



## Product Listing



Manufacturing for extreme conditions

Title

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*Sub-title*

**Photo**

**Description**

A helicopter deck (or helo deck) is a helicopter pad on the deck of a ship, usually located on the upper deck and always clear of obstacles that would prove hazardous to a helicopter landing.

A Moonpool Door on the bottom hull of a vessel opens and closes to allow direct access to the water. They provide shelter and protection so that work can be done in comfort and safety rather than the deck exposed to the elements. Moonpools are a feature on many marine drilling platforms, diving support vessels, and marine research vessels.

Aerospace has a broad range of systems requiring hydraulic power. Precision and reliability are especially important in aerospace applications in contrast to other industries as failure above ground can often have more serious consequences.

Any high priority lift that approaches the safe working threshold of the equipment involved should have some form of lift analysis done.

Bucket-Wheel Excavators act as a continuous digging machines in large-scale open-pit mining operations. A large wheel consisting of a continuous ring of buckets is rotated into the material to scoop material away. Mining equipment suppliers require wheel excavators to work continuously in hostile environments. Cylinders on these machines are often exposed to aggressive dust, chemically hostile or maritime environments, shock loads, and generally tough conditions.

Cassette Style Tensioner Systems are direct acting cylinders and accumulator assemblies mounted on a cassette frame. Four or more tensioner cylinders with their related equipment are packaged together as a complete system.

Chain and Gripper Jack Pull-in Systems provide a safe connection and pretension of mooring lines for FPSO's, FPU's, Semi-Submersibles, and moored vessels.

Crane Cylinders are used in numerous applications throughout portable and stationary cranes. Outriggers, Masts and a plethora of Crane attachments can all incorporate specialized hydraulic cylinders.

Crane stability has historically been a major challenge for offshore installation and decommissioning work because small waves on the sea can produce major movements for the tip of the crane, endangering the crew and putting expensive equipment at risk.

**Photo****Description**

Crown Mounted Compensators (CMC) are designed to apply a constant tension to the drill string to compensate for any rig movement. CMC systems are prevalent on newer rigs due to their large capacity of both static and dynamic loads compared to hook mounted drill string compensators.

Drill String Compensators are designed to isolate, as much as possible, the heaving motion of the vessel from the drill string, providing a constant load on the bit while drilling. They minimize vibration between the drill string and the blowout preventer, marine riser and casing strings.

Drilling Riser Tensioners are used to keep tension on the drilling riser as constant as possible. Without movement of the sea would cause buckling/stretching of the riser without such a device.

For deepening and maintaining ports, rivers and canals, the dredging industry is relied upon to ensure waterways remain open and efficient. The dredging industry therefore demands dependable and specialized technology often incorporating hydraulic systems.

Heave compensator units improve the operation of offshore crane systems while requiring no modification to the crane. They work as a sort of shock absorber between the crane and the load being lifted, acting to reduce the relative movement caused by the sea.

Hydraulic components utilized in mobile equipment and machinery serve a multitude of critical functions in numerous industries worldwide. As the complexity of today's mobile equipment increases, so too is the application of hydraulic cylinders to solve complex operational requirements.

Hydraulic Crusher Cylinders maintain optimal pressure and distance between Grinding Roller components. This allows for improved efficiency in material processing.

Hydraulic Power Units are a critical component for powering hydraulic systems, providing pressure, flow, and fluid conditioning. Typically consisting of a prime mover, a reservoir, valving, fluid conditioning, and a hydraulic pump, these units can generate a tremendous amount of fluid power to drive most any kind of hydraulic actuator/motor. Hydraulic Power Unit operating principles are based on Pascal's law of physics, developing their power from ratios of area and pressure.

Hydraulic Systems are often packaged with custom designed mechanical/structural equipment to provide a fully "turn key" solution.

Hydro-electric facilities and movable bridges require dependable and accurate systems to power critical equipment.

In a Split Barge the hull of the whole barge splits longitudinally consisting of two major parts (port and starboard halves). Both are mostly symmetrical in design and are hinged together at the deck. They are operated by hydraulic cylinders. When the vessel splits the load is dumped rapidly, which means the barge has to be very stable in order not to capsize or otherwise get damaged as the load is released.

In the mining industry bulk material handling is used to transport material between the mine and a processing location, saving production time and other associated costs. Maritime Hydraulic Bulk Material Handling Systems are typically composed of conveyor belts, screw conveyors, stackers, reclaimers, bucket elevators, truck dumpers, railcar dumpers, shiploaders, hoppers, diverters, and various mobile equipment such as loaders, various shuttles, combined with storage facilities such as stockyards, storage silos or stockpiles. Advanced bulk material handling systems feature integrated bulk storage, conveying, and discharge.

