All globe valves are equipped with hammer blow type hand wheels. Two integrally cast lugs on the upside of the hand wheel simultaneously strike a steel crossbar.
8. Bearings for ease of operation.
9. Swing eyebolts and gland flange facilitate repacking.
10. Segmental thrust ring absorbs all the thrust applied by internal pressure.
11. A hardened stainless steel protective ring prevents deformation of the top portion of the soft metallic gasket.
12. The bonnet joint remains tight under all operating conditions as the sealing pressure is always many times greater than the pressure of the fluid in the line, thereby eliminating leakage. The higher the internal pressure, the greater the sealing pressure. The gasket can be removed freely without damage to the sealing area in the body.
13. Integral body seatface are stellite.



INSTALLATION DIMENSIONS



DESIGN DATA FEATURE

1. Comply with requirement of applicable standard: ASME B 16.25, 16.34, MSS-SP-25, Optional API 600.
2. OS & Y construction, rising stem, non-rising hammerblow handwheel.
3. Buttwelding end details of GWC std. will be prepared in accordance with ASME B 16.25.

ACCESSORIES

Accessories such as gear operators, actuators, bypasses, locking devices, and chainwheels are available to meet the customers requirements.

CLASS 600

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20	600	24
L	215.9	8.5	254	10	304.8	12	457.2	18	585.2	23	711.2	28	812.8	32	889	35	990.6	39	1092.2	43	1193.8	47	1397	55
D	200	7.87	315	12.40	355	13.98	450	17.72	500	19.69	630	24.80	710	27.95	800	31.50	900	35.43	900	35.43	1092	43	1092	43
H	507	19.96	583	22.95	710	28	906	35.67	1161	45.71	1348	53.07	1528	60.16	1685	66.34	2006	78.98	2192	86.30	2480	97.63	2869	112.95

CLASS 900

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20
L	215.9	8.5	304.8	12	355.6	14	508	20	660.4	26	787.4	31	914.4	36	990.6	39	1092.2	43	1219.4	48	1320.8	52
D	315	12.40	355	13.98	355	13.98	500	19.69	630	24.80	710	27.95	800	31.50	900	35.43	900	35.43	1092	43	1092	43
H	586	23.08	628	24.72	740	29.13	946	37.24	1185	46.8	1455	57.95	1655	65.15	1775	70.05	2135	84.05	2318	91.45	2577	102.3

CLASS 1500

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20
L	215.9	8.5	304.8	12	406	16	559	22	711.2	28	863.6	34	990.6	39	1066.8	42	1193.8	47	1346.2	53	1473.2	58
D	315	12.40	355	13.98	400	15.75	630	24.80	710	27.95	710	27.95	800	31.50	900	35.43	1092	43	1092	43	1296	51.02
H	586	23.07	712	28.03	856	33.70	1061	41.77	1138.5	44.82	1397	55	1518	59.76	1640	64.57	2089	82.24	2247	88.46	2624	103.3

CLASS 2500

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18
L	279.4	11	368.3	14.5	457.2	18	610	24	762	30	914.2	36	1041.4	41	1118	44	1245	49	1397	55
D	355	13.97	400	15.75	450	17.72	630	24.80	710	27.95	710	27.95	800	31.5	900	35.43	1092	43	1296	51.02
H	674	26.53	692.5	27.26	805	31.69	1005	39.56	1341	52.79	1554	61.18	1689	66.49	1822	71.73	2298	90.47	2497	98.31

