

Power Transmission Solutions for the Mining Industry

Ameridrives

Bauer Gear Motor

Bibby Turboflex

Boston Gear

Delroyd Worm Gear

Formsprag Clutch

Guardian Couplings

Industrial Clutch

Marland Clutch

Nuttall Gear

Stieber

Svendborg Brakes

TB Wood's

Twiflex

Warner Electric

Wichita Clutch

 **RegalRexnord™**



Power Transmission Solutions for the Mining Industry

REGAL REXNORD PROVIDES POWER TRANSMISSION SOLUTIONS FOR UNDERGROUND MINING, SURFACE MINING, AND PROCESSING APPLICATIONS

From heavy-duty brakes for draglines and electric rope shovels to caliper brakes and disc couplings on winders and ventilation fans, a wide array of Regal Rexnord products keeps mining operations running smoothly worldwide.

The companies of Regal Rexnord are industry leaders in braking, engaging, overrunning, gearing, and load transmitting products. Whether a power transmission coupling is required or a highly engineered torque limiting device is needed, Regal Rexnord has the expertise and the knowledge to design, manufacture, and market reliable products with the lowest cost of ownership.



REGAL REXNORD AVAILABLE WHERE YOU NEED US, WHEN YOU NEED US

Whether you need complete units or genuine replacement parts, choose the brands known in mines around the world.

Mining products from Regal Rexnord can be found throughout the world with locations in China and Asia Pacific, Australia, Europe, South America, South Africa, and North America. Our sales associates and application engineers are well trained to understand your product needs and recommend the right power transmission solution for your specific application.

Trained and authorized distributor partners are also strategically located around the globe in major cities, ports, and mining regions to help meet your needs.

For detailed information about application-specific power transmission solutions from Regal Rexnord including case studies, literature, and service manuals, visit

www.regalrexnord.com

REGAL REXNORD PRODUCTS KEEP MINES RUNNING SMOOTHLY... WORLDWIDE



Clutches and Brakes

As the largest provider of clutches and brakes for draglines and shovels, Regal Rexnord offers expertise in acceleration and deceleration of heavy-duty drive systems. Regal Rexnord is an industry leader in braking and engaging products for many mining applications including grinding mills, conveyors, mine hoists, coal pulverizers, stackers/reclaimers, longwall miners, shuttle cars, haulers, and railed vehicles.

Industrial Clutch • Warner Electric • Svendborg Brakes • Twiflex • Wichita Clutch



Belted Drives and Couplings

An extensive offering of V-belt and synchronous drives (up to 108" / 2.75m in diameter) has been heavily utilized in underground and processing applications for years – including crushers, conveyors, cooling towers, pumps, flotation cells, fans, and compressors. Pioneering many technological innovations to keep in step with changing mining requirements, Regal Rexnord's engineered couplings (grid, gear, flywheel, and universal joints) have become the preferred solution in a variety of demanding mining operations such as draglines, shovels, stackers/reclaimers, crushers, grinding mills, processing equipment, shuttle cars, and conveyors.

Ameridrives • Bibby Turboflex • Guardian Couplings • TB Wood's



Overrunning Clutches

Offering the broadest range of both sprag and ramp-and-roller overrunning clutches and backstops, Regal Rexnord brands are the world's leading authorities for applications requiring overrunning clutches and backstops, such as conveyors, pumps, fans, and redundant drive systems. Available for both high-speed and low-speed operations. Bore sizes, up to 23.5" (600mm) and torque ranges up to 1.2M lb.ft. (1.6Nm).

Formsprag Clutch • Marland Clutch • Stieber



Enclosed Gearing and Geared Motors

As the leading innovator of worm and helical gearing and gear motor technology, Regal Rexnord continues to improve product performance by developing innovative features, designs, and custom-engineered solutions to meet unique market requirements. Providing unmatched reliability and versatility, these products have been used by the mining industry for years and can be found in draglines, shovels, continuous miners, stackers/reclaimers, crushers and sizers, sedimentation tanks and flotation cells, underground vehicles, fans and mine cooling systems, and conveyors. Worm gears up to 48" center distance and helical gearing up to 6M in.lbs. (675kNm) continuous. Energy efficient geared motors are available in a wide range of styles and sizes.

Bauer Gear Motor • Boston Gear • Delroyd Worm Gear • Nuttall Gear



Overload Clutches and Torque Limiters

Regal Rexnord provides positive engagement overload clutches, centrifugal soft-start clutches, and modular torque limiters with up to 95% torque setting accuracy. These products are often utilized in longwall and continuous miners, ventilation fans and compressors, crushers, grinding mills, coal pulverizers, sedimentation tanks, and conveyors.

Bibby Turboflex • Boston Gear

Surface Mining Operations

Electric Rope Shovels and Draglines

Industrial Clutch heavy-duty brakes and Twiflex caliper brakes are used for controlled engagement and emergency stopping on rope hoists and bucket drag winches. Industrial brakes are also used to “park” the tracks and for controlled engagement for swing, propel, and crowd motion applications.

Ameridrives and Bibby gear couplings are used to connect motors to large Nuttall helical speed reducers on hoist and drag drivetrains. Those same couplings are also found on swing, propel, and crowd motion drives.

Boston Gear helical gear drives are found on rope threaders.

Formsprag overrunning clutches and backstops are used to prevent reverse rotation of cooling fans. TB Wood’s and Bibby grid couplings along with Guardian flywheel couplings are used on hydraulic power units in auxiliary systems.

Ameridrives Grid Couplings, Gear Couplings and Amerigear Spindles

Boston Gear Series 2000 Inline Helical Gear Drives

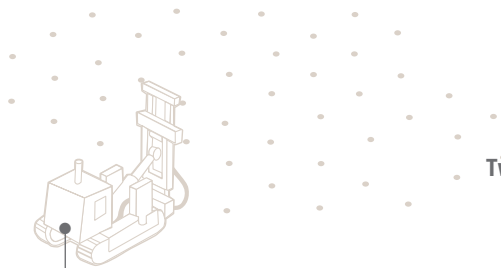
Formsprag Clutch FSO Overrunning Clutches and LCB200 Backstops

Guardian Couplings Flywheel Couplings

Industrial Clutch LKB Spring Set, Air Released Brakes

Nuttall Gear Speed Reducers

Twiflex GMR-SD Spring Applied, Air Released Caliper Brakes



Rotary Blast Hole Drills

Heavy-duty brakes by Industrial Clutch are used to lock the spindle in the case of an emergency stop, providing reliable and repeatable performance. Ameridrives and Bibby gear couplings are used for low-speed, high-torque hoist, lift, and drill movements.

