
MECHANICAL POWER TRANSMISSION

Bulk material handling

DODGE[®]

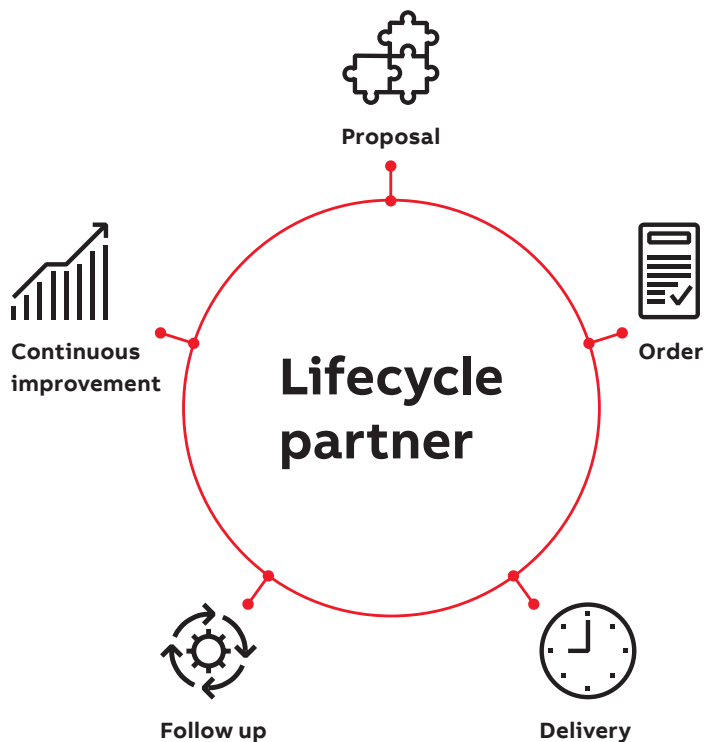


Dodge® bulk material handling team

Trusted conveyor design partner

The Dodge bulk material handling team utilizes an expansive portfolio of Dodge mechanical and Baldor-Reliance® electrical products, Passport online selection, and decades of conveyor engineering expertise.

These capabilities allow customers to partner with one manufacturer that can offer complete, packaged proposals for quick delivery of factory assembled packages that increase reliability, improve productivity, and help you operate safely.



Proposal

- One supplier for engineering and design
- Passport provides online selection and pricing for individual components and complete conveyor designs
- Empowers customers and shortens the learning curve
- Provides power matched components

Order

- Single point of contact for entire package
- Passport provides order entry for individual components or complete packaged assemblies
- Manufactured at plants in the USA
- Product and assembly quality assurance
- Project management

Delivery

- Extended warranty for complete packages
- Packaged assemblies available from stock
- Reduced user safety concerns with factory assembled packages
- Field service startup, training, and benchmarking

Follow up

- Local Field Sales Engineer onsite support
- Field service ongoing site visits and trend monitoring

Continuous improvement

- Field Sales Engineer onsite training, troubleshooting, and introduction of new products
- Reduced user safety concerns with new designs and accessories
- Documented savings through Docu\$aves

Two conveyor design paths: Which one fits your needs?

1) On demand conveyor design via Passport

Applications

Bulk material handling conveyors for:

- Aggregate
- Cement
- Sand and gravel
- Wood yards

Requirements

- Design capacity up to 3500 tons per hour
- Manual and automatic takeup conveyor profiles
- Standard belt widths up to 60" (1520 mm) wide



Passport equals ease of doing business

Passport, a web-based product selection program for Dodge mechanical products and Baldor-Reliance motors, utilizes a visual, intuitive process to quickly guide users through the selection of components and assembled packages for conveyor