Launch and Recovery Systems are used for deployment and recovery of ROV's, AUV's, Submersibles, Drills used in the Offshore, Oceanographic and other marine applications such as davits for lifting and saving purposes, daughter crafts, workboats and fenders.

Load management systems may refer to a variety of things but in this context; the term denotes a system designed to assist in lifting a heavy load safely in an offshore environment where the vessel and lifting platforms are susceptible to the movements of the sea.

Main Hoist Cylinders used in drill Derricks can safely replace the traditional Drawworks, providing drilling, tripping, and case setting functions. Automatic, hands-free pipe handling is another feature of these high efficiency, new generation hydraulic drill rigs.



**Photo****Description**

Maritime Hydraulic and MHD Offshore provide full scope of Stand-Alone Wire Line Compensators to allow compensation for ocean heave induced dynamic loads. Typical applications are: \* Subsea payload deployment through external / existing winches for precision landing \* Suspended payload Sensor platforms \* Mooring line compensation \* ROV Docking \* Drill String Compensation for Seismic & Survey vessels Adaptability of these systems allow usage with various known compensator configurations and even up-grade of existing passive systems to active systems.

Mill Type Cylinders are fairly generic in function but are known for their robustness. High pressure design, heavy walls, and substantial rod diameters are all typical Mill Type Cylinder features. End caps can be bolted, welded, or screwed on as opposed to the end caps of Tie Rod Style Cylinders. Mounting options usually require some form of custom considerations. This style of cylinder is versatile and with simple design changes, they can be utilized in a multitude of ways.

Multi function subsea manifold operating at 6000 PSI

Offshore Crane Shock Absorber Units enhance the lifting capacity of offshore crane systems by stabilizing applied loads induced by the sea, thereby reducing peak loads on the crane.

Oil rig "Catwalks" are used as staging areas for rig and drill string tools. On these platforms the tool is lifted to the derrick and lowered down to go onto the pipe rack.

One of the most critical elements in developing a dry-tree semi-submersible platform concept is the adaptation of long-stroke riser tensioners to compensate platform motions for acceptable riser performance, while minimizing the impact to well bay arrangement.

Pile Driving Barges are crucial in the building or restoration of docks and can come in a variety of different types, many of which require the use of hydraulic power to accomplish their task.

Plating corrosion resistant coatings using electrolysis nickel plating (EN) have been an integral part of the metal finishing industry for years. Their protective surface properties against chemicals are well documented for an array of industrial applications. Generally, plating corrosion resistant coatings provide greater performance using higher phosphorous content (greater than 10-12%) in the nickel bath. Depending on base metal, plating thickness, and surface finish, 1000 hour salt spray (ASTM B117) is achievable. Laser cladding is a method of depositing material by which a powdered or wire feed material is melted and consolidated by use of a laser in order to coat part of a substrate or fabricate a near-net shape part (additive manufacturing technology) . It is often used to improve mechanical properties or increase corrosion resistance, repair worn out parts or fabricate metal matrix composites.

Portable land based drill rigs often utilize hydraulic cylinders to raise/set/lock the drill floor into the operating position. Hydraulic cylinders allow rapid rig deployment while providing finite control and a safe operating environment.

Powerful and durable Skidding Systems designed to generate very large horizontal forces in confined spaces.

Pressure compensation and corrosion protection are essential for subsea hydraulic cylinders. We have experience designing and manufacturing subsea hydraulic cylinders that endure pressures up to 30,000 PSI working for years without downtime.

Riser Centralizers retain the riser securely in the middle of the moonpool in case of severe storms. The riser can then be quickly reconnected once the storm has left allowing drilling to recommence in a short time.

Ro-Ro Cargo Vessels are cargo ships that are designed to have cargo "Roll-On" and "Roll-Off" capabilities. They have operational shore ramps built into the ship to allow cargo to be loaded and unloaded without the use of cranes. The shore ramps can vary widely in design depending on the specific hauling requirements of the vessel.

Telescopic cylinders for raising drill floors.

The hydraulic cylinder is a key component of a winch brake sub-system. When pressurized, it releases the spring pressure on the brake discs, allowing the brake discs to turn freely. Extreme positioning accuracy of the winch operation is supported by a reliable hydraulic cylinder. The winch brake cylinder is located on the brake housing at the front of the hoist winch. Within the cylinder is a piston which is springloaded to the applied position. The piston exerts force on the brake drum to prevent drum movement in the HOLD position. The piston is backedoff, and the brake is released, by introducing hydraulic pressure into the brake cylinder.

