

*Ameridrives*

*Bauer Gear Motor*

*Bibby Turboflex*

*Boston Gear*

*Delroyd Worm Gear*

*Guardian Couplings*

*Nuttall Gear*

*Stieber*

*Stromag*

*Svendborg Brakes*

*TB Wood's*

*Twiflex*

*Warner Electric*

*Thomson*

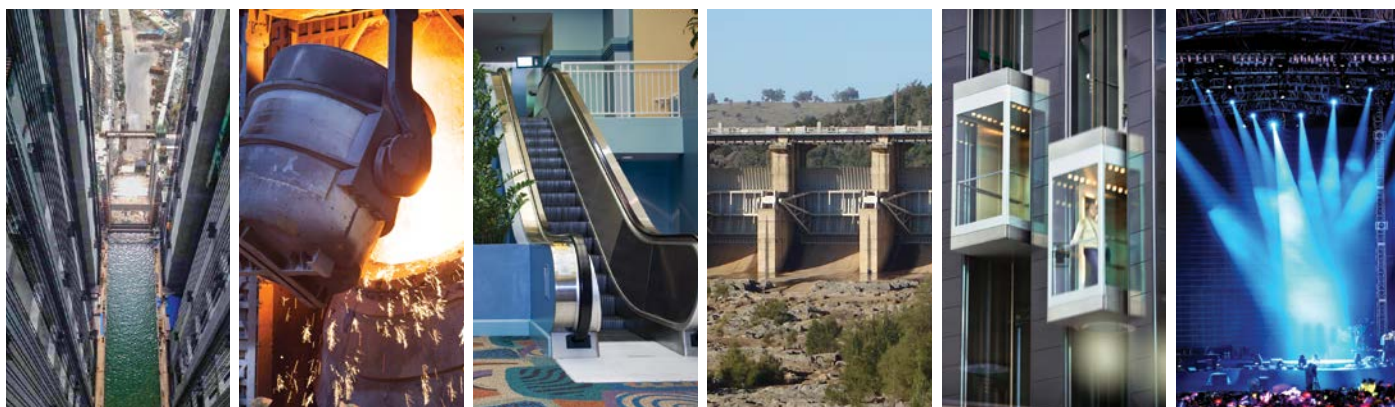
# Power Transmission Solutions for Vertical Lift Systems



# Power Transmission Solutions for Vertical Lift Systems

## REGAL REXNORD PROVIDES ADVANCED POWER TRANSMISSION SOLUTIONS FOR VERTICAL LIFT APPLICATIONS

The well recognized brands of Regal Rexnord supply technically advanced clutches and brakes, geared motors, speed reducers, couplings, controls and sensors, sheaves, and castings for a wide range of vertical lift applications including cranes and hoists, stage lifts, elevators, escalators, ski lifts, overhead doors, bridges and spillway gates.



### Regal Rexnord Brands Deliver Value Throughout the Drivetrain

With industry-leading brand names, including Ameridrives, Bauer Gear Motor, Bibby Turboflex, Boston Gear, Delroyd Worm Gear, Guardian Couplings, Nuttall Gear, Stieber, Stromag, Svendborg Brakes, TB Wood's, Twiflex, Warner Electric, and Thomson, Regal Rexnord is positioned to provide OEMs with exceptional drivetrain value by ensuring component compatibility and optimized performance combined with time-saving, single-source convenience.

### Extensive Technical Experience in Vertical Lift Applications

Major OEMs routinely rely on the vast vertical lift application knowledge of Regal Rexnord's engineering teams that collaborate to thoroughly analyze specific customer applications and then apply the latest technologies in design, materials and manufacturing. Whether a modified standard product or a custom solution is required, Regal Rexnord provides complete sales and engineering support to customers around the world from the very first concept to the detailed planning, design variation phase and commissioning.

For more information about power transmission solutions for vertical lift applications from Regal Rexnord including case studies, literature, and service manuals, visit

**[www.AltraVerticalLiftSystems.com](http://www.AltraVerticalLiftSystems.com)**



## REGAL REXNORD PRODUCTS KEEP MINES RUNNING SMOOTHLY... WORLDWIDE



### Clutches, Brakes & Actuators

As one of the largest providers of brakes and clutches for cranes, hoists and elevators, Regal Rexnord provides expertise in acceleration and deceleration of vertical lift drive systems. Regal Rexnord offers a wide array of solutions including electromagnetic released and hydraulically released, shaft mounted and caliper disc brakes, overrunning clutches, braking controls, HPUs, and linear actuators.

**Stieber • Stromag • Svendborg Brakes • Twiflex • Warner Electric • Thomson**



### Couplings

Pioneering many technological innovations to keep in step with demanding industry requirements, Regal Rexnord's engineered couplings (grid, gear, elastomeric, L-Jaw, and universal joints) have become a preferred solution in a variety of lifting applications such as cranes, winches, mine winders, and stage lifts.

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



### Controls and Sensors

Reliable Stromag geared cam limit switches, ideally attached directly to the winch cable drum, provide protection for equipment and machinery by limiting winches at their top and bottom cutoff points. When integrated with optional, intelligent encoder technologies, these geared cam limit switches can easily determine absolute positions to a high precision on all types of vertical lift applications.

The values can be converted into additional data such as sense of rotation and overspeed. Plant operators benefit from optimized cost control when these status parameters and appropriate preventive measures are integrated in the condition monitoring system.

**Stromag**



### Geared Motors and Enclosed Gearing

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 vertical lifting market requirements. Providing unmatched reliability and versatility, these products can be found in many types of cranes, stage lifts, and moveable bridges. Energy efficient geared motors are offered in a wide range of styles and sizes. Worm gears are available with center distances up to 48" (1.22 m) and helical gearing with torque capacities up to 6M in.lbs. (675 kNm) continuous. Large, heavy-duty custom gearboxes are also offered.

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



### Sheaves and Castings

TB Wood's sheaves are used in upper and lower blocks on overhead bridge, gantry, and tower cranes. TB Wood's also provides unmachined ductile and gray iron sheave, housing, and rotor castings to elevator mechanical drive OEMs.