SERVICE RECOMMENDATION

1. Swing Check valves shall operate in a manner which avoids:

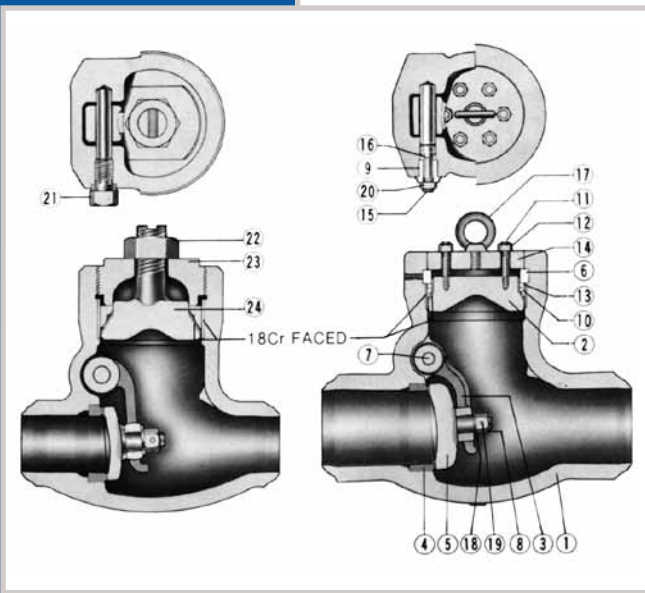
- a) The formation of an excessively high surge pressure as a result of the valve closing.
- b) Rapid fluctuating movements of the valve closure member.

To avoid the formation of an excessively high surge pressure as a result of the valve closing, the valve must close fast enough to prevent the development of a significant reverse flow velocity which on sudden shut-off is the source of the surge pressure. Thus, the closing speed of the valve should closely match the speed by which the forward flow retards.

Rapid fluctuating movements of the closure member must be avoided to prevent excessive wear of the moving valve parts which could result in early failure of the valve.

Such movements can be avoided by sizing the valve for a flow velocity which forces the closure member firmly against a stop.

2. Swing check valves may also be mounted in the vertical position, provided the disc is prevented from reaching the stalling position. However, the closing moment of the disc due to its weight is very small in the fully open position, so the valve will tend to close late. To overcome slow response to retarding flow, the disc may be provided with a lever-mounted weight or spring loaded



MODEL NUMBER

Class 600	9607
Class 900	9907
Class 1500	91507
Class 2500	92507

STANDARD PARTS & MATERIALS

No.	PART NAME	Carbon Steel	1-1/4 Chromium 1/2 Molybdenum	2-1/2 Chromium 1 Molybdenum	5 Chromium 1/2 Molybdenum	316 Stainless Steel
1	Body	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
2	Cover	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
3	Arm	A216 WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
4	Body Seat Ring	C/S 1020 + STL No. 6	A182 F11 + STL No. 6	A182 F22 + STL No. 6	A182 F5a + STL No. 6	A240 316 + STL No. 6
5	Disc	A216 WCB + STL No. 6	A217 WCB + STL No. 6	A217 WC9 + STL No. 6	A217 WC5 + STL No. 6	A351 CF8M + STL No. 6
6	Retainer	A479-410	A479-410	A479-410	A479-410	A479-316
7	Pin	A479-410	A479-410	A479-410	A479-410	A479-316
8	Disc Nut	A194Gr8	A194Gr8	A194Gr8	A194Gr8	A194Gr8M
9	Plug	A307D	A479-304	A479-304	A479-304	A479-316
10	Gasket	Soft Steel	Soft Steel	Soft Steel	Soft Steel	316 S S
11	Cover Clamp Bolt	A193-B7	A193-B16	A193-B16	A193-B16	A193-B8
12	Nut	A194-2H	A194Gr4	A194Gr4	A194Gr4	A194Gr8
13	Adapter Ring	A479-410	A479-410	A479-410	A479-410	A479-316
14	Cover Clamp	C/S1045	C/S1045	C/S1045	C/S1045	A351CF8
15	Sealing Bolt	A479-410	A479-410	A479-410	A479-410	A479-316
16	Gasket Ring	Soft Steel	Soft Steel	Soft Steel	Soft Steel	Soft Steel
17	Eye Bolt	A105	A105	A105	A105	A105
18	Washer	A479-410	A479-410	A479-410	A479-410	A479-316
19	Split Pin	A580-304	A580-304	A580-304	A580-304	A580-304
20	Sealing Nut	A194-2H	A194-2H	A194-2H	A194-2H	A194Gr8
21	Plug Bolt	A307B	A479-304	A479-304	A479-304	A479-316
22	Cover Nut	A194-2H	A194-2H	A194-2H	A194-2H	A479-304
23	Cover	A216-WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M
24	Bonnet	A216-WCB	A217 WC6	A217 WC9	A217 C5	A351 CF8M

