

60LE Series Safety Ballcheck Valves



JERGUSON®

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1. Introduction

Clark-Reliance® is a global leader in the level indication and control, sight-flow indication, and filtration and separation industries. We are dedicated to offering the largest and broadest range of instrumentation products and being the single source for every type of level measurement and control to meet the varying demands of the process industry.

Jerguson Gage and Valve, a leading supplier of level gaging products, offers the world's largest selection of liquid level glass gages, magnetic level gages, liquid level switches and level transmitters. Since 1905, Jerguson gages and valves have been installed in a wide variety of liquid level applications, from basic chemical storage tanks to the most advanced nuclear aircraft carriers. With complete product offerings in both traditional glass gages and magnetic gages, Jerguson meets a diverse set of customer needs.

2. Warranty

Clark-Reliance warrants its manufactured goods as being free from defects in material and workmanship for one (1) year from the date of shipment. If any of the goods are found by the seller to be defective, such goods will be replaced or repaired at the seller's cost. Refer to the Clark-Reliance Terms & Conditions for full warranty details.

3. About This Manual

This manual is designed to aid and guide in the installation, operation, and maintenance of the Jerguson 60LE Series family of valves. Authorized personnel must read and understand all instructions before attempting to install, operate or maintain this equipment. Only persons certified to perform work described herein should attempt any actions suggested. Safety precautions and company safety standards should be always observed when performing the activities described in this manual.

4. Inspection & Delivery

Upon receiving valves, check all components carefully for damage incurred during shipping. Sign for the shipment noting "damaged" and immediately notify the shipping firm of any such damage and request damage inspection. Confirm valve model number, pressure and temperature ratings (on nameplate) meet application specifications. Also confirm that the material of construction is compatible with both the process fluid and surrounding atmosphere.

5. Product Description

The Jerguson 60LE Series is a union bonnet style Safety Ballcheck Valve constructed to the highest of standards. Equipped on a Jerguson armored glass gage, these valves are an essential component of a glass level gage assembly. In addition to isolation, Safety Ballcheck Valves provide an automatic shut-off in the event of a catastrophic glass or gasket failure. The updated design removes the stem threads from contact with the process fluid by locating the threads behind the valve packing seal. This important feature prevents corrosion on the threading and provides a barrier inhibiting the ability of particulate to interfere with the handwheel operation. The valve is now low emission certified to API 624 to maintain compliance with EPA standards. All union connections now feature spiral-wound gaskets as standard. Quality features include stainless steel stems, seats, and ballcheck, with regrindable and renewable seats.

These valves must be installed, operated, and maintained with reasonable care and due regard for the applications and environment if they are to provide safety and reliability for their service lifetime.

6. Specifications

How to Specify 140, 60LE and 70BL Series Safety Ballcheck Valves

67LE - A - 1 - S - C04 - A04 - A04

Valve Series

Code	Description
143	Integral Bonnet, Straight Pattern Body, Non-Union Gage
144	Integral Bonnet, Straight Pattern Body, Union Gage
146	Integral Bonnet, Offset Body, Non-Union Gage
147	Integral Bonnet, Offset Body, Union Gage
63LE	Union Bonnet, Straight Pattern Body, Non-Union Gage
64LE	Union Bonnet, Straight Pattern Body, Union Gage
66LE	Union Bonnet, Offset Body, Non-Union Gage
67LE	Union Bonnet, Offset Body, Union Gage
73BL*	Bolted Bonnet, Straight Pattern Body, Non-Union Gage
74BL*	Bolted Bonnet, Straight Pattern Body, Union Gage
76BL*	Bolted Bonnet, Offset Body, Non-Union Gage
77BL*	Bolted Bonnet, Offset Body, Union Gage

* Specify X, XLE or XL for No Ballcheck on 140, 60LE or 70BL Series, respectively.

Body Material

Code	Description
A	Carbon Steel
A32	LTCS (Offset Bodies Only)
T	316SS (Wetted Parts Only)
SP/T	All 316SS

Trim Material

Code	Description
1	416SS
2	316SS (NACE MR0175/MR0103 Compliant)
3	Monel (NACE MR0175/MR0103 Compliant)
4	Alloy 20 (NACE MR0175/MR0103 Compliant)

Packing

Code	Description
S	Standard
	140 Series - Braided Carbon Fiber
	60LE Series - Flex Graphite / Inconel (Low Emission Certified)
	70BL Series - Flex Graphite / Inconel (Low Emission Certified)
G	Grafoil® (140 & 70BL Series Only)
T	Teflon® (140 & 70BL Series Only)

Union Process Connection 140/60LE Series
Non-Union Process Connection 70BL Series