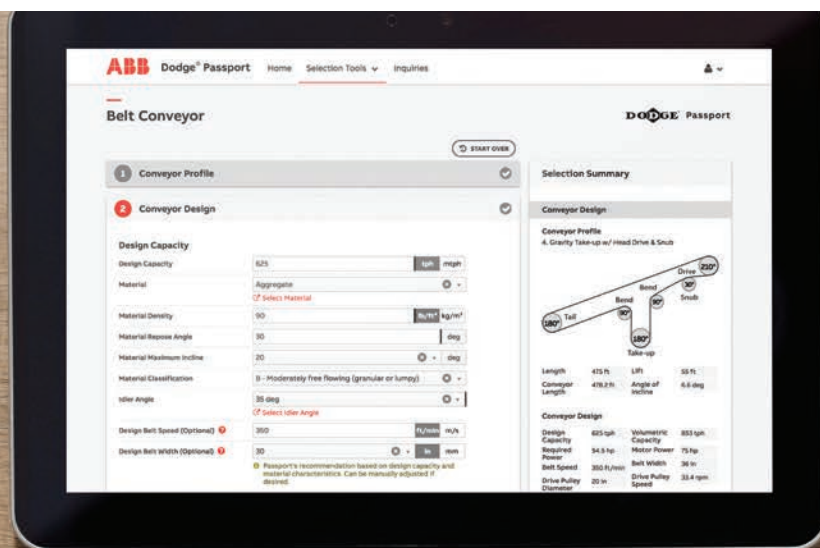
applications. Program logic utilizes decades of conveyor engineering expertise that empowers users to design complete conveyor packages, obtain pricing, view real time availability, and enter orders.

dodgepassport.abb.com



Quick shipments of packaged assemblies from stock

Onsite assembly cells at stocking facilities complement our industry leading inventory and allow for quick shipments of gearbox assemblies (gearbox, motor, and accessories) and pulley assemblies (pulley, bushing, shaft, and bearings). Factory assembled, complete packages provide easy installation, reduced maintenance time, and minimized safety risks during installation.



Two conveyor design paths: Which one fits your needs?

2) Engineered projects via the Bulk Material Handling team

Applications

- Mining and aggregate overland conveyors

Requirements

- Non-standard conveyor profiles
- Tensions above 800 PIW
- Belts longer than 3500 feet or 1000 meters
- Greater than 3500 foot or 1000 meter long belts
- Greater than 3500 tons per hour



Complete project support

The Dodge bulk material handling team supports your entire engineered project from quote through installation. Decades of conveyor engineering experience assures that you have the expertise needed for all aspects of your project.

Reliable project lead times

- Project management from start to finish ensures project stays on time
- Single point of contact for projects
- Factory assembled gearbox drive and conveyor pulley assemblies



Peace of mind with extended warranty

- Three year extended warranty offered when 1) Dodge Bulk Material Handling team engineers and designs all factory assembled packages on the proposal and 2) All factory assembled packages from the proposal are ordered complete
- Additional year of warranty (Four year total) is available with the purchase of a Field Services Package, which includes:
 - Lubrication confirmation
 - Alignment verification
 - Component safety checklist
 - Maintenance training
 - Temperature and vibration benchmarking



Drive and conveyor pulley packages

Reliability, productivity, and safety

Trust experience with packaging and design

Dodge bulk material handling's conveyor design experience combined with an industry leading mechanical product portfolio allows for every Dodge component to be specifically designed, manufactured and assembled into a complete Dodge package assuring maximum reliability during operation.

Extend gearbox life with larger bearings

Larger bearings than the competition results in longer mean-time-between-repairs. Dodge heavy duty gearboxes utilize AGMA bearing specifications requiring a minimum unadjusted L_{10} bearing rating of 5,000 hours for all bearings in the gearbox which is at least double the rating of most competitive designs

Remove from the shaft easily

Dodge reducers and mounted bearings feature patented shaft attachment designs (Twin Tapered bushings and Imperial/ISN) that provide faster installation and removal while minimizing vibration and eliminating fretting corrosion as seen with competitive designs.

Protect with the best sealing system

Dodge reducers and mounted bearings contain industry leading seal technology that includes multiple layers of seal protection and advanced materials (HNBR) that ensure maximum protection against contaminants.

Ship the project, factory assembled

Minimize onsite installation requirements by utilizing factory assembled packages that include the motor, coupling, reducer, base, guarding, conveyor pulley, and mounted bearings

Use a safe backstop

Torque-Arm II and Magnagear XTR® backstops are compatible with lubricants containing extreme pressure (EP) additives.