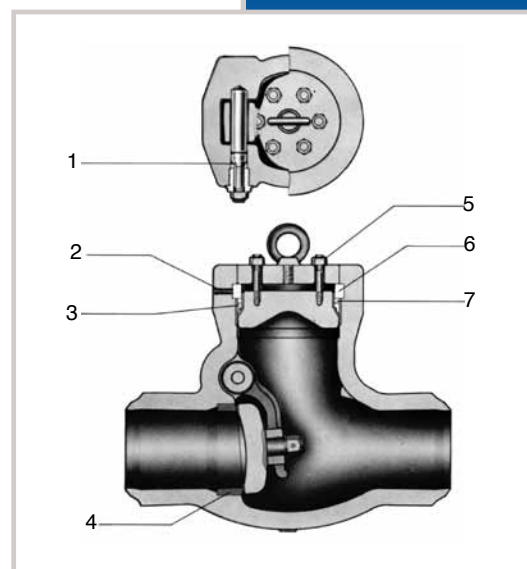
CHECK VALVES – CONSTRUCTION SPECIFICATION

1. Sealing mechanism through spindle is of same construction as the one of pressure seal bonnet.
2. By inserting knockout pin in drilled hole, segmental thrust ring can be easily driven out of retaining groove.
3. The gasket can be removed freely without damage to the seat ring area in the body.

The bonnet joint remains tight under all operating conditions as the sealing pressure is always many times greater than the pressure of the fluid in the line, thereby eliminating leakage. The higher the internal pressure, the greater the sealing pressure.

4. Seat rings are stellite faced and securely welded in place.
5. Inner row of studs establish the initial seal of the Pressure Seal Joint.
6. Segmental thrust ring absorbs all the thrust applied by internal pressure.
7. A hardened stainless steel protective ring prevents deformation of the top portion of the soft metallic gasket.

To ensure secure connection between arm and disc nut, split pin is used.



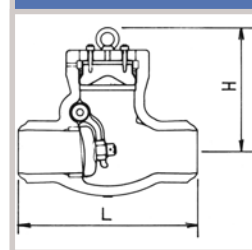
INSTALLATION DIMENSIONS

DESIGN DATA FEATURE

1. Comply with requirement of applicable standard: ASME B 16.25, 16.34, MSS-SP-25, Optional API 600.
2. Buttwelding end details of GWC std. will be prepared in accordance with ASME B 16.25.

ACCESSORIES/OPTIONAL DESIGNS

Counterweight features are available as an accessory. Tilting disc or hydrofoil designs are also available to meet the customers requirements. Drains and bypasses are available as specified by the customer.



DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20	600	24
L	177.8	7	254	10	304.8	12	457	18	584	23	711.2	28	813	32	889	35	990.6	39	1092.2	43	1193.8	47	1397	55
H	191	7.52	248	9.76	308	12.13	365	14.37	410	16.14	465	18.31	510	20.08	561	22.09	618	24.33	673	26.50	730	38.74	785	30.91

CLASS 600

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20	600	24
L	215.9	8.5	304.8	12	355	14	508	20	660.4	26	787	31	914.4	36	990.6	39	1092.2	43	1219.2	48	1320.8	52	1549.4	61
H	243	9.57	242	9.53	340	13.39	400	15.75	460	18.11	535	21.06	610	24.02	685	26.97	754	29.69	829	32.64	898	35.35	973	38.31

CLASS 900

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12	350	14	400	16	450	18	500	20	600	24
L	215.9	8.5	304.8	12	406.4	16	559	22	711.2	28	864	34	990.6	39	1066.8	42	1193.8	47	1536.7	60.5	1663.7	65.5	1943.1	76.5
H	243	9.57	300	11.81	350	13.78	404	15.91	490	19.29	575	22.64	682	26.85	752	29.61	802	31.57	877	34.53	937	36.89	1032	40.63

CLASS 1500

DIMENSIONS (MM/INCH)

Size	50	2	80	3	100	4	150	6	200	8	250	10	300	12
L	279.4	11	368.3	14.5	457	18	610	24	762	30	914.2	36	1041.4	41
H	260	10.24	350	13.78	405	15.94	450	17.72	522	20.55	600	23.62	684	26.93

