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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 their use remains appropriate and 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 installation, operation, and maintenance information for Eagle L-Series bolted bonnet bellows seal gate valves. While flanged connections are shown in the diagrams located in this manual, this document applies to all L-Series bellows seal gate valves from 3" to 8" with any type of connection, i.e., flanged and butt weld connections.

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

For identification of valve parts please refer to page 9 – Materials and Dimensions – for reference.

For any questions regarding this manual please contact eaglesales@dixonvalve.com for clarification.

General Description

The valve is a standard large gate valve with a bellows seal.

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 a spiral wound graphite gasket.

Storage

To maintain the cleanliness of the valve, do not remove it from the plastic bag while in storage. Do not remove the 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 closed. Heat input should be minimized to prevent seat distortion.

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 that 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 should 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 where the valve is in operation.
- 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.

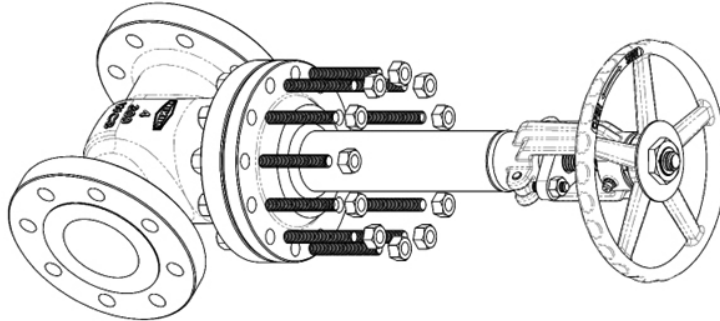
Disassembly



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.

Back seat (fully open) the valve. Remove the hex nuts and joint bolts holding the body and bonnet together.



CAUTION:

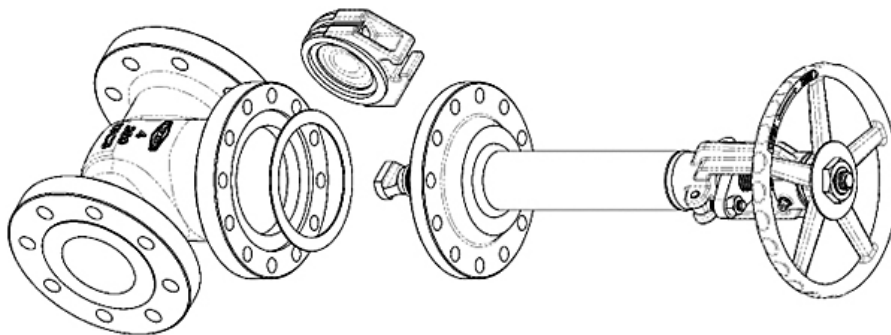
Ensure the sealing surfaces of the gate do not come in contact with other hard surfaces to prevent scratching.

Lift the bonnet and stem assembly out from the body. Remove the gate from the end of the stem and mark its orientation in the body for reassembly. Remove the gasket.



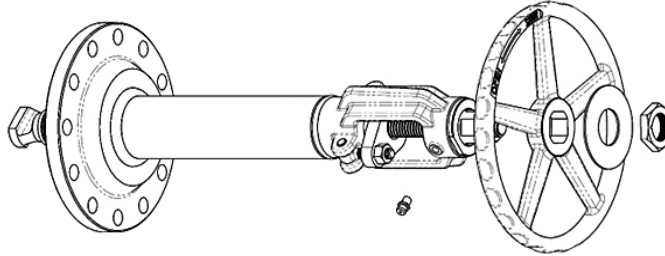
CAUTION:

Do not rotate the handwheel to extend the stem outward from the bonnet. There is no hard stop for the stem after separation from the body to prevent overstretching the bellows and damaging them.



Disassembly continued

Unfasten the set screw and the handwheel nut. Remove the nameplate and handwheel. If replacing, unfasten the grease fitting and remove.



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 should be thoroughly cleaned with a cleaning agent such as semiconductor grade acetone before assembling. Threads should be lubricated. When tightening the joint bolts on the body/bonnet joint, torque the fasteners to the appropriate value from the following table.

