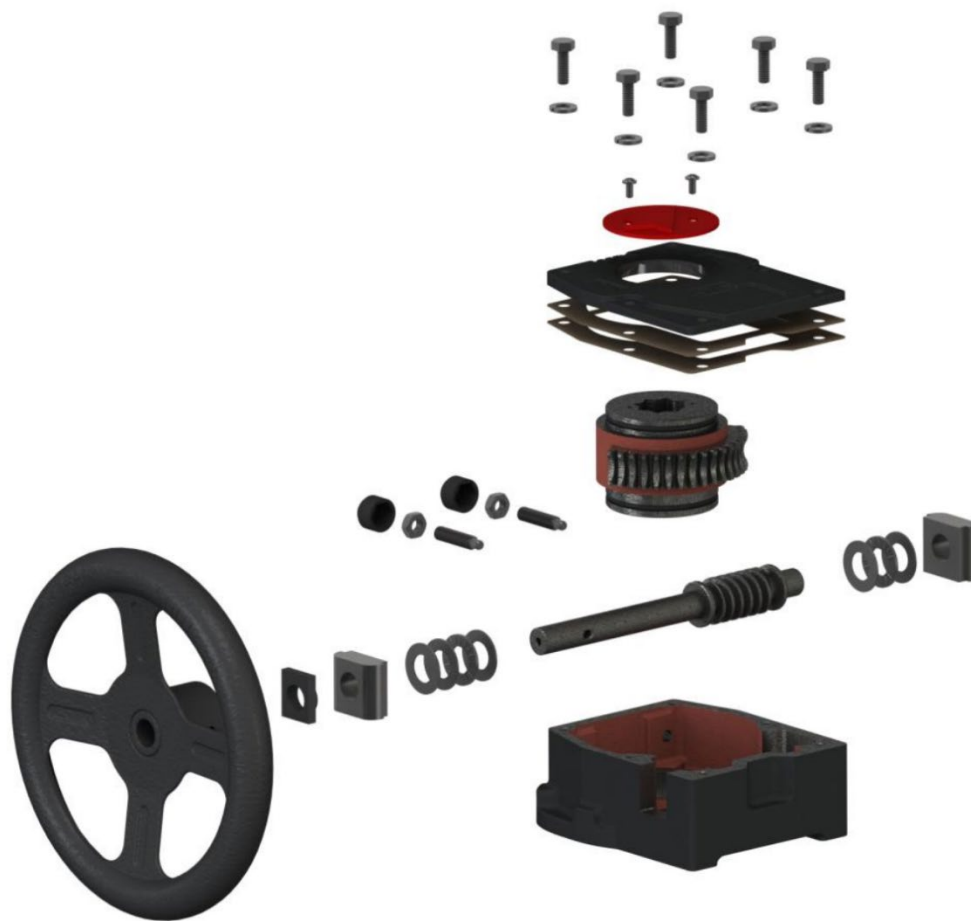




GO SERIES
QUARTER-TURN GEAR OPERATOR
Installation, Operation, and Maintenance Instructions



INSTALLATION

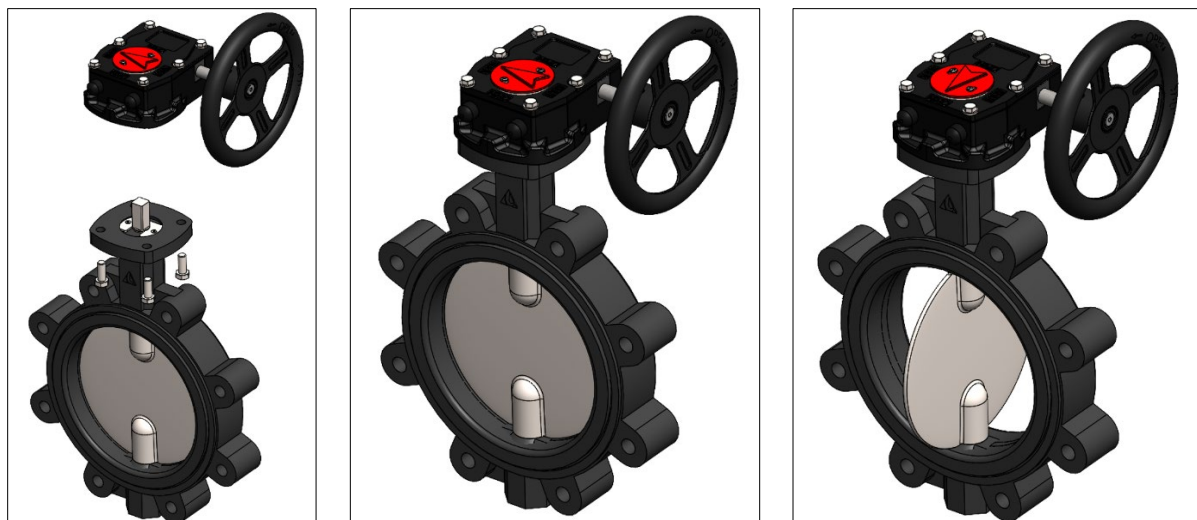
First, identify the required fasteners needed to mount the gear operator, see Table 1 for reference. Bolts or studs with nuts may be used, with length varying depending on thickness of the valve flange (if mounting directly) or intermediate bracket.