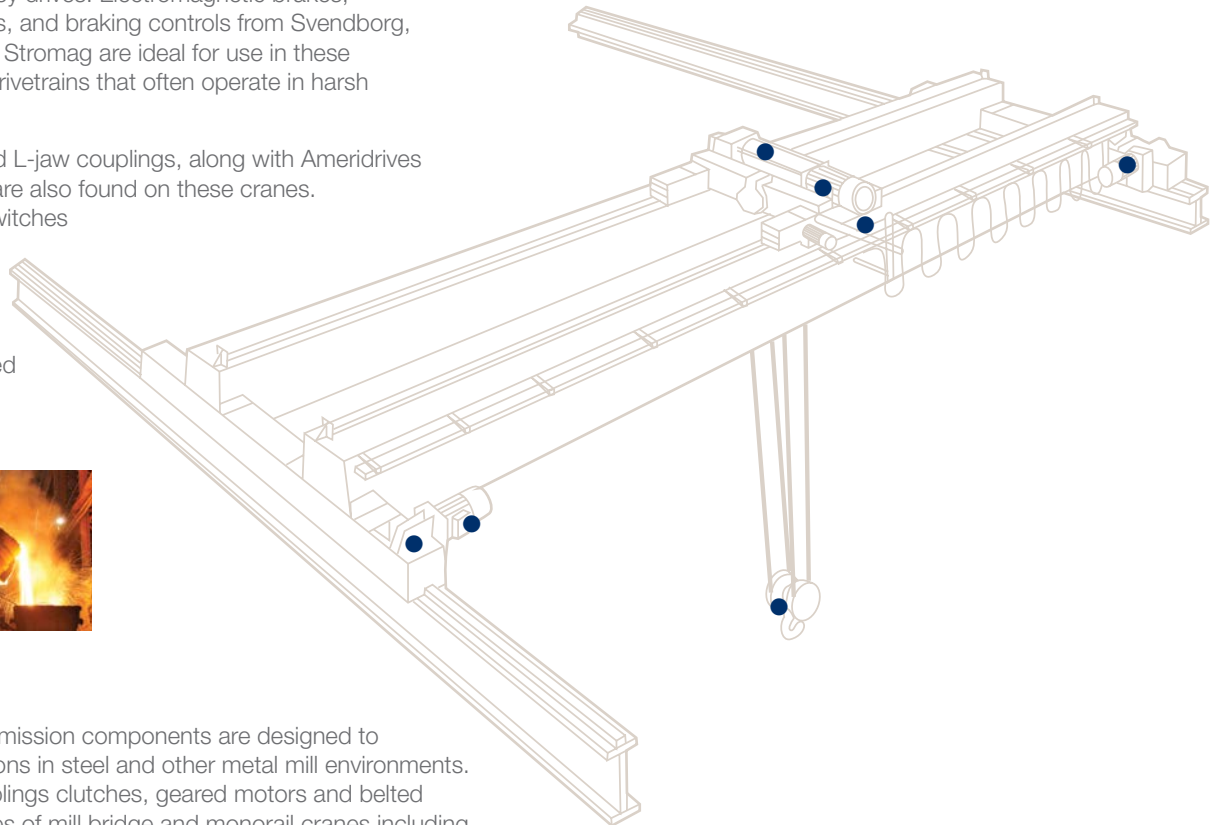
**TB Wood's**

# CRANES & HOISTS

## Traveling Overhead Bridge & Monorail Cranes

Robust Bauer geared motors are a preferred choice for use on overhead crane trolley drives. Electromagnetic brakes, hydraulic disc caliper brakes, and braking controls from Svendborg, Twiflex, Warner Electric and Stromag are ideal for use in these slow-running, high torque drivetrains that often operate in harsh environments.

Guardian motor mounts and L-jaw couplings, along with Ameridrives and Bibby gear couplings, are also found on these cranes. A variety of Stromag limit switches secure loads and protect equipment including the Series 51 that can limit the hook lift of the crane's hoist for added safety.



## Steel Mill Cranes

Regal Rexnord power transmission components are designed to withstand the harsh conditions in steel and other metal mill environments. Regal Rexnord brakes couplings clutches, geared motors and belted drives are utilized on all types of mill bridge and monorail cranes including, ladle cranes, charging cranes, rolling area cranes, shipping area cranes, and slab and billet handling cranes.

### Ameridrives

- Amerigear Gear Couplings
- Americardan C Series Wing Bearing U-Joints

### Bibby Turboflex

- Series III Gear Couplings

### Warner Electric

- ERD/ERDD VAR Electrically Released Brakes
- ERD/ERDD Gen2 Electrically Released Brakes

### TB Wood's

- V-Belt Drives

### Bauer Gear Motor

- BF Series Parallel Shaft Geared Motors
- BK Series Helical Bevel Geared Motors

### Twiflex

- MXEA Electric Brakes
- VCS Disc Brakes

### Stieber

- DC Clutch
- RSCI Series Clutches

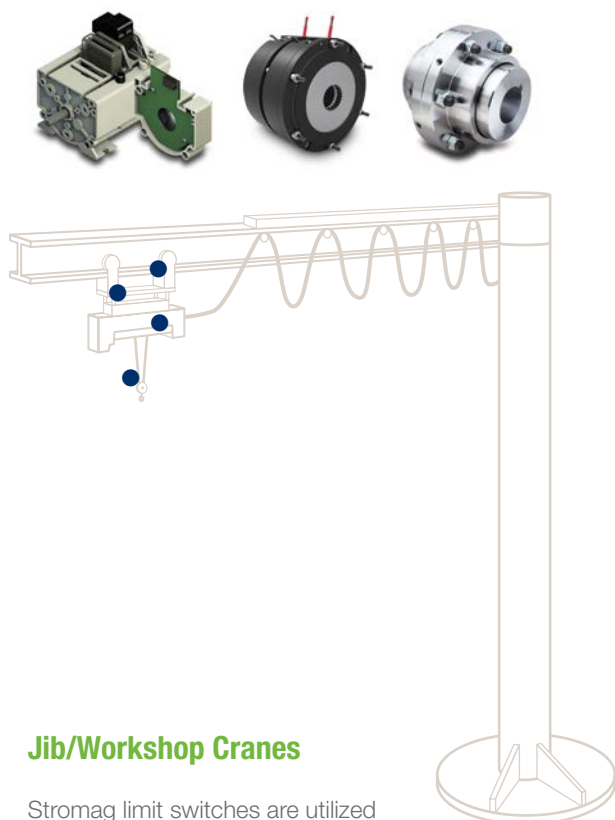
### Svendborg Brakes

- BSFI Series Brakes
- SOBO iQ Soft Braking Control
- Hydraulic Power Packs

### Stromag

- SHD/SH Hydraulic Disc Brakes
- SDB Drum Brakes
- NFF Motor Spring-Applied Brakes
- TDXB Thruster Disc Brakes
- Electromagnetic Disc Brakes
- Hydraulic Power Packs
- PHS Hydraulic Buffers
- Series 51 Limit Switches
- LightXcross LX® Limit Switches
- Light Cam® & Light Cam® M Limit Switches
- Series 410 Spur Geared Cam Limit Switches
- Series 62 Spindle Cam Limit Switches
- Flexible/Gear Disc Couplings
- SIDEOS One Control System
- BCS Barrel Couplings
- Electrical Units





## Jib/Workshop Cranes

Stromag limit switches are utilized to provide added safety on smaller workshop and jib cranes. Svendborg caliper disc brakes and controls along with Bauer geared motors and Ameridrives and Bibby gear couplings provide years of reliable service on these types of cranes.

### Ameridrives

- Amerigear Gear Couplings

### Bibby Turboflex

- Series III Gear Couplings

### Warner Electric

- ERD Electrically Released Brakes
- ERC100 Brake
- CBCx-001 Switch

### TB Wood's

- V-Belt Drives

### Bauer Gear Motor

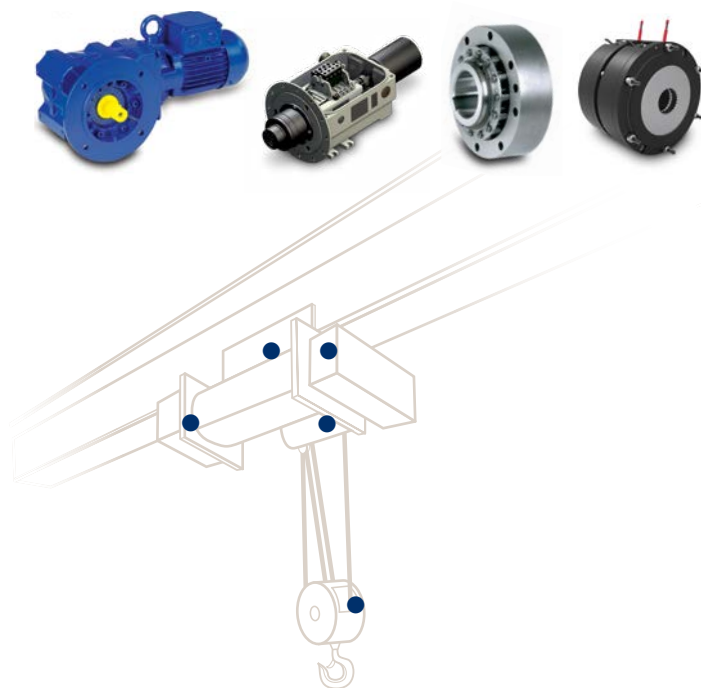
- BF Series Parallel Shaft Geared Motors
- BK Series Helical Bevel Geared Motors

### Svendborg Brakes

- BSFI Series Brakes
- SOBO iQ Soft Braking Controls
- Hydraulic Power Packs

### Stromag

- Series 51 Limit Switches
- Light Cam® Limit Switches
- LightXcross LX® Limit Switches



## Chain and Wire Rope Hoists & Winches

BF Series and BK Series geared motors from Bauer are an ideal drive choice for many types of chain and wire rope hoists and winches. Stromag offers several different limit switch options that are ideally suited for these vertical lift applications.

