

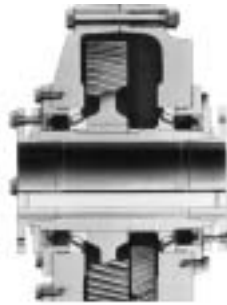


## TORQUE-ARM Shaft Mount Speed Reducers

### DODGE TORQUE-ARM TWIN TAPERED BUSHINGS MAKE DODGE TORQUE-ARM THE LEADER

DODGE Twin Tapered Bushings have provided customers over fifteen years of reliable and proven service. This exclusive feature revolutionized the shaft mount reducer concept and insured that TORQUE-ARM Speed Reducers would not seize to the customer's driven shaft. Another first from DODGE, the supplier of industry preferred quality speed reducers.

TORQUE-ARM Speed Reducers provide positive, easy-on, easy-off mounting for all reducer sizes from fractional to 700 HP. A



tapered bore in both sides of the reducer's output hub snugs up against a matching taper on the outer surface of the bushing . . . Twin Tapered.

Bushing mounting screws pass through the bushing flange into a mounting collar on the hub. As the screws are tightened, the bushing moves inward, gripping the driven machine's input shaft tightly and evenly around every point on its circumference.

### Balanced design adds up to quality and long life

You can now realize significant cost savings with the new TXT TORQUE-ARM Speed Reducer. And here is how:

- TXT reducers now have increased horsepower ratings which may allow you to use a smaller TORQUE-ARM reducer, while receiving the same torque at the output shaft.
- The reducer mounts directly on the driven shaft, eliminating the need for a coupling or chain drive, sliding motor base, and support structure. There's no alignment problem.
- **TXT reducers incorporate standard DODGE features**
  - Ratios up to 210:1.
  - Capacities fractional to 700 HP
  - Output speeds through 400 rpm.
  - Trouble-free maintenance.
  - Up-front installation savings.
  - Quality proven design.
  - Easier, more accurate drive alignment.

- **Rugged, cast-iron housing.** Cast, corrosion-resistant gray and ductile iron housings are precision machined for positive gear alignment. Rugged housing construction provides strong, rigid support for bearings and gearing. Additionally, internal rib design helps channel oil to all bearings for superior lubrication.
- **Efficient helical gear tooth design** produces an efficiency rating of 98.5% per gear set. Gear teeth feature a softer core to resist shock loads, combined with a case carburized surface for maximum wear resistance. Precision crown shaving produces an elliptoid tooth shape, so that teeth mesh at the stronger center area eliminating end loading. The result: uniform load distribution with no tooth-end wear.

- **Lip seals.** Metallic lip seals keep lubricating oil in, lock dirt and contaminants out. The cavity between the inner and outer lips is filled with grease at assembly to pre-lubricate the seal. A garter spring exerts a constant, gentle pressure at every point around the circumference of the shaft to insure a positive seal. All seals ride on precision ground surfaces for maximum life.
- **Dependable performance.** All DODGE TORQUE-ARM speed reducers are 100% factory noise and leak tested to assure long life and trouble-free service.
- **DODGE has a TORQUE-ARM reducer for every application.**

And all this adds up to more savings for you! The TXT reducer the best package available to meet tough industrial requirements.

It's easy to see why DODGE TORQUE-ARM is America's #1 Shaft Mounted Speed Reducer.

# FEATURES/BENEFITS




## TORQUE-ARM Shaft Mount Speed Reducers

### DODGE TORQUE-ARM THE COMPLETE SHAFT MOUNT SPEED REDUCER SYSTEM



#### DODGE TORQUE-ARM IS AMERICA'S LEADING SHAFT-MOUNT REDUCER BECAUSE:

- Experience-over 1,500,000 sold.
- Delivery-nearly 5,000 reducers and 20,000 accessories in stock.
- Quality-warranties of less than 1/2% of sales.
- Customer Preferred-over 50 years of proven experience.
- Twin Tapered Bushings-reliable installation and removal.
- Performance Capability-applications through 700 HP.
- Product Configurations-TORQUE-ARM, Screw Conveyor and HYDROIL.
- Accessory Package-motor mount, backstop, bushings and auxiliary seals.

DODGE has been the leader as a shaft mounted reducer manufacturer for over 50 years. Since our start in 1949, we have developed thousands of satisfied customers. The TORQUE-ARM success is due to initial design and rating conservatism and a rigid quality control program. We have recently tabulated the quantity of reducers sold. This has resulted in the kind of quality and dependability that's proven by one of the lowest percentage replacement rates in the industry-and that's with more than **1.5 million** units sold. Design features built into every shaft mounted TORQUE-ARM reducer are presented in this bulletin. Remember, a speed reducer is a complete system of balanced, high quality components.