Table 1. Fastener Reference Table

Gear Operator	ISO Pattern 1			ISO Pattern 2		
	ISO	Fastener Qty	Metric Coarse Thread x Depth	ISO	Fastener Qty	Metric Coarse Thread x Depth
GO-01-ISO	F05	4	M6 x 10mm	F07	4	M8 x 14mm
GO-02-ISO	F07	4	M8 x 16mm	-	-	-
GO-03-ISO	F07	4	M8 x 17mm	F10	4	M10 x 17mm
GO-04A-ISO	F10	4	M10 x 25mm	F14	4	M16 x 20mm
GO-04B-ISO	F12	4	M12 x 22mm	-	-	-
GO-05A-ISO	F12	4	M12 x 27mm	F16	4	M20 x 23mm
GO-05B-ISO	F14	4	M16 x 25mm	-	-	-
GO-06A-ISO	F16	4	M20 x 25mm	-	-	-
GO-06B-ISO	F14	4	M16 x 25mm	-	-	-
GO-07-ISO	F16	4	M20 x 25mm	F25	8	M16 x 22mm

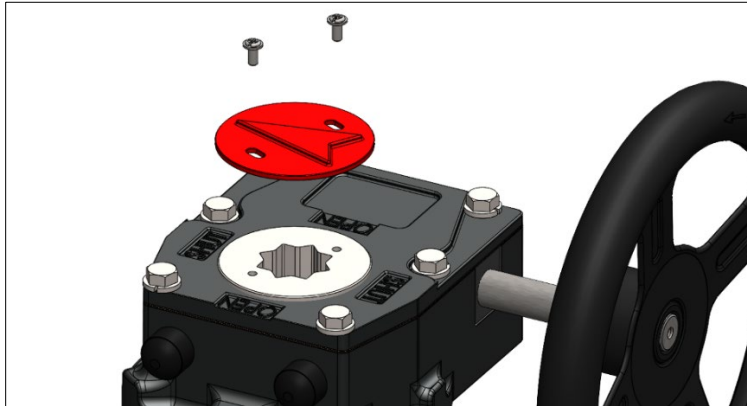
Begin mounting by placing the valve and gear operator in the same position: open or closed. Note that the indicator plate correctly denotes the valve position (see Figure 1).

Figure 1. Gear operator and valve mounted together in closed position, with arrow pointing to “Shut” (left and center), and indicator rotating with valve in the open position (right). Note that the indicator arrow should be parallel to the piping in the open position and should point to “Open”.



If needed, reposition the indicator plate by removing the two screws holding it in place and turning the other direction as needed (see Figure 2).

Figure 2. Indicator cover removal / replacement



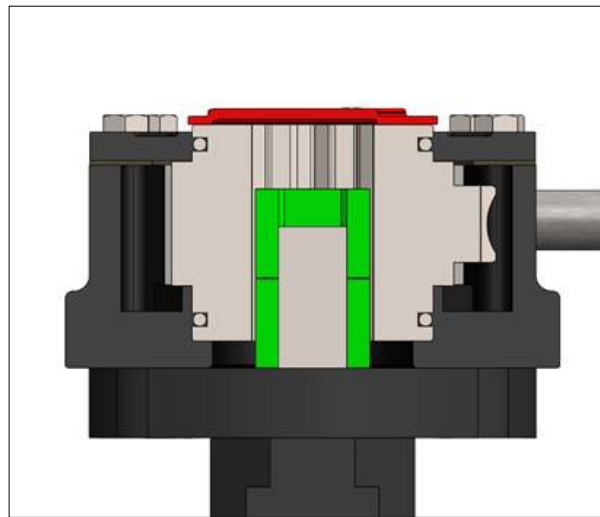
Verify the stem of the valve is properly sized to the drive of the gear operator – the stem and drive interface should fit snugly together (please see Table 2 for gear operator DSQ “Double Square” drive sizes). If not, use the appropriate sleeve adapter, if applicable, or a bracket and coupling to achieve this.