Ameridrives and Bibby gear couplings along with Stieber overrunning clutches and Warner Electric brakes are also used on these hoist and winch drivetrains.

### Ameridrives

- Amerigear Gear Couplings

### Bibby Turboflex

- Series III Gear Couplings

### Warner Electric

- ERD Electrically Released Brakes

### Bauer Gear Motor

- BF Series Parallel Shaft Geared Motors
- BK Series Helical Bevel Geared Motors

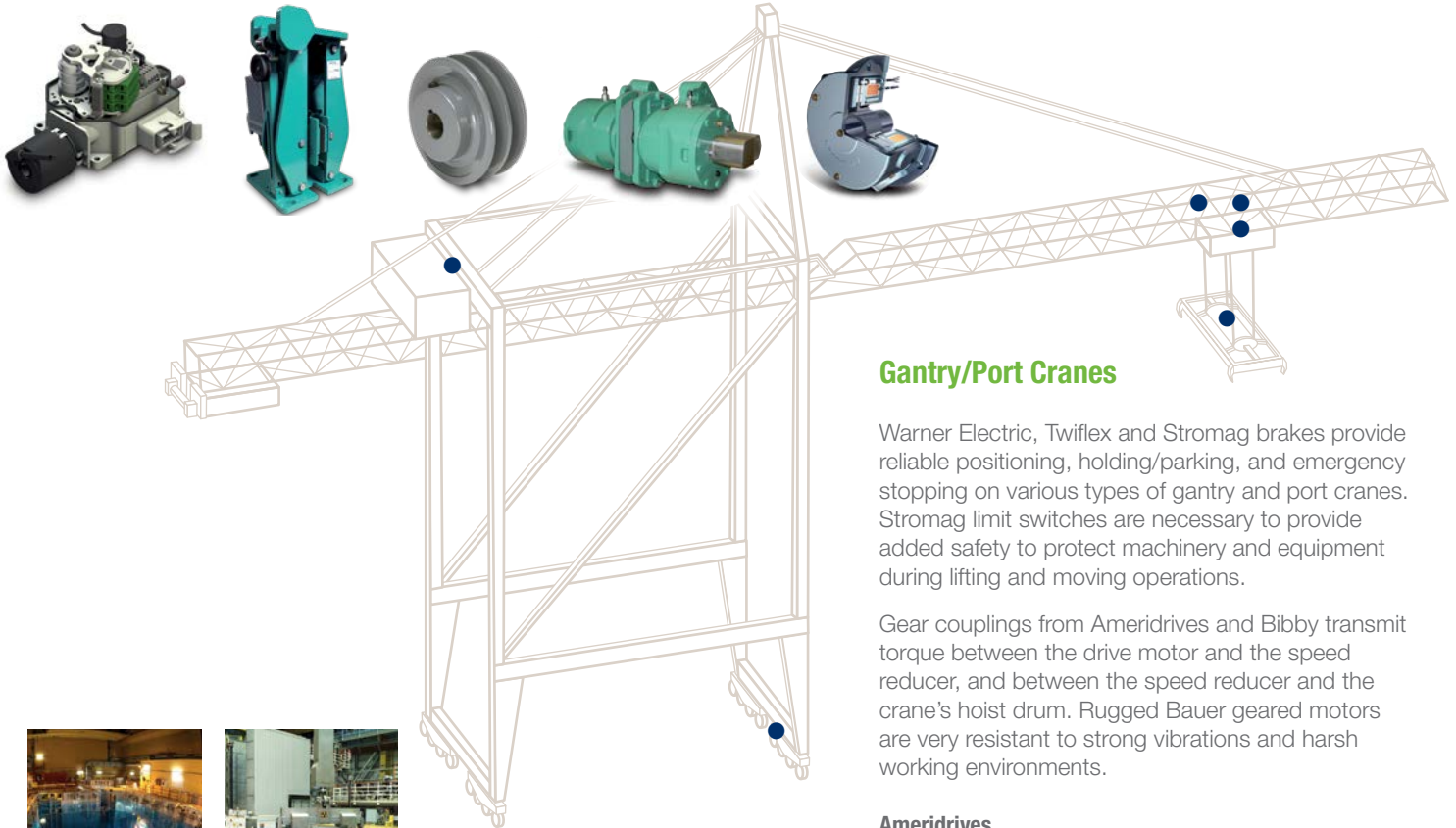
### Stromag

- Series 51 Limit Switches
- Light Cam® Limit Switches
- Series 100 Spur Geared Cam Limit Switches
- Series HGE Limit Switches

### Stieber

- DC Clutch
- RSCI Series Clutches

# CRANES & HOISTS



## Gantry/Port Cranes

Warner Electric, Twiflex and Stromag brakes provide reliable positioning, holding/parking, and emergency stopping on various types of gantry and port cranes. Stromag limit switches are necessary to provide added safety to protect machinery and equipment during lifting and moving operations.

Gear couplings from Ameridrives and Bibby transmit torque between the drive motor and the speed reducer, and between the speed reducer and the crane's hoist drum. Rugged Bauer geared motors are very resistant to strong vibrations and harsh working environments.

### Ameridrives

- Amerigear Gear Couplings

### Bibby Turboflex

- Series III Gear Couplings

### Warner Electric

- ERD Electrically Released Brakes

### TB Wood's

- V-Belt Drives

### Bauer Gear Motor

- BF Series Parallel Shaft Geared Motors
- BK Series Helical Bevel Geared Motors
- BG Series Helical Geared Motors

### Twiflex

- MXEA Electric Brakes
- VCS Disc Brakes

### Stromag

- SH/SHC Hydraulic Disc Brakes
- SDB Drum Brakes
- HPI Spring-Applied Brakes
- NFF Spring-Applied Brakes
- 4BZFM Spring-Applied Brakes
- TDXB Thruster Disc Brakes
- Electromagnetic Disc Brakes (CA2 Range; D/K Range; 600 Range)
- CSH Hydraulic Power Packs
- PHS Hydraulic Buffers
- HHEV Lever Limit Switches
- Series 51 Limit Switches
- SIDEOS One Control System
- BCS Barrel Couplings
- Flexible/Gear Disc Couplings
- SP-C Pulleys with Couplings

## Nuclear Cranes

Regal Rexnord brands provide reliable, full nuclear documented power transmission components including Bibby gear couplings, Warner Electric and Stromag disc brakes for use on nuclear plant overhead bridge cranes around the world. Stromag limit switches are used in GGG applications. Stromag's SIDEOS Box NFM is especially designed to ensure the safety lowering devices which insert fuel in the cooling pool of nuclear plants.

Special overhead cranes are used to raise and lower heavy flasks containing nuclear waste at various stations throughout waste reprocessing plants. The cranes are powered by an electric motor and gearbox drivetrain. Bibby couplings connect the gearbox to the shaft of the hoist's cable winding drum.

