

Ameridrives

Bauer Gear Motor

Bibby Turboflex

Boston Gear

Delevan

Delroyd Worm Gear

Deltran

Formsprag Clutch

Guardian Couplings

Huco

Jacobs Vehicle Systems

Kilian

Kollmorgen

Lamiflex Couplings

Marland Clutch

Matrix

Nuttall Gear

Portescap

Stieber

Stromag

Svendborg Brakes

TB Wood's

Thomson

Twiflex

Warner Electric

Warner Linear

Wichita Clutch

# Taking Crane Braking To New Heights



# Taking Crane Braking To New Heights

A crane may not use its brakes often, but when the need arises, they must be able to operate with complete reliability. It's a quality that Stromag, a premier brand of Altra Industrial Motion Corp., designs into its turnkey crane braking packages. As a result, Stromag braking systems are the solution of choice for several crane original equipment manufacturers (OEMs) around the world.

Cedric Gomez, Director of Vertical Lifting Systems at Stromag, explores what it takes to become a preferred braking supplier to the crane sector, and how the company approaches application challenges with tailor made, integrated solutions.

Cranes come in many shapes and sizes, but the braking challenges faced in each design are similar. Brakes may be required to bring a load to a halt during lifting or lowering, which requires gradual braking application, to stop the load 'springing' and placing undue stresses on the crane. This is referred to as soft braking.

Conversely, if a crane position needs to be held instantly, operators may require a full application of braking forces to hold a boom in place. Ensuring reliability of braking application and adequate holding power is key.

Finally, braking systems need to be tailored to the demands of the application environment. For example, offshore cranes require a manual overload protection system (MOPS) that can be employed to minimize any adverse load generated by waves at sea.

## Cranes

As a business, Stromag has traditionally supported overhead cranes of the type usually seen in steel or nuclear plants. In addition, the company services lifting devices as small as chain or rope hoists typically found in workshops, used to move materials from one side to another. However, what immediately springs to mind when talking about the vertical lifting industry are tower cranes, such as those that characterize most large construction projects.

There are two primary types of tower crane. First is the flat-top, which is versatile in the fact it can be designed in a large range of heights and capacities. The design is well suited for construction sites with height restrictions, such as near an airport. Flat-top tower cranes are the most common design, featuring soft braking systems to control the load. The second type is the luffing tower crane, which is ideal for building big structures in narrow spaces, such as a city centre. Able to raise or lower its boom to move the hook, these cranes feature two winches to control hoisting and the movement of the boom itself. Luffing tower cranes offer increased lifting capacity compared to their flat-top cousins. These cranes usually feature both soft braking for stopping loads and full braking to immediately stop boom movement.



Cranes come in many shapes and sizes, but the braking challenges faced in each design are similar.

## Putting The Brakes On

For flat top tower cranes, Stromag usually recommends SHD5A and SHD9 disc brakes with spring application and hydraulic release. They are both designed to be robust, compact and lightweight, offering a dynamic braking force from 15 to 56 kN at 108 kg and 43 to 100 kN at 148 kg respectively. This variance in braking forces allows widespread usage in many environments. These brakes are coupled with CSH hydraulic power packs, which are tailored to suit each specific crane. As a package, the system provides a fully integrated solution for soft braking.

Luffing tower cranes typically employ electromagnetic spring applied, electronically released NFF brakes. Directly mounted on the back of the crane motor with no disassembly required, NFF brakes can be specified with a braking force of anywhere between 20 to 10,000 Nm. For lifting and lowering, SHD brakes are also incorporated. To ensure proper crane operation within acceptable operating parameters, Stromag offers Light Cam® series geared limit switches, compact universal mechanical switching devices that deliver precise adjustment. Lastly, the CSH hydraulic power pack also offers a fully integrated package for this design of crane.

## Synergy And Customisation

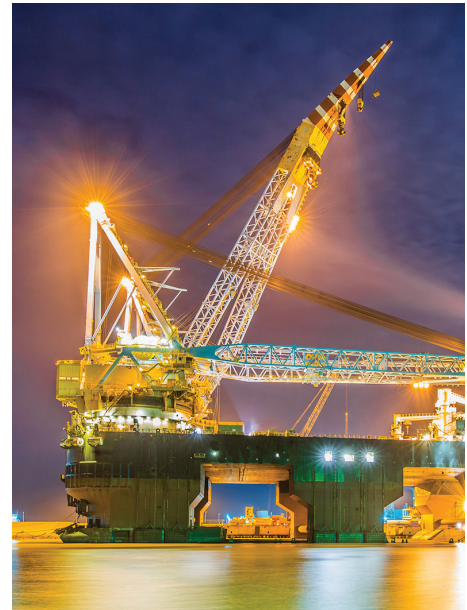
The similarity between both braking systems is that they are fully integrated, offering a high level of product synergy. Increased reliability, modularity and performance is the result, as the braking system can work in absolute harmony across the crane as a whole. It also means there is a singular point of supplier contact regarding the system.

That isn't to suggest that these systems are uniform though. To meet the unique needs of each OEM, braking systems must be adaptable. Stromag can offer a wide range of standard options for brakes and associated components. Limit switches can be supplied with potentiometers, incremental or absolute encoders are readily installed. Some customers will require instant braking application, others softer. In either case, Stromag can provide tailored electronic control systems in the cab to control soft braking, full braking or MOPS, depending on the operator requirement.

## Global Expertise

Suppliers with a global reach are important to OEMs. Stromag has offered power transmission components since 1932, and, as a leading brand of the Altra Industrial Motion Corp., the business can offer localized contact paired with a global distribution capacity. No matter the location – Europe, USA, Australia, Brazil or China - spares and support are within easy reach. Stromag systems even integrate with other leading brands in the group. For example, Bauer Gear Motor supplies geared motors to support the turning of tower cranes, so there is a shared expertise that customers can draw on to ensure their crane systems benefit from synergy across the components.

Ultimately, supplying braking solutions to the vertical lift sector requires a blend of product synergy, modularity and versatility – which results in increased reliability and performance. Backed by a global capability with localized points of contact, it's a combination that enhances Stromag's effectiveness in servicing cranes.



Offshore cranes require a manual overload protection system (MOPS) that can be employed to minimize any adverse load generated by waves at sea.



## About Altra Industrial Motion

Altra is a leading global designer and manufacturer of quality power transmission and motion control products utilized on a wide variety of industrial drivetrain applications. Altra clutches and brakes, couplings, gearing and PT component product lines are marketed under the industries' most well known manufacturing brands. Each brand is committed to the guiding principles of operational excellence, continuous improvement and customer satisfaction. Highly engineered Altra solutions are sold in over 70 countries and utilized in a variety of major industrial markets, including food processing, material handling, packaging machinery, mining, energy, automotive, primary metals, turf and garden and many others.

Altra's leading brands include Ameridrives, Bauer Gear Motor, Bibby Turboflex, Boston Gear, Delevan, Delroyd Worm Gear, Deltran, Formsprag Clutch, Guardian Couplings, Huco, Jacobs Vehicle Systems, Kilian, Kollmorgen, Lamiflex Couplings, Marland Clutch, Matrix, Nuttall Gear, Portescap, Stieber, Stromag, Svendborg Brakes, TB Wood's, Thomson, Twiflex, Warner Electric, Warner Linear and Wichita Clutch.



### Europe

+49 (0) 2302 102 0

[www.stromag.com](http://www.stromag.com)

### US

1-860-238-4783

For a complete list of our  
global sales offices visit:

[altramotion.com/contactus](http://altramotion.com/contactus)