# ENGINEERED HARDWARE

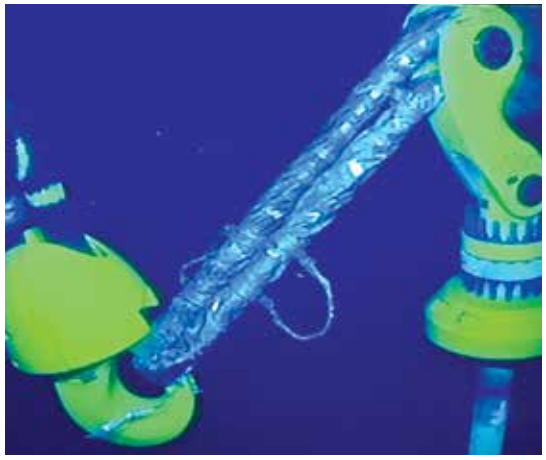
CORTLAND INTERNATIONAL™

## Lifting Specialists





# Designing and providing custom hardware solutions for onshore, offshore and subsea applications

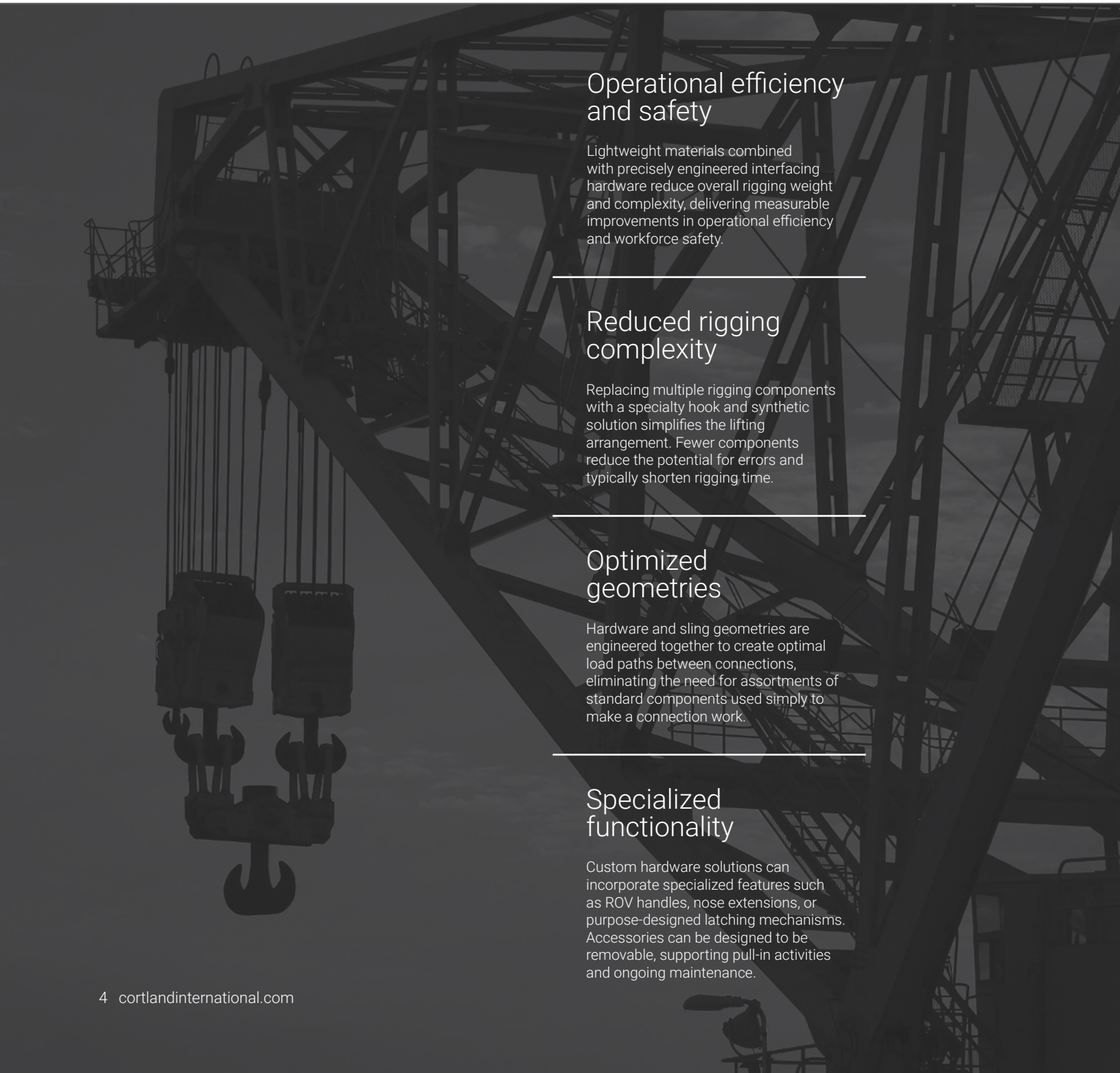


Over the past decade, high-performance synthetic fiber lifting slings have delivered significant improvements in operational efficiency and workforce safety compared to traditional steel wire rope slings. Both heavy equipment and lifting operations benefit from the reduced weight, improved handling, and enhanced safety characteristics of synthetic fiber solutions.