**Photo****Description**

The loading ramp of a ferry must be capable of being set to different heights. The ramp is raised and lowered by hydraulic cylinders which actively compensate for the level of the water and the load on the ferry when the load status changes. This allows for predetermined loading operations regardless of the water level with minimal deviations. All equipment in Ferry Terminal Loading Systems is manufactured to endure storm waves and harsh marine environments.

The system consists of the following major equipment: 1. Sea Spring 300 MT In-Line Passive Heave Compensator (Patent Pending in Malaysia and USA): The unit is a rugged self-contained hydro-pneumatic system. Sea Spring is utilized as a shock absorber / heave compensator for a variety of applications using an "In-Line" mounting configuration on an Offshore Crane. When preparing the Sea Spring for different applications the two main parameters i.e. Pre-Tension Pressure and Hydraulic Oil Volume are adjusted to define the load size and stroke point based on the pre-tension pressure. Design Approval / Certification: DNV 2.22, Appendix F, CG3 2. Transportable Docking Station (TDS) F / Sea Spring 300 MT Compensator (Patent Pending in Malaysia and USA) 3. The TDS combines and integrates all of the functional requirements to transport, test, operate and safely store In-Line Passive Heave Compensator into a single machine. Additionally, the compensator can be tuned and re-tuned for different offshore payloads and lifts by simply disconnecting the unit to make adjustments in pre-tension pressure and hydraulic fluid volume. Design Approval / Certification: DNV 2.7-3 (Portable Offshore Unit) 3. Inertial measurement unit: MHD 108 Inertial Measurement Unit allows precise Roll, Pitch, Yaw, Surge and Sway information about the vessel where the offshore crane is placed. This reading is utilized by the suite of MHD Load Analysis Software to compute various vital parameters to aid proper offshore lifting operation. 4. Note Computer (Optional) 5. Dynamic Load Monitoring System (Optional)

The Tendome Style PRT Direct Acting Tensioner is installed on the rig to maintain a pre-selected vertical tension in the riser when the rig is heaving and rolling due to waves, currents, and wind. This style of PRT consists of direct acting tension cylinders, pulling on the riser. It is supported from the structure underneath the drill floor and connected to the telescopic joint load ring to generate a nearly constant pull on the riser. The riser tensioning cylinders are located in the moonpool area while the rest of the equipment is placed on deck. The main component is the cylinder that generates a pulling force on the riser. The Ten-Dome Style PRT is organized in 10 ... . Each cylinder has a positioning system to determine position, speed and direction of the rod movement.

Transferring personnel from crew-boats to rigs offshore has always been a precarious operation. Gangways are typically very susceptible to dangerous movements relative to the crew-boat or platform due to the movement of the ocean.

Tunnel Boring Machine (TBM) manufacturers requires special hydraulic cylinders especially designed for unique projects around the world. We design and manufacture Thrust Hydraulic Cylinders to handle side load, torque acting and power to manage any challenge.

Typical application for these specialty winches include subsea sea deployment of offshore platforms as well as keeping constant tension on subsea and mooring lines for a variety of functions.

Vehicular and passenger bridges are an important element in today's transportation infrastructure. Swing, bascule, vertical lift, and folding bridges all require operational systems to allow precise controlled movement while ensuring the safety of the public.

We are a Controlled Goods Approved company, approved by the Government of Canada. Our Defense sector experience includes maintenance and heavy component replacement for Canadian Navy vessels. We have also built precision humidity controlled Cargo vessels for transporting weapons for the Canadian Military. Maritime Hydraulic has also built large cylinders for the launch tower for the Antares Rocket.

With drilling capability now extending to water depths in excess of 3000 meters, risk associated with a failed riser recoil system is significantly increased. These recoil system failures can occur in the event of an emergency riser disconnect or riser failure on a DRT (Drilling Riser Tensioner)

# Offices

## Canada

355 MacNaughton Avenue, Moncton | New Brunswick – E1H2J9

Tel: 1-506-858-0393 | Fax: 1-506-858-0603



## USA

10695 Shadow Wood Drive, Houston, Texas 77043

Tel: 1-713-595-8880 | Fax: 1-713-595-8881



## Malaysia

NO. 9, Jalan Haji Abdul Manan 3/KU8, Kawasan Perindustrian Meru Barat,  
42200 Kapar, Klang, Selangor DE

Tel: +6-03-3393-5572 | Fax: +6-03-3392-5571



MHD Offshore is a sister company of Maritime Hydraulic focused in Offshore solutions