*Note: Sleeve adapters may be used for direct mount valves to make up stem dimensional differences, see below Figure 3 and Figure 4.

Fig 3. Sleeve adapters assembly.



Fig 4. Sleeve adapters internal cut-away



*****CAUTION***** Sleeve adapters should only be used for valves with a minimum stem height of 30mm, and care should be taken to include the appropriate number of adapters. Please see Table 2 for minimum valve stem and sleeve adapter requirements by gear operator size. If these requirements cannot be met, a bracket and coupling must be used.

Table 2. Sleeve Adapter Requirements

Gear Operator	Gear DSQ Drive (mm)	Minimum Valve Stem Height (mm)	Minimum Adapter Height (mm)	Adapter Qty
GO-01-ISO	11.0	30.0	11.0	4
GO-02-ISO	17.0	30.0	21.0	2
GO-03-ISO	22.0	30.0	21.0	2
GO-04A-ISO	27.0	30.0	27.0	2
GO-04B-ISO	27.0	30.0	27.0	2
GO-05A-ISO	46.0	30.0	46.0	1
GO-05B-ISO	46.0	30.0	46.0	1
GO-06A-ISO	46.0	30.0	46.0	2
GO-06B-ISO	46.0	30.0	46.0	2
GO-07-ISO	46.0	30.0	46.0	2

*****CAUTION***** If sleeve adapter and stem requirements are not met per Table 2, potential risk of disengagement of the valve stem and gear operator could occur. Figure 5 shows proper requirements met, preventing disengagement. Figure 6 shows disengagement due to too few adapters, figure 7 shows too short of a valve stem.

Fig 5. Proper set up.

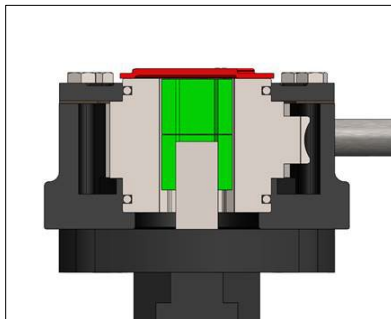


Fig 6. Too few adapters

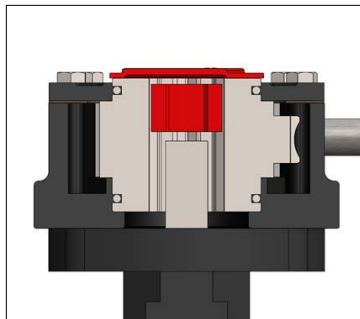
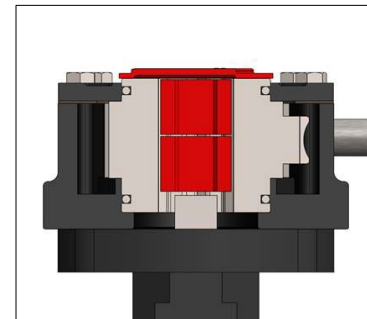


Fig 7. Too short stem



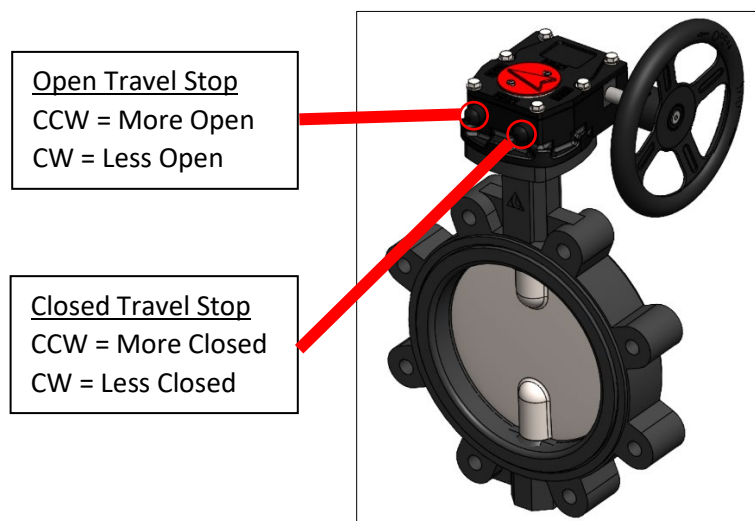
After verifying the proper fit of the gear to the valve, carefully lower the gear operator over the stem until it lies flat on the mounting flange. Install the bolts in a “star” pattern and tighten them down evenly. Verify the valve and gear operator are securely assembled.