### Stromag

- SHD/SH Hydraulic Disc Brakes
- PHS Hydraulic Buffers
- Electromagnetic Disc Brakes (CA2 Range; D/K Range)
- TDXB Thrusters Brakes
- SDB Drum Brakes
- Discs & Couplings
- Hydraulic Power Packs
- Electrical Units
- Monitoring Systems
- Series 100/110 Limit Switches
- SIDEOS One Control System

### Bibby Turboflex

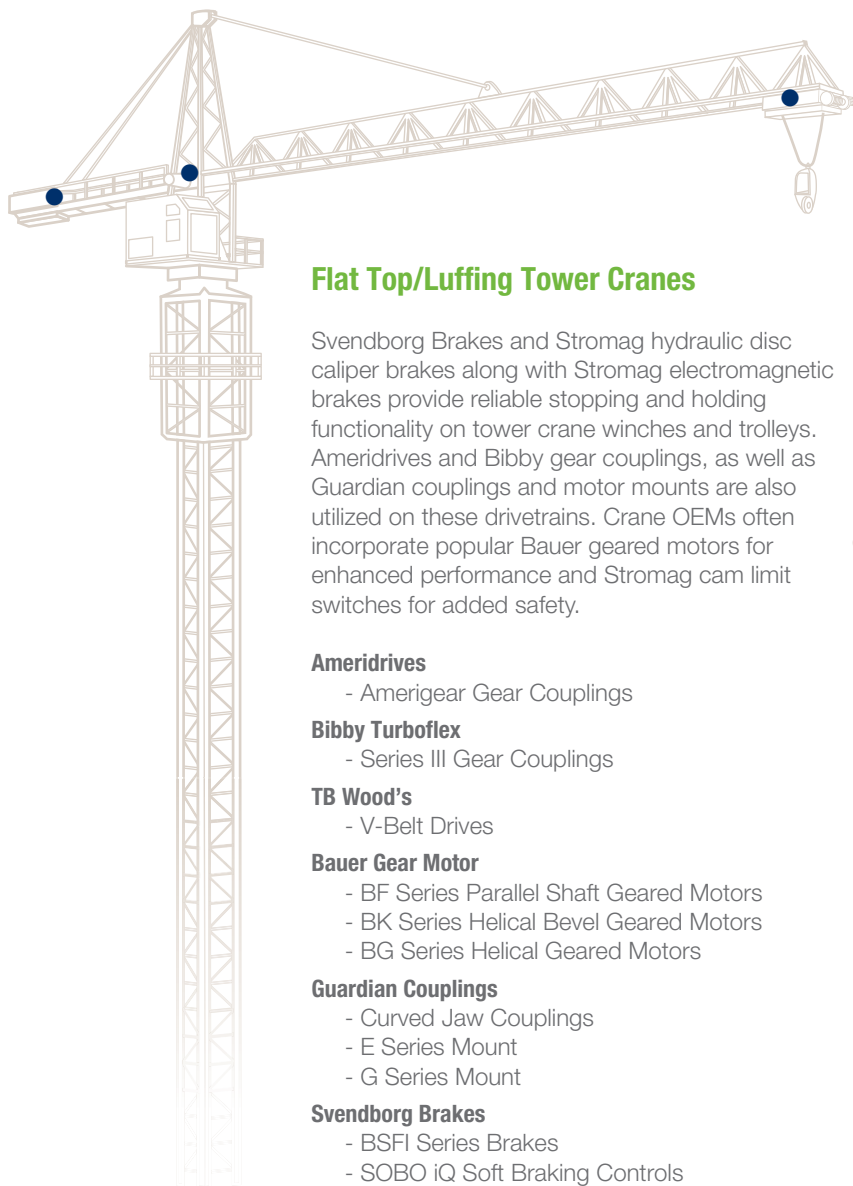
- Series II Gear Couplings

### Svendborg Brakes

- SOBO iQ Soft Braking Control

### Warner Electric

- ERD/ERDD VAR Electrically Released Brakes
- ERD/ERDD Gen2 Electrically Released Brakes



## Flat Top/Luffing Tower Cranes

Svendborg Brakes and Stromag hydraulic disc caliper brakes along with Stromag electromagnetic brakes provide reliable stopping and holding functionality on tower crane winches and trolleys. Ameridrives and Bibby gear couplings, as well as Guardian couplings and motor mounts are also utilized on these drivetrains. Crane OEMs often incorporate popular Bauer geared motors for enhanced performance and Stromag cam limit switches for added safety.

### Ameridrives

- Amerigear Gear Couplings

### Bibby Turboflex

- Series III Gear Couplings

### TB Wood's

- V-Belt Drives

### Bauer Gear Motor

- BF Series Parallel Shaft Geared Motors
- BK Series Helical Bevel Geared Motors
- BG Series Helical Geared Motors

### Guardian Couplings

- Curved Jaw Couplings
- E Series Mount
- G Series Mount

### Svendborg Brakes

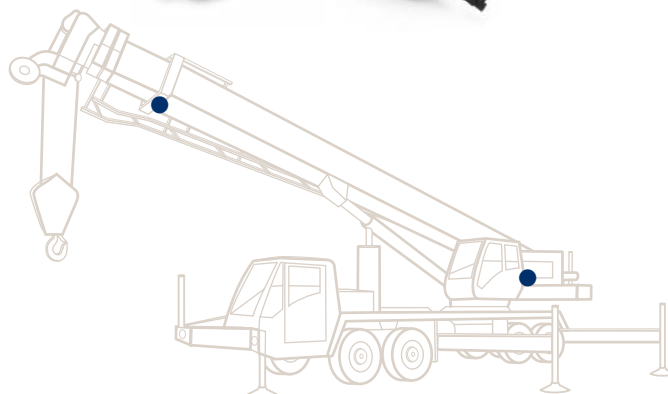
- BSFI Series Brakes
- SOBO iQ Soft Braking Controls
- Hydraulic Power Units

### Stromag

- TDXB Thruster Disc Brakes
- SHD Hydraulic Disc Brakes
- SDB Drum Brakes
- CSH Hydraulic Power Packs
- Light Cam® Series Limit Switches
- Series 51 Limit Switches
- BCS Barrel Couplings
- NFF Motor Brakes

### Warner Electric

- FBB Series Electrically Released Brake Modules



## Truck-Mounted & Crawler Cranes

Stromag motor brakes and limit switches are installed on all types of truck-mounted and tracked mobile cranes. Smart Cam limit switches control boom extension length.

### Stromag

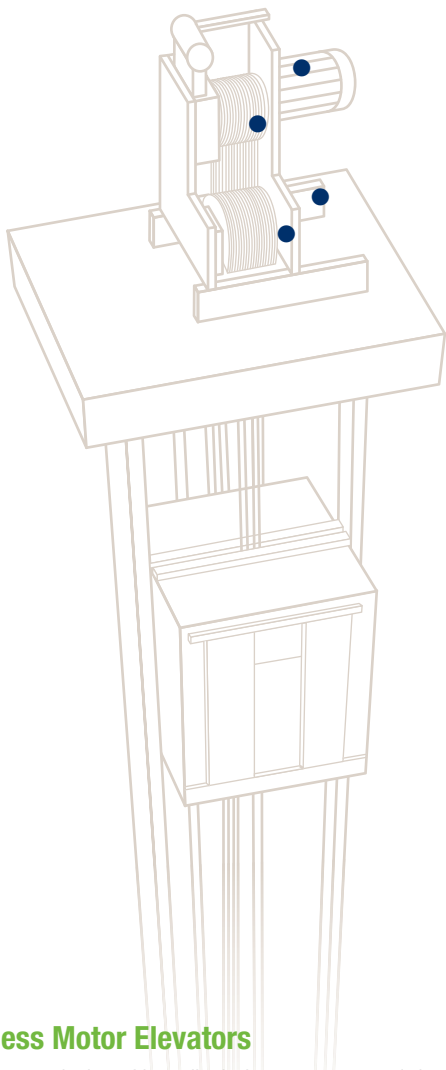
- Motor Brakes
- Series 100 Spur Geared Cam Limit Switches
- Series 110 Spur Geared Cam Limit Switches
- Smart Cam® Limit Switches

### Warner Electric

- ERD Electrically Released Brakes
- ERC Caliper Brakes
- CBCx-001 Switch



# ELEVATORS & ESCALATORS



## Gearless Motor Elevators

The vast majority of installed elevators around the world feature gearless traction drives where the cable sheave is directly mounted to the motor output shaft. Gearless elevators can reach speeds up to 2,000 FPM. Gearless elevators are used on all high-rise building applications since they have a max travel distance of 2,000 ft.