- PRECISION HIGH QUALITY GEARING**
  - Computer Designed Helical Gears
  - 98.5% Efficiency Per Gear Stage
  - Case Carburized for Long Life
  - Strong Alloy Materials for High Load Capacity
  - Crown Shaved Gear Tooth Profile for Even Load Distribution
  - Smooth Quiet Operation with Several Teeth in Mesh
  - Designed in Conformance with AGMA

- MAXIMUM CAPACITY HOUSING DESIGN**
  - Rugged Cast Iron and Ductile Iron
  - Rigid Bearing Support and Positive Gear Alignment
  - High Corrosion Resistance
  - Excellent Vibration Dampening & Shock Resistance Features

- RELIABLE ANTI-FRICTION BEARINGS**
  - Anti-friction Bearing Manufacturers Association Bearing Ratings
  - Combination Ball & Tapered Roller Designs
  - Straddle Mounted Gears for Optimum Support
  - High Thrust Capacity Screw Conveyor Drive Bearings

- STRONG SHAFTS FOR SUPPORT**
  - Precision-Machined & Hardened for Maximum Load
  - High Alloy Steel for Maximum Torsional Loads
  - Generous Size Shaft Keys for Shock Loading
  - Press or Heat-Shrunk Design for Total Reliability

- PROVEN SEALS KEEP OIL IN AND CONTAMINANTS OUT**
  - Lip Spring-Loaded Construction
  - Metal Reinforcement for Strength
  - Broad Operating Range of -20°F to 225°F
  - 100% Factory-Tested Before Shipment
  - Smooth Ground Shaft Surfaces for Maximum Life
  - Seal Kits Available for All Reducer Sizes

- EFFICIENT SPLASH LUBRICATION SYSTEM**
  - Generous Oil Sump for Lubricating All Gears & Bearings
  - Standard Gear Petroleum Lubricants Are Suitable
  - Multiple Oil Plugs for Total Mounting Flexibility
  - New BreatheR With Baffle And Filter
  - Magnetic Drain Plug for Protection







Our success as a manufacturer begins with our design features and extends to our rigid quality program which provides the highest quality and dependability that customers have grown to expect from DODGE. The TORQUE-ARM shaft mounted reducer line, consisting of many sizes and types and with capacities from fractional through 700 HP, is available from our factory warehouse stock, branch warehouse stocks, and authorized distributors located throughout the United States. No other manufacturer in the world can claim this type of coverage and back-up assistance for their products and customer.

# FEATURES/BENEFITS



## TORQUE-ARM Shaft Mount Speed Reducers

### DODGE TORQU-ARM ACCESSORIES

<p><b>TAPERED BUSHING ASSEMBLIES</b></p> 	<p>Securely mounts Taper Bushed Reducer to driven shaft</p> <table border="0"> <thead> <tr> <th data-bbox="618 312 698 338">Features</th> <th data-bbox="981 312 1061 338">Benefits</th> </tr> </thead> <tbody> <tr> <td data-bbox="510 355 779 529"> <ul style="list-style-type: none"> <li>• Twin Bushings</li> <li>• Full Length Shaft Key</li> <li>• Flanged Bushing Mount</li> <li>• Removal Screws</li> <li>• Fully Split Bushings</li> <li>• Ductile Iron</li> <li>• No Setscrews</li> <li>• Clamp Fit</li> </ul> </td> <td data-bbox="779 355 1249 529"> <ul style="list-style-type: none"> <li>• Reliably supports both sides of reducer.</li> <li>• Maximum torque &amp; shock load capability.</li> <li>• Fast &amp; simple installation.</li> <li>• Reliable demount of reducer.</li> <li>• Eliminates fretting &amp; seizing problems.</li> <li>• Strong, shock resistant bushings.</li> <li>• Eliminates driven shaft damage.</li> <li>• Reduces wobble &amp; fits undersized shafts.</li> </ul> </td> </tr> </tbody> </table>	Features	Benefits	<ul style="list-style-type: none"> <li>• Twin Bushings</li> <li>• Full Length Shaft Key</li> <li>• Flanged Bushing Mount</li> <li>• Removal Screws</li> <li>• Fully Split Bushings</li> <li>• Ductile Iron</li> <li>• No Setscrews</li> <li>• Clamp Fit</li> </ul>	<ul style="list-style-type: none"> <li>• Reliably supports both sides of reducer.</li> <li>• Maximum torque &amp; shock load capability.</li> <li>• Fast &amp; simple installation.</li> <li>• Reliable demount of reducer.</li> <li>• Eliminates fretting &amp; seizing problems.</li> <li>• Strong, shock resistant bushings.</li> <li>• Eliminates driven shaft damage.</li> <li>• Reduces wobble &amp; fits undersized shafts.</li> </ul>
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## FEATURES/BENEFITS

