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# General Information

## Warning and Safety

Dixon Eagle® valves are designed to work safely for their intended use. Failure to know the intended use, or to consider factors such as size, temperature, application, media, pressure, and manufacturers' recommendations when choosing the appropriate valve assembly components, can lead to accidents and injuries. Dixon® recommends that all valve assemblies be tested in accordance with ASME and API recommendations and be inspected regularly to ensure that their use remains appropriate and that they are not damaged.

## Warnings

Warnings contain important information related to hazard conditions, procedures and/or practices that if not followed could result in serious injury or death to personnel or catastrophic damage to equipment or material.



**WARNING:**

A warning will appear with a red triangle below the information the warning pertains to.

## Cautions

Cautions contain important information related to conditions, procedures and/or practices that if not followed could result in damage to equipment or material.



**CAUTION:**

A caution will appear with a yellow triangle below the information the caution pertains to.

## Notes

Notes contain important information related to conditions, procedures and/or practices that are intended to provide helpful information, clarification and/or things to consider.



**NOTE:**

A note will appear with a black triangle below the information the note pertains to.

## Overview

This instruction manual provides information on installation, operation, and maintenance for Eagle G8-series bolted bonnet bellows seal globe valves with soft seat. While socket weld ends are shown in the diagrams located in this manual, this document applies to all G8 bellows seal globe valves with soft seats from 1/2" to 2" with any type of end connection, i.e. socket weld, butt weld, and flanged connections.

Pressure and temperature ratings are per ASME B16.34 current revision. Refer to current revision of the standard.

For identification of valve parts please refer to pages 12 and 13 – Materials and Dimensions – for reference.

For any questions regarding this manual please contact [eaglesales@dixonvalve.com](mailto:eaglesales@dixonvalve.com) for clarification.

## General Description

The valve is a standard globe valve with bellows seal and a soft tipped stem.

Primary stem sealing is accomplished by a bellows seal. Backup (secondary) stem sealing is provided by braided graphite packing.

Body/bonnet sealing is accomplished with two spiral wound graphite gaskets.

## Storage

To maintain the cleanliness of the valve, do not remove from plastic bag while in storage. Do not remove sealing cap on each end connection until the valve is ready to be installed in the pipeline. The purpose of these sealing caps is to prevent debris from entering the body of the valve.

## Installation

Before installation, inspect welding surfaces of the valve body and piping, flange faces, or threaded surfaces to be certain they are clean and free from any foreign materials.

Disassembling the valve when welding is not recommended. If disassembly is necessary, the components should be marked to maintain the original position.



**WARNING:**

Disassembling the valve will invalidate any factory testing and a proper acceptance test must then be conducted by the user.

When welding, the valve should be fully open.



**CAUTION:**

Welding the valve in the closed position can cause permanent damage to the soft seat ring due to heat exposure.

## Operation

Operate the valve by hand; never use a wrench or other tool to turn the handwheel. Over torquing the valve may cause damage. To close the valve, turn the handwheel clockwise. To open the valve, turn the handwheel counterclockwise as shown on the nameplate.

If seat leakage is observed after closing the valve, the valve should be cracked open for a short time to flush any dirt or foreign matter which may have collected on the seat. Close the valve hand tight again and check for leakage.

## Maintenance

Periodic checks with a bubble leak detector fluid at the interface of the body and bonnet, as well as the packing area, is recommended to ensure the integrity of the gaskets and bellows.

Proper lubrication shall be periodically applied to the stem and yoke sleeve threads using the grease fitting. Ensure the lubricant is compatible with the application.

To replace or add packing on-line:

- As a precaution, shut down the line in which the valve is operating.
- Open the valve fully and make sure it is back seated.
- Loosen and remove the gland bolt hex nuts.
- Push the gland plate and gland bushing up to the yoke sleeve to expose the packing area.
- Add packing or replace packing as needed.
- Reinstall the gland bushing and gland plate.
- Tighten hex nuts on gland bolts uniformly and evenly, moving from one side to the other.

