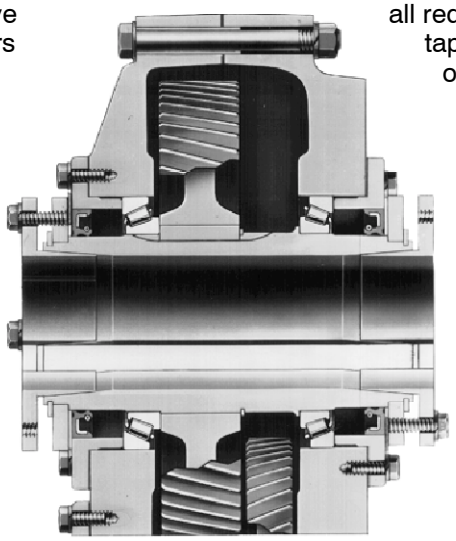
TORQUE-ARM Shaft Mount Speed Reducers

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's 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.
- **Double-lip seals.** Metallic double-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 prelubricate 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.**

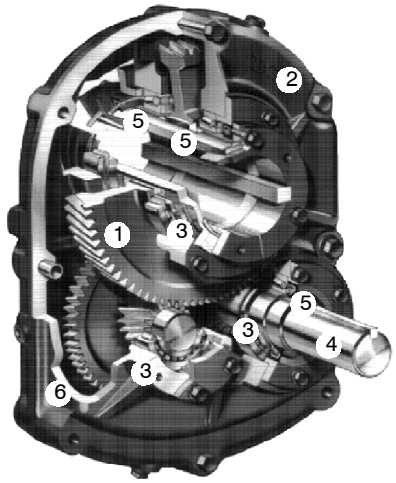
And all this adds up to more savings for you! The TXT reducer—the best package available to meet tough industrial requirements.

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 35 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.

1. 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

2. 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
- 100% Magnaflux Inspection of All Castings

3. 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

4. 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

5. PROVEN SEALS KEEP OIL IN AND CONTAMINANTS OUT
- Double 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

6. 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
- Three-Part Air Breather with Reliable Oil Baffle
- Magnetic Drain Plug for Protection

DODGE has been the leader as a shaft mounted reducer manufacturer for over 40 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 **one 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.

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.

TORQUE-ARM Shaft Mount Speed Reducers

DODGE TORQUE-ARM ACCESSORIES

TAPERED BUSHING ASSEMBLIES

Securely mounts Taper Bushed Reducer to driven shaft

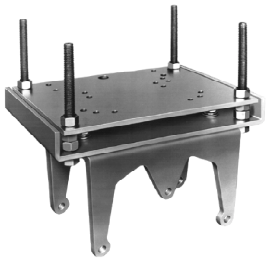
FEATURES	BENEFITS
• Twin Bushings	• Reliably supports both sides of reducer.
• Full Length Shaft Key	• Maximum torque & shock load capability.
• Flanged Bushing Mount	• Fast & simple installation.
• Removal Screws	• Reliable demount of reducer.
• Fully Split Bushings	• Eliminates fretting & seizing problems.
• Ductile Iron	• Strong, shock resistant bushings.
• No Setscrews	• Eliminates driven shaft damage.
• Clamp Fit	• Reduces wobble & fits undersized shafts.

STRAIGHT BORE BUSHING ASSEMBLIES

Accommodate less than maximum bore straight bore reducer applications

FEATURES	BENEFITS
• Steel or Ductile Iron	• High load capacity.
• Two Bushings	• Locking setscrews on both sides of reducer.
• Mount in Reducer Bore	• Suitable for shorter driven shafts.
• Original Design	• Equivalent to most competitive reducers.

MOTOR MOUNTS



Provide a compact and economical method of mounting electric motors on TORQUE-ARM Reducers

FEATURES	BENEFITS
• All-Steel Construction	• Rigid motor support.
• Compactness	• Eliminates separate motor bases.
• Adjustable Top Plate	• Fast & easy belt tensioning.
• Pre-Drilled	• Accommodates standard NEMA Motors.
• Economical	• Low cost & eliminates alignment problems.
• Flexible Mounting	• Pre-drilled for belt guard attachment.
• Interchangeability	• Also fits screw conveyor drives.

AUXILIARY SEAL KITS

Provide extra sealing on Taper Bushed Reducers

FEATURES	BENEFITS
• Labyrinth Seals	• Protection from dust, dirt, & moisture.
• Economical	• Low cost reducer protection.
• Simple Installation	• No drilling required on Sizes TXT 6 & larger.
• Lubrication Fittings	• Can be grease purged for protection.
• Air Breather	• Filtered air breather included.