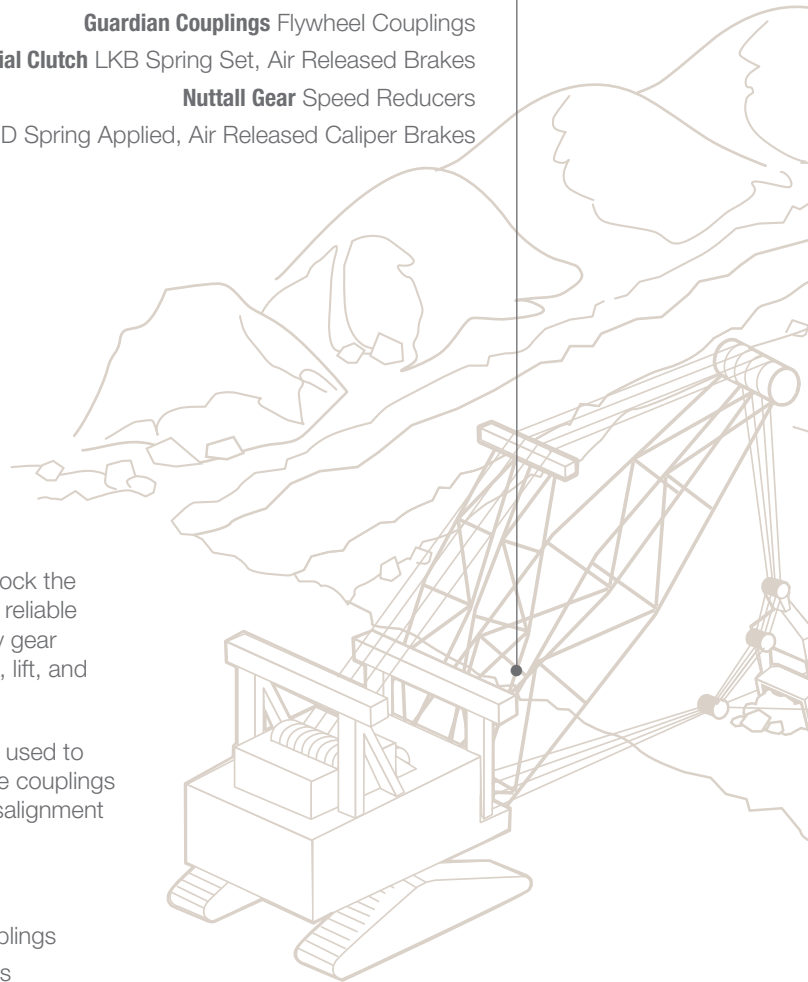
TB Wood’s and Guardian elastomeric couplings are used to connect the hydraulic pump to the main drive. These couplings provide great vibration dampening and excellent misalignment capabilities.

Ameridrives Gear Couplings

Guardian Couplings Shaft-to-Shaft and Flywheel Couplings

Industrial Clutch LKB Spring Set, Air Released Brakes

TB Wood’s Dura-Flex® Elastomeric Couplings





Mine Haul Trucks

Large, rigid-frame haul trucks utilize Warner Electric multi-plate brakes mounted within the rear wheels. These spring-applied, hydraulically-released brakes are sealed and oil-cooled. The axles are connected to the transmission using power-dense U-joints.

Ameridrives U-joints

Warner Electric SAE Hydraulically-Actuated, "Bolt-On" Brakes

Surface Mining Operations

Crushers

High-capacity TB Wood's V-Belt sheaves are used to increase torque between the motor and the crusher. They are used when a redundant system is present or when the primary mover is a tandem drive. On a direct drive system, or a combination of belted and direct drive systems, high-torque gear couplings are used.

To prevent reverse rotation, Formsprag overrunning clutches are used on the rotor portion of cone or gyratory crushers. Bibby and Boston torque limiters are often found on the "anti-spin" of bowl type crushers to maintain product uniformity.

Wichita PTOs and clutches, along with Nuttall speed reducers and Guardian couplings are also utilized on crusher drivetrains.

Ameridrives Grid Couplings and Gear Couplings

Bauer Gear Motors BF Series Parallel Shaft Gear Motors and BK Series Helical Bevel Gear Motors

Bibby Turboflex Bibbigard® Torque Limiters & Rotofluid Couplings

Boston Gear Centric® Series CCC Overload Clutches

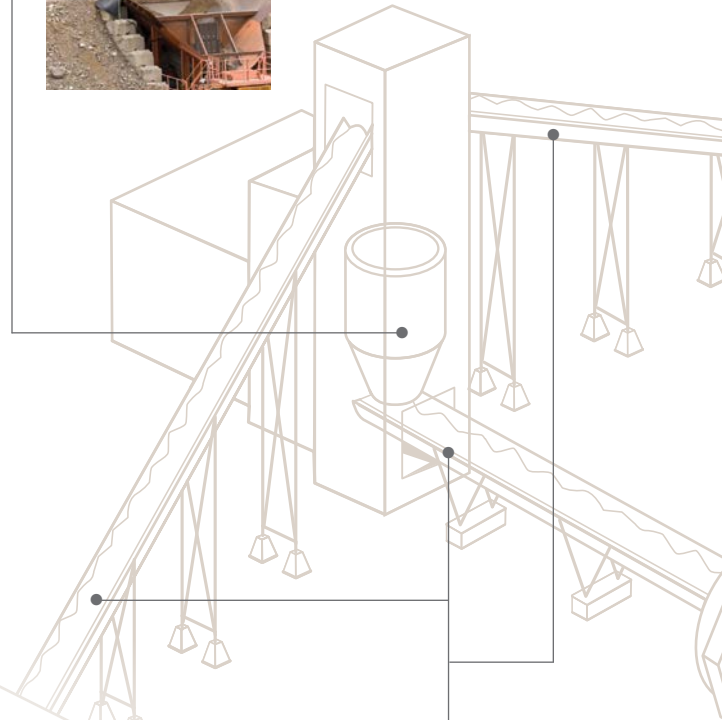
Formsprag Clutch Overrunning Clutches

Guardian Couplings Shaft-to-Shaft and Flywheel Couplings

Nuttall Gear Moduline Concentric Speed Reducers

TB Wood's V-Belt Sheaves

Wichita Clutch PTOs and EM Series Clutches



Inclined, Declined, and Overland Conveyors

Inclined and overland conveyors use backstops to protect against roll back under load. Formsprag, Marland, and Stieber high-speed backstopping clutches are utilized on the conveyor's enclosed gear drive. Low-speed, high-torque holdbacks are mounted close to the drive pulley/head shaft.

