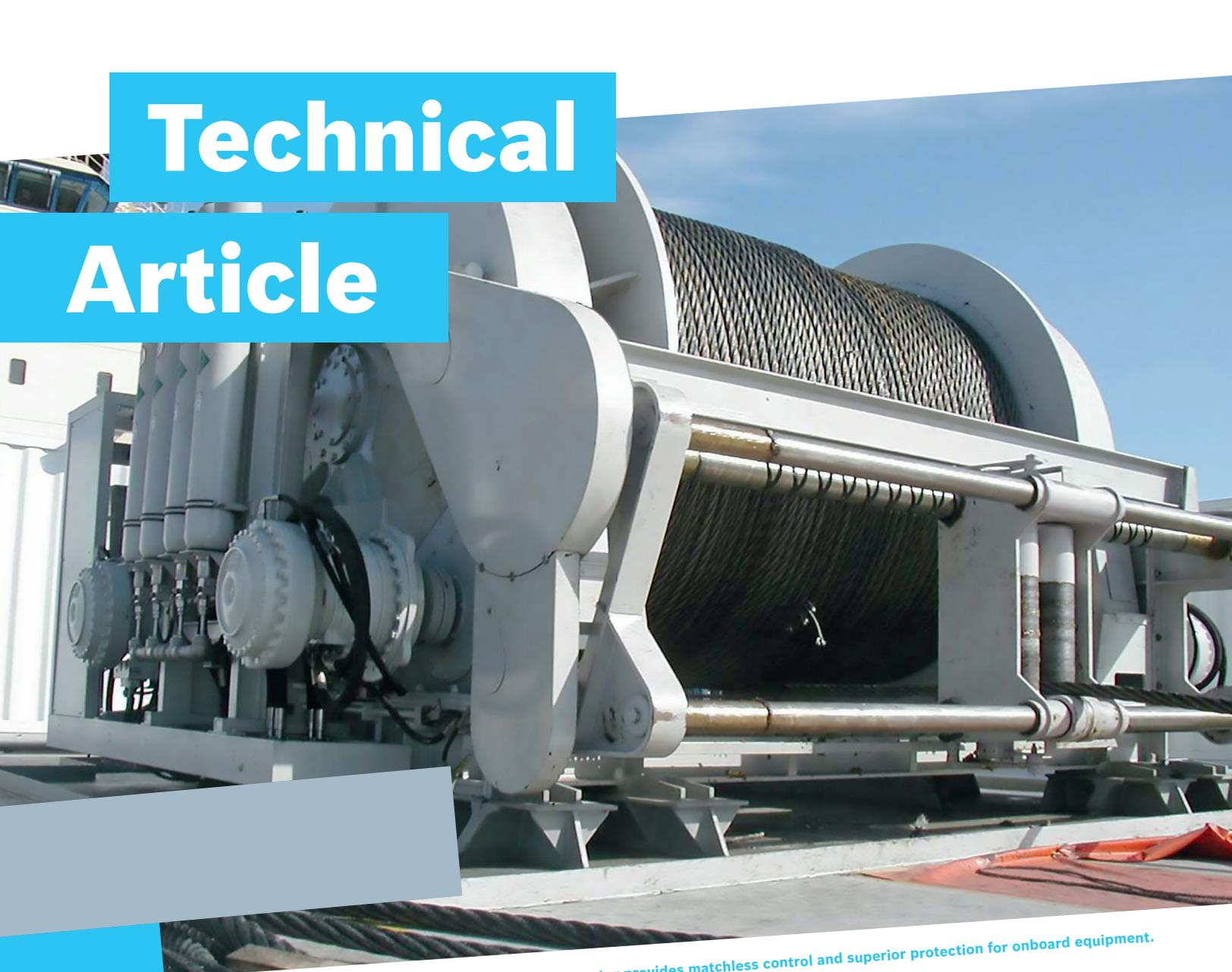


Technical Article



While taking up little of the precious space on board, the Hägglunds CA motor provides matchless control and superior protection for onboard equipment.

A Powerful Solution for Marine Applications

The Hägglunds CA is a compact hydraulic motor from Bosch Rexroth, combining high power density with high flexibility. Its unique torque characteristics, along with its other advantages, make it the centerpiece of a robust and reliable drive system. Perhaps nowhere is this more evident than in marine applications.

The Hägglunds CA hydraulic motor, which was the very first in the Compact series of Hägglunds motors, was developed for a specific purpose. It was designed to be tough and powerful, but also to provide a solution in heavy-duty applications where size and weight are significant issues.

The success of this approach is easy to see. The Hägglunds CA, which mounts directly on the driven shaft, has a long service life and an outstanding power-to-weight ratio. Between its output, its compactness and its convenient through hole, it creates a truly versatile drive solution, both in industry and in the field.