A range of electrically released brakes from Warner Electric and hydraulically released brakes from Twiflex and Svendborg Brakes are designed to prevent unintended movement and ascending car overspeed on these fast-moving elevators. All braking systems operate in static and emergency stops and comply with Section 2.19 ASME A.17.1 and EN81-20&50.

TB Wood's provides unmachined sheave, housing, and rotor castings to elevator mechanical drive OEMs worldwide.

### Warner Electric

- FENIX Series Brakes
- ERS VAR 07 Series Brakes
- ERS VAR 11 Series Brakes
- ERS VAR 15 Series Brakes
- CBCx-001 Switch

### Twiflex

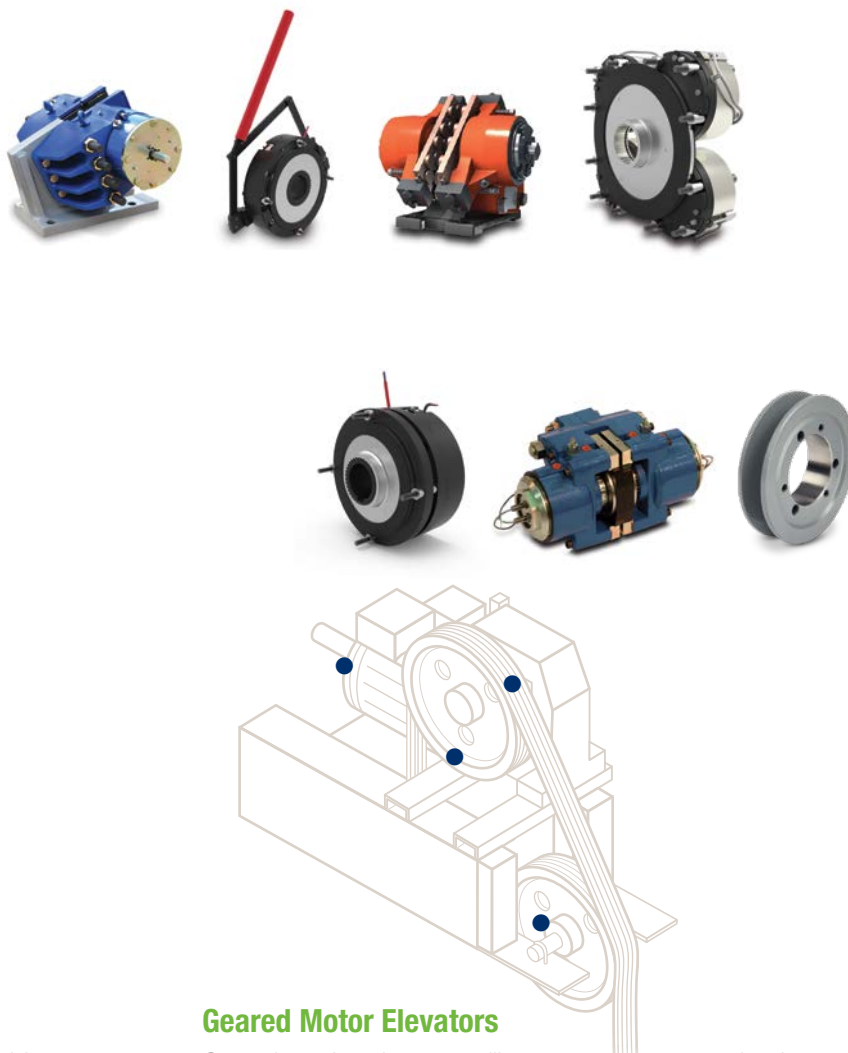
- VCS Series Brakes
- VKSD Series Brakes

### Svendborg Brakes

- BSFI Series Brakes

### TB Wood's

- Castings



## Geared Motor Elevators

Geared traction elevators utilize a worm gear speed reducer attached to the electric drive motor. The primary cable sheave is mounted to the output shaft of the gearbox. Geared elevators are capable of travel speeds up to 500 FPM. With a max travel distance of around 250 ft., these types of elevators are typically installed in buildings up to 30-35 floors high. Geared elevators can carry heavy loads and are often used for freight applications.

Model ERS VAR 14 brakes are ideally suited for retrofit on older geared motor elevators.

### Warner Electric

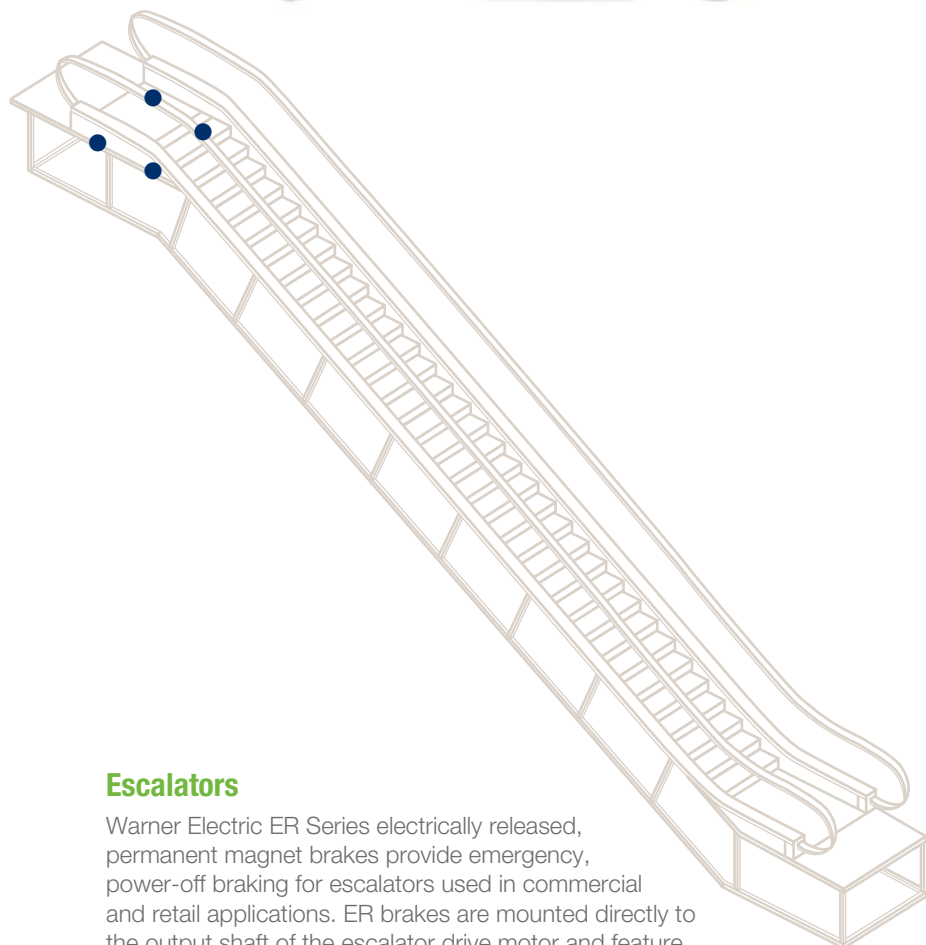
- FENIX Series Brakes
- ERS VAR 11 Series Brakes
- ERS VAR 14 Series Brakes
- CBCx-001 Switch

### Twiflex

- VCS Series Brakes

### TB Wood's

- Castings



## Escalators

Warner Electric ER Series electrically released, permanent magnet brakes provide emergency, power-off braking for escalators used in commercial and retail applications. ER brakes are mounted directly to the output shaft of the escalator drive motor and feature modulated torque to meet U.S. deceleration rate standard for escalators.

