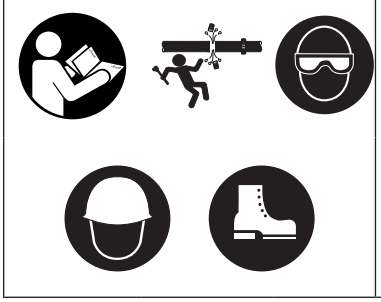
Series W719 AWWA C504 Double Eccentric Grooved Butterfly Valve

⚠ WARNING



- **Read and understand all instructions before attempting to install any Victaulic products.**
- **Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.**
- **Confirm that any equipment, branch lines, or sections of piping that may have been isolated for/during testing or due to valve closures/positioning are identified, depressurized, and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.**
- **Wear safety glasses, hardhat, and foot protection.**

Failure to follow these instructions could result in death or serious personal injury and property damage.

IMPORTANT INFORMATION

Butterfly valves are a significant component of any water distribution system or treatment plant operation. Prior to installation, always read and understand all instructions supplied with the valve. Valve failure due to faulty installation, improper operation, or maintenance in such systems could result in damage, downtime, and costly repairs. Any issues with butterfly valves can be traced to improper installation, operation, or maintenance procedures.

OVERVIEW

Type	*Measurement*
Size	14″ – 36″/DN350 – DN900
Rated Working Pressure	250 psi/1724 kPa
Ambient Temperature	14 - 176° F (-10 - 80°C)
Process Medium Temperature	33 - 125°F (0.6°C - 52°C)
Maximum Fully Open Fluid Velocity	16ft/sec (4.9m/sec)

UNLOADING

- Inspect valves on receipt for shipping damage and conformance to requirements listed on the packing list and purchase order.
- Unload valves carefully to the ground without dropping.
- **DO NOT** lift valves with slings or a chain around the operating shaft, gear box or through the waterway.
- Lift valves with rods through the chain hooks at the ends of the valves.

STORAGE

If the valves are to be stored before being fitted, storage shall be carried out in a controlled manner as follows:

- Store valves in a clean, dry and well-ventilated environment and prevent rubber from direct exposure to rain and sunlight.
- Take protective measures for the valve ends.
- Place packed valves on a pallet for storage. Storage of valves directly on the ground is **NOT** recommended.

LONG-TERM STORAGE

Store valves indoors with a preferred temperature range from 41°F to 77°F/5°C to 25°C, ensuring that the disc remains open at a 10°– 20° angle, and the disc ring is completely detached from the body sealing surface to prevent deformation and aging caused by long-term compression.

Before using valves which have been stored for more than 6 months, complete following inspections:

- Retighten the Hex Socket Screw and Set Screw at 15 – 18 ft-lbs/20 – 25 N•m torque.
- Determine whether the Disc Seal Ring has adhesion.
- Perform a seat test.
- Determine whether the limiting mechanism is locked.

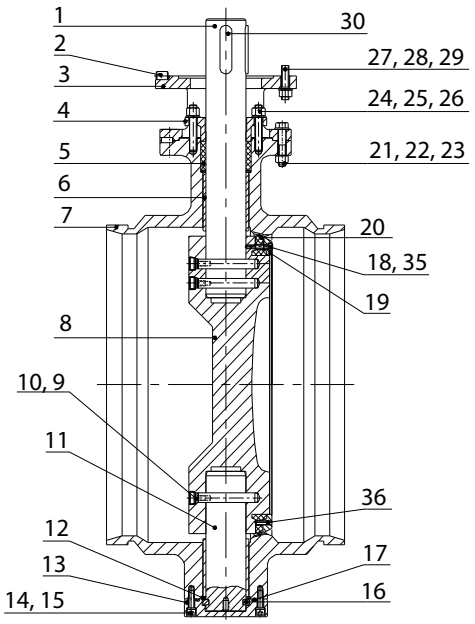
INSPECTION PRIOR TO INSTALLATION

Prior to installation, complete the following steps:

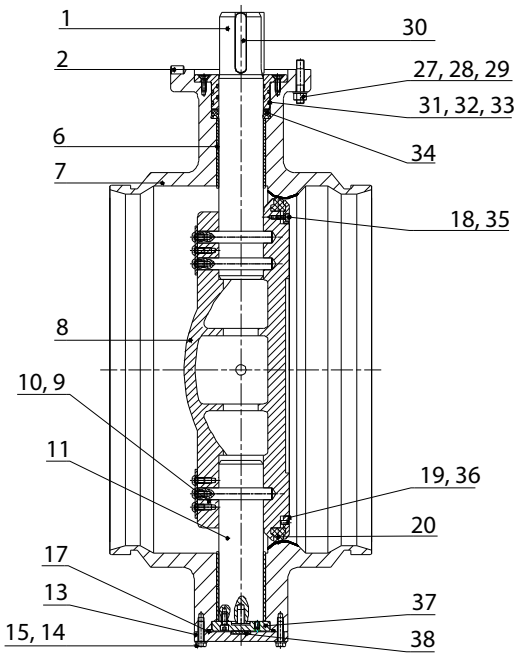
1. Verify that joint-sealing surfaces are clean.
2. Verify that the stud and nut that attaches the gear box to the valve are tightened firmly.
3. Fully open and close the valve for two cycles to verify that it operates properly and that the stops are correctly set.

VALVE CONSTRUCTION

Size 14" - 28"



Size 30" - 36"



Item	Part Name	Material
1	Upper Shaft	Stainless Steel Type 630
2	Pin	Stainless Steel Type 420
3	Mounting Bracket	Ductile Iron A536-65-45-12
4	Packing Gland	Ductile Iron A536-65-45-12
5*	Packing	Graphite for 14" – 28"/DN350 – DN700 EPDM for 30" – 36"/DN750 – DN900
6	Shaft Bushing	Bronze C61400
7	Body	Ductile Iron A536-65-45-12
8	Disc	Ductile Iron A536-65-45-12
9	Screw/Plug	Stainless Steel Type 304
10	Pin	Stainless Steel Type 304
11	Bottom Shaft	Stainless Steel Type 630
12	Shaft Bushing Washer	Stainless Steel Type 304
13	Bottom Cover	Carbon Steel
*14	Screw	Stainless Steel Type 304
*15	Washer	Stainless Steel Type 304
16	Thrust Collar	Stainless Steel Type 304
*17	Bottom Cover O-ring	EPDM
*18	Hex Socket Screw	Stainless Steel Type 304
19	Seal Ring Retainer	Stainless Steel Type 304
*20	Disc Seal Ring	EPDM
*21	Bolt	Stainless Steel Type 304
*22	Washer	Stainless Steel Type 304
*23	Nut	316
*24	Gland Stud	Stainless Steel Type 304
*25	Gland Nut	316
*26	Washer	Stainless Steel Type 304
*27	Stud	Stainless Steel Type 304
*28	Nut	316
*29	Washer	Stainless Steel Type 304
30	Key	Carbon Steel
31	Sealing Bushing	Stainless Steel Type 304
32	Screw	Stainless Steel Type 304
*33	O-ring	EPDM
34	Y-ring	EPDM
35	Spring Washer	Stainless Steel Type 304
*36	Set Screw	Stainless Steel Type 304
37	Shaft Retaining Plate	Stainless Steel Type 304
38	Washer	Bronze C61400

*Replaceable parts

INSTALLATION

Prior to installing butterfly valves, review all installation instructions and complete the following steps:

- Handle valves carefully when positioning, avoiding contact or impact with other equipment.
- Rinse any foreign materials out of inner cavity.
- Verify that valve interiors and adjacent piping are clean and free of foreign material before mating a valve-to-pipe-joint connection.
- For safety reasons, **DO NOT** install the gear box down.
- For optimal performance, install the valve with the stem on the upstream (pressure side).
- Before operating the installed valve, open the valve and rinse the pipeline with maximum flow repeatedly to ensure that any remaining weld slag or foreign material has been flushed out.

Preparation of Valve and Pipe Ends for Installation
Prepare pipe ends and install the valve into the piping system in accordance with the I-W100 Field Installation Handbook found on Victaulic.com.

TESTING

Follow these testing recommendations.

- Conduct an acceptance test, ensuring that test pressures are not higher than the rated pressure.
- Seat leakage can occur from foreign material in the line. If this occurs, open the valve in a half open state to flush. Repeat this several times. If it still leaks, remove the valve from the line for inspection. If the Disc Seal Ring is damaged, replace it.
- If leakage occurred at the packing, properly tighten the Gland Nut. Inspect the top flange to determine if leakage remains. Add more packing as needed.
- Check valves that have been stored for more than 6 months. Refer to the "Storage" section on page 1.

RECORDS

Once the installation is completed, enter the valve location, type, size, date of installation, direction of opening, and other information deemed pertinent on the owner's permanent records.