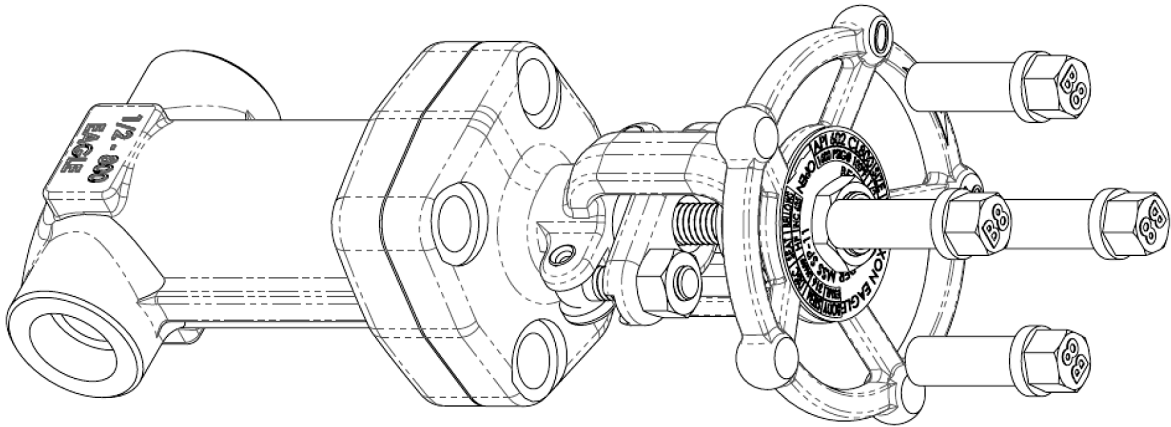
## Disassembly



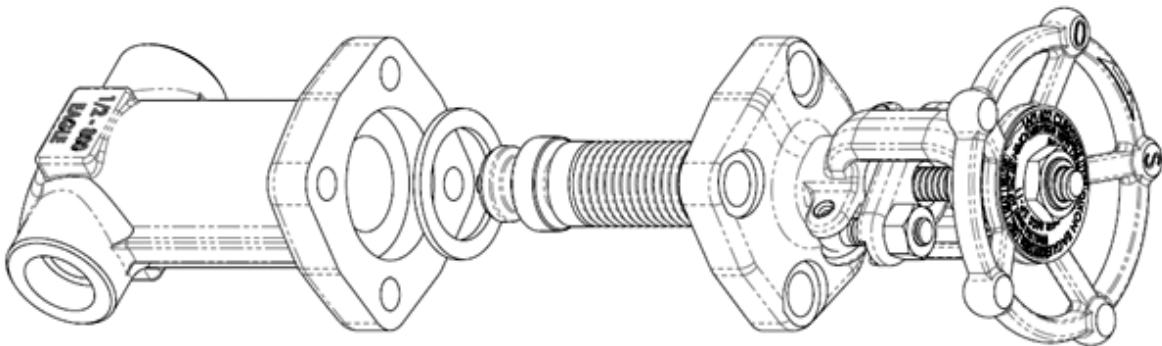
**WARNING:**

Before starting any work on the valve, ensure plant personnel are aware of the work being performed and complete relief of pressure on the line.

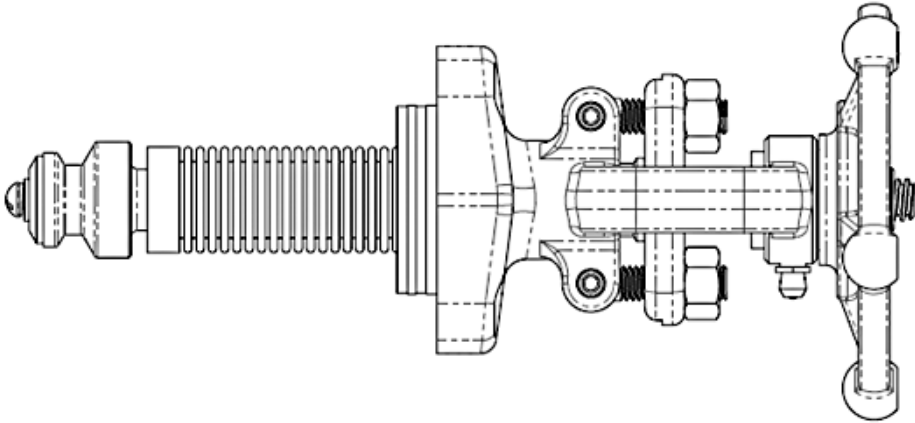
Remove the joint bolts holding the body and bonnet together.



