

REPLACEMENT & AFTERMARKET

# WORM DRIVES



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# WORM DRIVES



## Worm Drives

Worm drives transmit power through a right-angle configuration, placing the output shaft perpendicular to the input shaft so the motor mounts vertically in space-constrained conveyor installations. Low-speed belt and roller chain conveyors demand high reduction ratios, and multi-stage gearboxes consume floor space, add alignment points, and introduce additional wear surfaces. When a drive unit fails or an inclined conveyor backdrives under load, the line stops and material sits until a matched replacement arrives.

Each unit pairs a threaded worm screw with a bronze worm wheel to achieve high gear ratios in a single reduction stage, housed in cast iron or aluminum with IP55 sealing standard and IP66 or IP69K protection available. Shaft-mounted, foot-mounted, and flange-mounted configurations serve belt and roller chain conveyor drive positions, with solid or hollow output shafts fitted with shrink discs. Nameplate data, mounting dimensions, and shaft measurements are cross-referenced against the existing unit to supply a direct or functionally equivalent drop-in replacement.

# APPLICATIONS



## Recycling & Material Recovery

MRF sortation lines and shredded scrap conveyors run at low belt speeds under heavy, abrasive loads, in air saturated with dust and fugitive material. Worm drives supply the high single-stage reduction these conveyors require, with IP55-rated sealing standard and backstop options that hold inclined transfer conveyors against backdriving under load.



## Packaging

Packaging machinery positions product through short, repeated conveyor movements inside tightly enclosed equipment frames. Compact right-angle geometry fits the drive into the frame envelope while quiet gear meshing keeps operator stations within noise limits.



## Food & Beverage Processing

Processing lines undergo daily washdown with chemicals and pressurized water that penetrate standard gearbox enclosures. Units specified with IP66 or IP69K ratings seal out high-pressure spray, and smooth housing surfaces without crevices shed rinse water and residue.



## Pharmaceutical Processing

Sanitary production areas mandate shift-by-shift steam cleaning at pressures above 1,000 PSI. IP69K-rated units withstand high-temperature, high-pressure washdown while corrosion-resistant surface treatment protects the housing against cleaning chemicals.



## Manufacturing

Plant-floor conveyors operate in moderate dust alongside workstations where drive noise carries directly to personnel. Worm gearing meshes with minimal vibration, reducing worker discomfort in noise-sensitive production environments.



## Intralogistics & Distribution

Warehouse and distribution conveyors thread through racking and sortation equipment where every inch of clearance is committed. Vertical motor mounting frees floor space, and modular mounting options adapt one drive family across varied conveyor sections.

# KEY FEATURES

01

## Worm-and-Wheel Gear Set:

Meshes a threaded worm screw against a bronze worm wheel to deliver high reduction ratios in a single stage with minimal vibration.

02

## Hollow Output Shaft with Shrink Disc:

Slides directly onto the conveyor drive shaft and clamps with a shrink disc, eliminating the external coupling and its alignment requirements.

03

## One-Piece Gear Housing:

Contains all gear elements within a single casting, raising axial and radial bearing load capacity while eliminating housing joint leak paths.

04

## Oil Level Sight Glass:

Displays lubricant level at the housing surface, allowing quarterly level checks without opening fill plugs or interrupting operation.

05

## NEMA and IEC Input Flanges:

Accept direct motor mounting across both frame standards, matching replacement units to existing motors without adapter fabrication.

06

## Sealed Terminal Box:

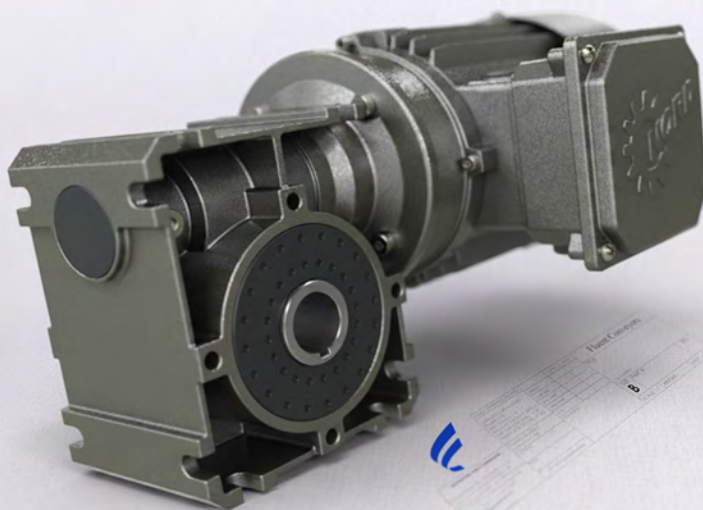
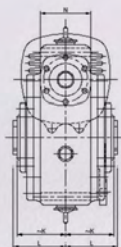
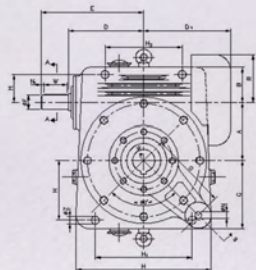
Isolates motor wiring connections from washdown spray and airborne dust in IP66 and IP69K configurations.

07

## Bolt-On Torque Arm:

Anchors shaft-mounted units to a rigid point on the conveyor structure, reacting output torque and preventing gearbox rotation.





