With expertise, and a comprehensive portfolio of products and life-cycle services, we help value-minded industrial customers improve their energy efficiency and productivity.
The Dodge Torque-Arm II shaft mounted speed reducer is a heavy-duty belt driven solution that delivers industry leading performance in the most demanding applications. This is a rugged, cast-iron reducer that is engineered for reliability, and features patented innovations that provide maximum uptime with less maintenance.

This reducer features the patented Dodge twin-tapered bushing system that not only makes installation and removal easy, but also provides a sturdy, concentric grip of the driven shaft on both sides of the reducer. This unique system eliminates the wobble and fretting corrosion associated with straight bore and single bushed reducers. Available in full length and short shaft systems, both guarantee maximum torque transmission.

In addition, Dodge Torque-Arm II reducers have a patented sealing system that uses a premium oil seal that is protected by a metal excluder seal with rubbing lip. This sealing system makes this reducer a perfect fit for today’s harsh-duty industries such as aggregates, cement, grain, food, mining and metals, power generation, and wastewater.

Dodge Torque-Arm II reducers are available in 12 case sizes through 300 kW (400 hp) with unparalleled torque-ratings and an expanded ratio range to 40:1.

**Torque-Arm II is the only USA shaft mount reducer that is ATEX certified**

- ATEX is a European Union ATmosphere EXplosive Directive
- Insures products are safe to operate in a hazardous environment
- I M2: Group 1 Category 2, safe in mining applications where dust is likely to occur
- II 2 GD c T4: Group II Category 2, safe for gas or dust environment surface temperature of reducer not to exceed T4=135°C (275°F)
- Tamb: Ambient temperature between -30°C to +50°C
Dodge Torque-Arm II
Gear reducers for all your industry needs

Design/Construction features and benefits
1. Dodge Torque-Arm II offers two types of mounting systems:
   - Twin Tapered bushings for concentric grip and easy installation and removal
   - Straight bore style for maximum bore capacity

2. Torque-Arm II utilizes heavy duty tapered roller bearings throughout the gearbox where other designs use ball bearings.

3. Torque-Arm II is designed to the AGMA standard and provides a minimum average bearing life (L-50) of 25,000 hours at a 1.0 service factor. This is twice the bearing design life found in reducers that do not adhere to the AGMA design.

4. Heavy duty gear design ensures high efficiency and a 200% overload starting capacity at a 1.0 service factor.

5. Longer gear centers and greater gear tooth contact provide increased torque and power ratings.

6. A unique, dual sealing system on all shafts consists of a metal reinforced oil seal that is protected by an external metal shield and excluder lip seal.

7. Harsh duty oil seals have an operating temperature range of -40°C to +150°C (-40° F to 300°F). The TAII seals provide 6 times the wear resistance of standard nitrile seals and are compatible with both mineral and synthetic lubricants.

8. The 100% cast iron housing is equipped with 3 pry slots for easy access during repairs. The housing design eliminates bearing cap leak paths and maximizes surface area for greater heat dissipation.

9. A magnetic drain plug and filtered air breather are standard.

Product capabilities
- Twelve reducer sizes with modular accessories
- All reducers can be shaft mounted, screw conveyor, vertical and flange mounted
- Fractional through 300 kW (up to 400 Hp), and torque ratings through 31,500 Nm (267,000 lb-in)
- Standard 5, 9, 15, 25 and up to 40: 1 gear ratio.
- Nearly 300: 1 speed reduction with V belt drives
- Bushing bores 30 mm to 160 mm (1 in - 7 in)
- All highly efficient helical gearing design
- Meets or exceeds AGMA standards including 5,000 hour L-10 bearing life, 25,000 hour average life.
- Warranty protection for 36 months from date code or 18 months in service
- New premium harsh-duty oil sealing system and filter breather
Testing and development

It’s what makes the Torque-Arm II different and even better than the original Torque-Arm and all competition.