Twiflex and Svendborg spring-applied caliper braking systems are used to limit drift time or to prevent belt run-away in the event of a power failure on overland and declined conveyors. Svendborg's SOBO® iQ soft braking control technology reduces wear on equipment and provides consistent stopping times or distances.

Nuttall helical and Delroyd worm gearing solutions are typically used on main drives and, in the case of an inclined conveyor, a high-speed backstop may be added. TB Wood's and Bibby grid couplings along with Guardian curved jaw couplings connect the drive motor to the speed reducer input shaft. Bibby and Ameridrives gear couplings with rigid special overhung moment are used for connecting the head pulley to the motor gearbox drive package. Bibby torque limiters are used to prevent catastrophic failure associated with a sudden spike in torque.

Regal Rexnord Couplings Grid Couplings and Gear Couplings

Bauer Gear Motors BF Series Parallel Shaft Gear Motors and BK Series Helical Bevel Gear Motors

Bibby Turboflex Bibbigard® Torque Limiters & Rotofluid Couplings

Boston Gear 700 Series Worm Gear Drives

Delroyd Worm Gear Gearing

Formsprag Clutch Backstops, Holdbacks & Overrunning Clutches

Guardian Couplings Curved Jaw Brake Disc Couplings

Marland Clutch Backstops & CECON Clutches

Nuttall Gear Moduline Concentric and Type TDS Parallel Shaft Speed Reducers

Stieber Releasable Backstops

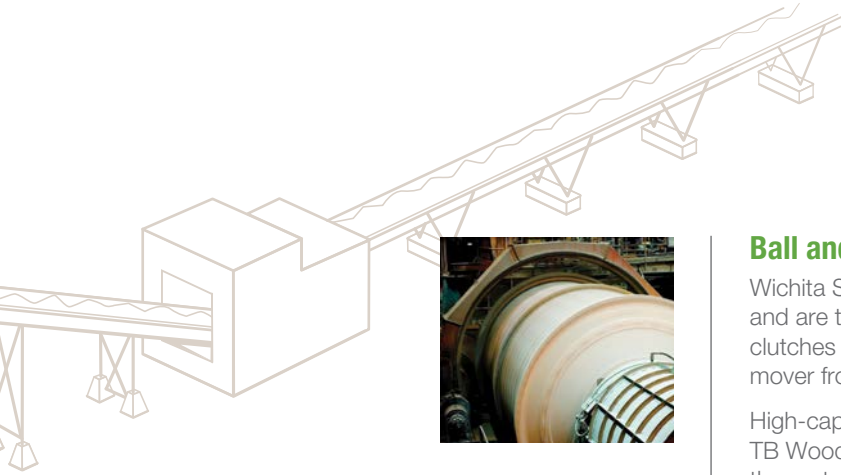
Svendborg Brakes Caliper Disc Brakes, SOBO® iQ Braking Controls & Hydraulic Power Units

TB Wood's V-Belt Drives

Twiflex Spring Applied, Hydraulic or Air Released Caliper Brakes

Wichita Clutch AirMaKs & LI-SSB Clutches





Ball and SAG Mills

Wichita SV Ball Mill Clutches are specifically designed for mill applications and are the product of choice on geared mills. The high-heat dissipation clutches enable smooth starts and a means to disconnect the prime mover from the main drive.

High-capacity Ameridrives and Bibby gear couplings, along with TB Wood's and Bibby grid couplings, are used on geared mills to connect the motor to the speed reducer and the gear drive to the pinion gear. Boston Gear centrifugal clutches are used to help soft-start heavy inertia loads. Bibby torque-limiting modules are tamper-proof and are designed to be integrated into many types of mill systems. Guardian Quik Joint pipe couplers are used on environmental/dust control systems.

Twiflex and Svendborg caliper disc brakes are typically grouped together to multiply braking force for reliable emergency stopping on gearless mills. Models found on geared mills are used to stop and hold the inertia.

Ameridrives Grid Couplings and Gear Couplings

Bibby Turboflex Bibbigard® Torque Limiters

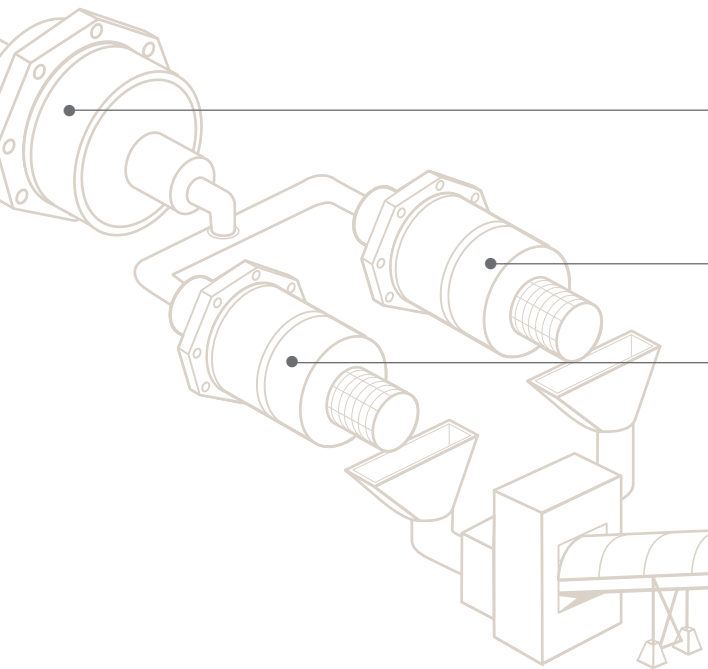
Boston Gear Centric® Series CCC Overload Clutches

Guardian Couplings Shaft-to-Shaft Couplings & Quik Joint Pipe Couplers

Svendborg Brakes Caliper Disc Brakes and Hydraulic Power Units

Twiflex Spring-Applied Modular Caliper Brakes

Wichita Clutch Grinding Mill Clutch



Underground Mining Operations

Utility Vehicles, Shuttle Cars, and Locomotives

Warner Electric hydraulic brakes and Ameridrives gear spindles provide reliable performance on all types of mining vehicles including loaders, haulers, shuttle cars, and personnel carriers. Ameridrives Power Transmission U-joint shafts are often mounted between the traction motors and the wheel assemblies.