Cover rotating equipment

Guarding and covers available for mounted bearings, gearing, couplings, belt drives, and bushings to prevent injury during operation.

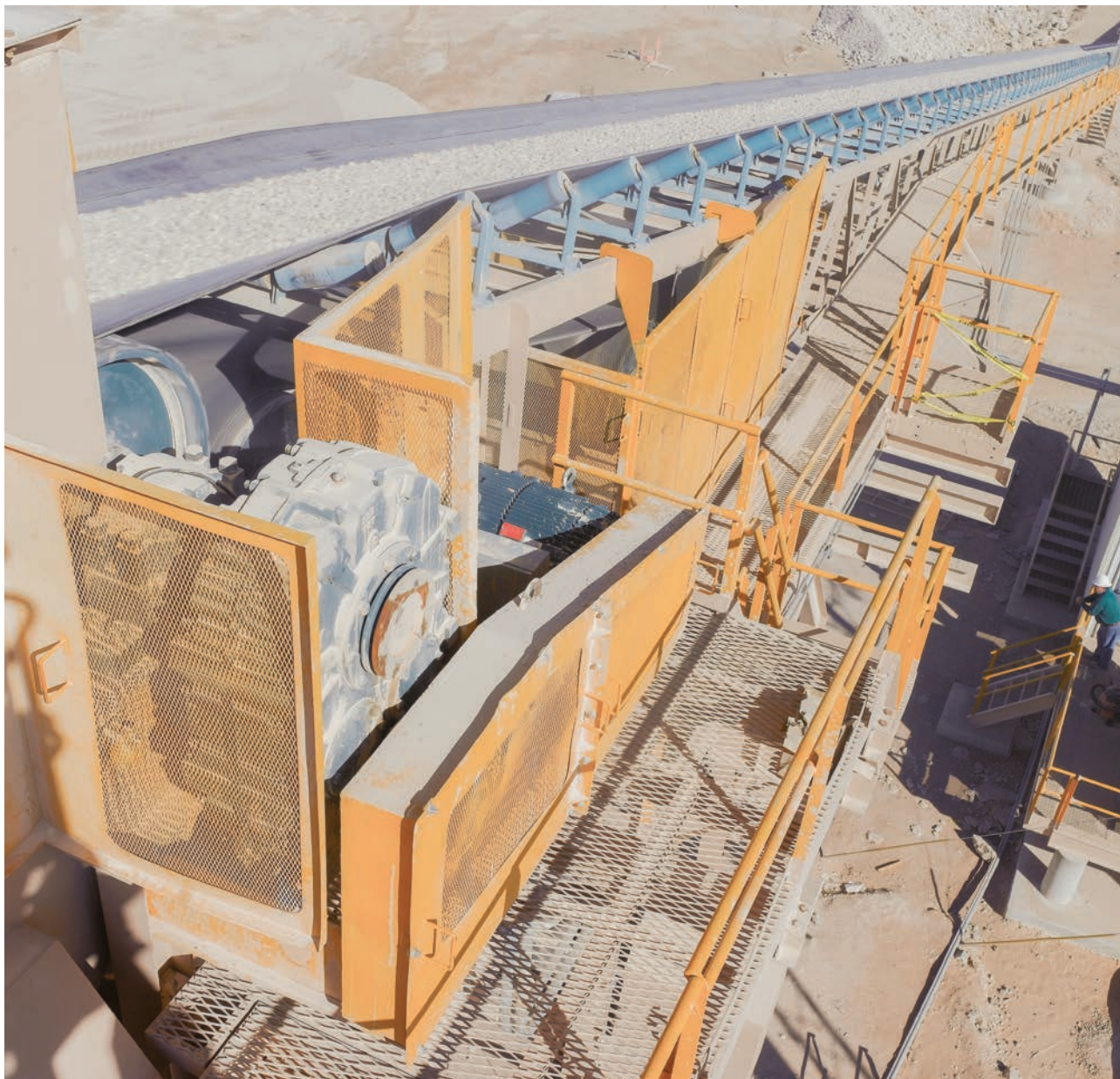
Protect your employees

Order a complete Dodge bulk material handling package to ensure all products are designed, manufactured and assembled properly, while also accounting for available safety accessories on every project.