OPERATION

Before operating the installed valve, rinse with maximum flow to ensure the removal of any remaining in weld slag or other foreign pieces to ensure sealing surfaces are not damaged.

Design Pressure
DO NOT operate or permit the use of any valve at pressures above the rated pressure of the valve.

Input Torque

- **DO NOT** exceed 300 ft-lbs/406N•m of input torque on gear box with wrench nuts.
- **DO NOT** exceed 200-lbs/890-N of rim pull for handwheel or chain wheel.
- If a portable auxiliary gear box is used, size the gear box or use a torque-limiting device to prevent the application of torque exceeding 300 ft-lbs/406 N•m.
- **Sticking**
  If the valve is stuck in some intermediate position between the open and closed positions, check first for jamming in the gear box. If nothing is found, the interference is inside the valve. In this case, **DO NOT** attempt to force the disc open or closed because excessive torque in this position can severely damage internal parts. Contact Victaulic or a valve service department.

NOTE: This operation is only applicable to gear box operation. For other actuator's specific requirements, consult your supplier.

MAINTENANCE

⚠WARNING

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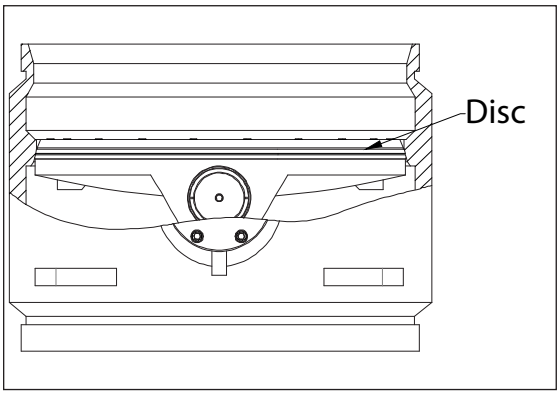
Failure to follow these instructions could result in death or serious personal injury and property damage.

Normal maintenance is limited to breakage of gear box parts, leakage of packing or o-ring seal and addition of grease. Adhere to the following guidelines:

- Report any leakage that occurs at the seat to after-sales maintenance personnel for resolution.
- If repairs are to be made in the field, ensure all spare parts are available. Review the assembly drawings and maintenance manuals prior to any repair work.
- After completed repairs, operate the valve through one complete operating cycle, and after line pressure has been restored, inspect for leakage.
- If the valves have been stored for more than 6 months, perform the seat test before installation and use. If leakage occurs at the seat, retighten the Hex Socket Screw and Set Screw. If the Disc Seal Ring is damaged, replace it. Refer to "Add the Packing" section in this manual.
- If the leakage occurs at the packing or O-ring, tighten the gland nut. If leakage remains after inspecting the top flange, add more packing. Refer to the "Replacing the Packing" section in this manual.

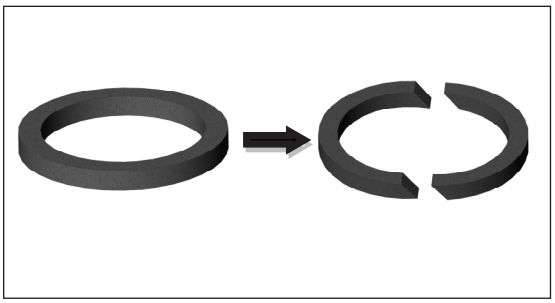
Locking the Seal Ring Retainer Screw



1. Level the disc.
2. Mount the hex socket screw with the spring washer and the set screw. Tighten them diagonally.
3. After all of the screws are fastened, lock the hex socket screw and the set screw, one by one using torque wrenches. **NOTE**: The recommended torque for the hex socket screw is 15 – 18 ft-lbs/20 – 25 N•m, and the recommended torque for the set screw is 7 – 11 ft-lbs/10 – 15 N•m.
4. Repeat each check 3 – 4 times, until each screw is locked at the specified torque.

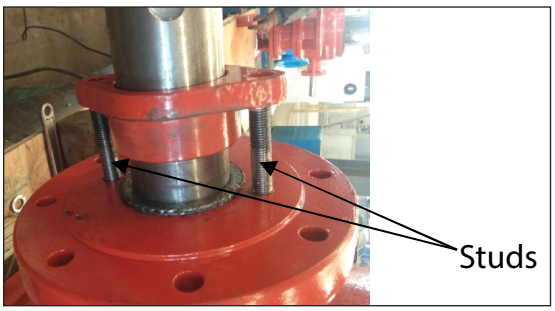
Adding the Packing

Usage of the butterfly valve will cause the packing to wear and result in leakage. When this occurs, it will be necessary to add more packing.



