

ENERPAC APPLICATION INSPIRATION



- Buildings and Stadiums
- Bridges and Infrastructure
- Manufacturing
- Power Generation
- Steel and Metal Production
- **Oil and Gas, Petrochemical**
- Shipbuilding
- Mining

Enerpac Application Inspiration



POWERFUL SOLUTIONS. GLOBAL FORCE.

With more than 50 years of experience, Enerpac has gained unique expertise in delivering hydraulic solutions for the controlled movement and positioning of heavy loads.

This expertise has been acknowledged by the world's leading industrial professionals and has contributed to the successful movement of a number of the most recognizable structures on earth.

In addition to providing the most comprehensive line of globally-supplied, locally supported Heavy Lifting products, Enerpac combines hydraulics, steel fabrication and electronic control with engineering and application knowledge, to design and manufacture solutions that ensure your projects are completed safely and efficiently.

Oil and Gas

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Petrochemical

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Safe Disposal of Old Gas Cylinders with Hydraulic Punch Set

Customer: SupaGas

Location: New South Wales, Australia

Challenge: Before gas cylinders can be disposed of in Australia, they must be completely unusable, to stop people reusing faulty and dangerous cylinders and causing themselves serious harm. The most effective way to do this is to puncture a hole in the cylinder.

Solution: Leading NSW-based gas company SupaGas has found that the safest and most efficient way to do this is with the assistance of Enerpac hydraulic tools, supplied through NSW Authorised distributor South West Hydraulics.

Products: RC-Series, General Purpose Cylinder
XA-Series, Air Hydraulic Foot Pump



Subsea Pipeline Anchors Positioned for Lowering with a Custom Hydraulic System



Customer: Technip and Subsea 7

Location: Australia

About 900 gravity anchors were positioned by Technip and Subsea 7 (TCS7 Joint Venture) utilising Technip's vessel CSO Venturer as part of a \$US55 million contract involved in the expansion of Woodside Energy Ltd's North-West Shelf project.

A high-pressure (700 bar) hydraulic system from Enerpac was custom-built for two anchor feed beds used to lift and position the 32-ton anchors for lowering by shipboard crane to the ocean floor.

Reliability and accuracy was integral to the rollout of the string of anchors – weighing a total of 28.800 tons – because their correct positioning ensures stability of the new 106,7 cm second trunkline from the Woodside operated Goodwyn and Rankin gas condensate fields. The works have now been completed.

Products: RR308, Double-Acting Long Stroke Cylinders
PAM-Series, Air Hydraulic Pumps
VC-Series, Directional Control Valves



Leak Free Connections on Critical Joints with Hydraulic Tensioners

Customer: Projem

Location: Surat Basin, Queensland, Australia

Challenge: The maintenance teams at the Wallumbilla Gas Treatment Facility were assembling several gas processing and treatment pipelines. Each flange bolt required a precise amount of tension in order to ensure a leak free connection.

Solution: GT-Series hydraulic tensioners provided a safe and efficient solution for assembling multiple flanges. The compact profile allowed the tensioners to achieve accurate bolt loads with leak free connections on critical joints.

Products: GT-Series, Hydraulic Bolt Tensioners



Lift and Weigh of a Jack-Up Rig Cantilever and Drill Floor



Customer: Lamprell

Location: Dubai, United Arab Emirates

Challenge: Lamprell has completed the fabrication of a new jack-up drilling rig. Every jack-up rig cantilever and drill floor needs to be accurately weighed after construction. Space restrictions under the cantilever prevented the use of other weighing systems without costly rework to the load structure. Enerpac distributor Al Masood Trading, based in Dubai, was asked to provide a safe, accurate and compact solution for weighing the jack-up rig cantilever and drill floor.

Solution: The EVO-W Series Synchronous Lifting System with weighing feature provided the perfect solution for weighing the completed jack-up drilling rig cantilever and drill floor substructure. The EVO-W weighing system included two 600 tons and two 200 tons hydraulic jacks and accessories. The clearance of the jacks was reduced by using calibrated pressure transducers instead of load cells.

Products: The EVO-Series, Synchronous Lifting System
High Tonnage Cylinders



Pulling Pins on an Oil Well Casing Elevator Spider

Customer: Al Masood Oil Supplies and Services (MOISS)

Location: Abu Dhabi, United Arab Emirates

Challenge: The borehole of every oil well drilled must be cased with a durable material to prevent contamination and provide structural support during drilling. An elevator spider is used as a guide to aid in centering each casing. The pin on the elevator spider must be replaced after every drill in order to remove corrosion, dirt and grime built up during drilling. MOISS's existing process for removing the pin took up to 4 hours and required continuous hammering.