CLASS 2500

PRESSURE-TEMPERATURE RATINGS

STEEL, NICKEL & OTHER ALLOYS

COLD WORKING PRESSURE, psig													
Class	Temp °F	A216 WCB	A217 C5	A217 C12	A217 WC6	A217 WC9	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A352 CN7M	A352 LCB	A352 LC3
		A105			A182 F11	A182 F22	A182 F304	A182 F316					A350 LF3
600	-20 to 100	1480	1500	1000	70	1500	1440	1440	1440	1440	1200	1390	1500
	200	1350	1500	1000	1500	1430	1200	1240	1200	1240	1115	1315	1500
	300	1315	1455	970	1425	1355	1055	1120	1055	1120	1045	1275	1455
	400	1270	1410	940	1345	1295	940	1030	940	1030		1235	1410
	500	1200	1330	885	1315	1280	875	955	875	955		1165	1330
	600	1095	1210	805	1285	1210	830	905	830	905		1065	1210
	650	1075	1175	785	1210	1175	815	890	815	890		1045	1175
	700	1065	1135	755	1175	1135	805	865	805	865			1440
	750	1010	1065	710	1135	1065	795	845	795	845			
	800	825	995	675	1065	1015	790	830	790	830			
	850	535 ^A	880	650	1015	975	780	810		810			
	900	345 ^A	705	600	975	900	770	790					
	950	205 ^A	520	495	900	755	750	775					
	1000	105 ^A	385	390	755	535	645	725					
	1050		280	250	445	400	620	720					
	1100		205	150	275	225	515	645					
	1150		140	100	190		390	550					
	1200		90				310	410					
	1250						220	365					
	1300						165	275					
1350						125	205						
1400						95	150						
1450						70	115						
1500						50	85						
900	-20 to 100	2220	2250	2250	155	2250	2160	2160	2160	2160	1800	2085	2250
	200	2025	2250	2250	2250	2150	1800	1860	1800	1860	1670	1970	2250
	300	1970	2185	2185	2135	2030	1410	1540	1410	1540	1570	1915	2185
	400	1900	2115	2115	2020	1945	1410	1540	1410	1540		1850	2115
	500	1795	1995	1995	1975	1920	1310	1435	1310	1435		1745	1995
	600	1640	1815	1815	1925	1815	1245	1355	1245	1355		1600	1815
	650	1610	1765	1765	1815	1765	1225	1330	1225	1330		1570	1765
	700	1600	1705	1705	1765	1705	1210	1295	1210	1295			
	750	1510	1595	1595	1705	1595	1195	1270	1195	1270			
	800	1235	1490	1525	1595	1525	1180	1245	1180	1245			
	850	805 ^A	1315	1460	1525	1460	1165	1215		1215			
	900	515 ^A	1060	1350	1460	1350	1150	1180					
	950	310 ^A	780	1110	1350	1130	1125	1160					
	1000	155 ^A	575	875	1130	805	965	1090					
	1050		420	565	670	595	925	1080					
	1100		310	340	410	340	770	965					
	1150		205	225	290		585	825					
	1200		135				465	620					
	1250						330	545					
	1300						245	410					
1350						185	310						
1400						145	225						
1450						105	175						
1500						70	125						

A – Permissible, but not recommended for prolonged usage above about 800° F.