Using the applicable wrenches, knives, and packing, complete the following steps:

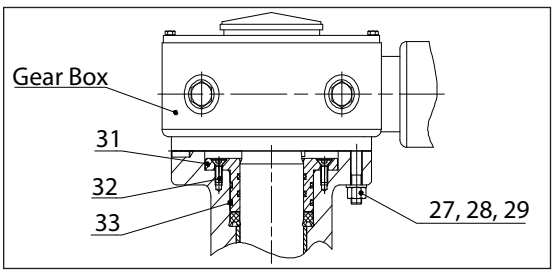
1. Unscrew the Gland Nut and lift the Packing Gland. (Do not remove.)
2. Cut off the packing at a 180° symmetry, (where the cut angle is 45°) and place in the countersink hole. Repeat as necessary. **NOTE**: The incision position of two packing components shall be displaced at 90°. Press the packing gland until the packing and body top flange surface is basically flush.



3. Mount the Gland Nut on the stud and tighten both sides symmetrically and gradually to ensure uniform pressure on the packing ring. Refer to the photo on the left.

Replacing the O-ring

Complete the following steps. Refer to the numbered drawing below as a guide.



1. Loosen the fasteners (27, 28, 29) and remove the gear box.
2. Remove the screw (32) with the wrench and take out the Sealing Bushing (31).
3. Remove the damaged O-ring (33) from the Sealing Bushing (31) and install the new O-ring.
4. Reinstall the Sealing Bushing (31).
5. Tighten the screws (32).
6. Reinstall the gear box and tighten the fasteners (27, 28, 29).

Replacing the Disc Seal Ring

Complete the following steps:

1. Fully open the valve.
2. Remove the Hex Socket Screw (18) with the wrench, and remove the Set Screw (36). Refer to the "Valve Construction" section.

3. Remove the Seal Ring Retainer (19) from the disc, then remove the Disc Seal Ring (20).

4. Replace the Disc Seal Ring (20) with a new one.
NOTE: The side with the mark "EPDM" shall be mounted facing upwards.

5. Set the Disc (8) to an inclined position and reinstall Seal Ring Retainer (19).

6. Align the Seal Ring Retainer (19) with the bolt holes of the Disc Seal Ring (19), then screw in the Hex Socket Screw (18) and Set Screw (36) to secure it.
7. Tighten the Seal Ring Retainer Screws. Refer to the steps in the “Lock the Seal Ring Retainer Screw” section for instructions.
8. After replacing the Disc Seal Ring, always perform a seat test on the valve at 1.1x rated pressure.
   For 14” – 20”/DN350 – DN500 sizes, perform the test for 5 minutes, both sides.
   For 24”/DN600 and larger sizes, perform the test for 10 minutes, both sides.

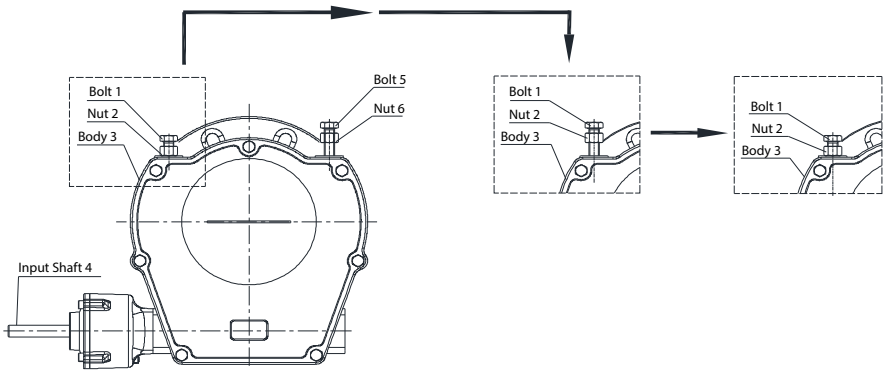
GEAR BOX MAINTENANCE

Adjust the limit bolt when the valve is fully open and closed.

Adjusting the Limit Bolt When the Valve is Closed

Complete the following steps. Refer to the numbered drawing below as a guide.