The ER brake automatically engages when power is cut off either by a utility outage or the emergency stop buttons located at the top and bottom of the escalator. The brake design provides a smooth controlled stop.

### Warner Electric

- ER Series Brakes

### Stromag

- Electromagnetic Disc Brakes
- SDB Drum Brakes

### Twiflex

- VCS Series Brakes
- VKSD Series Brakes

### Svendborg Brakes

- SOBO iQ Soft Braking Controls
- Hydraulic Power Packs



## Dumbwaiters

Boston Gear provides compact speed reducer/motor packages for use on all types of commercial and residential dumbwaiters. 700 Series worm gear speed reducers featuring PosiVent®, are mounted to 1/2 HP motors on dumbwaiters with 75 lb. to 250 lb. capacities. 800BR Series right angle helical worm gear speed reducer combined with 1-1/2 HP motors are used for dumbwaiters with a 500 lb. capacity. All Boston Gear speed reducer/motor packages meet ASME A17.1 elevator code for dumbwaiters.

### Boston Gear

- 700 Series Speed Reducers & Motors
- 800BR Series Right Angle Speed Reducers & Motors



## Wind Turbine Elevators

Bauer geared motors are utilized on wind turbine elevator hoist systems. The compact hoists fit within the tight confines of wind turbine towers and allow maintenance personnel, tools and materials to be safely transported up to the base of the turbine nacelle positioned at the top of the tower.

### Bauer Gear Motor

- BK Series Helical Bevel Geared Motors

# THEATER & STAGE - Lower Machinery

A variety of below stage equipment, including scissor lifts, ball screw podium lifts, winch-driven podium lifts, chain lifts, and stage rotators are utilized to raise, lower and rotate sections of a stage during performances. Warner Electric, Stromag, Bauer Gear Motor and Ameridrives offer technically advanced limit switches, braking solutions, geared motors and universal joints to meet these stage and theater applications. Boston Gear speed reducers are also used on most types of stage lifts as well as in complex automated seating system drivetrains.



## Podium Scissor Lifts, Winch-Driven Lifts and Ball Screw Lifts

Boston Gear spiral bevel gear drives are a critical drivetrain component on these stage podium lift systems that raise and lower performers and set props on smaller stage sections. Warner Electric safety brakes, Stromag limit switches and Bauer geared motors are also used on many of these types of lifts.

### **Boston Gear**

- R100/R200 Series Spiral Bevel Gear Drives

### **Warner Electric**

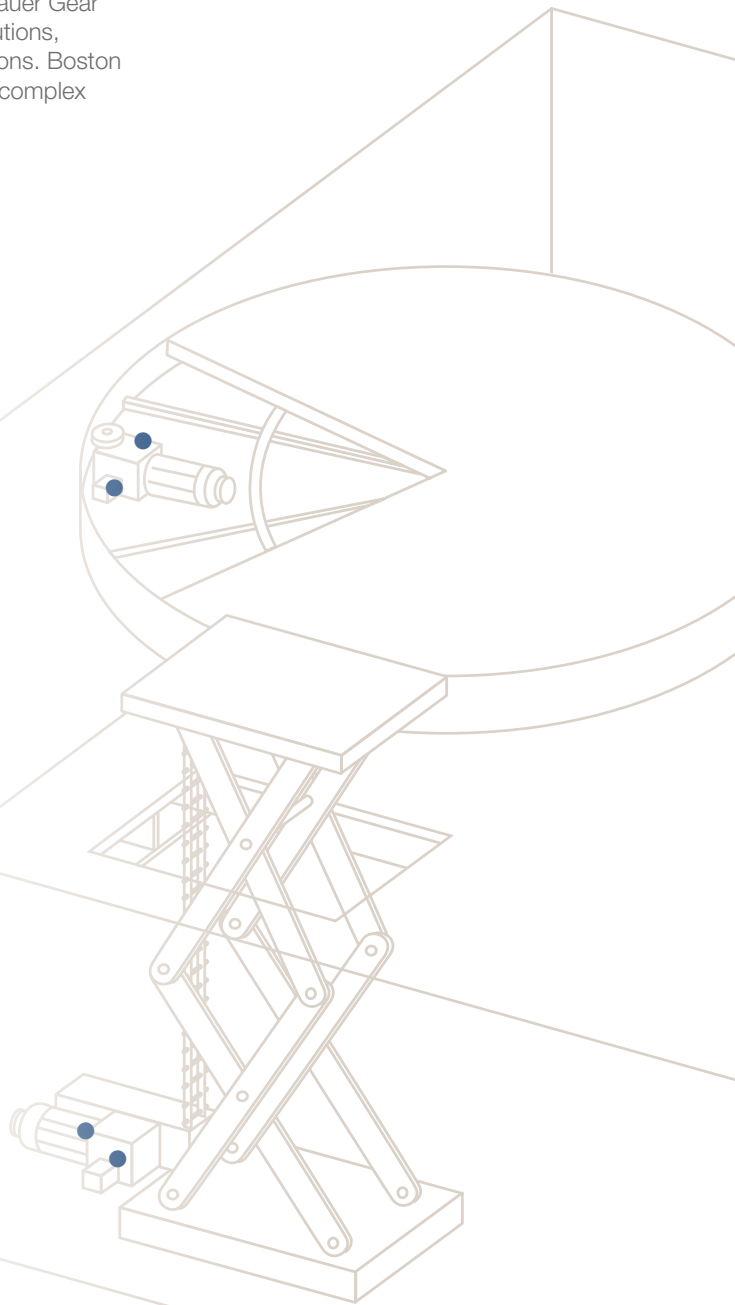
- FENIX Series Brakes

### **Bauer Gear Motor**

- BK Series Helical Bevel Geared Motors
- BS Series Worm Geared Motors
- BG Series Helical Geared Motors
- BF Series Shaft Mounted Geared Motors

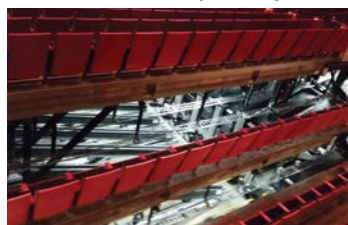
### **Stromag**

- Series 51 Limit Switches





Photos courtesy of Gala Systems, Inc.



## Automated Seating Systems

Boston Gear enclosed gear drives are utilized on complex automated theater seating systems that can reconfigure the entire seating area of an auditorium within an hour by lifting and rotating (inverting) one full row of seats at a time.

### Boston Gear Series

- 700 Series Worm Gear Drives



## Rigid Stacking Chain Platform Lifts

Quiet operating rigid chain lift systems are used to raise and lower stage platforms, choral risers, orchestra pits and scenery and performer lifts. Stromag limit switches, Warner Electric brakes, Boston Gear speed reducers, Bauer geared motors, and Ameridrives Americardan universal joints are all used in these lift system drivetrains.