Twiflex spring-applied, air-released caliper brakes are used for holding on shuttle locomotives. These brakes are installed on the wheel axle and gearbox input shaft. Warner Electric customized, spring-applied, oil-cooled wheel brakes with service, E-stop and parking functions are also used on locomotives. Spring-applied, electromagnetically-released parking brakes are found on smaller, battery-powered locomotives.

Engine-mounted Guardian couplings connect to gearboxes or hydraulic pumps. Warner Electric spring-applied, hydraulically-released integrated brakes are mounted on the main gear box between the wheels and the motor on shuttle cars.

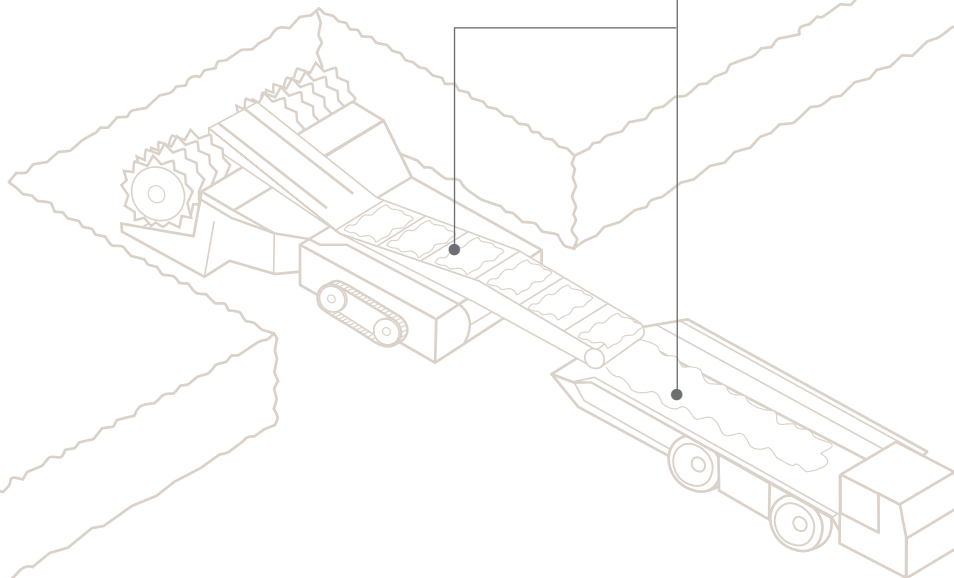


Ameridrives Gear Spindles, Gear Couplings and U-Joints

Guardian Couplings Shaft-to-Shaft and Flywheel Couplings

Warner Electric SAE Hydraulically-Actuated “Bolt-On” Brakes and Custom Design Integrated Wheel Brakes

Twiflex GMRSD Spring Applied, Air Released Brakes, MX Series Hydraulically Released Brakes and MXEA Electric Brakes





Longwall and Continuous Miners

Bibby tamper-proof, positive engagement torque-limiting modules and Boston Gear centrifugal friction clutches provide protection against sudden torque spikes and high inertia starting loads. These components are used on shearers and hauling drives to prevent premature wear and catastrophic failures.

Warner Electric spring-applied, hydraulically-released brakes are used to “park” the shearer at any given position. TB Wood’s and Guardian couplings are utilized on hydraulic pump drives. Nuttall speed reducers are used on the drive of the armor-faced conveyor, the shearer’s haulage system and “scooping” arms.

Bibby Turboflex Bibbigard® Torque Limiters

Boston Gear Centric® Torque Limiters and Series CCC Overload Clutches

Guardian Couplings Shaft-to-Shaft, Flywheel and Curved Jaw Brake Disc Couplings

Warner Electric Series 56P Multi-Disc Brakes

Nuttall Gear Type TDS Parallel Shaft (incline) Speed Reducers

TB Wood’s Dura-Flex® and Sure-Flex Plus® Elastomeric Couplings

Sizers and Feeder Breakers

TB Wood’s and Bibby grid couplings, positioned between the motor and speed reducer, are designed to provide protection against damaging effects of shock loads and vibration on sizers and feeder breakers.

Rugged Nuttall enclosed gearing solutions are used to drive the crushing roller and to power the feeding conveyor. Ameridrives and Bibby gear couplings transmit very high torque from the output shaft of the reducer to the main and conveyor drives.

Wichita and Bibby fluid couplings are a good choice when soft starting, along with shock load protection capabilities, is needed. Boston Gear centrifugal clutches provide similar protection on breakers. Ameridrives Power Transmission U-joints are sometimes used when high misalignment is present. TB Wood’s elastomeric couplings and belted drives are routinely utilized on this equipment.

Ameridrives Grid Couplings, Gear Couplings and U-Joints

Bibby Turboflex Rotofluid Couplings

Boston Gear Centric® Centrifugal Clutches

Nuttall Gear Moduline Concentric Speed Reducers

TB Wood’s Dura-Flex® and Sure-Flex Plus® Elastomeric Couplings;
V-Belt & Synchronous Drives

Wichita Clutch Mesur-Fil® Fluid Couplings



Underground Mining Operations

Winders, Hoists, and Elevators

Twiflex and Svendborg mounted caliper brakes are grouped together to multiply braking force for reliable positioning (low speed to bring to rest), holding/parking, and emergency stopping. Svendborg's SOBO® iQ control technology provides soft and predictable braking sequences on deep underground mine winders and hoists.