SUCCESS STORY - SCRUBBER STONE AGGREGATE QUARRY

- Complete bulk material handling package providing value through conveyor design, pre-assembled components, project management, and long term reliability





Drive packages up to 100 Hp or 75 kW

Motorized Torque-Arm II

Single drive assembly



Dual drive assembly



Screw conveyor drive assembly



Reliability, productivity, and safety

- Dodge heavy duty right angle gear solution based off the Torque-Arm product heritage
- Straddle mount input pinion that offers maximum torque transmission through the gear reducer
- 100% factory noise and leak tested
- Drilled and tapped hubs for field installable bushing covers.
- Hydra-Lock breather extends oil life (available for all Dodge heavy duty gearboxes)
- Baldor-Reliance Crusher Duty motors have high starting and peak torque, 1.25 service factor, IP55 rated enclosure, and are available from stock.
- Motorized Torque-Arm II eliminates the need for belts and guarding.
- Heavy Duty (CEMA) and MDX (Mine Duty Extra) pulleys, XT bushings and hubs, shafting, and complete assemblies available from stock to minimize onsite assembly requirements
- Assembly from stock available.

SUCCESS STORY - POTTERS INDUSTRIES' IOWA PLANT

- Heavy duty, beltless drive solution for harsh, bucket elevator applications that improve maintenance productivity

Drive packages up to 400 Hp or 300 kW

Torque-Arm II

Single drive assembly



Screw conveyor drive assembly



Dual drive assembly



Reliability, productivity, and safety

- Torque-Arm is the industry leader in heavy duty gearbox drive applications
- Industry leading seal design with metal excluder shield and rubber contact lip for maximum protection against contaminants
- Drilled and tapped hubs for field installable bushing covers.
- Torque-Arm II offers belt guards to prevent injury during operation.
- Hydra-Lock breather extends oil life (available for all Dodge heavy duty gearboxes)
- Baldor-Reliance Crusher Duty motors have high starting and peak torque, 1.25 service factor, IP55 rated enclosure, and are available from stock.
- Complete drive assemblies available from stock
- Heavy Duty (CEMA) and MDX (Mine Duty Extra) pulleys, XT bushings and hubs, shafting, and complete assemblies available from stock to minimize onsite assembly requirements

SUCCESS STORY - NEW AGGREGATE QUARRY START UP

- Complete bulk material handling package providing value through conveyor design, excellent quality and standardizing across all products to minimize spare requirements.

Drive packages up to 1000 Hp or 700 kW

Maxum XTR®

Scoop mount assembly



Motor mount assembly



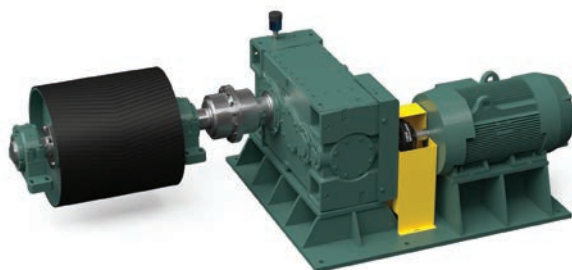
Reliability, productivity, and safety

- Rugged, thick-walled, ductile iron housing for the toughest applications
- Thicker foot profile than the competition to eliminate foot cracking during operation
- Higher input power, output torque, and service factor ratings than competitive designs
- Coupling and belt guards available to prevent injury during operation
- Hydra-Lock breather extends oil life (available for all Dodge heavy duty gearboxes)
- Baldor-Reliance Crusher Duty motors have high starting and peak torque, 1.25 service factor, IP55 rated enclosure, and are available from stock.
- Assembly from stock available.