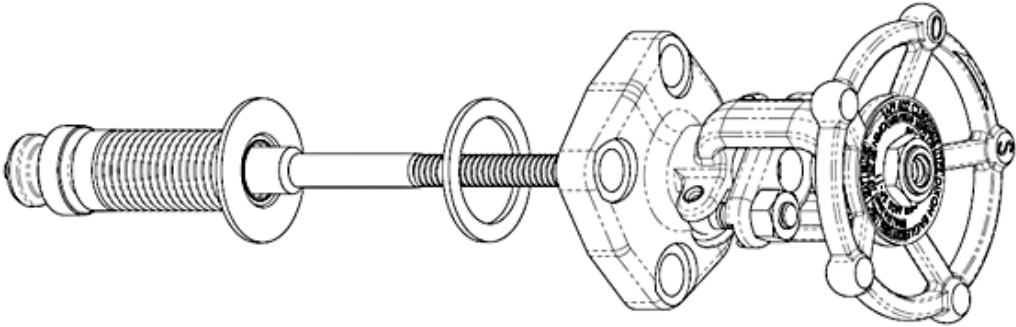
Lift the bonnet and stem assembly out from the body. Remove the lower gasket.



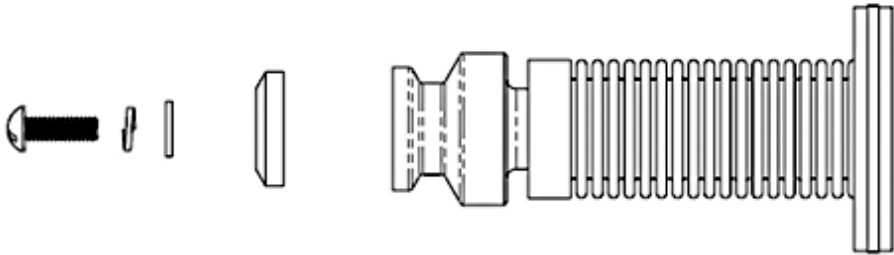
Loosen the gland nuts to loosen the packing.



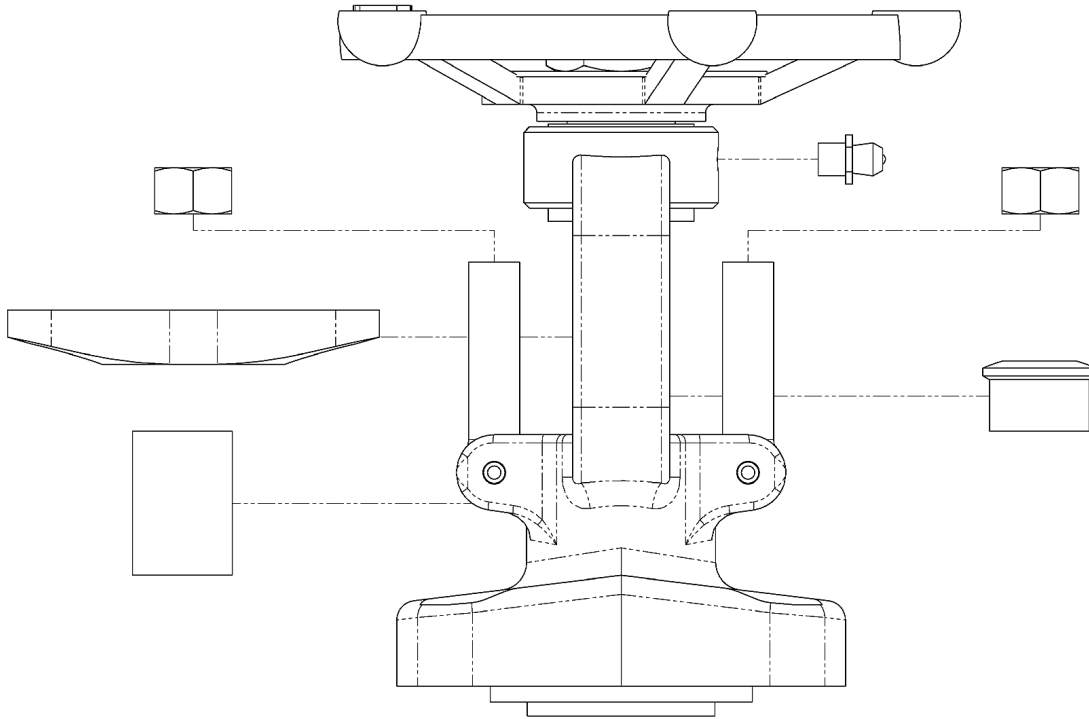
Turn the handwheel clockwise to push the stem out of the yoke sleeve. Once the stem is clear of the yoke sleeve, remove the stem from the bonnet. Remove the top gasket.