Grid, shaft-to-shaft and high-torque capacity gear couplings from Ameridrives, Bibby, Guardian and TB Wood's transmit torque between the drive motor and the speed reducer, and between the speed reducer and the hoist drum.

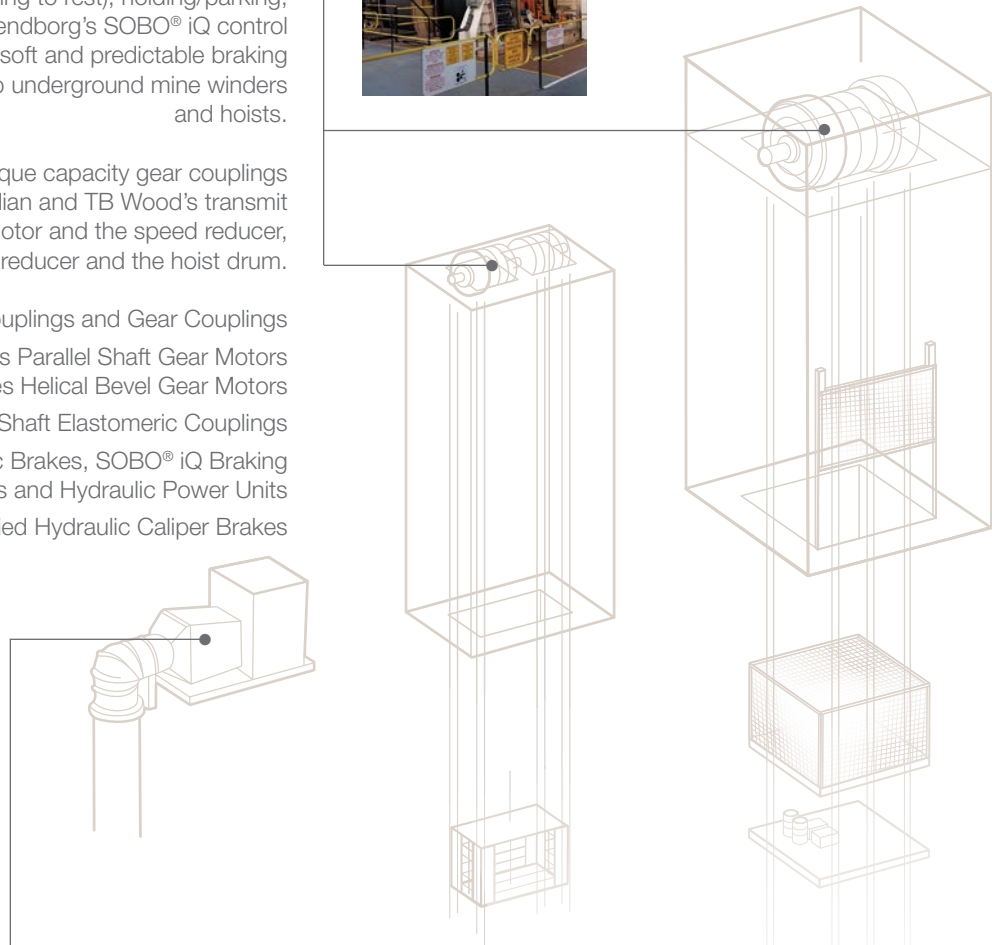
Regal Rexnord Couplings Grid Couplings and Gear Couplings

Bauer Gear Motors BF Series Parallel Shaft Gear Motors and BK Series Helical Bevel Gear Motors

Guardian Couplings Shaft-to-Shaft Elastomeric Couplings

Svendborg Brakes Caliper Disc Brakes, SOBO® iQ Braking Controls and Hydraulic Power Units

Twiflex Spring Applied Hydraulic Caliper Brakes



Fans & HVAC Systems

TB Wood's belted drives are used on fans when the motor shaft is parallel and offset to the fan shaft, or when it is powered by two prime movers. When the fan design requires the motor to be mounted in-line with the fan shaft, high-performance Ameridrives, Bibby, Guardian, and TB Wood's couplings are used. Nuttall speed reducers are sometimes attached to the main drives.

Wind-milling of the fan is prevented by using a Formsprag backstop. Formsprag overrunning clutches are used when a redundant drive system is present. To avoid premature drive system wear, Boston Gear centrifugal friction clutches are installed to assist on start up. Spring-applied caliper braking systems from Twiflex and Svendborg provide reliable stopping and holding performance.

Ameridrives Turboflex GC Couplings

Bibby Turboflex Turboflex HP Couplings

Boston Gear Centric® Series CCC Overload Clutches

Formsprag Clutch FSO & HSB Overrunning Clutches and LCB200 Backstops

Guardian Couplings Curved Jaw Brake Disc Couplings

Nuttall Gear Speed Reducers

Svendborg Brakes Caliper Disc Brakes and Hydraulic Power Units

TB Wood's Form-Flex® Couplings, Floating Shaft Couplings & V-Belt Drives

Twiflex Spring Applied, Air Released Caliper Brakes

Stacker/Reclaimers

The bucket wheel is driven by an electric motor connected to a helical gear reducer via a high-speed coupling. The boom is raised and lowered by a hoist that utilizes Twiflex and Svendborg caliper brakes for holding and emergency stopping. The machine moves forward and backward via a set of tracks controlled by electric motors, speed reducers, caliper brakes, and Ameridrives gear spindles.

Industrial Clutch brakes, positioned on the drive end opposite of the motor, are used for controlled engagement and high-energy stops. Ameridrives, Bibby, Guardian, and TB Wood's couplings are used to connect the motor to the speed reducer on take-away and discharge conveyors, tracks, and bucket wheel rotation drives. Boston Gear enclosed helical gearing is found on rope threader drivetrains.

These massive machines require large cooling fan systems that often utilize Formsprag high-speed backstops to prevent reverse rotation.

