

REPLACEMENT & AFTERMARKET

HELICAL BEVEL DRIVES



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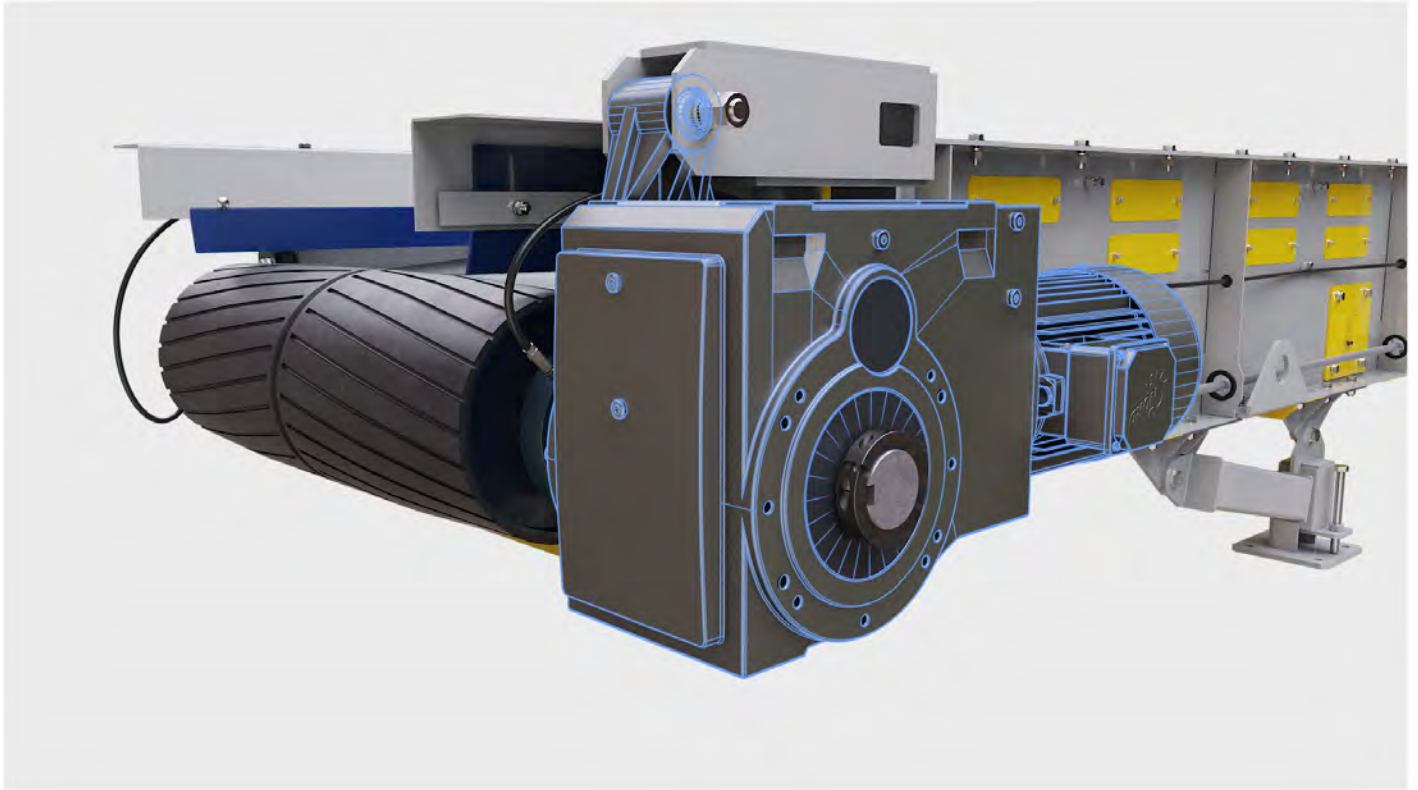
TABLE OF CONTENTS

Helical Bevel Drives	02	Product specifications	05
Applications	03	The Engineering Advantage	07
Key Features	04	Contact Information	08

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HELICAL BEVEL DRIVES



Helical bevel drives convert torque and speed at 90 degrees, perpendicular to the input shaft. Belt and roller chain conveyors running continuous, heavy loads demand this conversion at minimal loss: an inefficient right-angle reducer rejects a large share of input power as heat, degrading the lubricant, cooking the shaft seals, and driving up energy cost on every operating hour. Left unaddressed, that heat cycle ends in oil leaks, bearing wear, and unplanned conveyor downtime.