CALIBRATION

The travel stops of the gear operator can be used to control the degree of travel (see Figure 8). The left travel stop, furthest from the handwheel, is used to control the normally open or full counterclockwise (CCW) position. The right travel stop, closest to the handwheel, is used to control the normally closed or full clockwise (CW) position. To adjust either travel stop:

1. Remove the rubber travel stop cover
2. Loosen the hex nut
3. Loosen the set screw
4. Use the handwheel to rotate the gear operator to the desired position
5. Screw in the set screw unit resistance is felt
6. Tighten the hex nut while holding the set screw in position
7. Replace the rubber travel stop cover

Figure 8. Travel stops.



OPERATION

To open the valve, rotate the handwheel counterclockwise (CCW) until the indicator points to “OPEN” and/or the travel stops have been reached. Likewise, to close the valve, rotate the handwheel clockwise (CW) until the indicator points to “SHUT” and/or the travel stops have been reached.

MAINTENANCE

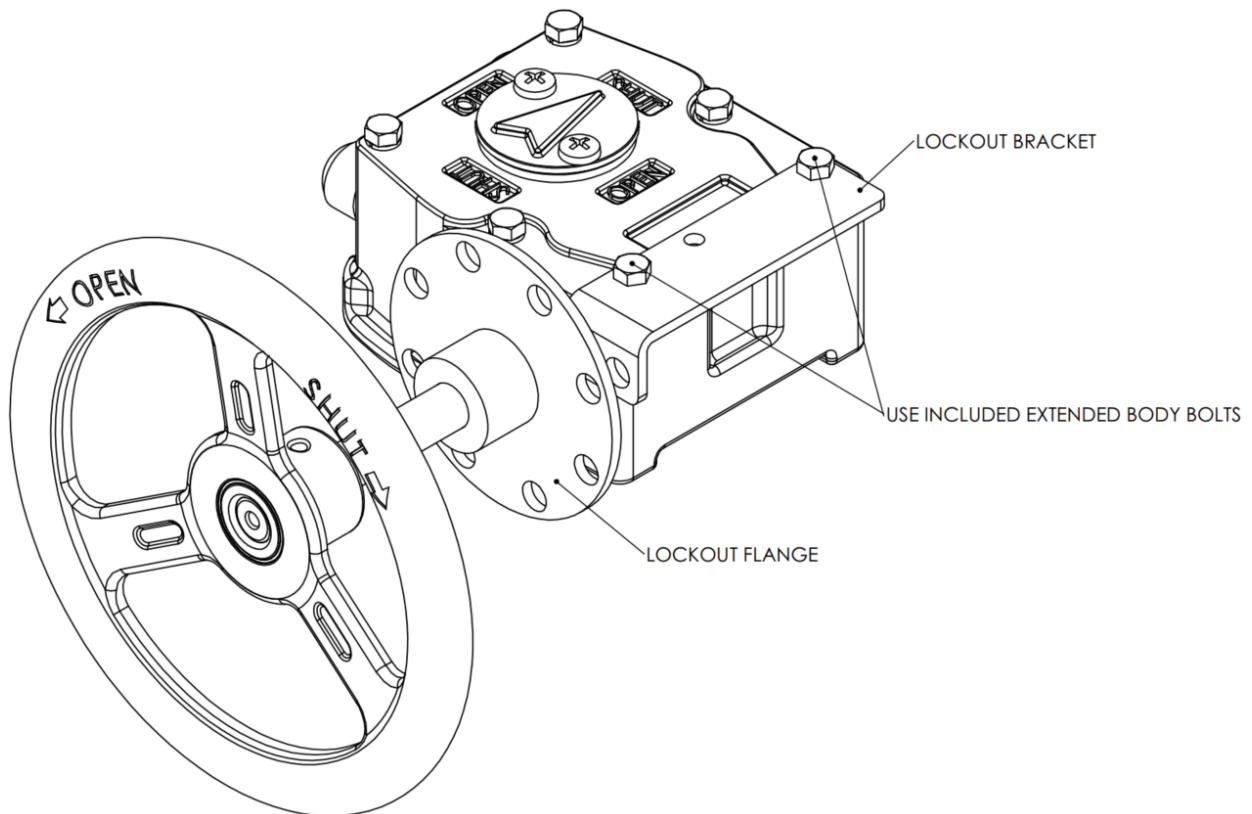
Perform occasional inspections of the gear operator every two to three weeks if possible. Ensure the unit is free of significant dirt, debris, and/or liquid exposure to maximize the cycle life and performance of the gear operator.