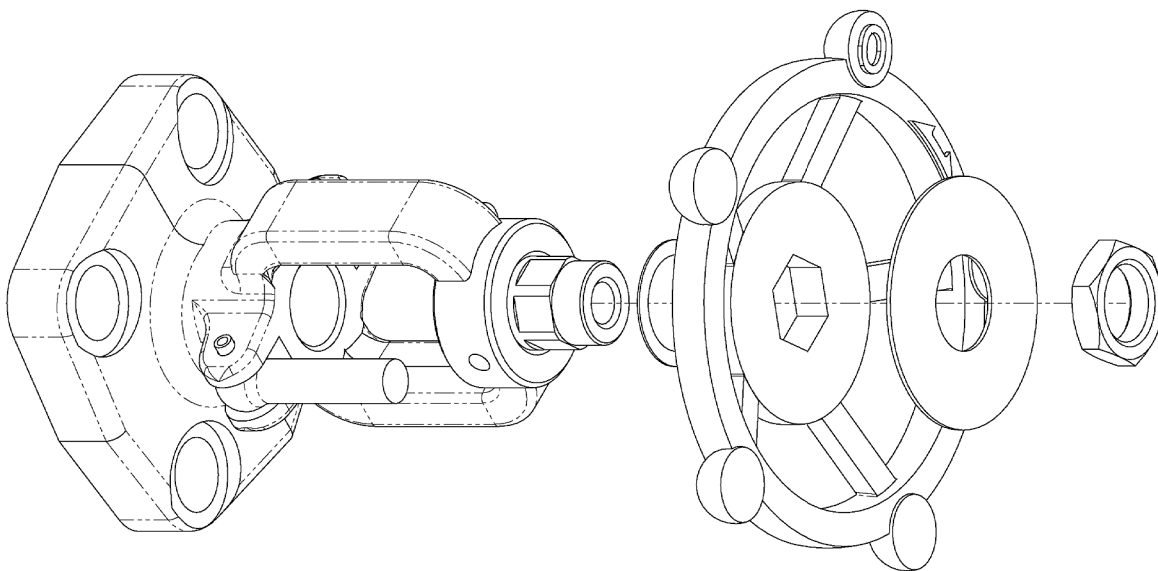
Remove the bellows assembly from the stem by unscrewing. Remove soft seat by removing screw, lock washer and flat washer.



Remove the gland nuts fully. Take off the gland plate and gland bushing. Remove the packing from the bonnet. If replacing, unfasten the grease fitting and remove.

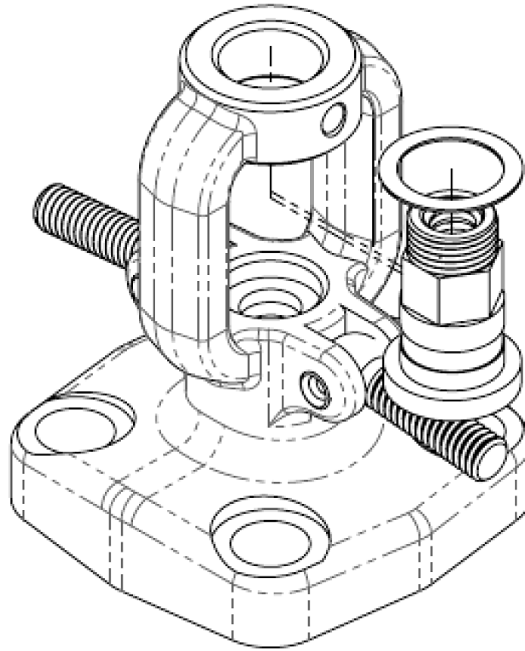


Unfasten the handwheel nut. Remove the nameplate, the handwheel, and the upper thrust collar.