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APPLICATIONS



Recycling & Material Recovery

Shredders, balers, and MRF sortation conveyors load their drives with abrasive dust, shock torque, and near-continuous duty cycles. Helical bevel drives sustain heavy loading at up to 442,537 lb-in output torque while sealed housings keep fugitive material out of the gear train.



Waste Management

Transfer stations and processing lines run long shifts in dust-heavy air that infiltrates unsealed drive components. IP55-rated housings shield the gearing while high-efficiency power transmission holds energy cost down across extended operating hours.



Food Processing

Sanitary lines undergo frequent washdown with detergents and pressurized water that destroy standard drive enclosures. IP66 and IP69K-rated units with sealed terminal boxes and food-grade synthetic lubricants withstand daily cleaning regimes.



Pharmaceutical Processing

Sanitary production environments mandate steam cleaning above 1,000 PSI on all line equipment. IP69K-rated drives resist high-pressure, high-temperature washdown without compromising the gear housing or electrical connections.



Manufacturing & Material Handling

Production conveyors demand consistent belt speed under variable loading across multi-shift schedules. VFD-ready drives paired with inverter-duty motors regulate speed electronically while the gear stage carries the torque demand.



Outdoor & Corrosive Environments

Weather exposure, temperature swings, and chemical atmospheres attack housings, fasteners, and lubricants. Epoxy or polyurethane coatings, stainless steel hardware, and synthetic lubricants rated from -40°F to 150°F protect the drive through seasonal extremes.

KEY FEATURES

01

Progressive-Mesh Helical Teeth:

Angled tooth geometry engages gradually across the gear face, transmitting torque at 94% – 97% efficiency with reduced noise and vibration.



02

Right-Angle Bevel Gear Stage:

Redirects power transmission 90 degrees between input and output shafts, permitting vertical motor mounting in floor-space-constrained installations.

03

Hollow Output Shaft with Shrink Disc:

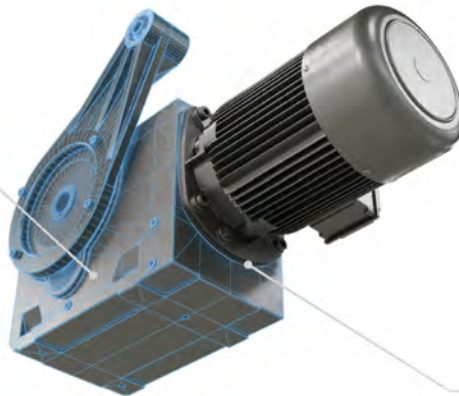
Slides directly onto the conveyor drive shaft and clamps with a keyless shrink disc, eliminating the external coupling and its alignment work.



04

One-Piece Cast Housing:

Cast iron or aluminum construction encloses the complete gear train in a single rigid body that holds shaft alignment under full load.



05

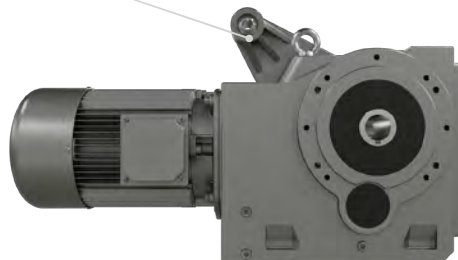
Sealed Terminal Box:

Gasketed electrical enclosure blocks water and dust ingress at the motor connection point in washdown and outdoor installations.

06

Torque Arm Mounting Interface:

Anchors shaft-mounted units against rotation, reacting output torque into a rigid structural point on the conveyor frame.



07

Integrated Backstop Option:

Prevents reverse rotation of the output shaft on inclined conveyors when drive power is removed under load.