Using QFD techniques, Dodge began product development by asking our customers to tell us what they liked and/or disliked about our original Torque-Arm and other speed reducers on the market. From these comments, our engineering team developed specifications, which became the blueprint for the Torque-Arm II reducer’s state of the art design.

First and second generation prototypes were built in production quantities and tested in our own lab under full load conditions. All designs used for the prototypes were developed using our proprietary in-house development programs for gearing design, bearing selection, and shaft design. In addition, all reducers were modeled using Pro-E™ modeling software and analyzed using FEM techniques.

Every size and ratio for each generation prototype was subjected to rigorous mechanical, structural, and thermal testing, and all models were evaluated for design optimization, structural strength, stress and deflection. The prototypes were also used to perform manufacturing capability studies to verify that the design tolerances could be maintained under manufacturing conditions.

It was the knowledge gained from these tests that influenced our final design specifications. To ensure optimum performance, each size and ratio of the final design was also put through the same thorough, stringent design analysis and testing as the prototypes.

Modular concepts

Shaft mounted reducer with twin tapered bushing and motor mount

Screw conveyor drive with adapter, drive shaft and motor mount
Dodge Torque-Arm II
Shaft mount capabilities

Dodge Torque-Arm II product line

<table>
<thead>
<tr>
<th>Taper bushed reducer</th>
<th>Maximum bore with std shaft metric bushing (mm)</th>
<th>Maximum bore with short shaft metric bushing (mm)</th>
<th>Straight bore bushing size (mm)</th>
<th>Mech input power at 35 RPM output 40:1 kW</th>
<th>Mech input power at 55 RPM output 25:1 kW</th>
<th>Mech input power at 95 RPM output 15:1 kW</th>
<th>Inch standard shaft bushing available (inch)</th>
<th>Inch short shaft bushing available (inch)</th>
<th>Motor mount available</th>
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**Standard twin-tapered bushing system**
An easy on, easy off, no-wobble bushing system featuring a fully split, ductile iron 8° taper and reliable twin support. Available in inch and metric bores. Increased bore capability in many sizes.

**Short-shaft twin tapered bushing kits**
Eliminates the need for full length shafts. Constructed with ductile iron, it has all the features of our standard bushing system. Available in both inch and metric bores.

**Modular motor mount**
Height can be adjusted up or down depending on the center distance requirements. It can also be mounted on the side of the reducer for screw conveyor applications.

**Backstop option**
Prevents reverse rotation in elevated loads. Its centrifugal fold back design reduces wear. It operates with standard and EP lubricants and requires no external lubrication.

**Tie rod kit**
Standard brackets functions as a belt-tensioning device, and offers universal mounting options.

**CEMA bolt-on adapter**
Features double-lip seals on both surfaces. The adapter center is open for contaminate drop.

**Adjustable packaging adapter kit**
Bolts to the standard adapter and provides a proven harsh-duty sealing option for hostile environments.

**Screw conveyor drive shafts**
Made from high alloy steel and engineered to CEMA dimensions. They are three-bolt drilled and their tapered fit ensures simple installation and a mechanical shaft removal feature.

**Bolt-on belt guard package**
Requires no drilling or straps. It allows height adjustments, has a lift-off cover construction, and a perforated open metal inspection feature.

**Motorized Torque-Arm II**
The Motorized Torque-Arm II is a space saving, heavy-duty right angle beltless direct drive solution that can mount in multiple positions.

- Ratings from 1.5 kW - 75 kW (2 hp to 100 hp)
- Tapered roller bearings on all shafts
- Premium harsh duty lip seals with a metal excluder shield sealing system
- Features twin-tapered bushing shaft attachment
- Rugged, high efficiency, case carburized helical/bevel gearing
- Available as a shaft mount or motorized screw conveyor with adapter and drive shaft
- Standard IEC B5 flange adapter or NEMA C-face adapter

**Motorized Torque-Arm II is ATEX certified**
Motorized Torque-Arm has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 2 and M2 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.