### Boston Gear

- R100/R200 Series Spiral Bevel Gear Drives

### Warner Electric

- FENIX Series Brakes

### Bauer Gear Motor

- BK Series Helical Bevel Geared Motors  
- BS Series Worm Geared Motors  
- BG Series Helical Geared Motors

### Stromag

- Series 51 Limit Switches

### Ameridrives

- Universal Joints



# THEATER & STAGE - Upper Machinery

A wide range of winches and hoists, positioned above the stage, are utilized to move lighting, sound equipment, scenery and curtains during shows. Stromag, Warner Electric and Bauer Gear Motor provide reliable limit switches, braking solutions and geared motors to meet the challenging needs of stage and theater hoist applications.



## Point Hoists

Fixed-position point hoists are installed within the stage's upper machinery truss (gridiron) framework. Multiple units are typically grouped to raise and lower lighting, sound equipment, scenery backdrops and curtains during stage shows. Stromag limit switches are a critical component on these single rope hoists. Warner Electric brakes and Bauer geared motors are also utilized.

### Stromag

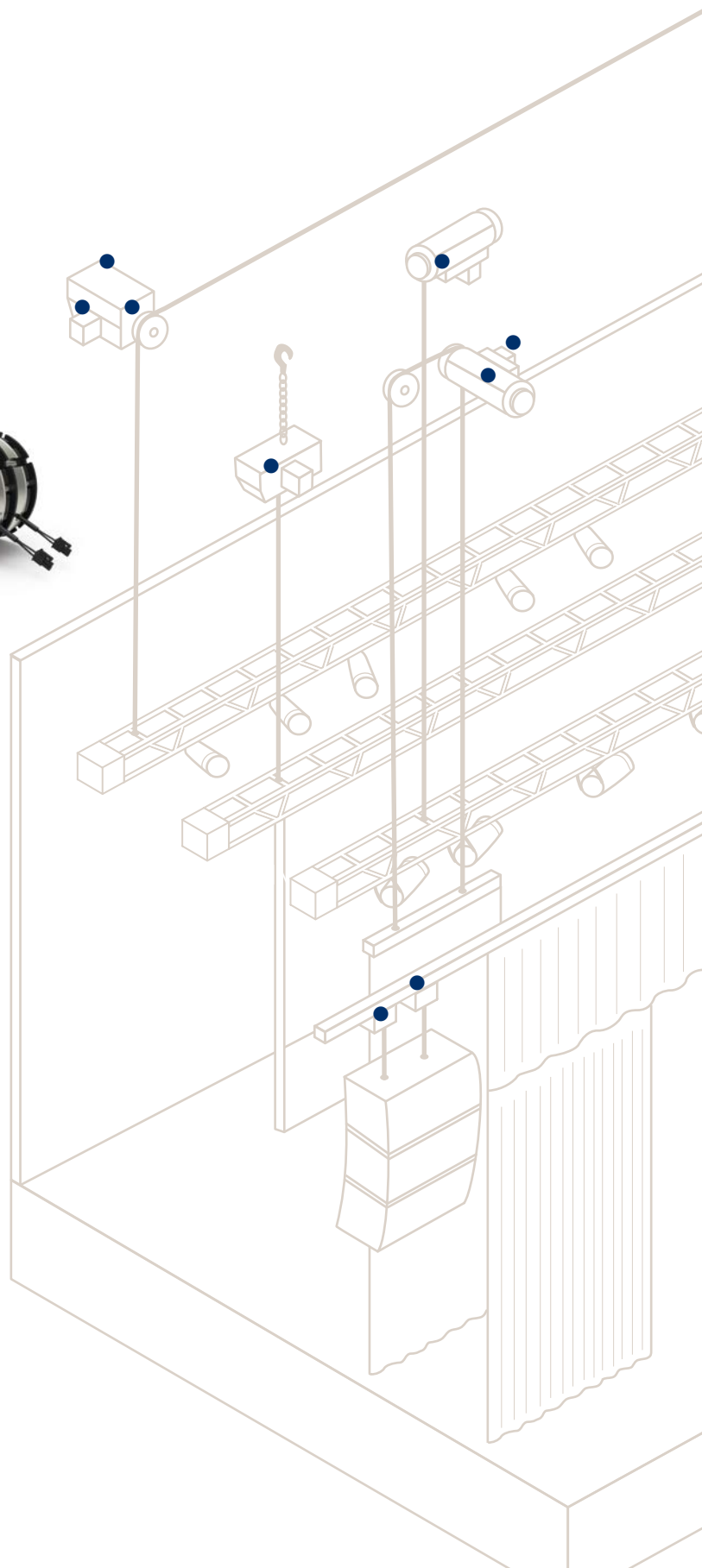
- Series 51 Limit Switches

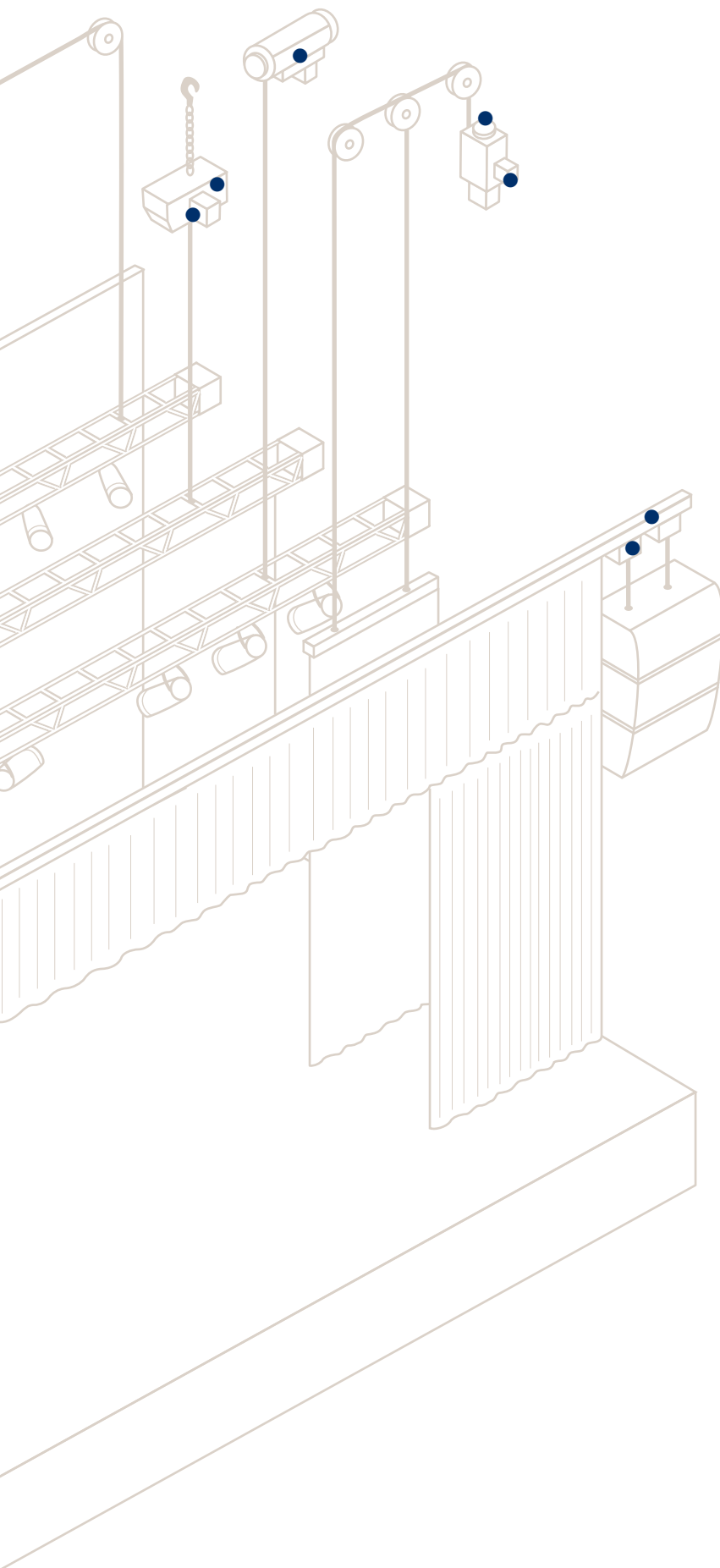
### Warner Electric

- FENIX Series Brakes

### Bauer Gear Motor

- BK Series Helical Bevel Geared Motors
- BG Series Helical Geared Motors





### Silent Chain Hoists

Warner Electric PK-S and PK-DS models are an ideal choice for use as motor brakes on silent chain hoists that move lighting and sound equipment. The brakes, equipped with a dampening system, are silent and can be operated during stage and theater productions without creating a disruption.