HELICAL BEVEL DRIVES SPECIFICATIONS

Parameter	Specification
Torque range	1,593 – 442,537 lb-in
Power range	0.16 – 268 HP
Gear efficiency	94% – 97%
Gear ratio range	Wide range available for application-specific selection
Motor voltage	230/460V three-phase standard; 575V available
Environmental rating	IP55 standard; IP66 and IP69K available
Housing material	Cast iron or aluminum
Mounting options	Shaft mount, foot mount, flange mount, torque arm configurations
Output shaft	Solid shaft or hollow shaft with shrink disc
Operating temperature	Standard range; -40°F – 150°F with synthetic lubricants
Special options	Washdown duty, explosion-proof, motor brake, encoder, blower fan, backstop, sealed terminal box, thermostat, VFD-ready

Note: Aluminum housing construction applies to the two-stage helical bevel line rated to 660 Nm (5,841 lb-in) and 12.3 HP; cast iron construction covers the full torque range.

HELICAL BEVEL DRIVES SPECIFICATIONS

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	Sanitary pharmaceutical and food processing with washdown above 1,000 PSI

Mounting Configuration

Configuration	Connection Method	Application Fit
Shaft mount	Hollow-bore output shaft onto drive shaft, torque arm reacted to frame	Most common configuration; eliminates couplings and compacts the installation
Foot mount	Base-mounted housing, solid shaft with external coupling	Maintenance flexibility; motor replacement without gearbox removal
Flange mount	B14 or B5 flange bolted to equipment housing	Space efficiency; vertical or angular mounting positions

Note: Coupling alignment on foot-mounted units must hold within 0.002" parallel offset for flexible couplings. Contact engineering for replacement parts outside the listed specifications.

THE ENGINEERING ADVANTAGE

This section outlines the drive construction methodology behind Fluent Conveyors helical bevel drives, covering housing casting, lubrication chemistry, surface protection, and gearmotor matching to ensure accurate fit and full service life.

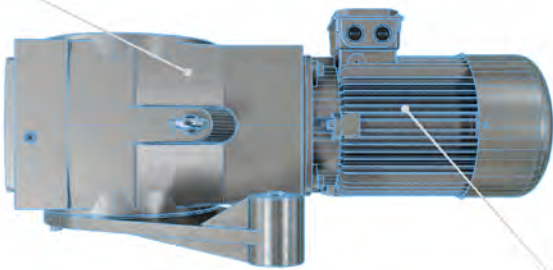
One-Piece Housing Casting:

Machining the complete gear housing from a single casting removes split-line joints, closing off leak paths and holding bearing bores in permanent alignment.



Epoxy and Polyurethane Coating System:

Multi-layer coatings applied over cast iron housings block corrosion in outdoor and chemical environments, supplemented by stainless steel fasteners for marine-grade builds.

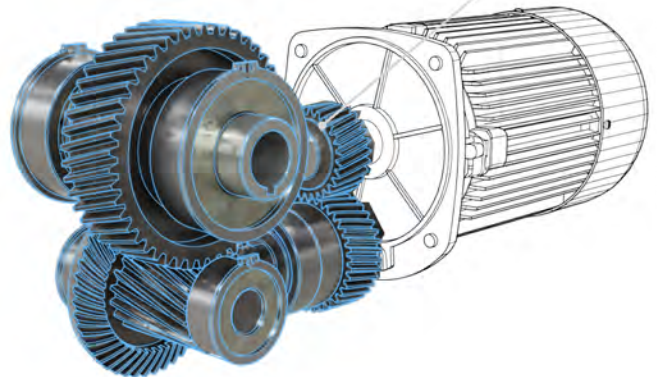


Inverter-Duty Motor Winding:

Windings rated per NEMA MG1 Part 31 withstand the voltage spikes of variable frequency drive operation across the full speed range.

Synthetic Lubricant Fill:

Factory-filled synthetic oils extend the operating window to -40°F - 150°F and stretch change intervals to 8,000 - 15,000 hours, with NSF H1 food-grade formulations for incidental contact zones.



Factory-Matched Gearmotor Assembly:

Motor and gearbox pairings are verified for torque output, thermal capacity, gear ratio, and mounting compatibility before shipment, removing field coupling and alignment work.



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.

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