LOCKOUT KIT INSTALLATION (Optional)

Gear operator lockout can be achieved with an additional lockout kit. To install and utilize the lockout kit, refer to Fig. 6 and follow these installation steps:

1. Remove the two body bolts near the gear operator name plate.
2. Attach the lockout bracket to the gear operator using the two extended body bolts. (*Note: If desired, tamper proof bolts can be used in place of standard body bolts, please call for details.)
3. Slide the lockout flange onto the gear shaft, line up a hole from the lockout flange with the lockout bracket and tighten the set screw. (*Note: Handwheel must be removed from gear shaft to install lockout flange!)
4. To lockout, turn gear operator to desired lockout position and align with the closest lockout flange hole. Install lock through both the flange and bracket.

Figure 6. Lockout kit installed.

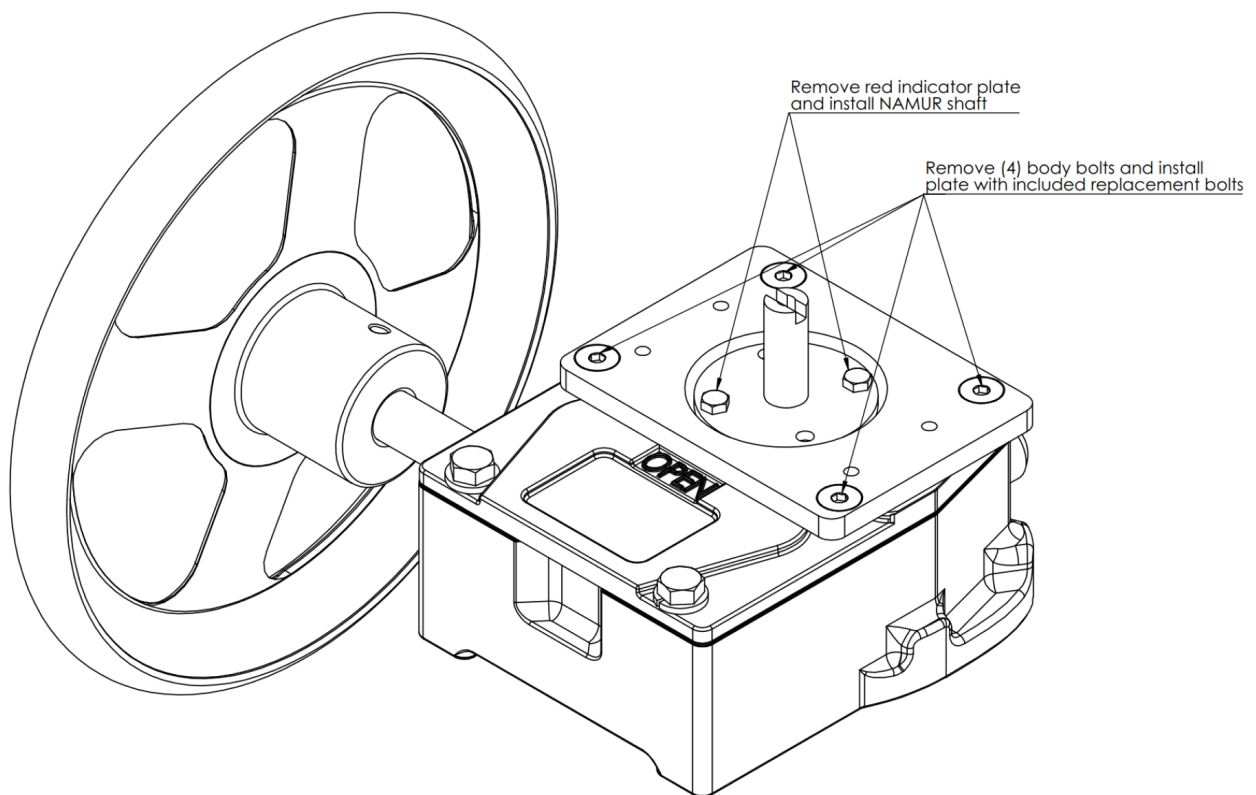


LIMIT SWITCH KIT INSTALLATION (Optional)

Limit switch mounting can be achieved with an additional kit. To install and utilize the limit switch kit, refer to Fig. 7 & 8 and follow these installation steps:

1. Remove the red indicator plate.
2. Install the NAMUR shaft in the correct orientation with respect to the valve, gear, and limit switch shaft positions (Fig. 2).
3. Remove the four body bolts surrounding the NAMUR shaft.
4. Install the mounting plate using the included replacement bolts (Fig. 1).
5. Install the limit switch using the NAMUR mounting holes and shaft (Fig. 2).

Figure 7. Limit switch mounting kit installed, before limit switch mounted.



(...Figure 8 on next page)

Figure 8. Limit switch mounted to limit switch mounting kit.