### TORQUE-ARM Shaft Mount Speed Reducers

#### APPLICATION FLEXIBILITY

#### Typical DODGE TORQUE-ARM Reducer Installations

##### VERTICAL SHAFT APPLICATION

###### DODGE TORQUE-ARM TWIN TAPERED BUSHED VERTICAL SPEED REDUCER



**TDT1530T**

Application: 200 HP, Class III Service on vertical shaft mixer application. This TDT 1530 Vertical Tapered Bushed Speed Reducer with shock absorbing DYNA-V Belt Drive package replaced an expensive, hard-to-replace, open gear drive system. TORQUE-ARM reducers can mount in many positions, such as vertical shaft applications simply by repositioning the breather and drain plug for lubrication purposes. Another standard feature of compact and highly efficient TORQUE-ARM reducers.

##### HORIZONTAL SHAFT APPLICATION

###### STANDARD DODGE TORQUE-ARM TWIN TAPER BUSHED SPEED REDUCER

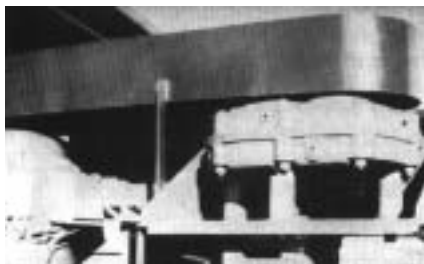


**TXT725T X 3-15/16"**

Application: 40 HP drive, Class II service, on main conveyor drive. Standard Tapered Bushed TXT 725 x 3-15/16" Speed Reducer package offers long life and dependability. Other user benefits on this horizontal shaft application include compactness, off-the-shelf components, flexible motor mount arrangement, and reliable easy-on, easy-off Tapered Bushings. The lowest cost installed system for moving bulk materials.

##### FLANGE MOUNTED APPLICATION

###### DODGE TORQUE-ARE FLANGE MOUNTED VERTICAL TWIN TAPER BUSHED SPEED REDUCER



**TXT625T**

Application: 15 HP, Class II Service, on Vertical Agitator Shaft in cement mixing system. This rugged reducer is rigidly mounted via the flange mounting pads which are standard on all TORQUE-ARM reducers. This no-charge, flange drilling option allows the reducer to support the agitator shaft and any thrust loads imposed. Flange mounted reducers do not require TORQUE-ARM rod assemblies.

##### HYDRAULIC REDUCER APPLICATION

###### DODGE DYROIL TROQUE-ARM TWIN TAPER BUSHED SPEED REDUCER



**HXT525T WITH B30 MOTOR**

Application: Variable speed DODGE HYDROIL speed reducer with hydraulic power is another example of TORQUE-ARM reducer flexibility. This version powers a rugged, mobile brand of road construction equipment. Simply regulating the pressure and volume of fluid to the motor provides variable speed, variable torque, and even direction of rotation change.

# FEATURES/BENEFITS



## TORQUE-ARM Shaft Mount Speed Reducers

### DODGE SCREW CONVEYOR DRIVES INDUSTRY WIDE APPLICACION



#### DODGE quality designed with the Screw Conveyor Industry in mind

The dependable DODGE Screw Conveyor Drives provide a rugged, competitively priced, application-engineered drive for standard CEMA screw conveyors. And the screw conveyor drive incorporates the proven reliability you have come to expect from the DODGE TORQUE-ARM reducer line.

Tapered roller bearings within the drive eliminate the need for an external thrust bearing. The bearings take thrust from the screw conveyor and make external thrust bearings unnecessary.

DODGE Screw Conveyor Drives are available in 5:1, 9:1, 15:1 and 25:1 ratios and the durable drives include:

- A compact design reducer with increased torque ratings.
- The CEMA standard drive shaft.
- A standard trough end mounting adapter with CEMA four-bolt mounting.
- Standard adapter for use with choice of lip, braided or waste pack seals.
- Optional adjustable packing gland adapter.

The DODGE complete, rugged, highly developed, screw conveyor drive mounts on the trough end of your screw conveyor. Tapered roller bearings in the reducer take the thrust from the screw conveyor. This eliminates the external thrust bearing commonly required. The drives may be mounted in any position on horizontal, inclined, or vertical shafts by relocating breather and drain plugs. For complete drive between trough and motor, specify the screw conveyor drive and the following accessories: trough end plate and motor mount.

Where V-belt drives or electric motors cannot be used, DODGE offers a screw conveyor drive powered by a hydraulic motor.