Solution: A spindle bar was run through the center of a RCH-Series, Hollow Cylinder mounted on a metal sleeve and connected to the pin in the elevator spider. The metal sleeve provided a reaction point and space to pull the entire pin out. The RCH-Series, Hollow Plunger Cylinder powered by P-Series Ultima Hydraulic Hand Pump provided a hydraulic solution to pull the pin out in less than 15 minutes, saving the maintenance team several hours.

Products: RCH-Series, Hollow Plunger Cylinder
P-Series, Steel Hand Pump



Assembling an Offshore Platform Oil Rig Modules



Customer: Jaragua Equipamentos

Location: Alagoas Maceio, Brazil

Challenge: Petrobras is constructing a new offshore oil platform for an oil field in the Santos Basin off the coast of Rio de Janeiro. Jaragua Equipamentos was tasked with assembling 4 modules during the construction of an oil rig. Each module weighed more than 700 tons and required precision lifting and alignment during assembly.

Solution: Jaragua Equipamentos utilized a SBL1100 gantry to lift and position each module. Utilizing a hydraulic gantry to assemble the oil rig provided an efficient and safe solution capable of positioning the 700 ton loads with precise accuracy.

Products: SBL1100, Telescopic Hydraulic Gantry



Offshore Production Facility Module Load-Out

Customer: Berard Transportation

Location: Gulf of Mexico

Challenge: An offshore production facility was constructed in the Gulf of Mexico and is projected to be located in water depths of in excess of 5000 feet. In order to construct the tension-leg platform several modules weighing approximately 7000 ton needed to be slid into position.

Solution: Enerpac strand jacks were utilized for loading out the utility, drilling, and process modules, providing 1500 ton of pulling force during the load-out procedure.

Products: HSL-Series, Heavy Lifting Strand Jacks



Synchronous Lift System Launches 43.000 ton Offshore Oil Platform



Customer: Malaysia Marine and Heavy Engineering

Location: Johor Bahru

Challenge: Lift, balance, weigh and smoothly launch a 43.000-ton floating oil production system for the Gurusut-Kakap offshore Malaysian oil field. Maintaining the integrity of the structure throughout the lift was essential, not only to ensure the safety of the lift, but also to ensure structural integrity and safety throughout its operational life.

Solution: Enerpac PLC-controlled 700 bar synchronous lifting technology was used to individually control 352 compact high-pressure (700 bar) 300-ton hydraulic cylinders incorporated in groups into active skids beneath the steel structure. It was able to sense and control any deflection - within the required range of 210 millimeter over a 70 meter span - of pontoons and the main superstructure, protecting its integrity throughout the lifting, weighing, shifting and launching process.

Products: EVO-Series, Synchronous Lifting System



Construction of the Adriatic LNG Regasifier

Customer: Fagioli

Location: Porto Levente, Italy

Construction of the world's first LNG regasifier, built with 90.000 cubic meters of cement and 30.000 tons of steel, required lifting and skidding solutions that could stand up to these extreme conditions. Enerpac HSK-Series skidding systems, in conjunction with HSL-Series heavy lifting strand jacks, provided the solution, which compensated for skidding on uneven ground, and lifting deck modules and equipment of up to 3000 ton.

Products: HSK-Series, Skidding Systems
HSL-Series, Heavy Lifting Strand Jacks



Little Room for Error in Lifting These Huge Vessels



Location: Alberta, Canada

West-central Canada is the locale of massive oil sands deposits, but it isn't practical to move the extracted bitumen out of the area without first doing some processing, if not full refining. A facility expansion project in Alberta involved fabrication of six huge coker vessels used in processing.

The finished size and weight of the vessels, 43,3 metres long, 10,5 metres diameter, and approximately 650 tons, precluded fabrication anywhere but on-site, since highways and bridges could not accommodate such a load.

Challenge: Fabrication proceeded in a relatively straightforward manner. The vessels were built in approximately eight-foot segments, each of which consists of three 120-degree curved plates. Rollers allowed for rotation

Solution: Synchronous Lifting solved the problem with a digital controller, sensors, and actuators. The PLC controller monitors load position at each lift point to within a millimeter (0.040 inch) by means of a cylinder displacement sensor associated with each jack.