The lower thrust collar and yoke sleeve can now be removed from the bonnet.



## Valve Assembly

Assemble the valve in the reverse of the disassembly procedure. However, some points listed below are important to follow:

Gasket seating surfaces on the body, bonnet, bellows assembly, and gasket shall be thoroughly cleaned with a cleaning agent such as semiconductor grade acetone before assembling. Threads shall be lubricated. When tightening the joint bolts on the body/bonnet joint, torque the fasteners to the appropriate value from the following table. It is recommended that the joint bolts are torque to the specified value in stages.

Valve Size	Carbon Steel A105 Valves Torque (Ft-Lb) Maximum	Stainless Steel F316L Valves Torque (Ft-Lb) Maximum
3/4" or smaller	23	15
1"	50	25
1-1/2"	70	25
2"	100	35



**CAUTION:**

Ensure the bonnet assembly is in the fully open position before installing into the body. Tightening joint bolts against the disc will damage the valve.

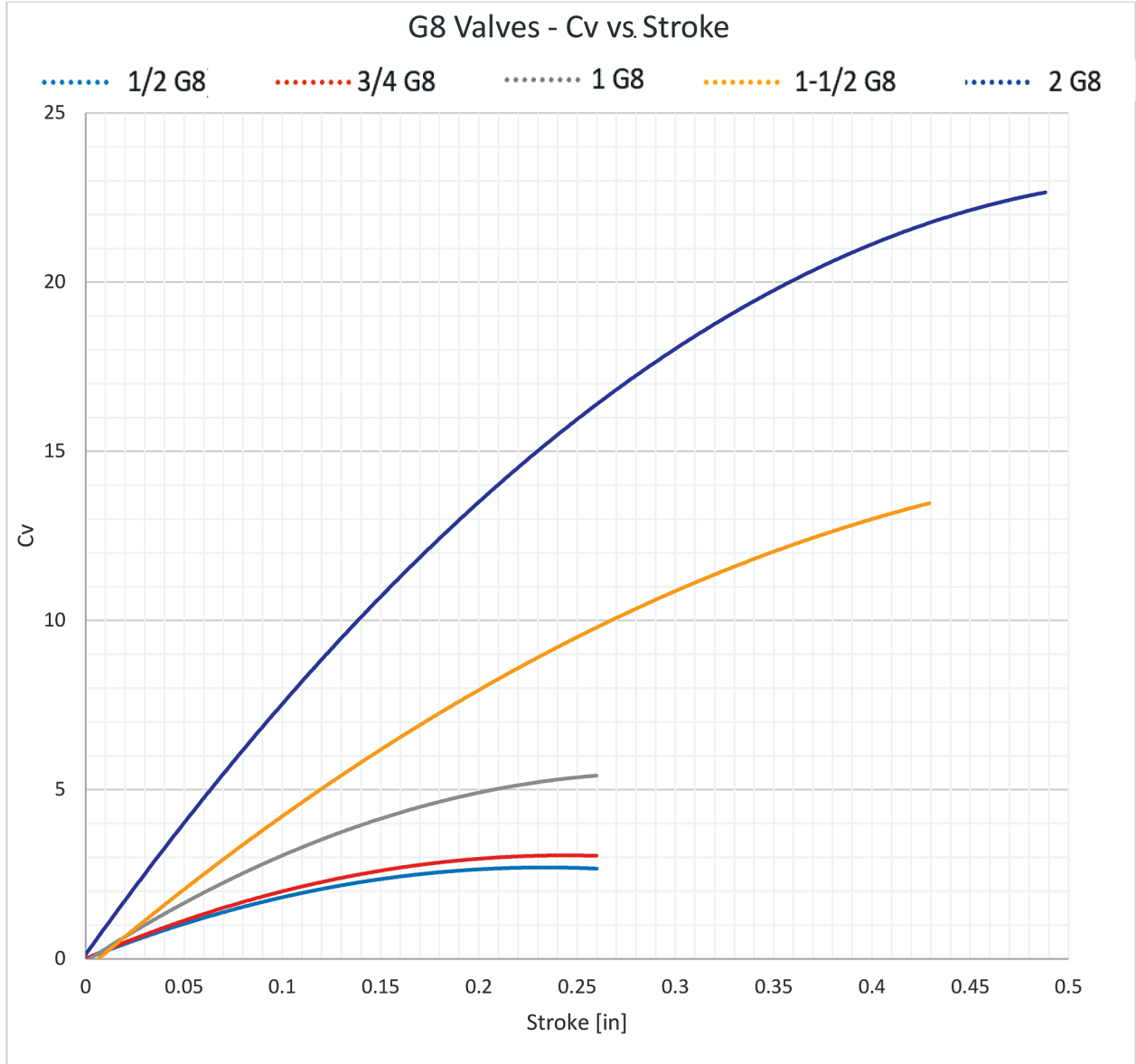
Before installing the bellows/stem assembly, ensure the packing, gland bushing, and gland plate are installed. Thread on the gland nuts but leave them loose.

