

IOM FOR DYNATORQUE™ MULTI-TURN BEVEL GEAR (BG TYPE)**Scope:**

It is the purpose of this document to provide general installation, operation, storage, and maintenance instructions for DYNATORQUE™ manual multi-turn bevel gear operator.

Installation Tips:

All Cameron DYNATORQUE operators & accessories have been designed to transmit the rated output torque of the operator. When designing mounting kits, torque transmission devices, or specifying mounting hardware the operator rating should be considered. Cameron recommends using grade 5 and higher bolts with lock washers for mounting DYNATORQUE devices to valve actuators, valve mounting flanges and/or valve adaptation kits. DYNATORQUE components should not be installed in areas where those components will be subjected to high temperatures, corrosive atmospheres, or high pressures without prior knowledge by Cameron or unless originally designed for that purpose. Doing so may affect the product warranty.

Installation:

Before assembly has begun please ensure that the output bore and mounting bolt patterns have been machined correctly. The following steps should be taken to install the DYNATORQUE BG manual multi-turn operator. Cameron recommends mounting the operator while on the test stand with the valve in the closed position.

Yoke Nut Driver Installation:

1. Move the valve to the closed position and ensure valve seal has been attained.
2. Install the Yoke Nut Driver on the bottom of the bevel gear using the bolt pattern supplied.
3. Before installing the operator, liberally grease the Yoke Nut and the Yoke Nut Driver. This will reduce the possibility of corrosion between the two components.
4. Align the operator with the Yoke Nut and lower the operator into position on the valve flange or mounting kit.
5. Install and tighten the valve to operator with mounting bolts.
6. Rotate the operator handwheel counterclockwise moving the valve from the closed to the open position checking to make sure the operator turns smoothly through the complete cycle. Visually verify that the open position has been achieved.
7. Rotate the valve from closed to open several times to ensure proper operation.

Threaded Stem Nut Installation:

1. Move the valve to the closed position and ensure valve seal has been attained.
2. Install the Threaded Stem Nut on the bottom of the bevel gear using the bolt pattern supplied.
3. Before installing the operator, liberally grease the Valve Stem and the Threaded Stem Nut. This will reduce the possibility of corrosion between the two components.
4. Position the Stem Nut's threaded hole over the valve stem. As you lower the operator, turn the input shaft. This rotation should engage the male with the female threads in the nut. Continue to rotate the input shaft until the unit comes into contact with the mounting adapter or valve operator-mounting flange.
5. Align the mounting holes by rotating the operator while allowing the input shaft to rotate freely. (If the operator-input shaft is held the valve position may move off the seat.)
6. Install and tighten the valve to operator with mounting bolts.

IOM FOR DYNATORQUE™ MULTI-TURN BEVEL GEAR (BG TYPE)

7. Rotate the operator handwheel counterclockwise moving the valve from the closed to the open position checking to make sure the operator turns smoothly through the complete cycle. Visually verify that the open position has been achieved.
8. Rotate the valve from closed to open several times to insure proper operation.

Safety:

The use of handwheels larger than recommended by the factory, cheater bars, etc. will void the override warranty and may cause damage to the operator, valve stem, drive shafts, or other torque transmitting devices as well as being dangerous to the user. Additionally, the use of chainwheels on operators that are not recommended for those applications will result in voiding operator warranty.

Operation:

Once the valve assembly has been installed, operation of the multi-turn manual gear operator is very simple. Assuming a clockwise to close valve application, rotating the handwheel clockwise will result in clockwise output rotation or clockwise to close. Reversing rotation of the handwheel, counterclockwise, will result in counterclockwise rotation of the output or counterclockwise to open.

Maintenance:

- A. Storage: For best results, DYNATORQUE operators should be stored in a clean, dry area in their original factory shipping containers. If operators are stored in high humidity areas, steps should be taken to reduce the amount of moisture the units will be exposed to. Operator input shafts are plated or stainless steel to prevent corrosion. If operators are being stored for a long period of time, operator mounting surfaces should be lightly greased to prevent corrosion.
- B. Maintenance: DYNATORQUE manual operators do not require periodic maintenance. They are, for most applications, lubricated for life, with all components designed to have a life equal to or exceeding the wear life of the operator gearing.
- C. Lubrication: If for any reason, lubrication replacement is necessary, Cameron recommends replacement of that lubrication with:

DYNATORQUE Standard Grease Specification:- Alpha Green 2000

NLGI Grade: Grade 2 EP
Grease Base: Calcium Sulfonate
Color: Green
Anti-Wear EP Additives: Yes
Dropping Point: ASM D566 572Deg F(300Deg C)
4 Ball Wear KG Load ASTM 2596: 500
Timken OK Load Lbs. ASTM 2509: 65
Oil Separation, ASTM D1742-24Hous@77 deg F (25 Deg C)
Base Oil Viscosity SUS @100 Deg F 600
Base Oil Viscosity SUS @210 Deg F 70
Pour Point +5 Deg F

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- D. Spare Parts: Cameron warrants work performed by the factory or by factory trained personnel only. Please consult the factory or your local DYNATORQUE representative to arrange assistance. Cameron modifies a great percentage of its DYNATORQUE operators to meet specific customer requirements. Please refer to the operator part list number as supplied on the shipping document, acknowledgement, or invoice, when ordering spare parts.
- E. Spare Parts: For your records, please enter the operator part number from your shipping documents, acknowledgement, or invoice here:

Part Number: _____

Date Stamp: _____ (Located on the bottom of the operator housing.)

Purchase / Sales Order Number: _____

Please Note:

When assembling Cameron DYNATORQUE products to a valve or to an automated valve package, standard engineering practices must be utilized to assure proper mounting orientation, configuration, and distribution of weights and forces. Failure to do so could cause product damage and/or malfunction, **and void warranty consideration**. If there are any questions please contact the factory at info-dyt@c-a-m.com.