

TORQ/GARD™ Overload Clutches



3 x M HOLES
EQUALLY SPACED

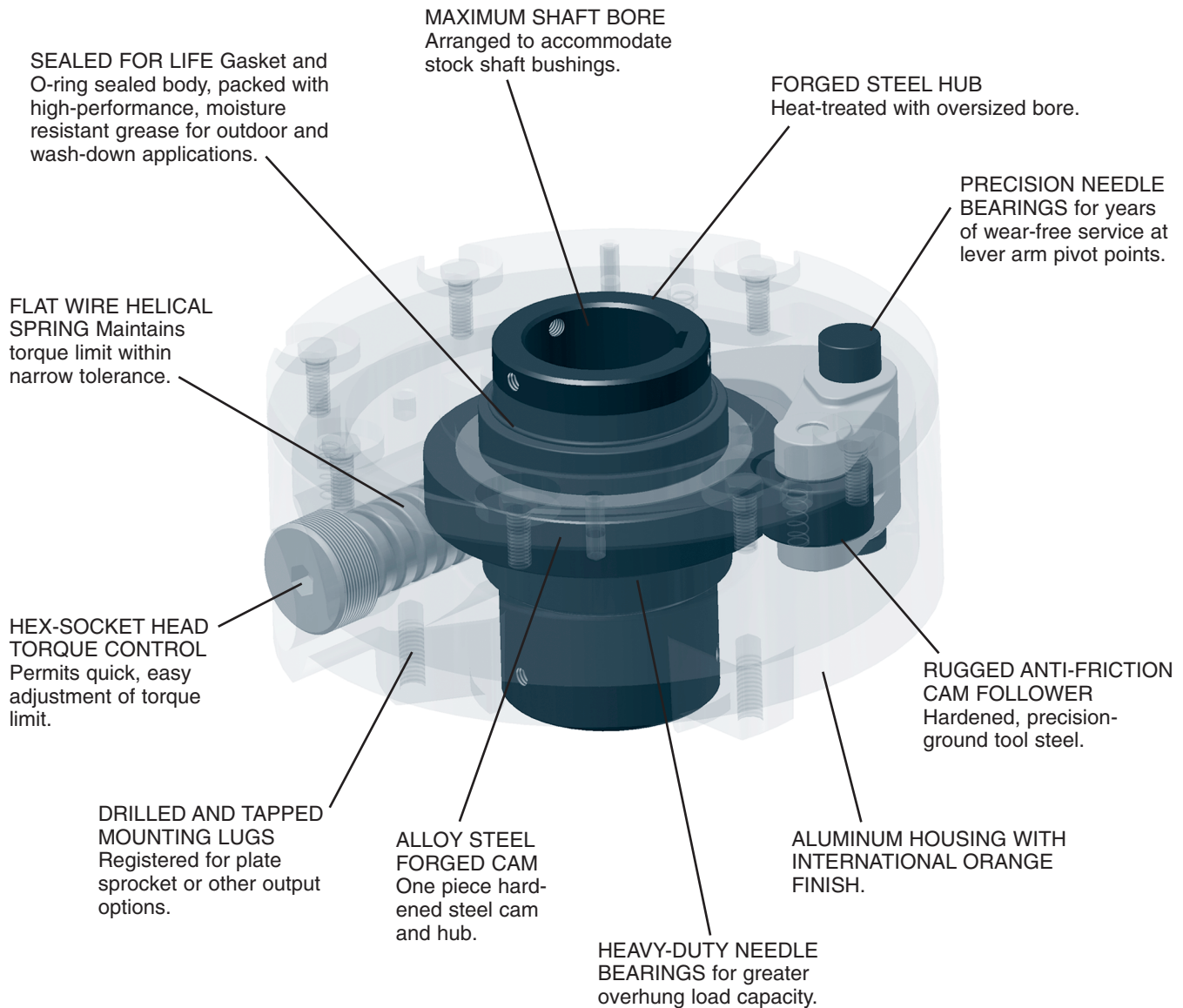
C DETECTOR
TRAVEL @ OVERLOAD

Features

IMC's Torq/Gard overload clutches help protect the entire drive train of your machinery from damage due to excessive torque generated by overloads and jamming. Instant reaction when torque exceeds preset limits provides protection far superior to that of clutches employing friction surfaces. Torq/Gard features include:

- ◆ Modular Design: one unit for direct drive, chain drive or other power transmission options
- ◆ Universal Mounting: eliminates special bore requirements
- ◆ Single Position, Automatic Reset
- ◆ Reversible
- ◆ Torque Repeatability

Torq/Gard™ Features



Torq/Gard™ Sizing and Selection

Torq/Gard overload clutches are available in seven sizes with capacities trip torques from 13 in-lbs to 8000 in-lbs.