B – For welding end valves only, flanged end ratings terminate at 1000° F

PRESSURE-TEMPERATURE RATINGS

STEEL, NICKEL & OTHER ALLOYS

COLD WORKING PRESSURE, psig													
Class	Temp °F	A216 WCB	A217 C5	A217 C12	A217 WC6	A217 WC9	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A352 CN7M	A352 LCB	A352 LC3
		A105			A182 F11	A182 F22	A182 F304	A182 F316					A350 LF3
1500	-20 to 100	3705	3750	3750	3750	3750	3600	3600	3600	3600	3000	3470	3750
	200	3375	3750	3750	3560	3580	3000	3095	3000	3095	2785	3280	3750
	300	3280	3640	3640	3365	3385	2640	2795	2640	2795	2615	3190	3640
	400	3170	3530	3530	3290	3240	2350	2570	2350	2570		3085	3530
	500	2995	3325	3325	3210	3200	2185	2390	2185	2390		2910	3325
	600	2735	3025	3025	3025	3025	2075	2255	2075	2255		2665	3025
	650	2685	2940	2940	2940	2940	2040	2220	2040	2220		2615	2940
	700	2665	2840	2840	2840	2840	2015	2160	2015	2160			
	750	2520	2660	2660	2660	2660	1990	2110	1990	2110			
	800	2060	2485	2540	2540	2540	1970	2075	1970	2075			
	850	1340 ^A	2195	2435	2435	2435	1945	2030		2030			
	900	860 ^A	1765	2245	2245	2245	1920	1970					
	950	515 ^A	1305	1850	1885	1885	1870	1930					
	1000	260 ^A	960	1460	1115	1340	1610	1820					
	1050		705	945	685	995	1545	1800					
	1100		515	565	480	565	1285	1610					
	1150		345	380			980	1370					
	1200		225	260			770	1030					
	1250						550	910					
	1300						410	685					
1350						310	515						
1400						240	380						
1450						170	290						
1500						120	205						
2500	-20 to 100	6170	6250	6250	6250	6250	6000	6000	6000	6000	5000	5785	6250
	200	5625	6250	6250	5930	5965	5000	5160	5000	5160	4640	5470	6250
	300	5470	6070	6070	5605	5640	4400	4660	4400	4660	4360	5315	6070
	400	5280	5880	5880	5485	5400	3920	4280	3920	4280		5145	5880
	500	4990	5540	5540	5350	5330	3640	3980	3640	3980		4850	5540
	600	4560	5040	5040	5040	5040	3460	3760	3460	3760		4440	5040
	650	4475	4905	4905	4905	4905	3400	3700	3400	3700		4355	4905
	700	4440	4730	4730	4730	4730	3360	3600	3360	3600			
	750	4200	4430	4430	4430	4430	3320	3520	3320	3520			
	800	3430	4145	4230	4230	4320	3280	3460	3280	3460			
	850	2230 ^A	3660	4060	4060	4060	3240	3320		3320			
	900	1430 ^A	2945	3745	3745	3745	3200	3280					
	950	860 ^A	2170	3085	3145	3145	3120	3220					
	1000	430 ^A	1660	2430	1860	2230	2685	3030					
	1050		1170	1570	1145	1660	2570	3000					
	1100		860	945	800	945	2145	2685					
	1150		570	630			1630	2285					
	1200		370	430			1285	1715					
	1250						915	1515					
	1300						685	1145					
1350						1515	860						
1400						400	630						
1450						285	485						
1500						200	345						

A – Permissible, but not recommended for prolonged usage above about 800° F.

B – For welding end valves only, flanged end ratings terminate at 1000° F

Scope

These terms and conditions apply to all GWC valve products, and supersedes all previously published terms and conditions.

Hereafter, GWC Valve International, Inc. shall be referred to as GWC.

Special terms and conditions printed on a buyer's order will only apply insofar as they conform to the terms and conditions detailed on these pages. Terms and conditions of an order that change or modify those on this sheet shall not be binding on GWC.

Approval

All quotations, contracts, orders, or agreements are subject to approval and/or acceptance by the main office of GWC.

We reserve the right to correct clerical or stenographic errors in quotations, orders, invoices, and other contracts, agreements, or documents.

Prices

Possession of price lists will not be accepted by GWC as an obligation, or offer to sell the goods listed therein to anyone.

All prices contained therein are subject to change without notice, and supersede all previous lists. All orders will be invoiced at prices in effect at the time of shipment unless quoted in writing.

Changes

Orders cannot be cancelled or specifications be changed without the consent of GWC, and then only in terms indemnifying GWC against loss.

Quotations

Goods quoted F.O.B. our service center are subject to prior sale. Prices quoted are valid only for the duration indicated in the quotation. Quoted prices supersede all previous prices, quotations, or contracts, and are subject to change without notice.

Cancellations

Orders placed with us cannot be cancelled without our prior written consent. A cancellation charge will be applicable as outlined in our quotation.

Claims

All claims for shortages, corrections, or deductions must be made within 10 days after receipt of goods. Responsibility for goods lost or damaged in transit rests with carrier, and claims should be filed with the carrier by the consignee. Delivery of material to a common carrier shall be considered delivery to the buyer, and shall be at the buyers risk thereafter.

