

Custom Cylinder Manufacturing

Hydraulic Cylinder Jack for
Heavy Ship Lift Business Case

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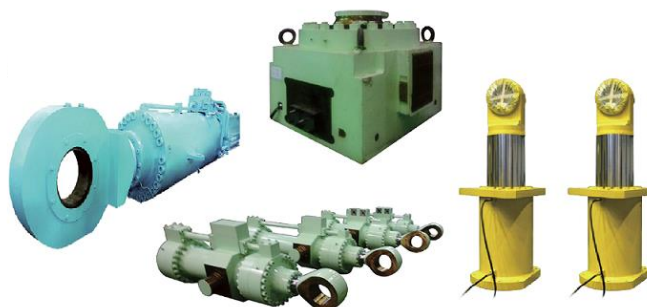
Custom Hydraulic Cylinder Jack for Ship Lift System

Custom Marine Hydraulics Manufacturing for U.S. Heavy Ship Lift Leader

When a U.S.-based leader in heavy ship lift systems designed a new lift system, they needed a partner with expertise in both marine hydraulics and heavy duty hydraulic cylinder manufacturing.

The client had previously worked with a Chinese supplier, but they were looking for new partner with greater design & engineering capabilities and superior cylinder performance. It was also a priority to a partner with consistent reliability and lead times during COVID.

The heavy ship lift client compared several global cylinder manufacturers to select a partner that fit their demanding requirements. Ultimately, they selected LPR Global's cylinder job shop for our expertise in **custom engineering for specific applications**, our **competitive pricing**, and our **reliable lead times**.



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<https://www.uskoreahotlink.com/products/manufacturing/steel-mill-large-bore-cylinders/>



Custom Hydraulic Cylinder Jack for Ship Lift System

Challenges of Marine Hydraulics Project

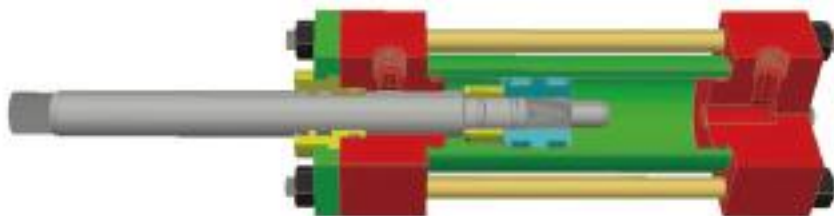
1. Custom Engineering with Exact Specifications

Our client's heavy ship lift system had an innovative design that required custom cylinder jack manufactured to exact-fit. Since it was a new design, it was mandatory that their new cylinder manufacturer had excellent design engineering capabilities, as well as superior manufacturing quality.

2. Heavy Duty Cylinder Reliability

Our client's marine hydraulic system was being developed for commercial shipyards, loading systems, and offshore platforms. Performance under heavy loads and pressures were critical priorities – not just for our client's operations, but for the industries and safety of the ships they served.

Moreover, compared to most cylinder applications, marine hydraulics have the additional challenge of being difficult to replace and maintain. Therefore, our heavy duty hydraulic cylinder jack was required to have **long-term reliability and service life** in addition to performance under heavy loads.





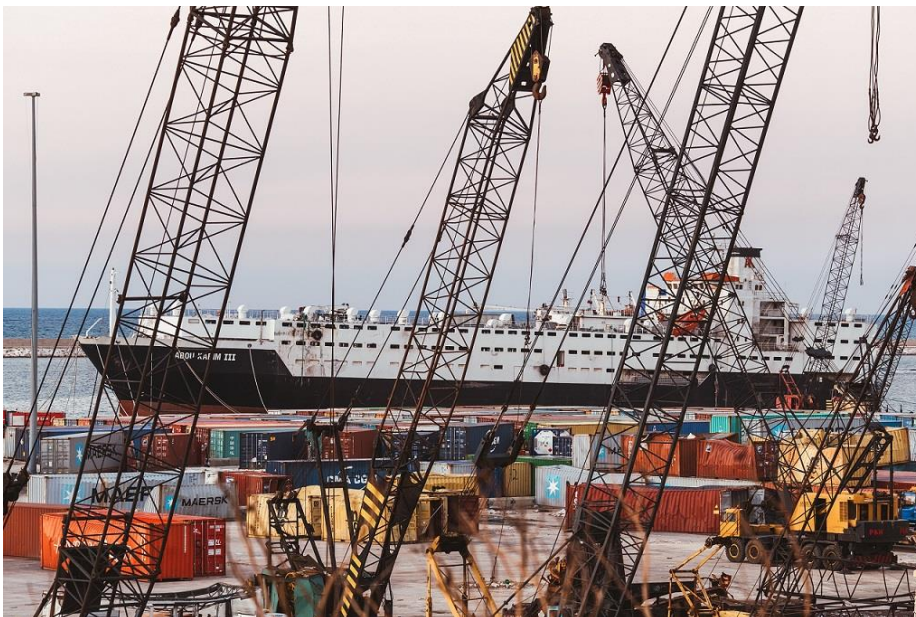
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Challenges of Marine Hydraulics Project