Install new gaskets and gland packing set. Do not reuse the previously installed gaskets and packing.

When installing bellows/stem assembly into the bonnet, ensure the guide pin slides into the guide pin slot.

## Cv vs. Stroke Curves

Dixon Eagle® G8-Series globe valves feature a quick opening disc design that can be used as a method for throttling flow. The following chart shows the flow coefficient (Cv) vs. stroke, where the stroke is measured as the axial travel of the stem from a fully closed position of the valve.



Valve Size	Travel per Handwheel Turn
1/2"	0.08 in
3/4"	0.08 in
1"	0.08 in
1-1/2"	0.125 in
2"	0.125 in

## Spare Parts

The following parts are recommended to stock as spare parts for normal operation and maintenance.

Description	Material	Required
gasket	graphite/316 stainless steel	2
gland packing	graphite	1 set
seat ring kit	PCTFE/316 stainless steel	1

It is recommended to replace the bellows assembly after the valve has been actuated for 10,000 cycles. Refer to the bill of materials provided on pages 12 and 13 for part numbers.

## Materials and Dimensions

The following drawing and bill of materials contain the materials and dimensions for the G8 series globe valves, 1/2" to 2".

Refer to Dixon Eagle® valve description key for assembly part numbers.

## Standard Materials for Carbon Steel G8 Globe Valves

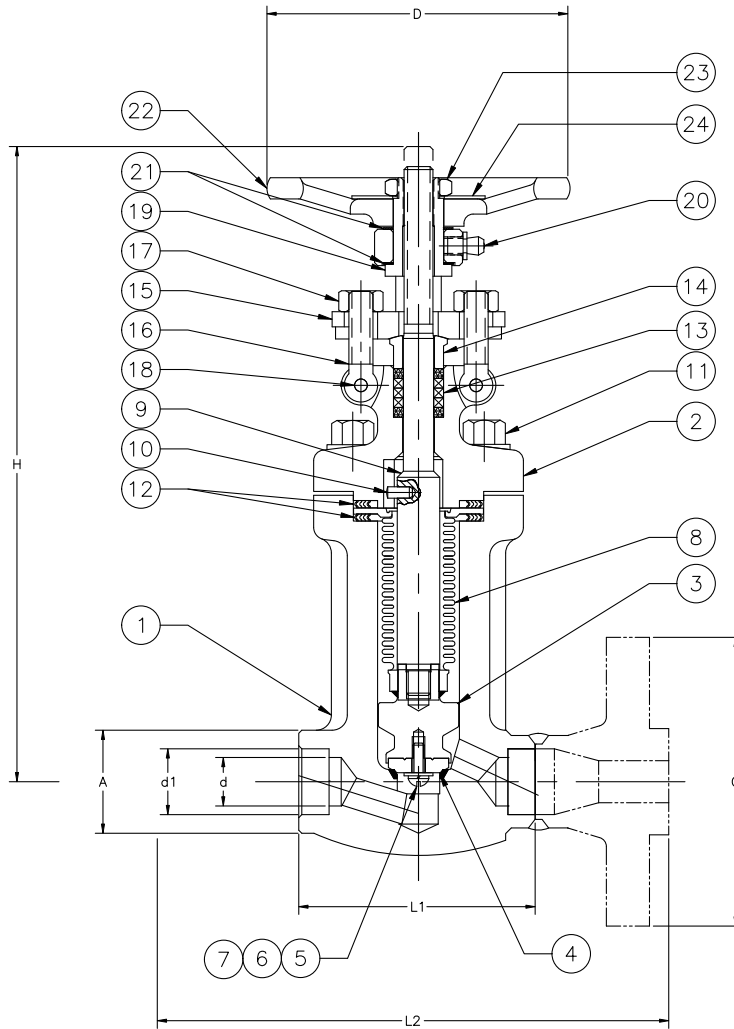
### Part Number

Item	Nomenclature	1/2"	3/4"	1"	1-1/2"	2"	Material	Qty.
1-1	socket weld body	---	---	---	---	---	ASTM A105/HF	1
1-2	threaded body	---	---	---	---	---	ASTM A105/HF	1
1-3	flanged body	---	---	---	---	---	ASTM A105/HF	1
	150	---	---	---	---	---		
	300	---	---	---	---	---		
600	---	---	---	---	---	---	---	
2	bonnet	---	---	---	---	---	ASTM A105	1
3	disc holder	---	---	---	---	---	316L stainless steel	1
	PCTFE seat ring kit	170125-050(REP)	170125-050(REP)	170125-100(REP)	170125-150(REP)	170125-200(REP)	PCTFE/316 stainless steel	1