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Key Insights & Considerations

- **The Hägglunds CA combines high-power density with high flexibility.**
- **The fast-acting pressure control of the Hägglunds CA minimizes transients of strain on things such ropes and mechanisms.**
- **For the marine market, the advantages of the Hägglunds CA creates a drive solution well adapted for offshore work.**
- **When mounted on a winch, Hägglunds CA operates smoothly and quietly – a definite advantage for offshore crewmembers.**
- **With a Hägglunds drive system, achieve infinite speed variations and move slowly or rapidly with extreme precision.**
- **The Hägglunds CA is a proven, reliable option for the unpredictable offshore industry.**

A Powerful Solution for Marine Applications

Power combined with protection

Despite its compact nature, the Hägglunds CA provides the same performance and reliability as other Hägglunds motors. The hydraulic direct drive setup is identical, comprising the motor and a drive unit with hydraulic pumps, as well as a control and monitoring system. The advantages of this setup are many, especially when it comes to torque.

The drive system, with the Hägglunds CA at its heart, delivers high torque that can be sustained indefinitely. Yet it also offers built-in protection against torque stresses. The motor's low inertia allows effective torque limitation from zero to maximum speed, and there is absolutely no play, which is especially beneficial for slew drives and rotary drives. Extremely fast-acting pressure control minimizes transients of strain, for example, on ropes and mechanisms.

Added to this is a wide range of other benefits, including the absence of a gearbox or foundations. Even four-quadrant operation – driving and braking, in forward and reverse – is possible without additional equipment.

Developed to perform – continuously

In terms of the motor itself, the Hägglunds CA is a solution that has only improved with time. Product development is a continuous process at Bosch Rexroth, aimed also at reducing maintenance and improving reliability in existing products.

The Hägglunds hydraulic laboratory, located at the manufacturing plant in Mellansel, Sweden, tests all Hägglunds products extensively prior to distribution. But it also has an active role in the development process, and its work has further strengthened the Hägglunds CA. Since the motor's launch in 1994, for example, there has been a tenfold increase in the service life of the motor cam rings.

Even the Hägglunds valve range has developed dramatically. Today there is a whole series of specifically designed, modular valves that allow a more compact, effective and multifunctional drive system based on the Hägglunds CA.



The Hägglunds CA motor, part of a Hägglunds Drive System

Simply put, the Hägglunds CA is a robust option for power, control, and reliability

A modern motor with marine heritage

For the marine market, the advantages of the Hägglunds CA create a drive solution well adapted to work offshore. Both above and below the waterline, the motor makes full use of the lessons learned in decades of work at sea. The very first Hägglunds hydraulic motor, supplied more than 50 years ago, had its main application in marine winches.

A true lift in performance

Today as well, winches are an important application for the Hägglunds CA. Mounted on the winch drum, complete with brakes and valves, it operates smoothly and quietly – an advantage for crewmembers who work close to it. Direct mounting on the drum creates a free-wheeling capacity, which enhances safety by enabling immediate emergency release. This can even be used in other situations, such as shooting out the net on a fishing vessel.

When paying in the net, the operator can first select the high-speed range, then switch to low-speed for maximum line pull when lifting.

For a winch or crane in cargo operations, there is also overload protection if the hook or load should jam. In this situation, the Hägglunds CA can stop instantaneously due to its low moment of inertia. For still greater assurance, a safety brake with DNV type approval can be installed on the drum without intermediate gearing, which minimizes the risk of a dropped load due to a failure in the drive line.

The power to maneuver

The ability of the Hägglunds CA to stop, of course, is easily matched by the sophistication of its movement. The drive system can provide infinite speed variations, moving slowly or accelerating rapidly, and allows positioning with extreme precision. This is an

advantage not only for cranes and winches, but also in modern maneuvering applications, such as azimuth propulsion drives on cruise liners.

Here torque characteristics are a factor as well. Regardless of the speed, the drive can operate at full torque without time restriction. Moreover, the drive protects the propulsion unit by limiting the effects of sudden external forces, such as those encountered when sailing in icy conditions. Since the hydraulic direct drive solution has no internal play, it requires no overdimensioning and, therefore, saves both space and weight.

Performance and peace of mind

In total, a drive system based on the Hägglunds CA presents a formidable solution for marine use. While taking up little of the precious space on board, it provides matchless control and superior protection for onboard equipment. Moreover, its modular nature means ease of repair and replacement, with ample upgrade opportunities.

Simply put, the Hägglunds CA is a robust option for power, control, and reliability – the last of which is all-important in an environment as unpredictable as offshore.



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