Note: Guards have been removed for photographic purposes

#### Typical Industry Applications

Food	Agriculture
Grain	Soaps
Aggregates	Lumber
Chemicals	Stone
Minerals	clay
Coal	Glass
	... and many more



# FEATURES/BENEFITS

## TORQUE-ARM Shaft Mount Speed Reducers

### DODGE SCREW CONVEYOR DRIVES

#### Three alternative seals in CEMA Standard Adapter



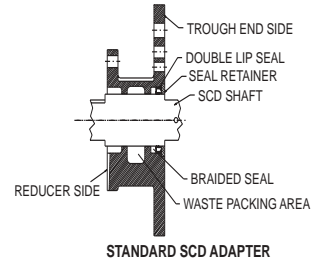
**Lip Seals.**  
They're pre-lubricated for protection from dust and dirt during installation and are excellent for conveying semi-solids. Metallic parts are partially coated with synthetic rubber for added protection from corrosion.



**Braided Felt Seal.**  
For unusually dusty environments like granaries or fertilizer plants, the braided felt seal offers special protection.



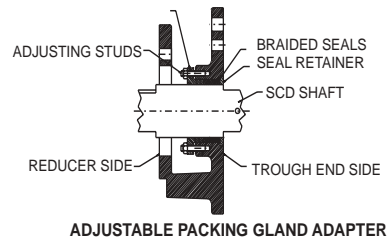
**Waste Packing.**  
(Not supplied by DODGE)  
This can be inserted in a special cavity in the adapter for added protection while operating under abrasive conditions.



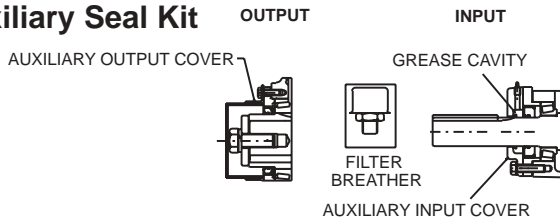
#### CEMA Adjustable Packing Gland Adapter

The adjustable packing gland adapter can be repacked without removing the adapter from the trough end. This packing gland adapter is mainly used in applications where there is a very abrasive environment, such as cement dust.

The packing gland allows for easy removal and installation of the braided felt seals. As the seals wear, the adjusting studs can be retightened with an open-ended wrench causing the cast iron adjusting flange to compress the seals tighter around the drive shaft and end plate.



#### Auxiliary Seal Kit



Auxiliary Seal Kits for DODGE Screw Conveyor Drives are available for SCXT Sizes 1-7 Speed Reducers. Each kit contains an input shaft auxiliary seal with cover, output shaft end cap and a filter air breather.

#### Belt Guard

A slotted metal panel style belt guard with mounting straps for SCXT Reducers will fit standard series motor mounts. The belt guards are designed to fit most common sheave diameters. They mount easily with no machining required.



#### Motor mounts need no drilling.

Rugged, all-steel DODGE motor mounts bolt directly to the screw conveyor drive reducer. They're available in fourteen sizes, which easily fit NEMA motor frames. Since the four adjusting bolts allow easy belt tensioning, it's less time-consuming and you save on installation costs immediately.



#### CEMA drive shafts offer easy installation and maintenance.

This means increased production, less down-time and substantial cost savings. You can save even more because of convenience and interchangeability. Different diameter drive shafts are interchangeable within each drive, and there's a wide range of diameters from 1-1/2 to 3-7/16 inches to choose from. Stainless steel and three-hole CEMA drive shafts are available on request.



# FEATURES/BENEFITS



## TORQUE-ARM Shaft Mount Speed Reducers

### DODGE HYDROIL™ DRIVES

#### Hydraulically Powered TORQUE-ARM Speed Reducers with Infinitely Adjustable Speed and Torque

This is a modified version of the famous TORQUE-ARM speed reducer with the same quality features and ease of installation.

A Hydraulic motor powers the HYDROIL reducer, greatly expanding its scope of application and versatility. It has proven to be popular for locations remote from the prime mover where shafts or belt and chain drives are impractical or where electric motors are not available. Exceptional flexibility is provided in the control of the driven machine by simply regulating the pressure and volume of fluid fed to the HYDROIL motor.

Users can provide flexible control of the HYDROIL drive by selecting proper auxiliary equipment. Output speeds of the reducer are infinitely adjustable through the use of regulating valves in the hydraulic circuit. Both speed and torque can be adjusted to meet the requirements of the driven machine which can be inched or jogged. The direction of rotation is reversible.

Where V-belt drives or electric motors cannot be used, DODGE offers a screw conveyor drive powered by a hydraulic motor.

Hydroil Vane Motors-are a superior single stage vane type fluid motor. A series of internal ports admit oil to and carry it from the power element. Complete hydraulic balance of the assembly contributes to the mechanical efficiency and long life of these motors as well as to their unusually quiet operation. Other exclusive features assure a minimum of friction and efficient valving action regardless of operating speeds.



HYDROIL Vane Motors A10 and A20



HYDROIL Vane Motor B30



HYDROIL Vane Motor B40



HYDROIL Vane Motor B50