Ameridrives Gear Spindles, Grid Couplings and Gear Couplings

Bibby Turboflex Rotofluid Couplings

Boston Gear Series 2000 Inline Helical Gear Drives

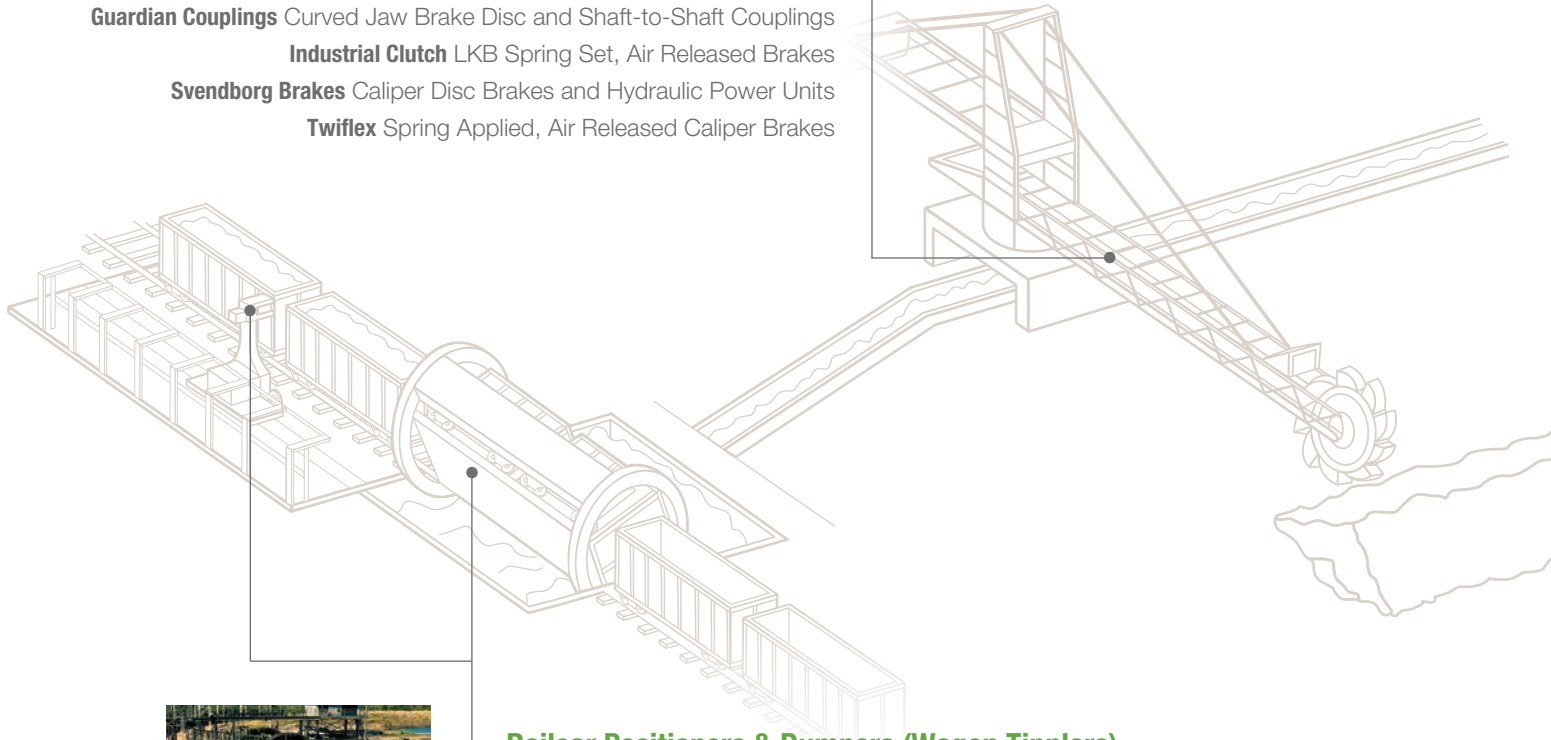
Formsprag Clutch Overrunning Clutches

Guardian Couplings Curved Jaw Brake Disc and Shaft-to-Shaft Couplings

Industrial Clutch LKB Spring Set, Air Released Brakes

Svendborg Brakes Caliper Disc Brakes and Hydraulic Power Units

Twiflex Spring Applied, Air Released Caliper Brakes



Railcar Positioners & Dumpers (Wagon Tipplers)

Ameridrives and Bibby gear couplings transmit torque from the rotating dumper barrel's primary mover to the helical gear drive and from the gear drive to the load on wagon tipplers. Twiflex and Svendborg caliper brakes provide superior positioning, holding, and emergency stopping performance on the car dumper rotation drive.

Bibby torque limiters are utilized on railcar positioners that move and feed strings of cars in and out of the wagon tippler without the need for a locomotive.

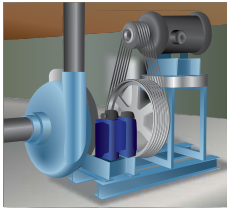
Ameridrives Grid Couplings and Gear Couplings

Bibby Turboflex Torque Limiters

Svendborg Brakes Caliper Disc Brakes and Hydraulic Power Units

Twiflex Models VKSD & VM3-SPS Caliper Brakes

Processing Operations



Pumps and Compressors

Pump packages utilize high horsepower TB Wood's V-belt drives to connect the motor to the pump shaft. The belted drive can also be designed with an optimal speed reduction ratio to increase torque to the pump.

For direct drive pump systems, a variety of TB Wood's, Bibby, Guardian, and Ameridrives or Ameridrives U-joints transmit power from the motor to the pump shaft. When pumps are connected to a common manifold, Formsprag overrunning clutches can be used on each pump to protect it and the other power transmission components from counter-rotation of the impeller and reverse fluid flow.

Bibby torque limiters, Marland clutches, and Nuttall speed reducers are often incorporated on larger pump drivetrains.

Ameridrives Turboflex GC Couplings, Grid Couplings and U-Joints

Bauer Gear Motors BG Series Helical Gear Motors

Bibby Turboflex Turboflex HP Couplings and Bibbigard® Torque Limiters

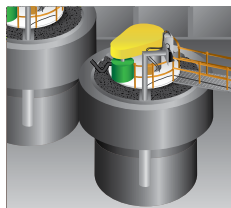
Formsprag Clutch Overrunning Clutches

Guardian Couplings Flywheel and Shaft-to-Shaft Elastomeric Couplings

Marland Clutch CECON Clutches

Nuttall Gear Moduline Concentric Speed Reducers

TB Wood's Dura-Flex®, Sure-Flex Plus®, Form-Flex® and Floating Shaft Couplings; V-Belt Drives





Sedimentation Tanks

Boston Gear enclosed speed reducers along with a variety of TB Wood's, Bibby, and Guardian couplings are often utilized in the common powertrains that drive both the bottom scrapers/agitators and upper skimmers in circular tanks. In many cases, the chain drive is located above the center of the tank. However, some round clarifier designs position the drive units on outer perimeter tank rim tracks.