# WORM DRIVES SPECIFICATIONS

| Parameter            | Standard Specification                                                                                     |
|----------------------|------------------------------------------------------------------------------------------------------------|
| Torque range         | 823 – 27,066 lb-in                                                                                         |
| Power range          | 0.16 – 20 HP                                                                                               |
| Gear efficiency      | 50% – 90% (ratio-dependent)                                                                                |
| Gear ratio range     | High ratios available in single-stage reduction                                                            |
| Motor voltage        | 230/460V three-phase standard                                                                              |
| Environmental rating | IP55 standard; IP66 and IP69K available                                                                    |
| Housing material     | Cast iron; aluminum option                                                                                 |
| Mounting options     | Shaft mount, foot mount, flange mount, torque arm configurations                                           |
| Output shaft         | Solid shaft or hollow shaft with shrink disc                                                               |
| Temperature range    | Standard operating range; extended to -40°F – 150°F with synthetic lubricants                              |
| Special options      | Washdown duty, explosion-proof, motor brake, encoder, backstop, sealed terminal box, thermostat, VFD-ready |

# WORM DRIVES SPECIFICATIONS

## Mounting Configuration

| Mounting Type | Configuration                                                                                        | Best For                                                                     |
|---------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Shaft mount   | Hollow-bore output shaft slides onto the conveyor drive shaft; torque arm prevents rotation          | Most conveyor drive positions; eliminates couplings and simplifies alignment |
| Foot mount    | Gearbox bolts to a rigid base with solid output shaft; external coupling connects to the drive shaft | Installations requiring motor replacement without gearbox removal            |
| Flange mount  | Gearbox bolts to equipment housing or mounting plate via B14 or B5 flange                            | OEM equipment and vertical or angular mounting positions                     |

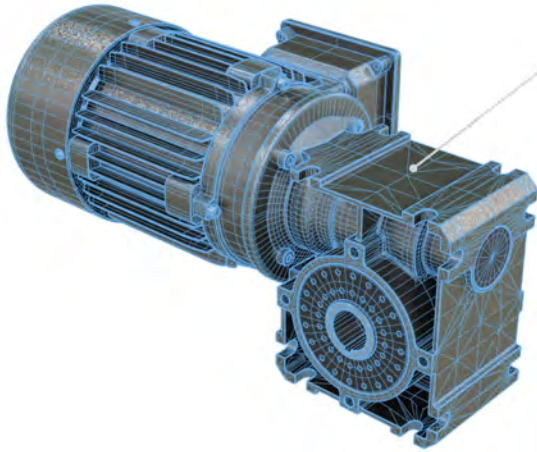
## Environmental Rating Selection

| Rating | Protection Level                                               | Best For                                                                                  |
|--------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| IP55   | Dust protection and low-pressure water jets                    | Indoor conveyors with moderate dust: waste management, manufacturing, material handling   |
| IP66   | Complete dust sealing and powerful water jet protection        | Outdoor installations, washdown environments, food processing                             |
| IP69K  | High-pressure, high-temperature steam cleaning above 1,000 PSI | Sanitary pharmaceutical and food processing with daily or shift-by-shift pressure washing |

Note: Foot-mounted installations with flexible couplings require alignment within 0.002" parallel offset. Contact engineering for replacement units outside the listed specifications.

# THE ENGINEERING ADVANTAGE

This section outlines the gear reduction, housing construction, sealing, and lubrication methodologies behind worm drives, covering the design principles that determine drop-in fit and service life on conveyor systems.



## Corrosion-Resistant Surface Conversion:

Converts the housing surface into a chemically bonded layer resistant to corrosion, chemicals, and abrasion, with epoxy or polyurethane coating options for cast iron in outdoor service.

## Single-Stage High-Ratio Gearing:

Achieves the full reduction ratio through one worm-and-wheel mesh, removing the intermediate gear stages, bearings, and wear surfaces of multi-stage designs.

## Synthetic Lubricant Specification:

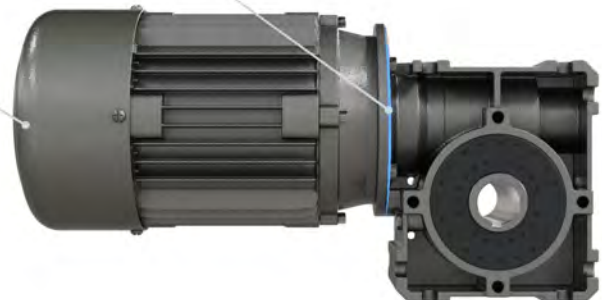
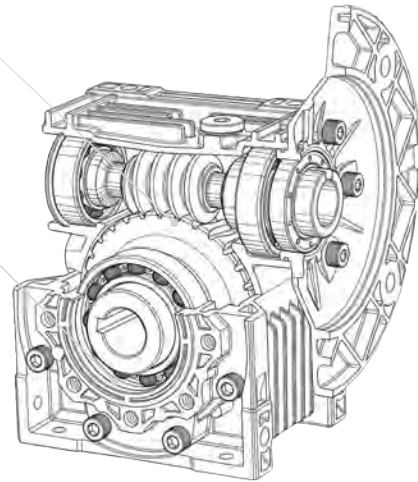
Extends the operating temperature range to -40°F – 150°F and lengthens oil change intervals to 8,000 – 15,000 hours, with NSF H1 food-grade formulations for incidental food contact.

## IP-Rated Enclosure Sealing:

Seals housing joints, shaft exits, and terminal connections to IP55, IP66, or IP69K classification, matched at specification to the washdown and dust conditions of the installation.

## Motor Brake and Backstop Integration:

Adds a positive mechanical holding device, factory-installed or field-added, for inclined conveyors and vertical lifts where backdriving prevention cannot rely on worm gear friction alone.



# CONTACT INFORMATION

## OUR ENGINEERS WILL SPEC THE EXACT PART FOR YOUR SYSTEM

For product specifications, engineering support, or order inquiries, please contact our team using the information provided below. Our specialists are available to ensure accurate recommendations and efficient service for your application requirements.

### Reach Us Directly

#### Email

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