Valve Size	Torque (ft - lb) maximum
3"	148
4"	148
6"	263
8"	263

Install a new gasket for reassembly. Do not reuse previously installed gaskets.

Ensure the gate is installed in the original orientation.



CAUTION:

The gate must be installed in its original orientation. Failure to do so may result in the valve not properly sealing when closed.

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	1
gland packing	graphite	1 set

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 page 9 for part numbers.

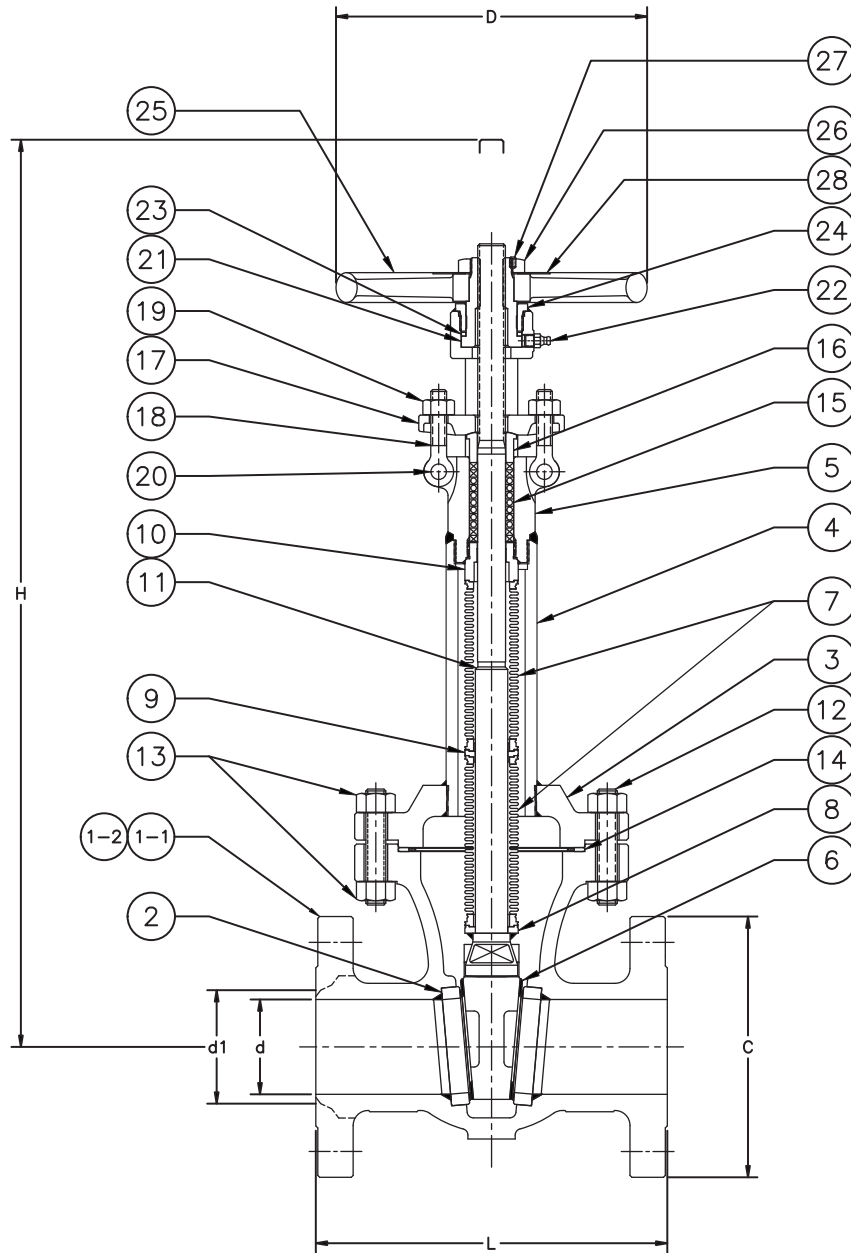
Materials and Dimensions

The following drawing and bill of materials contain the materials and dimensions for the L-Series gate valves, 3" to 8".