Boston Gear and Bibby overload clutches and torque limiters are frequently installed to prevent the massive amount of torque generated from damaging the drive mechanism, due to the slow rotation speed of the skimmers/scrapers and potential jams.

Ameridrives Grid Couplings

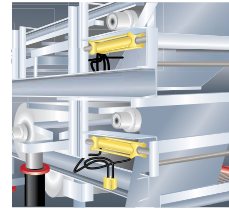
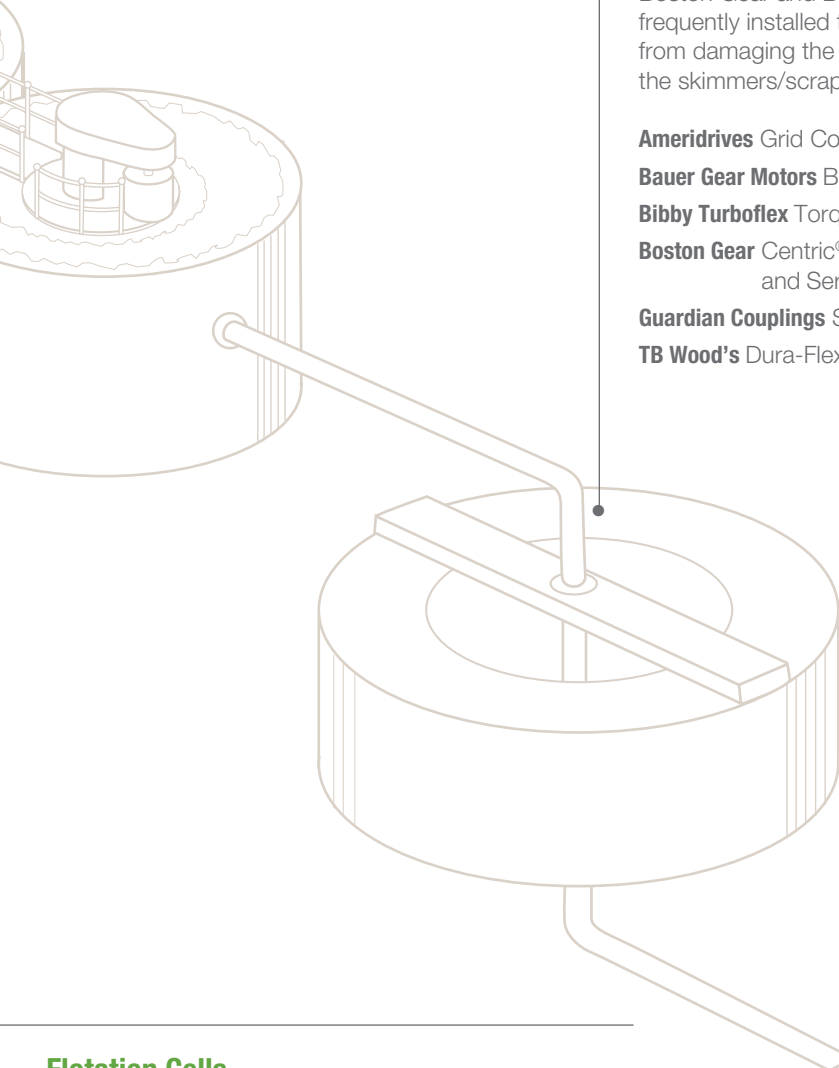
Bauer Gear Motors BK Series Helical Bevel Gear Motors

Bibby Turboflex Torque Limiters

Boston Gear Centric® Torque Limiters, Series CCC Overload Clutches and Series 2000 Inline Helical Gear Drives

Guardian Couplings Shaft-to-Shaft Elastomeric Couplings

TB Wood's Dura-Flex® and Sure-Flex Plus® Elastomeric Couplings

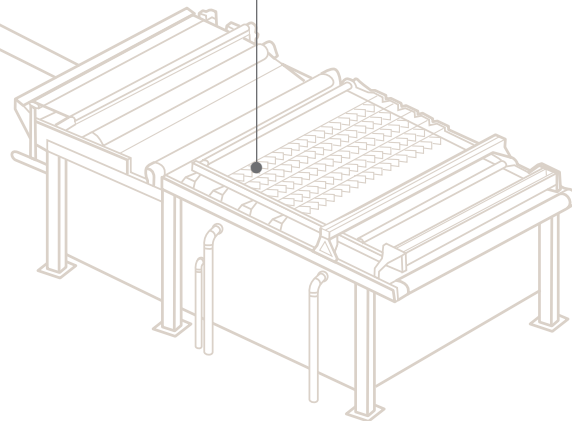


Belt Filter Press

TB Wood's synchronous belted drives are used to power the filtering medium pressure rolls via a Boston Gear enclosed gear drive.

Boston Gear Series 2000 Inline Helical Gear Drives

TB Wood's Synchronous Belted Drives



Flotation Cells

TB Wood's large diameter and high HP belted drives connect the main drive motor to the agitator shaft. In the case of larger capacity flotation cells, TB Wood's, Bibby and Guardian couplings can be used on the agitator drivetrain. Bibby mechanical torque limiters are often utilized to protect the main drivetrain from damage due to sudden overload caused by jams.