Delivery Delays

We assume no responsibility for delays in delivery, or defaults resulting from strikes, work stoppages, fires, floods, accidents, war, inability to obtain materials, or any other cause unavoidable and beyond our control.

Taxes

GWC quotations and/or contracts do not include any municipal, state, or federal sales, excise, use occupational, or other taxes, and any such tax, if paid by us will be charged to the purchaser.

Catalog Illustrations

Catalog illustrations are actual representations of a certain size of each product line, but do not necessarily represent all sizes in details. We reserve the right to institute changes in materials, designs, and specifications without notice in keeping with our policy of continuing product improvement.

Catalog Weights

Catalog weights represent average weights of products and are in no sense guaranteed.

Returns

See Return Goods Policy on next page.

Special Orders

Orders for special goods must be in writing and accompanied with detailed prints and/or sets of specifications, unless specifications on the orders are definite and complete. Orders will not be entered with the factory unless this is adhered to. Cancellation charges will be as outlined in our quotations.

Freight Terms

All shipments are F.O.B. our service centers. See current bulletin for freight allowance.

Warranty

See warranty on reverse side

RETURN GOODS POLICY

This policy supersedes all other policies for return goods.

I. Goods returned at customers request:

A. Material must be:

1. Of our manufacture.
2. In clean, new and saleable condition. It must have been stored inside out of the weather.
3. Shipped from one of our service centers within the 12 calendar months preceding the request for return, and the return will not cause inventory to exceed maximum allowable levels.
4. Personally inspected by a GWC representative prior to its return.
5. Special or non-standard items are non-returnable.

B. Return shipments must be prepaid.

C. Credit will be allowed at invoice price, less 25% handling cost, and less any freight paid by GWC.

D. A Return Goods Card must be furnished by a GWC representative after inspection of the material, and must be returned with the shipment.

E. Shipments received without a Return Goods Authorization Card will be refused. Customer will be responsible for any storage and/or return freight.

F. Material returned which is not of GWC manufacture, not in clean and saleable condition, or not authorized for return will be returned to the customer freight collect.

II. Goods returned because of an error by GWC.

A. Material must be in a clean, new, saleable condition.

B. Return shipment should be made freight collect.

C. Full credit will be allowed.

D. Customer must receive Return Goods authorization prior to the return of the material. Return Goods Authorization Card must accompany shipment. Shipments received without Return Goods Authorization Card will be refused. Return Goods Authorization Card should be attached to the packing list.

All requests to return material to GWC Valve International, Inc. must be submitted in writing to our National Sales Manager for authorization.

WARRANTY

GWC Valve International, Inc. warrants each product sold, if the products are of our manufacture, against defects in material and workmanship under normal use and service for a period of one year after date of shipment.

This warranty is made to the buyer only, and does not extend to any other party. The obligation of GWC Valve International, Inc. under this warranty is limited to: (a) replacement of any part or parts proven defective in material or workmanship, (b) repair of the product F.O.B. the factory or service center, (c) refund of the purchase price. In the case of product or parts not wholly of GWC's manufacture, GWC's liability under this warranty shall be limited to the extent of GWC's recovery from the manufacturer of such parts under its warranty to GWC. This warranty does not extend to any claims for labor, consequential damages, down time, or any other loss, damage, or expense of any kind arising out of the defect. We do not allow claims for unauthorized repairs, labor, or material. We are not responsible for loss of use, personal injury, lost profits, or any other damages whatsoever in connection with the warranties set forth.

No warranty shall apply to any product which has been modified or changed in design or function after leaving GWC's facilities or which is misused or operated beyond its design capabilities, or used for other than its intended purpose. Purchasers of GWC products should consult knowledgeable advisors in the selection of product type and material of construction for their specific use. The buyer assumes all risk of this selection.

The buyer shall permit GWC or its authorized representative to inspect the product so that it may determine its obligation. GWC shall be entitled to the return of the defective product or parts. Buyer must notify GWC promptly upon discover of any claimed defect.

No material may be returned without first obtaining written permission from GWC Valve International, Inc.

USA HEADQUARTERS

**GWC Valve International, Inc.
4301 Yeager Way
Bakersfield, CA 93313**

OVERSEAS DIVISIONS

**GWC Valve Europe Limited
Germany
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