Torq/Gard Clutches may be sized using the Speed-Horsepower Chart, the Speed-Torque Chart and these formulas:

$$\text{Torque (in-lb)} = \text{Horsepower (hp)} \times 63025 / \text{RPM}$$

$$\text{Horsepower (hp)} = \text{Torque (in-lbs)} \times \text{RPM} / 63025$$

$$\text{Tripping Torque (in-lbs)} = \text{Operating Torque} \times \text{Service Factor}$$

SPEED/HORSEPOWER CHART

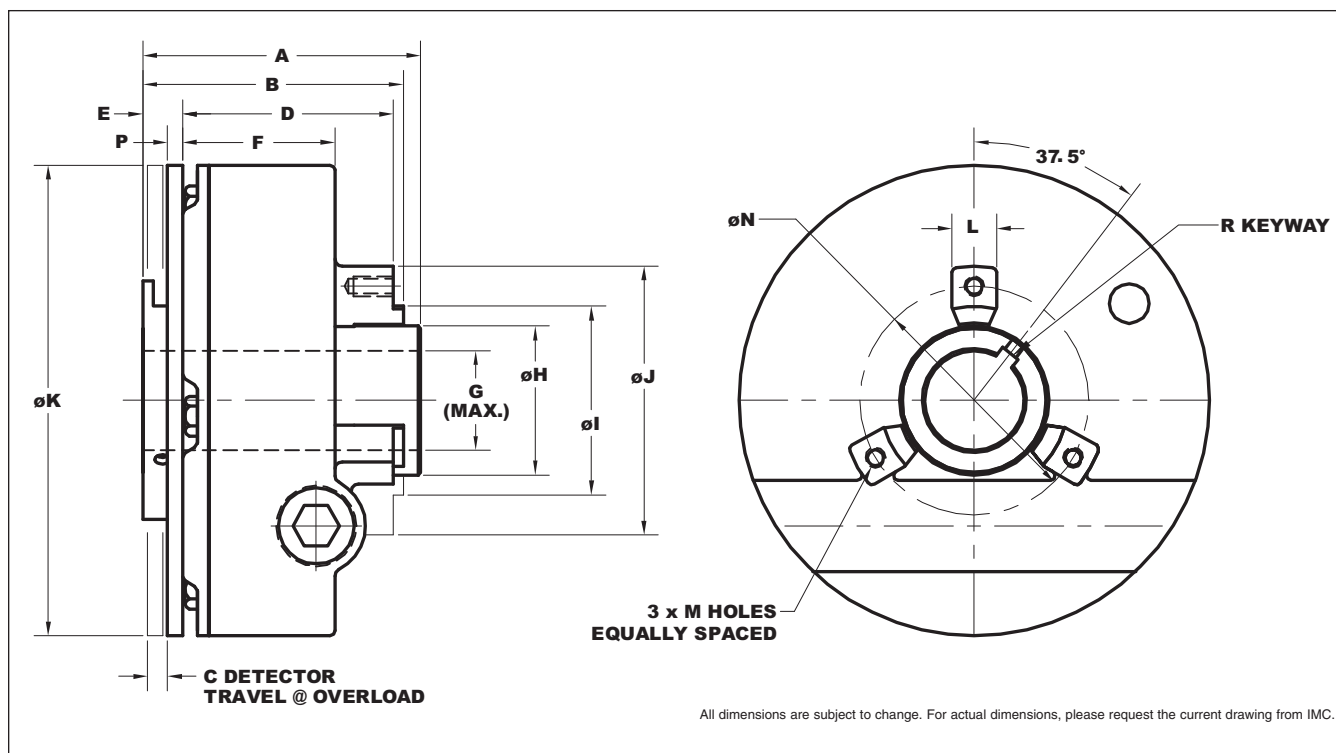
| RPM | HORSEPOWER | | | | | | | | | | | | | |
|-----|------------|-----|-----|---|-----|---|---|---|-----|----|----|----|----|----|
| | 1/4 | 1/2 | 3/4 | 1 | 1.5 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 30 | 40 |
| 20 | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | |
| 200 | | | | | | | | | | | | | | |
| 300 | | | | | | | | | | | | | | |
| 400 | | | | | | | | | | | | | | |
| 500 | | | | | | | | | | | | | | |
| 600 | | | | | | | | | | | | | | |
| 700 | | | | | | | | | | | | | | |
| 800 | | | | | | | | | | | | | | |
| 900 | | | | | | | | | | | | | | |

| RPM | HORSEPOWER | | | | | | | | | | | | | |
|------|------------|------|------|------|------|-----|-----|-----|------|------|------|------|--|--|
| | .007 | .013 | .027 | .050 | .090 | .15 | .25 | .50 | 1.00 | 2.00 | 3.00 | 5.00 | | |
| 20 | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | |
| 200 | | | | | | | | | | | | | | |
| 300 | | | | | | | | | | | | | | |
| 400 | | | | | | | | | | | | | | |
| 500 | | | | | | | | | | | | | | |
| 600 | | | | | | | | | | | | | | |
| 700 | | | | | | | | | | | | | | |
| 800 | | | | | | | | | | | | | | |
| 900 | | | | | | | | | | | | | | |
| 1000 | | | | | | | | | | | | | | |
| 1200 | | | | | | | | | | | | | | |
| 1400 | | | | | | | | | | | | | | |
| 1600 | | | | | | | | | | | | | | |
| 1800 | | | | | | | | | | | | | | |