	TFE seat ring kit	170129-050(REP)	170129-050(REP)	170129-100(REP)	170129-150(REP)	170129-200(REP)	TFE/316 stainless steel	1
4-1	seat ring	---	---	---	---	---	PCTFE	1
4-2	seat ring	---	---	---	---	---	TFE	1
5	screw	---	---	---	---	---	316 stainless steel	1
6	lock washer	---	---	---	---	---	316 stainless steel	1
7	flat washer	---	---	---	---	---	316 stainless steel	1
	bellows kit	270068-050(REP)	270068-050(REP)	270068-100(REP)	270068-150(REP)	270068-200(REP)	alloy 625/316L stainless steel	1
8	bellows assembly	---	---	---	---	---	alloy 625/316L stainless steel	1
9	stem	---	---	---	---	---	410 stainless steel	1
10	guide pin	---	---	---	---	---	carbon steel	1
11	joint bolt	170039-050	170039-050	170039-100	170039-150	170039-200	ASTM A193 B7	4
12	gasket	170042-050	170042-050	170042-100	170042-150	170042-200	graphite/316 stainless steel	2
13	gland packing	170043-050	170043-050	170043-100	170043-150	170043-200	graphite	1 set
14	gland bushing	170017-050	170017-050	170017-100	170017-150	170017-200	410 stainless steel	1
15	gland plate	170019-050	170019-050	170019-100	170019-150	170019-200	carbon steel	1
16	gland bolt	170021-050	170021-050	170021-100	170021-150	170021-200	410 stainless steel	2
17	hex nut	N23118000X942H	N23118000X942H	N23816000X942H	N23816000X942H	N13816000X942H	ASTM A194 2H	2
18	pin	170023-050	170023-050	170023-100	170023-150	170023-200	410 stainless steel	2
19	yoke sleeve	170027-050	170027-050	170027-100	170027-150	170027-200	410 stainless steel	1
20	grease fitting	170045	170045	170045	170045	170045	commercial	1
21	thrust collar	170029-050	170029-050	170029-100	170029-150	170029-200	410 stainless steel	2
22	handwheel	170044-050	170044-050	170044-100	170044-150	170044-200	malleable iron	1
23	handwheel nut	170031-050	170031-050	170031-100	170031-150	170031-200	carbon steel	1
24	nameplate	---	---	---	---	---	aluminum	1