Standard Materials for Carbon Steel L-Series Gate Valves

Part Number

Item	Nomenclature	3"	4"	6"	8"	Material	Qty.
1-1	butt weld body	150	---	---	---	ASTM A216 WCB	1
	300	---	---	---	---	ASTM A216 WCB	1
1-2	flanged body	150	---	---	---	ASTM A216 WCB	1
	300	---	---	---	---	ASTM A216 WCB	1
2	seat ring	---	---	---	---	ASTM A105/HF	2
3	bonnet	---	---	---	---	ASTM A216 WCB	1
4	extension	---	---	---	---	ASTM A106	1
5	yoke	---	---	---	---	ASTM A216 WCB	1
6	gate	155105-300	155105-400	155105-600	155105-800	ASTM A216 WCB/HF	1
7	bellows assembly	---, Qty. 2	---, Qty. 3	---, Qty. 3	---, Qty. 4	alloy 625/316L stainless steel	varies
8	end fitting	---	---	N/A	N/A	316L stainless steel	1
9	spacer	---	N/A	N/A	N/A	316L stainless steel	1
10	bonnet bushing	---	---	---	---	316L stainless steel	1
11	stem	---	---	---	---	410 stainless steel	1
12	joint bolt	F16311400X93B7, Qty.-8	F16311400X93B7, Qty.-12	F17510525X93B7, Qty.-12	F17510525X93B7, Qty.-16	ASTM A193 B7	varies
13	joint bolt nut	N16311000X942H, Qty.-16	N16311000X942H, Qty.-24	N17510000X942H, Qty.-24	N17510000X942H, Qty.-32	ASTM A194 2H	varies
14	gasket	155109-300	155109-400	155109-600	155109-800	graphite/316 stainless steel	1
15	gland packing	P08862511XBRGR	P10002511XBRGR	P13003110XBRGR	P14173111XBRGR	graphite	1 set
16	gland bushing	---	---	---	---	410 stainless steel	1
17	gland plate	---	---	---	---	ASTM A216 WCB	1
18	gland bolt	155115-300	155115-300	155115-600	155115-800	ASTM A193 B7	2
19	hex nut	N15013000X942H	N15013000X942H	N16311000X942H	N17510000X942H	ASTM A194 2H	2
20	pin	155117-300	155117-300	155117-600	155117-800	carbon steel	2
21	yoke sleeve	155118-300	155118-400	155118-600	155118-800	ductile iron	1
22	grease fitting	155045	155125	155125	155125	commercial	1
23	thrust collar	155123-300	155123-400	155123-600	155123-800	copper alloy	1
24	yoke cap	155119-300	155119-400	155119-600	155119-800	carbon steel	1
25	handwheel	155120-300	155120-400	155120-600	155120-800	malleable iron	1
26	handwheel nut	155121-300	155121-400	155121-600	155121-800	carbon steel	1
27	set screw	155026	155026	155026	155026	alloy steel	1
28	nameplate	---	---	---	---	aluminum	1



Flanged and Butt Weld End – ANSI 150

Size	d	d1	C	L (FL)	L (BW)	H	D	LIFT	Cv	Wt (lbs) FL	Wt (lbs) BW
3"	3.068	3.59	7.50	8.00	11.12	29	10	3.48	710	75	113
4"	4.026	4.62	9.00	9.00	12.00	36	12	4.45	1300	130	135
6"	6.065	6.78	11.00	10.50	15.88	53	16	6.45	3110	210	345
8"	7.981	8.78	13.50	11.50	16.50	61	18	8.50	5700	370	500

NOTE: Larger sizes and different configurations available, consult eaglesales@dixonvalve.com

Flanged and Butt Weld End – ANSI 300

Size	d	d1	C	L	H	D	LIFT	Cv	Wt (lbs) FL	Wt (lbs) BW
3"	3.068	3.59	8.25	11.12	29	10	3.48	710	136	113
4"	4.026	4.62	10.00	12.00	36	12	4.45	1300	179	135
6"	6.065	6.78	12.50	15.88	53	16	6.45	3110	420	345
8"	7.981	8.78	15.00	16.50	61	18	8.50	5700	600	500

NOTE: Larger sizes, different configurations, and class 600 available consult eaglesales@dixonvalve.com

Revision History

Consult Dixon® for the latest issue of this document.

Revision	ECN Number	Description	Date	Changed By	Approved By
0	---	original issue	09/20/2024	BMS	UCM