Style	Code	Description	Size	Code	Description	Sizes Valid with Styles
A	FNPT		04	1/2"		A, B, C, D, F
B	FSW		06	3/4"		A, C, D, F
C	MNPT		08	1"		C, D, F
D	MSW		12	1-1/2"		F
F	RF ASME Flange		16	2"		F

Flange Type (If Applicable)

Flange Type	Flange Class	Description
SO (Slip-On)	01	150#
SW (Socket Weld)	03	300#
WN (Weld Neck)	06	600#
	15	900/1500#

Options

Code	Description
Blank	Standard
SV	Spherical Union Process Connection
SG	Spherical Union Gage Connection
AP	Adjustable Union Process Connection
QL	Quick Closing w/ Levers
QH	Quick Closing w/ Handwheels
VR	Vertical Rising Ballcheck (Lower Top/Bottom Connected Valves Only - N/A for 143, 63LE, 73BL)
ST	Stellite Hardfacing on Seat/Stem (N/A for 140 Series)
SG	Spiral-Wound Gasket for Union Connections
AG	Adjustable Union Connection (Specify Gage or Process)
RJ	Ring Joint Flanges

Vent or Drain Connection 140/60LE Series*
Vent or Drain Connection 70BL Series*

Style	Code	Description	Size	Code	Description	Sizes Valid with Styles
A	FNPT		04	1/2"		A, B, F
B	FSW		06**	3/4"		A, B, F
			08	1"		F
			12	1-1/2"		F
F	RF ASME Flange		16	2"		F

* If Vent/Drain Connections differ, specify both
** 3/4" Vent/Drain not available with In-Line Body Valves

Gage Connection 140/60LE Series
Gage Connection 70BL Series

Style	Code	Description	Size	Code	Description	Sizes Valid w/ 144, 147, 64LE, 67LE, 74BL, 77BL (Union)	Sizes Valid w/ 143, 146, 63LE, 66LE, 73BL, 76BL (Non-Union)
A	FNPT		04	1/2"		A, B, C, D, F	A, B, F
B	FSW		06	3/4"		A, C, D, F	A, B, F
C	MNPT		08	1"		F	F
D	MSW		12	1-1/2"		F	F
F	RF ASME Flange		16	2"		F	F

Pressure Ratings (Carbon & Stainless Steel Valves):

Temperature		Pressure			
°F	°C	PSI	BarG	Kg/cm ²	kPaG
100	38	4000	275.8	281.2	27579
200	93	3615	249.3	254.2	24928
300	149	3231	222.8	227.2	22276
400	204	2846	196.2	200.1	19624
500	260	2462	169.7	173.1	16973
600	316	2077	143.2	146.0	14321
700	371	1693	116.7	119.0	11670
800	427	1308	90.2	92.0	9018

Saturated steam rating 600 WSP

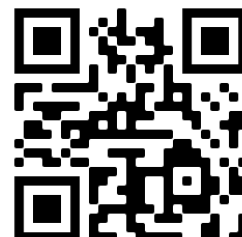
7. Recommended Commissioning Procedure

1. When there is liquid already present in the vessel, open the top valve ¼ to ½ turn. It is always best practice when commissioning any Jerguson Level Gage to open the top valve first.
2. Next, open the bottom valve ¼ to ½ turn to allow liquid to flow into the gage. Liquid will flow into the gage until the gage level equalizes with the vessel level. Wait for the gage level to stop rising before proceeding.

**** If the valve handle is opened too quickly, retracting the stem tip into the seat cavity, the kinetic energy of the fluid could potentially force the ballcheck into the seat. This will isolate the gage from the vessel and yield a false level reading ****