SPEED/TORQUE CHART

| Model | Trip Torque (in-lbs) | | HP Max | RPM Max | Weight (lbs) | Inertia (lb-in ²) | Maximum Bore Dia. (in) |
|-------|----------------------|------|--------|---------|--------------|-------------------------------|------------------------|
| | Min. | Max. | | | | | |
| TG3 | 13.3 | 32.7 | 1.5 | 1800 | 1.32 | 1.45 | 0.500 |
| TG6 | 23 | 56.6 | 2.5 | 1800 | 1.32 | 1.45 | 0.500 |
| TG20 | 56.6 | 204 | 4 | 1500 | 2.42 | 5.72 | 0.787 |
| TG60 | 200 | 600 | 8.5 | 900 | 5.5 | 10 | 1 1/4 |
| TG200 | 600 | 2000 | 21.5 | 680 | 12 | 46 | 1 15/16 |
| TG400 | 2000 | 4000 | 22.2 | 350 | 38 | 455 | 2 7/16 |
| TG800 | 4000 | 8000 | 44.4 | 350 | 38 | 455 | 2 7/16 |

Torq/Gard™ Dimensions



TORQ/GARD DIMENSIONS

| Model | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | R |
|-------|------|------|------|------|------|------|-------|------|-------|------|-------|------|---------|-------|------|-------|
| TG3 | 2.36 | 2.31 | 0.16 | 1.89 | 0.27 | 1.62 | 0.500 | 0.87 | 1.187 | 1.97 | 3.15 | 0.32 | #8-32 | 1.575 | 0.12 | 0.125 |
| TG6 | 2.36 | 2.31 | 0.16 | 1.89 | 0.27 | 1.62 | 0.500 | 0.87 | 1.187 | 1.97 | 3.15 | 0.32 | #8-32 | 1.575 | 0.12 | 0.125 |
| TG20 | 2.76 | 2.72 | 0.16 | 2.24 | 0.36 | 1.94 | 0.787 | 1.18 | 1.563 | 2.36 | 3.94 | 0.39 | #10-24 | 1.965 | 0.12 | 0.188 |
| TG60 | 3.50 | 3.28 | 0.25 | 2.67 | 0.49 | 1.97 | 1.250 | 1.88 | 2.375 | 3.38 | 5.25 | 0.56 | .250-20 | 2.875 | 0.19 | 0.250 |
| TG200 | 4.31 | 4.04 | 0.25 | 3.36 | 0.56 | 2.80 | 1.938 | 2.75 | 3.250 | 5.00 | 7.00 | 0.75 | .375-16 | 4.500 | 0.19 | 0.500 |
| TG400 | 6.19 | 6.14 | 0.31 | 5.17 | 0.62 | 3.80 | 2.438 | 3.50 | 4.500 | 7.50 | 10.75 | 1.12 | .500-13 | 6.500 | 0.19 | 0.625 |
| TG800 | 6.19 | 6.14 | 0.31 | 5.17 | 0.62 | 3.80 | 2.438 | 3.50 | 4.500 | 7.50 | 10.75 | 1.12 | .500-13 | 6.500 | 0.19 | 0.625 |

Torq/Gard™ Application Considerations

The Torq/Gard should be used on the low speed side of a speed reducer in several ways:

- ◆ **Direct Drive:** The Torq/Gard can be mounting on the speed reducer output (low speed) shaft and directly connected to the driven machine using a Browning Ever-Flex half coupling and the Universal Adapter Plate.
- ◆ **Chain Drive – Mounted on Speed Reducer Output:** Mounting the Torq/Gard on the output of the gear motor or speed reducer with a roller chain connection to the driven machine provides the most economical clutch assembly. The Torq/Gard is designed to protect the weakest link in the drive system.

- ◆ **Chain Drive – Mounted on Driven Machine:** Mounting the Torq/Gard on the driven machine and powered through a chain and sprocket drive tends to absorb peak starting torques.
- ◆ **The Torq/Gard should never be used on the high speed side of a reducer.** Clutch sensitivity becomes a function of the reducer's gear ratio. As an example, when used with a 100:1 reducer, a 100 in-lb torque variation on the output side of the reducer will reflect only a 1 in-lb change on the input side. Do not exceed the maximum RPM shown in the Torq/Gard selection tables.