3. Environmental Exposure for Marine Hydraulics

Cylinders for marine & offshore applications must bear some of the toughest environments, including extreme temperatures and constant exposure to wind, salt, water, and dirt. In other words, marine hydraulics must be **resistant to corrosive elements**.

In addition, marine hydraulic cylinders **must withstand both internal pressures and external pressures** from circumstances, such as underwater operation. As a result, marine hydraulics are one of the most difficult and heavy duty hydraulic cylinder applications to manufacture.





Custom Hydraulic Cylinder Jack for Ship Lift System

LPR Global Solutions: Application-Based Custom Cylinder Manufacturing

1. Experience & Expertise in Custom Manufacturing

Our U.S.-based ship lift client chose our cylinder job shop over competitors because we are a recognized leader in custom heavy duty hydraulic cylinder manufacturing. We have superior ability to manufacture each cylinder to exact fit, according to custom drawings or specifications.

Moreover, our in-house engineers collaborate with our client's engineers to design a cylinder jack with optimal performance and service life for the specific operating conditions.

For this ship lift project, LPR Global's engineers took a dedicated marine approach and suggested **specialized plating techniques and custom seal structures** that went beyond the standard options. These suggestions were made to extend the service life and durability of our client's hydraulic cylinder jack in marine conditions.





Custom Hydraulic Cylinder Jack for Ship Lift System

LPR Global Solutions: Application-Based Custom Cylinder Manufacturing

2. Long-Term Partnerships, Collaborative Engineering

Our job shop maintains long-term partnerships with global leaders in marine hydraulics, engineering, and shipbuilding, including Hyundai Heavy Industries and Daewoo Shipbuilding & Marine Engineering.

These partnerships are built on ongoing collaboration between our engineers and our clients' engineering team, as well as our reliable cylinder manufacturing. Our global clients depend on our job shop for superior cylinder manufacturing and performance diverse, demanding, and high-stakes operating conditions.

3. Rigorous Cylinder Testing for Performance Under Pressure

Our custom hydraulic cylinders must undergo our [3-part testing process](#) before shipment.

Since these marine cylinder jacks were manufactured for our client's extreme conditions, they underwent an elevated internal pressure test at 350 bar (5,075 PSI) for 1 hour.



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Custom Hydraulic Cylinder Jack

The resulting cylinder jack is the hydraulic power source for our client's ship lift systems, which lift loads of over 30,000 metric tons.

Our client also adopted our plating suggestions. This custom cylinder jack was prepared with 2 layers of 50-micron chrome plating. This extra plating allowed for superior resistance to corrosion in marine and offshore conditions.

Conclusion

With design engineering input from both teams, the client now supplies their commercial ship lift with improved reliability, efficiency, and operating costs for their marine clients.

Our client provides their ship lift systems to shipyards, offshore platforms, and commercial ports.

LPR Global's custom marine hydraulics portfolio includes:



27.6" Large Bore Boom Hoist Cylinder

Korea East-West Power Company, Continuous Ship Unloader



800-Ton Jack Cylinder

Daewoo Engineering & Construction, Busan-Geoje Fixed Link



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Conclusion

Browse our large bore and heavy duty hydraulic cylinder projects by industry and application at <https://www.uskoreahotlink.com/products/manufacturing/steel-mill-large-bore-cylinders/#cylinder-industries-and-applications>

We are happy to manufacture custom cylinders to exact fit, even in small order volumes. Please contact us with specifications or drawings for prices and lead times.





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