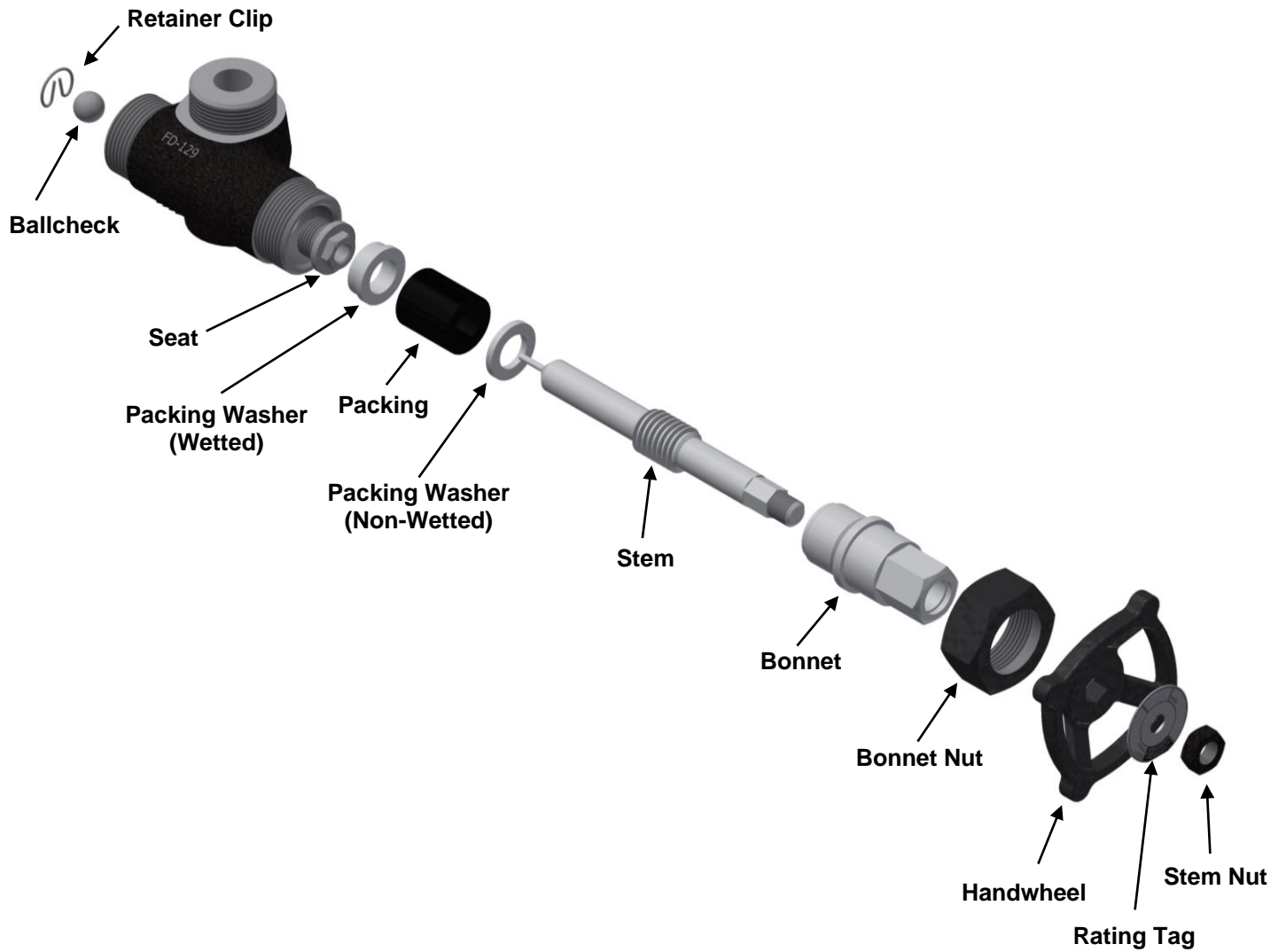
3. Once the gage level has stopped rising, fully open the top valve.
4. Next, fully open the bottom valve.
5. The gage is now ready for normal operation. In the event of a catastrophic failure, the ballchecks will seat, isolating the gage from service.

Visit <https://www.jerguson.com/jerguson-safety-ballcheck-valves> for a video demonstration of the proper procedure for commissioning a glass level gage equipped with the 60LE series safety ballcheck valves



8. Rebuild Instructions

60LE Exploded View



Disassembly

1. Secure 60LE valve into a vice with the valve **handwheel** facing upward. Take care not to damage any of the valve externals. Using a wrench, remove the **nut** from the end of the valve **stem** and remove the **handwheel**.
2. Using a wrench, remove the **bonnet nut** from the **valve body**.
3. Using a wrench on the flats of the valve **stem**, turn counterclockwise to back **stem** off of the valve **seat** (1-2 turns). Using a wrench, remove the **bonnet** from the **valve body**. Remove the **stem** from the **valve body**. Note since the **stem** is pressed through the valve **packing** and **packing washers** this may be difficult.
4. Remove valve **packing** and both **packing washers**.
5. Using a 5/8" socket, remove the **seat** from the **valve body**.
6. If you wish to replace or remove the internal **ballcheck**, remove the ball **retainer clip**. If not, continue to reassembly.