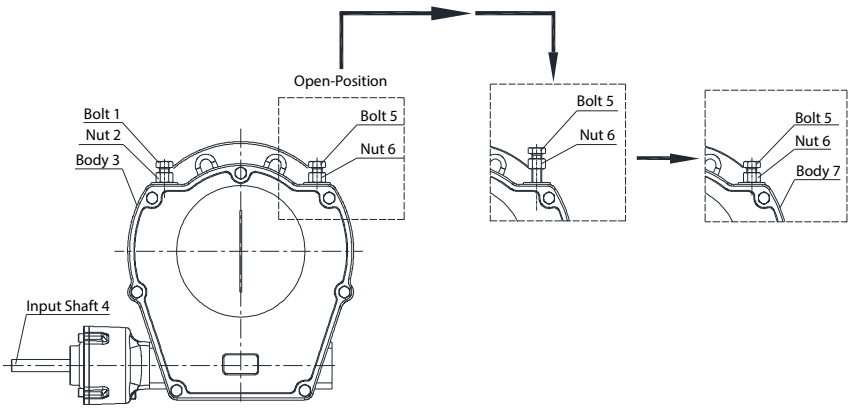
1. Using a wrench, loosen Nut 2 and remove Bolt 1 from Body 3.
2. Keep the disc in the closed position by turning the Input Shaft 4 clockwise.
3. Turn the Bolt 1 with a wrench to engage with the Body 3 and tighten. (As a result of this action, Input Shaft 4 cannot be rotated clockwise.)
4. Using a wrench, turn Nut 2 to engage with Body 3, then lock it.



Adjusting the Limit Bolt When the Valve is Opened

Complete the following steps. Refer to the numbered drawing below as a guide.

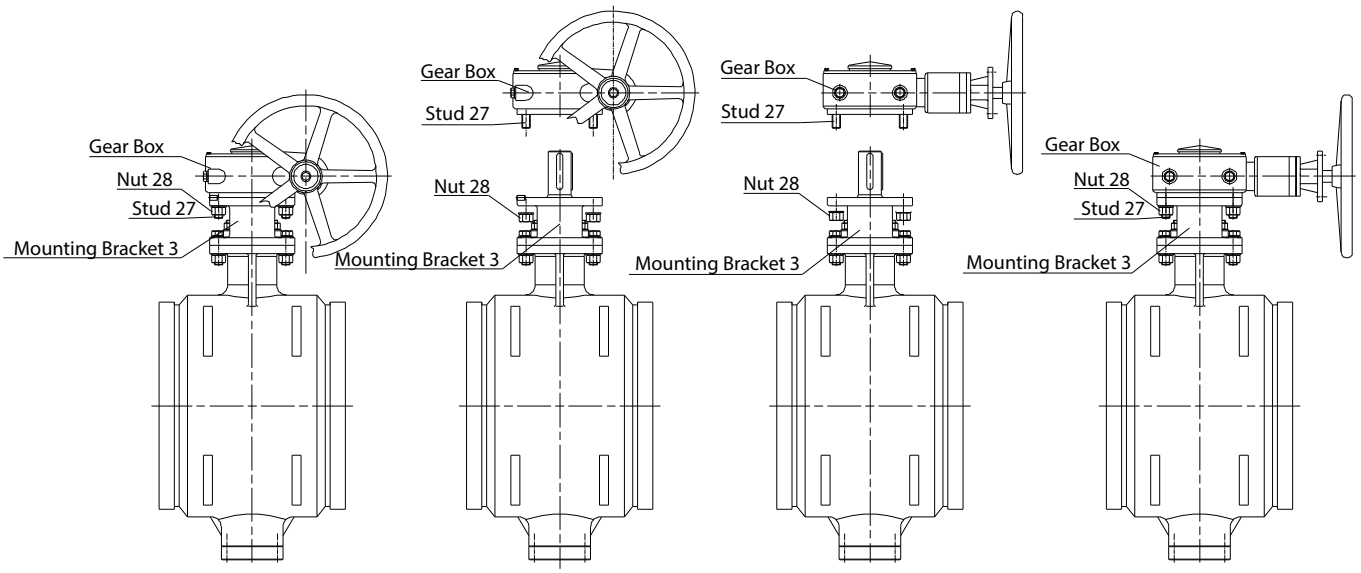
1. Using a wrench, loosen Nut 6 and remove Bolt 5 from Body 7.
2. Keep the disc in the fully opened position by rotating the Input Shaft 4 counterclockwise.
3. Turn Bolt 5 with a wrench to engage with Body (7) and tighten. (As a result of this action, the Input Shaft 4 cannot be rotated counterclockwise.)
4. Using a wrench, turn Nut 6 to engage Body 3 and lock it.



Rotating the Gear Box 90°/180°

Complete the following steps. Refer to the illustration below.