BACKSTOPS

Prevents reverse of shaft direction

FEATURES	BENEFITS
• Quick Installation	• Fits input shaft of all TORQUE-ARM Reducers
• Internally Mounted	• Sealed inside reducer for protection.
• Oil Lubricated	• No external relubrication required.
• Long Life	• Case hardened, shock resistant sprags.
• Keyed to Reducer	• High load capacity.
• Reversible	• Suitable for either direction of rotation.

TORQUE-ARM BELT GUARDS

Enclose and Protect Belt Drive

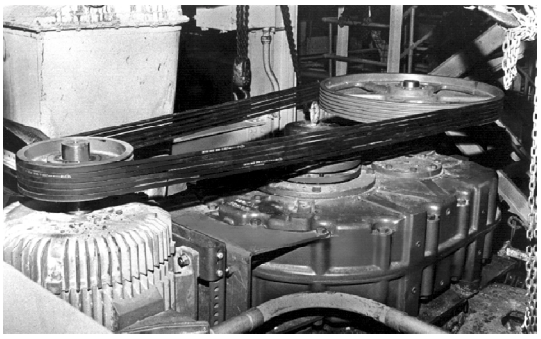
FEATURES	CUSTOMER BENEFITS
• Slotted metal panel consturction	• Light weight, ventilated
• Yellow Paint	• Meets safety requirements
• Mounting Hardware	• Quick easy assembly
• Assembles to Reducer and Motor Mount Holes	• No maching needed
• Flexibility	• One size fits most common sheave diameters

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

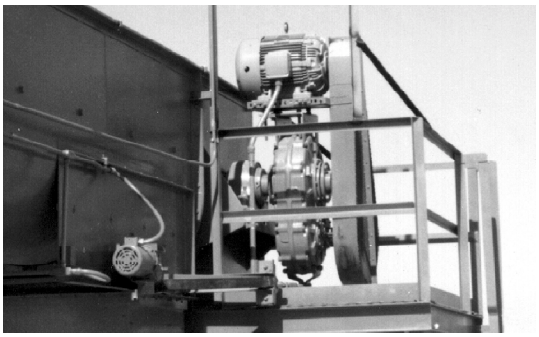


TDT	15	30	Vertical	Tapered Reducer
Torque–Arm	Case Size	Normal Gear Ratio	Vertical Mounted	Bushing Style

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

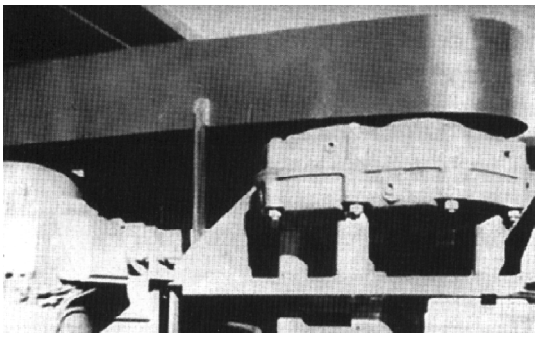


T	XT	7	25	x 3–15/16"	Tapered Bushed Reducer
Torque–Arm	Extra Torque	Case Size	Normal Gear Ratio	Bore Size	Bushing Style

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-ARM FLANGE MOUNTED VERTICAL TWIN TAPER BUSHED SPEED REDUCER

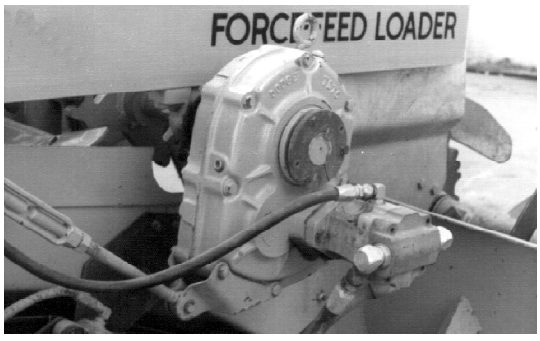


T	XT	6	25	Vertical	Tapered Bushed Reducer
Torque–Arm	Extra Torque	Case Size	Normal Gear Ratio	Vertical Mounted	Bushing Style

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 HYDROIL TORQUE-ARM TWIN TAPER BUSHED SPEED REDUCER



H	XT	5	25	Tapered Bushed Reducer	B 30 Vane Motor
Hydroil	Extra Torque	Case Size	Normal Gear Ratio	Bushing Style	Hydraulic Motor Size

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.