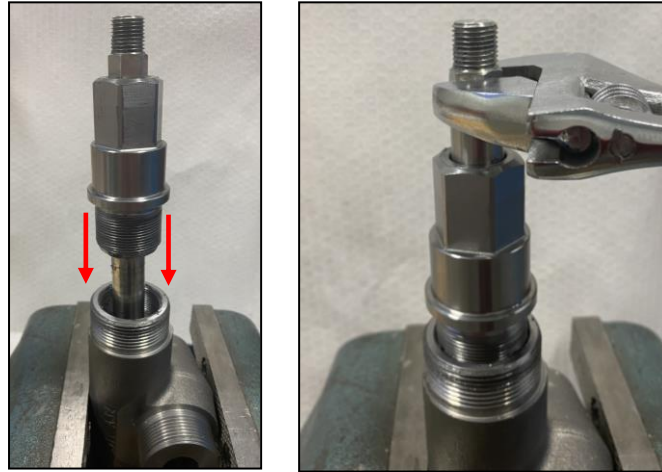
Reassembly

1. Lubricate the threads of the valve **seat** with pipe dope/sealant and thread to the inside of the **valve body** using a 5/8" socket.
2. Insert inner **packing washer (wetted)** with the larger diameter flat side up into the **valve body** and ensure it is fully seated and centered.
3. There are a total of 5 pre-compressed valve **packing** rings, and each ring has a split. Press the rings individually into the **valve body** with the split in the rings located 180 apart from each other. Make sure each ring is fully seated. All (5) rings should rest below the **bonnet** threads on the **valve body**.
4. Insert the outer **packing washer (non-wetted)** centered on the top of the **packing** rings.
5. Lubricate the threads of the **stem** with a graphite based anti-seize and thread the **stem** into the **bonnet** as far as it will go. Then back the **stem** out to where the **stem** threads are in line with the outer **bonnet** threads (as illustrated below). Next, lubricate the outer **bonnet** threads.

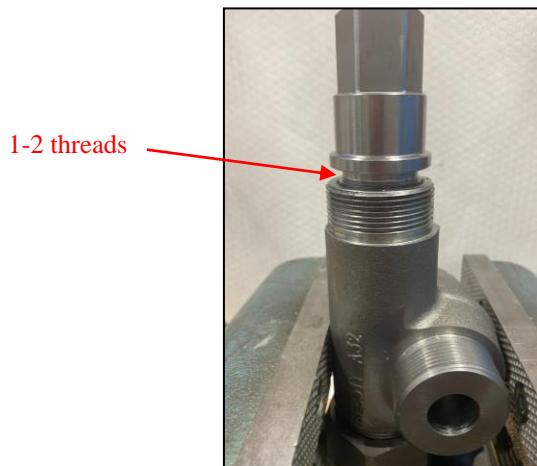


stem threads bonnet threads

6. Using a rubber mallet, tap the top of the **stem** to push it through the **packing** and **packing washers**. Tighten the **bonnet** to the **valve body** until it becomes difficult to turn by hand. Using a wrench, turn the **stem** clockwise until it is fully pressed into the valve seat.



7. Using a wrench, tighten the **bonnet** to the **valve body** (approx. 2 to 2-1/2 turns) until threads of the **bonnet** are barely exposed (1-2 threads). It is possible the **stem** will need additional tightening before the **bonnet** is able to be tightened to the point where 1-2 threads are exposed.



8. Using a wrench, cycle the **stem** fully open to fully closed twice to ensure it is situated properly.
9. Insert the valve **handwheel** onto the **stem**. Secure with **rating tag** and **stem nut**.
10. Flip the valve over and insert the **ballcheck** into the valve cavity. Replace **retainer clip**.
11. Reassemble union nut and tailpiece to the process connection on the valve. The valve is now ready to be hydrotested.

9. Common Spare Parts

Part#	Material	Description
P125 U3	416SS	Seat
P125 T2	316SS	Seat
V21764 U3	416SS	Stem
V21764 T2	316SS	Stem
P1 I	440 SS	Ballcheck
P1 T2	316SS	Ballcheck
G289	Braided Carbon Fiber	Packing (Set of 5 rings)
P8591 A32	Low Temp Carbon Steel	Packing Washer (Wetted)
P8591 TL2	316SS	Packing Washer (Wetted)
P8589 A32	Low Temp Carbon Steel	Packing Washer (Non-Wetted)
P8589 TL2	316SS	Packing Washer (Non-Wetted)
P8590 A32	Low Temp Carbon Steel	Bonnet
P8590 TL2	316SS	Bonnet
P70 6 A32	Low Temp Carbon Steel	Bonnet Nut
V10288 A32*	Low Temp Carbon Steel	1/2" F Tailpiece for Spiral Gasket
V10287 A32*	Low Temp Carbon Steel	1/2" M Tailpiece for Spiral Gasket
V13920 A32*	Low Temp Carbon Steel	3/4" M Tailpiece for Spiral Gasket
P70 6 A32*	Low Temp Carbon Steel	Tailpiece Nut
V14708 A32*	Low Temp Carbon Steel	3/4" F Tailpiece for Spiral Gasket
V11395 A32*	Low Temp Carbon Steel	Tailpiece Nut for 3/4"F
V9864 1	304SS	Spiral Gasket for Tailpieces
PD325 D1	Carbon Steel	Handwheel
P78 6 A12	Carbon Steel	Stem Nut

*For 316 SS, change the P/N suffix from "A32" to "T2"



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