Product: PLC-Controlled Synchronous Lifting System
ZE-Series, Electric Pump



Lifting 15.000 ton Oil Platform

Customer: Brasfels

Location: Brasil

Removed oil platform from temporary supports and lowered onto a barge for transport to final destination.

Solution: Four 8-point synclift systems are networked to 32-points lifting system. Four pumps with slave PLC-controls and 32 jacks are connected to master control unit (laptop). Multiple point lifting with 200 and 600 ton CLRG-Series, double-acting high tonnage cylinders.

Products: PLC-Controlled Synchronous Lift System
CRLG-Series, High Tonnage Cylinders



Safely Removing Corroded Nuts with a Hydraulic Nut Cutter



Customer: Hiap Seng Engineering

Location: Bukom Island, Singapore

Challenge: Hiap Seng provides pipe line maintenance services for Shell at their Pulau Bukom oil and petrochemical production facility. Removing corroded or frozen nuts is a common challenge when performing pipe maintenance. A frequent approach for removing corroded nuts included a chisel and hammer, flogging, or gas torch; however these methods often damage the flange face, bolt or gasket and take 15 to 30 minutes per nut.

Solution: Enerpac has provided Hiap Seng with a NC-Series, Hydraulic Nut cutter to save time and safely remove nuts without damaging the bolt, flange or gasket. The NC-Nut Cutter is an efficient tool for removing corroded nuts. Powered by a hydraulic hand pump, the nut cutter advances a blade which can cut a nut off a bolt in less than 2 minutes.

Products: NC-Series, Nut Cutter,
P-Series, Hydraulic Hand Pump



Breakthrough Technology with Hydraulic Isolation Tool for Pressurized Pipes

Customer: STATS Group

Location: Abu Dhabi

The cylinders form part of a 54" Tecno Plug(r) isolation tool. The 14 cylinders are activated to hydraulically lock and seal the isolation tool within a pressurised pipeline. Once isolated, repair and maintenance activities can safely take place.

This breakthrough technology provides isolation of pressurised pipelines allowing repair and maintenance to safely take place without depressurising the entire system, significantly reducing or eliminating operator downtime.

Products: RRH3010, Double-Acting Hollow Plunger Cylinders



Hydro-Cracker Installation with E-Set Self-Erecting Tower

Location: Russia

Customer turned to Enerpac to discuss an alternative solution compared to cranes. Enerpac supplied its Enerpac Self-Erecting Tower (ESET) to lift and position the hydrocracker vessels. Providing a complete heavy lifting solution, the ESET combines Enerpac's heavy lifting strand jacks with gantry and skidding technologies - lifting up to 1450 ton loads to a height up to 76 m.

Products: Enerpac Self-Erecting Tower (ESET)



Offloading a 1300 ton Hydrocracker with a SBL1100 Gantry

Customer: Beluga Projects Logistic, CJSC

Location: Russia

Challenge: Beluga was tasked with offloading a hydrocracker weighing 1306 tons from a barge and bringing it onshore. Due to the weight and length of the hydrocracker utilizing a crane was not an option.

Solution: Beluga utilized two SBL1100 gantry systems to lift the hydrocracker off the barge onto a Self-Propelled Modular Trailer (SPMT). The SPMT then carried the hydrocracker to shore.

Products: 2x SBL1100, Telescopic Hydraulic Gantry



Hydro-Cracker installation with B-Set Self-Erecting Gantry

Location: Alabama, USA

The Enerpac B-Set Self-Erecting Gantry combined strand jacking with hydraulic gantry and skidding technologies to form an integral, free-standing heavy lift and tailing solution. Transported in standard containers, automatic erection and takedown was completed at ground level, requiring only simple craneage to lift the header's beams prior to raising the tower. This provided a 2400 ton by 80 meter lift solution that was quickly and safely set up in a 'live' environment at low cost.

Location: The Self-Erecting Gantry combined with HSL-Series, Strand jacks and HSK-Series, Skidding Systems



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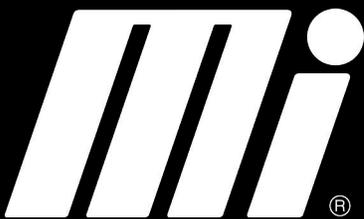
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