However, conventional hardware used on large and critical lifting projects has historically limited the full potential of these systems.

Cortland designs and delivers optimized hardware solutions that reduce system weight, simplify rigging, and improve overall safety. By considering the entire lifting operation—including installation, disconnection, and required redundancies—we provide fully optimized lifting arrangements that are safer, more efficient, and easier to deploy.

## Optimized Hardware Designs



### Operational efficiency and safety

Lightweight materials combined with precisely engineered interfacing hardware reduce overall rigging weight and complexity, delivering measurable improvements in operational efficiency and workforce safety.

### Reduced rigging complexity

Replacing multiple rigging components with a specialty hook and synthetic solution simplifies the lifting arrangement. Fewer components reduce the potential for errors and typically shorten rigging time.

### Optimized geometries

Hardware and sling geometries are engineered together to create optimal load paths between connections, eliminating the need for assortments of standard components used simply to make a connection work.

### Specialized functionality

Custom hardware solutions can incorporate specialized features such as ROV handles, nose extensions, or purpose-designed latching mechanisms. Accessories can be designed to be removable, supporting pull-in activities and ongoing maintenance.

## The strength of slings is 100% related to how they interface with other pieces of equipment

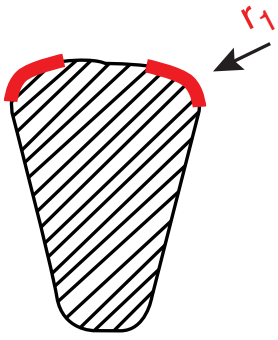
For all lifting slings, the sharper the bearing edge, the lower the achievable capacity. Sling strength is directly influenced by how the sling interfaces with adjacent hardware. As a result, the same sling can have different Working Load Limits (WLL) depending on the pin or connection geometry used.

At Cortland, we specialize in designing synthetic-friendly hardware with large, smooth bearing radii that help maximize the usable capacity of synthetic slings. Hardware featuring a consistent radius across the full bearing contact area distributes load evenly along the sling.

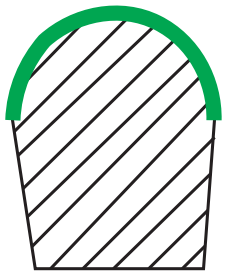
By optimizing load distribution, localized stress concentrations are minimized, reducing or eliminating the need to derate the sling's WLL.

### Integrated Solutions

- We have designed and produced hooks that increase the bending radius in the sling zone, which improves the working efficiency of high-performance synthetic fiber lifting slings
- We have built hardware specifically for i-tube and j-tube pull-in operations, reducing clashing opportunities
- We have added aspects such as anti-snag shackles, and tools that center the load path
- Any design can be made to interface with connecting hardware



A DIN hook has an inconstant (not smooth) bearing profile in which the smallest radii in the profile must be taken into consideration when calculating the MBL or bending loss in a sling.



Cortland offers custom synthetic-friendly hardware solutions, with smooth and constant bearing profiles in sling contact areas, for load handling challenges.

## Product Range

**Design flexibility**
Cortland delivers purpose-built hardware solutions engineered for each specific application. Our comprehensive range of products is optimized to work seamlessly with synthetic fiber ropes and lifting slings.

Custom hardware designs simplify rigging arrangements while ensuring reliable, high-performance operation. Additional functionality can be incorporated, including quick connect/disconnect features, hand-off connections, and ROV interfaces.

Every solution is engineered and tested to meet specific design criteria, giving customers confidence in safe and dependable performance across all operations.

Our hardware solutions include but are not limited to:

- Bolt to Fiber Hooks (BFH)
- Fiber to Fiber Hooks (FFH)
- Load Transfer Hooks (LTH)
- Double Hooks (DH)
- Specialty Hooks
- Delta Plates
- Plate Shackles
- Sheave Assemblies
- Subsea Hardware

# Engineered hardware for safer, more efficient lifts


Experience the benefit of smart engineering. Cortland develops innovative hardware solutions optimized to interface with synthetic ropes, round slings, and tether systems. Our custom tools simplify rigging, enhance safety, and improve operational efficiency, delivering complete equipment sets tailored to your project or vessel requirements.

With decades of engineering experience across aerospace, defense, energy, marine, research and subsea sectors, our team designs every solution to maximize efficiency and performance—without ever compromising on safety or quality.

To find out more about our technology and expertise in creating engineered hardware alternatives for lifting applications, email contact@cortlandinternational.com, or visit us online at cortlandinternational.com.

Anacortes, WA – USA

Houston, TX – USA

Vadodara-Gujarat – India

Indore-M.P Unit – India

Masat-Silvassa Unit – India

Mumbai – India

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