Drive packages up to 2500 Hp or 2 MW

Magnagear XTR®

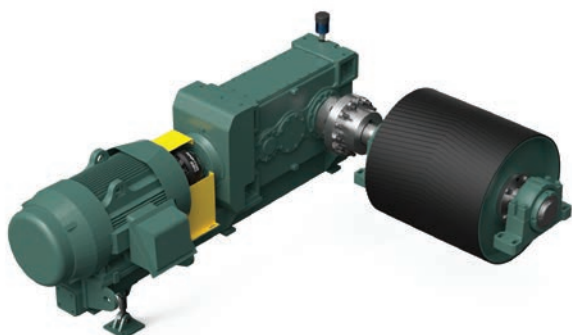
Offset parallel, base mount assembly



Right angle, hollow bore, tunnel housing assembly



Right angle, swing base with moment coupling assembly



Reliability, productivity, and safety

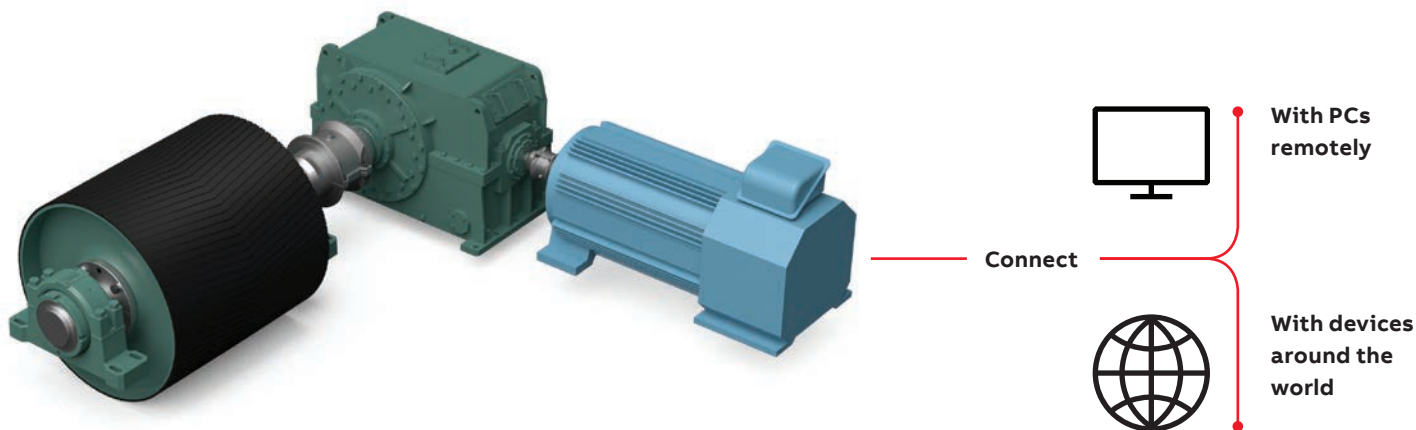
- Hollow bore with twin tapered bushings provide easy installation and removal while eliminating wobble and fretting corrosion associated with straight bore and shrink disc designs
- Tunnel housing design is “self-aligning” between the motor, coupling, and reducer.
- Bushing covers, tunnel housing access guards, and coupling guards available to prevent injury during operation
- Hydra-Lock breather extends oil life (available for all Dodge® heavy duty gearboxes).
- Proprietary DLAG lagging compound on pulley provides 73% higher abrasion resistance than standard SBR
- Baldor-Reliance Crusher Duty motors have high starting and peak torque, 1.25 service factor, IP55 rated enclosure, and are available from stock.

SUCCESS STORY - GOLD MINE

- 1,800 tons per hour conveyor, 1,890 feet long
- Complete Baldor and Dodge system package with motor, reducer, pulley, and bearing assemblies. Dodge bulk material handling performed the conveyor system design, pre-assembly of components, and project management.

Drive packages up to 3000 Hp or 2.2 MW

Controlled start transmission (CST)



Reliability, productivity, and safety

- Integral wet clutch system
 - Provides a consistent smooth start up and shutdown eliminating belt shock waves
 - Protects drive train from shock load during overload conditions and conveyor jams
 - Minimizes loads and stresses on all conveyor components with unmatched load sharing capabilities for multiple drive conveyors
- SMART monitoring capability
 - Synchronized PLC controls for precise starting and load sharing for up to 4 CST drives per drive station
 - Continuous condition and performance monitoring viewable on site or via remote access to assure optimum system performance
 - Remote access for troubleshooting and system adjustments from anywhere in the world
 - Local and remote HMI display of operating status
 - Local and remote data collection available for system trend analysis.