## Standard Materials for Stainless Steel G8 Globe Valves

### Part Number

Item	Nomenclature	1/2"	3/4"	1"	1-1/2"	2"	Material	Qty.
1-1	socket weld body	---	---	---	---	---	A182 F316L stainless steel/HF	1
1-2	threaded body	---	---	---	---	---	A182 F316L stainless steel/HF	1
1-3	flanged body	150	---	---	---	---	A182 F316L stainless steel/HF	1
		300	---	---	---	---		
		600	---	---	---	---		
2	bonnet	---	---	---	---	---	A182 F316L stainless steel/HF	1
3	disc holder	---	---	---	---	---	316L stainless steel	1
	PCTFE seat ring kit	170125-050(REP)	170125-050(REP)	170125-100(REP)	170125-150(REP)	170125-200(REP)	PCTFE/316 stainless steel	1
	TFE seat ring kit	170129-050(REP)	170129-050(REP)	170129-100(REP)	170129-150(REP)	170129-200(REP)	TFE/316 stainless steel	1
4-1	seat ring	---	---	---	---	---	PCTFE	1
4-2	seat ring	---	---	---	---	---	TFE	1
5	screw	---	---	---	---	---	316 stainless steel	1
6	lock washer	---	---	---	---	---	316 stainless steel	1
7	flat washer	---	---	---	---	---	316 stainless steel	1
	bellows kit	270068-050(REP)	270068-050(REP)	270068-100(REP)	270068-150(REP)	270068-200(REP)	alloy 625/316L stainless steel	1
8	bellows assembly	---	---	---	---	---	alloy 625/316L stainless steel	1
9	stem	---	---	---	---	---	316 stainless steel	1
10	guide pin	---	---	---	---	---	carbon steel	1
11	joint bolt	170040-050	170040-050	170040-100	170040-150	170040-200	ASTM A193 B8	4
12	gasket	170042-050	170042-050	170042-100	170042-150	170042-200	graphite/316 stainless steel	2
13	gland packing	170043-050	170043-050	170043-100	170043-150	170043-200	graphite	1 set
14	gland bushing	170018-050	170018-050	170018-100	170018-150	170018-200	304 stainless steel	1
15	gland plate	170020-050	170020-050	170020-100	170020-150	170020-200	316 stainless steel	1
16	gland bolt	170022-050	170022-050	170022-100	170022-150	170022-200	304 stainless steel	2
17	hex nut	N23118000X4G8M	N23118000X4G8M	N23816000X4G8M	N23816000X4G8M	N13816000X4G8M	ASTM A194 GR. 8M	2
18	pin	170024-050	170024-050	170024-100	170024-150	170024-200	304 stainless steel	2
19	yoke sleeve	170028-050	170028-050	170028-100	170028-150	170028-200	copper alloy	1
20	grease fitting	170045	170045	170045	170045	170045	commercial	1
21	thrust collar	170029-050	170029-050	170029-100	170029-150	170029-200	410 stainless steel	2
22	handwheel	170044-050	170044-050	170044-100	170044-150	170044-200	malleable iron	1
23	handwheel nut	170032-050	170032-050	170032-100	170032-150	170032-200	304 stainless steel	1
24	nameplate	---	---	---	---	---	aluminum	1



### Socket Weld / Thread Gate Valves

Size	d (in)	A (in)	d1 (in)	h (in)	L1 (in)	H (in)	D (in)	Lift	Wt (lbs)	Cv
1/2"	0.63	1.34	0.855	0.39	3.11	8.3	3.94	0.26	5.9	2.7
3/4"	0.87	1.57	1.065	0.51	3.62	8.3	3.94	0.26	6.2	3.1
1"	1.10	1.93	1.330	0.51	4.37	9.2	4.92	0.26	11.0	5.4
1-1/2"	1.65	2.56	1.915	0.51	5.98	11.9	6.30	0.43	21.0	13.4
2"	2.05	3.07	2.406	0.63	6.77	12.8	7.09	0.49	30.0	23.0

### Flanged Gate Valves

Size	150			300			600		
	L2 (in)	C (in)	Wt (lbs)	L2 (in)	C (in)	Wt (lbs)	L2 (in)	C (in)	Wt (lbs)
1/2"	4.25	3.50	8.0	6.00	3.75	10.0	6.50	3.75	10.0
3/4"	4.62	3.88	9.0	7.00	4.62	13.0	7.50	4.62	14.0
1"	5.00	4.25	15.0	8.00	4.88	19.0	8.50	4.88	20.0
1-1/2"	6.50	5.00	27.0	9.00	6.12	35.0	9.50	6.12	36.0
2"	7.00	6.00	41.0	10.50	6.50	49.0	11.50	6.50	51.0

## Revision History

Consult Dixon® for the latest issue of this document.

Revision	ECN Number	Description	Date	Changed By	Approved By
0	---	original issue	05/11/2023	UCM	BMS