#### Warner Electric

- FENIX Series Brakes

#### Stromag

- Series 51 Limit Switches



### Mobile Point Hoists

Mobile point hoists move along a track and are positioned as needed above the stage to meet particular show requirements. The hoists raise and lower lighting, sound equipment, scenery backdrops and curtains during performances. Reliable Stromag limit switches, along Warner Electric brakes and Bauer geared motors are utilized on these hoists.

#### Stromag

- Series 51 Limit Switches

#### Warner Electric

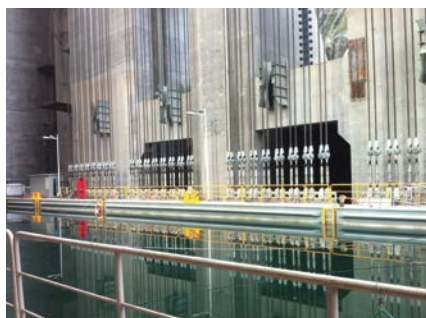
- FENIX Series Brakes

#### Bauer Gear Motor

- BK Series Helical Bevel Geared Motors
- BG Series Helical Geared Motors



# OTHER VERTICAL LIFT APPLICATIONS



## Ship Lifts

Svendborg caliper brakes and SOBO soft braking controls are used on massive dam ship lifts around the world. The lifts significantly shorten the time it takes for vessels to pass the dam compared to using a series of stepped locks. The lift functions like an elevator, lifting and lowering vessels vertically to upstream and downstream water levels.

Lift designs typically utilize electric motor driven pinions that act on tooth racks within the lifting towers. Each pinion lifts a series of large cables that are attached to suspended concrete counterweights.

Lift braking systems require accurate deceleration and very precise synchronization of the multiple pinion drives. A set of smaller Svendborg brakes, used for high-speed emergency stopping, can be positioned between the motor and gearbox on each drive unit. Larger capacity dual-spring brakes, used as parking brakes, are positioned on the opposite side of the gearbox.

### Svendborg Brakes

- BSFI 200 Series Brakes
- SOBO Soft Braking Controls
- Hydraulic Power Units

### Stromag

- SH/SHC/SHD Hydraulic Disc Brakes
- CE8L, CE12L, and SVB210 Hydraulic Power Units

### Twiflex

- VCS Disc Brakes



## Moveable Bridges & Dam Spillway Gates

Regal Rexnord companies provide full drivetrain solutions for the heavy moveable bridge industry with a comprehensive offering of custom-designed primary and secondary helical and worm gear differential speed reducers, couplings, limit switches, and braking systems. All components are designed to meet the project requirements specified by the engineers that represent the responsible bridge authority for all types of bascule lift and vertical lift bridges around the world.

Regal Rexnord provides the same long list of PT components to raise, lower, and rotate dam spillway gates. Spillways utilize a series of massive submerged tainter gates along with bulkhead gates that allow water to be released safely from the dammed lake/reservoir during a high water event. The curved tainter gates rotate in an arc and are hydraulically operated to allow for precise water flow control. The released water is typically funneled through a spillway.

### Stromag

- SP & SP-C Pulley with Coupling
- Periflex® PNF, PNQ, PND, PNK, PNM Shaft Couplings
- SDD-SDDL Flexible Couplings and Discs
- SDF/SDF-ML/SMLDF Gear Couplings
- Electromagnetic Emergency Brakes
- CA2 Brake Range
- K/D Brake Range
- SH/SHC/SHD Brake Range
- Type 600 Service Brakes
- Type T Service Brakes
- SDO Drum Brakes
- BCS Barrel Couplings
- Series 62 & 62 HNE Spindle Cam Limit Switches
- Series HGE Limit Switches
- Series HEG Limit Switches
- Series 100 Spur Geared Cam Limit Switches
- Series 110 Spur Geared Cam Limit Switches

### Svendborg Brakes

- BSFI Series Brakes
- SOBO Soft Braking Controls
- Hydraulic Power Units

### Nuttall Gear

- Custom Speed Reducers

### Ameridrives

- Amerigear Gear Couplings

### TB Wood's

- Dura-Flex Couplings
- Sure-Flex Plus® Couplings

### Bibby Turboflex

- Grid Couplings





## Ski Lifts

Due to their exceptional reliability and long-lasting performance Formsprag FSO overrunning ball bearing clutches are often utilized on ski resort chair lifts. FSO units are installed on all types of lifts including those that can simultaneously carry more people than a Boeing 747 jumbojet and operate seven hours/day for six months.

The FSO clutch is positioned between the motor and gearbox within the lift drivetrain which is usually located under the large-diameter bullwheel that drives the primary lift cable.

The clutch prevents reverse rotation of the bullwheel to stop the suspended chairs from sliding backward down the mountain in the event of a power failure.

Heavy-duty Bauer geared motors can also be used to rotate the lift's large bullworks.

### Bauer Gear Motor

- BG Series Helical Geared Motors

### Formsprag Clutch

- Model FSO Overrunning Clutches

### Svendborg Brakes

- BSFI Series Brakes
- SOBO Soft Braking Controls

### Stromag

- SHD/SH Hydraulic Brakes
- CSH/CE8L/CE12L Hydraulic Power Units



## Amusement Rides

Stieber and Formsprag overrunning clutches are found on all types of roller coasters worldwide.

Due to their robust design, ease of maintenance, quiet operation and low air pressure requirement, Twiflex caliper disc brakes are used on amusement rides that incorporate seating pods to move visitors through an attraction. The brakes have a very low noise level that does not interrupt the riders' experience.

Completely enclosed Bauer geared motors are used on water rides that feature boats (or logs). The units drive submersed, rotating rubber wheels that make contact with the flat bottom of the boats as they pass, propelling them through the ride's water canal.

Thomson actuators are used to close and lock the doors on ferris wheel passenger capsules.

### Twiflex

- GMR-SD Caliper Brakes

### Bauer Gear Motor

- BG Series Helical Geared Motors

### Formsprag Clutch/Stieber

- Model FSO Overrunning Clutches

### Thomson

- Model K2 Electric Actuators

### Warner Electric

- ERD/ERDD VAR & ERD/ERDD Gen2 Electrically Released Brakes

### Stromag

- Electromagnetic Disc Brakes
- Tooth Clutches
- Motor Brakes
- SDB Drum Brakes



## Overhead Doors

Many commercial overhead doors on the market today move up and down at very high speeds of more than 100"/sec. Limit switches are required to ensure that the doors open fully for access and close completely for proper sealing. Overhead door manufacturers prefer to use Stromag rotary limit switches on these door applications due to their easily adjustable, precise stopping points.

For more demanding applications, commercial and industrial door manufacturers often incorporate gear drives from Boston Gear into their drivetrains including jackshaft and trolley overhead door operators.

### Stromag

- Series 51 Limit Switches

### Boston Gear

- Series 700 Speed Reducers
- Series 2000 Drives

### Bauer Gear Motor

- BK Series Helical Bevel Geared Motors

### Warner Electric

- ERD Electrically Released Brakes
- FENIX Series Brakes
- XSB Brakes



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