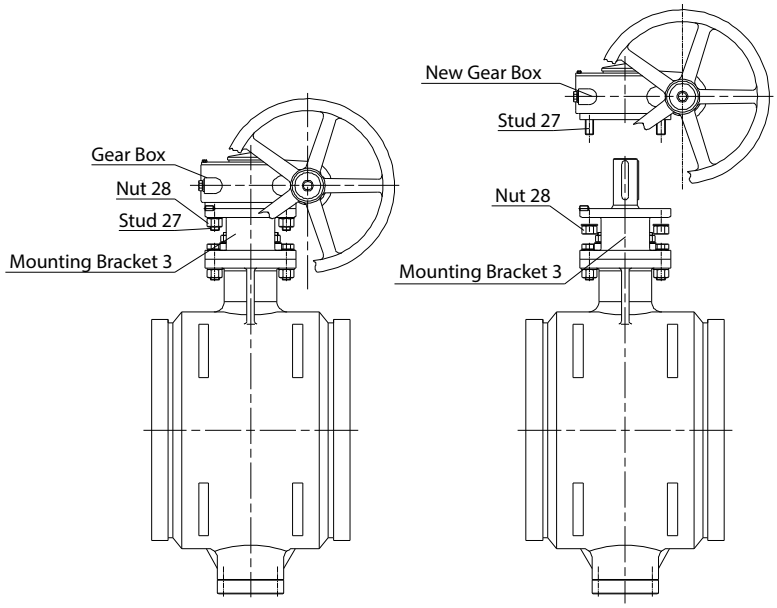
1. Using a wrench, loosen Nut (28) and remove it.
2. Remove the Gear Box from the Mounting Bracket (3).
3. Rotate the Gear Box to 90°/180° along valve stem axis.
4. Install the Gear Box and Stud (27) downward on the Mounting Bracket (3).
5. Tighten Nut (28). Verify that the Mounting Bracket (3) and Gear Box are securely installed.



Replacing a Gear Box

Complete the following steps. Refer to the illustration below.

1. Operate the Gear Box and position it to the fully closed/fully open state. (The valve disc shall be in the vertical/horizontal channel position.)
2. Using a wrench, loosen Nut (28) and remove it.
3. Remove the Gear Box from the Mounting Bracket (3).
4. Operate the handwheel of New Gear Box and turn it to the fully closed/fully open state (the same position as described in step 1).
5. Install the New Gear Box and Stud (27) downward on Mounting Bracket (3).
6. Tighten Nut (28). Verify that Mounting Bracket (3) and New Gear Box are securely installed.
7. Open and close the valve disc once and readjust the gear box limit bolt. Refer to “Adjustment of the Limit Bolt When the Valve is Closed” section and “Adjustment of the Limit Bolt When the Valve is Opened” sections.



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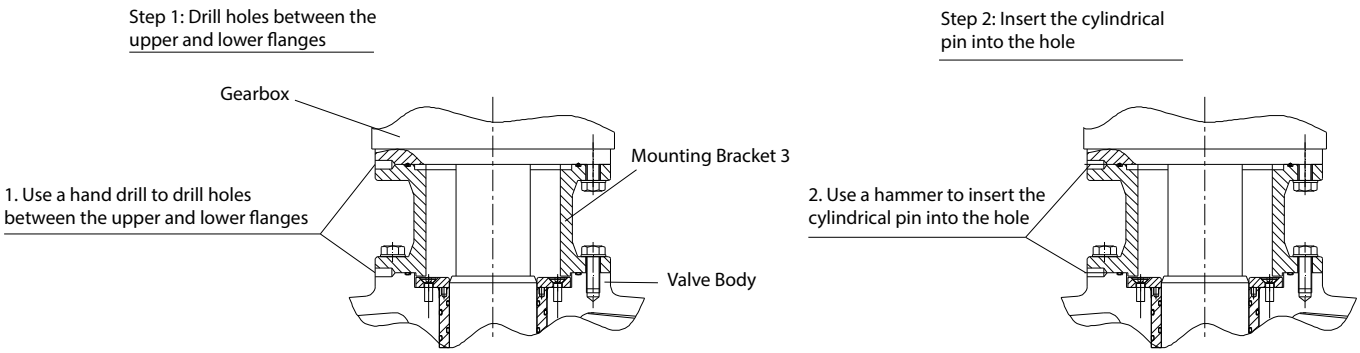
8. Install the pins. Refer to the diagram below.



Greasing the Gear Box

Follow the steps in the diagram below.