SUCCESS STORY - CAST ILMENITE MINE

- 700 meter conveyor producing 850,000 metric tons per year
- Complete system package with ABB motor, Dodge coupling, Dodge CST, Dodge pulley assembly with bearings
- Drastically improved the conveyor's capacity and reliability by going from repeated unexpected breakdowns to zero saving \$120,000 USD in lost production each time

new.abb.com/mechanical-power-transmission/references/cst-titania



Product highlight



Dodge Raptor

- Industry leading 5 year warranty on Raptor couplings
- The Dodge Raptor's patented split rubber tire-style coupling offers industry leading misalignment and up to 50% less torsional and bending stiffness, resulting in 16.7x longer bearing life for connected motors and gearboxes
- Raptor's spacer designs allow for fast installation, removal, and access for equipment maintenance
- Patented Winglock™ technology results in 6x longer life than closest competitors in worst case misalignment conditions
- Slotted mounting holes for easier installation of Raptor couplings

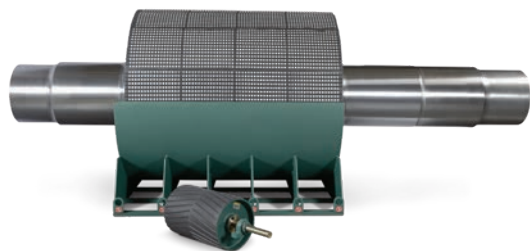
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Dodge IP, ISAF, ISN, HISAF, and ISNX roller bearings

- Drop in replacement for critical dimensions of SAF and SN split housed roller bearings
- Integral shaft attachment and removal mechanism allows for installation and removal in under 30 minutes for split housed roller bearings up to 15" or 360 mm bore
- End covers are available to prevent injury during operation
- IP, ISN, and ISAF utilize a triple lip contact seal with flinger for maximum protection against contamination. In addition to the triple lip seal, the HISAF and ISNX also have a tachonite style seal to extend overall bearing operating life.

new.abb.com/mechanical-power-transmission/mounted-bearings/spherical-roller-bearings



Engineered, MDX (Mine Duty Extra), and Heavy Duty (CEMA) conveyor pulleys

- Two year warranty on engineered class pulleys
- Up to 92 inch or 2,300 mm diameter; 120 inch or 3,000 mm face width
- Tapered bushed and keyless shaft locking devices available
- Integral hub, profiled, turbine, and T-section end discs designs
- All common lagging materials available (SBR, DLAG, neoprene, FOS, ceramic, EPDM, and others)
- Proprietary DLAG lagging compound provides 73% higher abrasion resistance than SBR
- Heavy Duty (CEMA) and MDX (Mine Duty Extra) conveyor pulleys and pulley assemblies (pulley, bushings, shaft, and bearings) available for quick delivery from stock
- Static and dynamic balancing; ASNT NDE certified inspection testing program; AWS and ASME certified welding procedures and welders

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Plant operations - ISO 9001 and 14001 compliant

World class manufacturing facilities

Dodge gearboxes, mounted bearings, couplings, conveyor pulleys, and drive components are manufactured in US facilities committed to safety, quality and customer service. Responding quickly to customer needs and manufacturing products with industry leading quality are made possible through the investment in both state-of-the-art equipment and a culture of lean manufacturing.

$$V_p = \frac{Q_p \times S_p}{C \times T}$$

V = Value Q = Quality S = Service
C = Cost T = Time P = Perceived

- The value equation ensures the customer's perceived value drives continuous improvement of the variables which impact them most.
- Marion, NC, USA, mounted roller bearing manufacturing plant awarded Industry Week magazine's best plant award for its commitment to continuous improvement and manufacturing excellence

ABB Sustainability

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- For ABB, sustainability is about balancing economic success, environmental stewardship and social progress to benefit all our stakeholders. Sustainability is part of ABB's corporate strategy and business success
- Greenville, SC, USA gearbox and Marion, NC, USA mounted roller bearing manufacturing plants operate with zero waste sent to landfills



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