Ameridrives Grid Couplings

Bibby Turboflex Torque Limiters

Guardian Couplings Shaft-to-Shaft Elastomeric Couplings

TB Wood's Dura-Flex® and Sure-Flex Plus® Elastomeric Couplings; V-Belt Drives and MTO Sheaves

Power Transmission Solutions for the Mining Industry

CHECK OUT

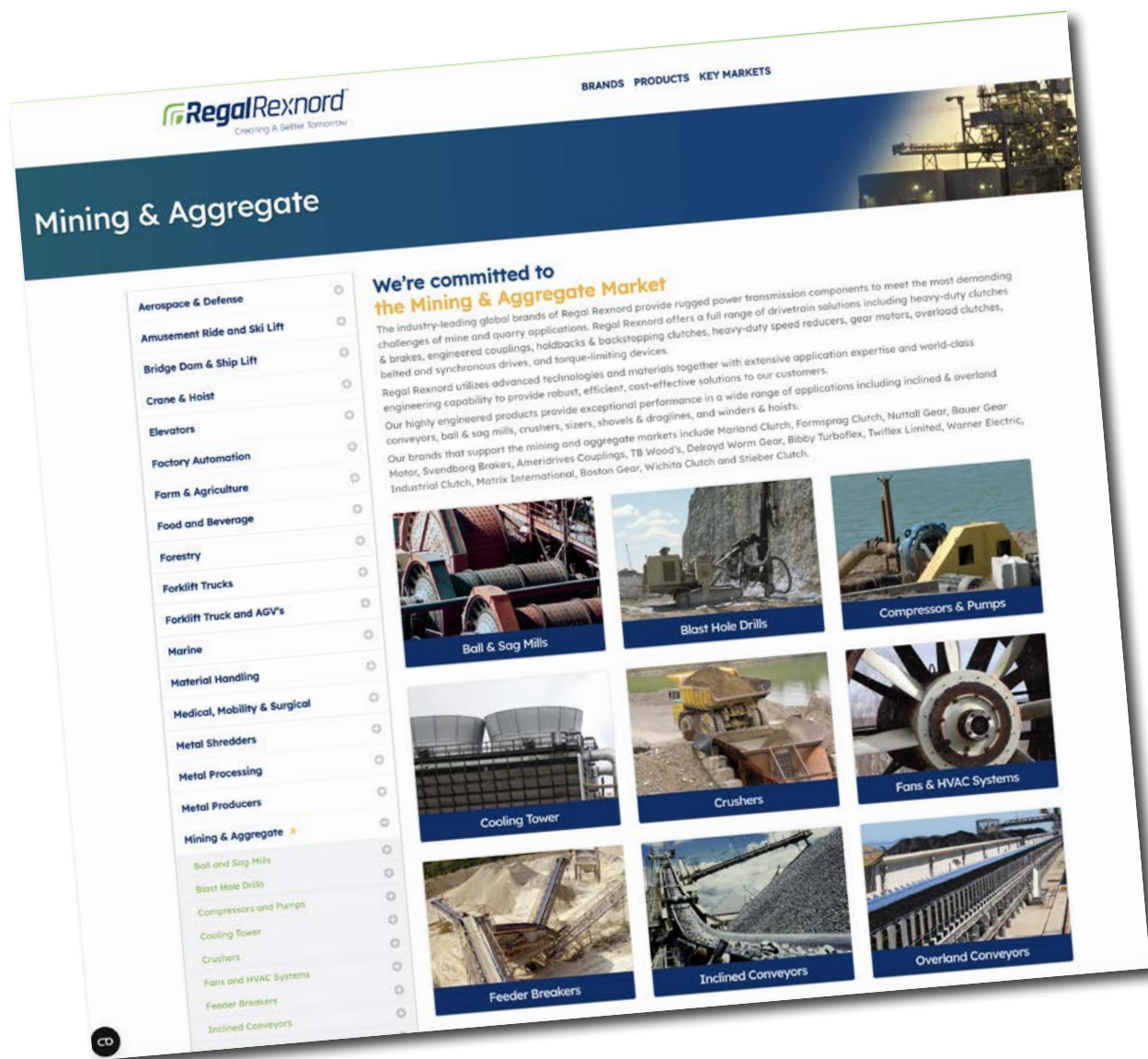
www.regalrexnord.com

The website offers the worldwide mining and aggregate marketplace convenient, 24-hour access to the Regal Rexnord brands, products and applications critical to virtually every operation in the mining process.

The website is organized by 15 mining application categories ranging from shovels and draglines to conveyors, crushers, winders and hoists, and more.

Within these categories are the features and benefits of each Regal Rexnord product solution that can be applied to improve efficiency, productivity, and safety in the mining operation. Each product contains a web link to one of the 16 Regal Rexnord brands that support the mining industry, where engineers can access detailed product specifications.

The website also contains a Mining Solutions Video, Case Studies, a Literature Portal and information on Regal Rexnord's Replacement Program for clutches and brakes – from Industrial Clutch, Wichita Clutch and Twiflex as well as its Rebuild Program for backstops from Formsprag Clutch and Marland Clutch.



Premier Industrial Company Leading Brands

OTHER PRODUCT SOLUTIONS FROM **REGAL REXNORD**

Our comprehensive product offerings include various types of clutches and brakes, overrunning clutches, engineered bearing assemblies, gearing and gear motors along with linear motion products, belted drives, couplings, limit switches, precision motors, drives & controls, and miniature motors. With thousands of product solutions available, Regal Rexnord provides true single source convenience while meeting specific customer requirements. Many major OEMs and end users prefer Regal Rexnord products as their No. 1 choice for performance and reliability.

WWW.REGALREXNORD.COM



Electric Clutches & Brakes

Stromag
Warner Electric



Precision Motors & Automation

Kollmorgen



Heavy Duty Clutches & Brakes

Industrial Clutch
Stromag
Svendborg Brakes
Twiflex
Wichita Clutch



Miniature Motors

Portescap



Overrunning Clutches

Formsprag Clutch
Marland Clutch
Stieber



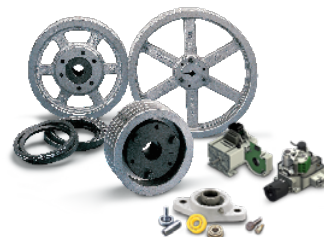
Linear Systems

Thomson



Engineered Couplings & Universal Joints

Ameridrives
Bibby Turboflex
Guardian Couplings
Huco
Lamiflex Couplings
Stromag
TB Wood's



Specialty Components

Kilian
Stromag
TB Wood's



Gear Drives & Gear Motors

Bauer Gear Motor
Boston Gear
Delroyd Worm Gear
Nuttall Gear



Scan to see all
the brands of
Regal Rexnord