

**ENERPAC** 

# HEAVY LIFTING TECHNOLOGY



**THE RIGHT TOOL  
MAKES ALL THE DIFFERENCE**

# STANDARD PRODUCTS AND SOLUTIONS

## THE RIGHT TOOL MAKES ALL THE DIFFERENCE

Enerpac heavy lifting technology products are put to work under the most intense and demanding conditions, that's why we never compromise. You can rely on our quality and precision every time, giving you the confidence to deliver a safe, efficient and successful lift.

Enerpac heavy lifting technology combines technical excellence with proven performance – every day, every year, every time. We believe that customers shouldn't have to compromise – they can rest easy knowing that even in the most complex situations, their reputations and safety are protected by the most trusted products available.



### Hydraulic Gantries

Telescopic Gantries Hydraulic Gantries are a safe, efficient way to lift and position heavy loads in applications where traditional cranes will not fit and permanent overhead structures for job cranes are not an option.



### Strand Jacks

Strand jacks are used all over the world to erect bridges, load out off shore structures, and lift/ lower heavy loads where the use of conventional cranes is neither economical nor practical.



### Synchronous Hoist Systems

SyncHoist is a unique crane product for below-the-hook positioning of heavy loads that require precision placement. The SyncHoist system may reduce the number of cranes needed and reduce the costs of multiple picks.



### Skidding Systems

Comprised of a series of skid shoes powered by hydraulic push-pull cylinders, travelling over a pre-constructed track. Skid systems are the ideal solutions for moving heavy loads horizontally.



### Jack-Up Systems

The Jack-Up system is a custom developed multi-point lifting system used to incrementally lift heavy loads and mechanically hold them in place.



### Self-Propelled Modular Transporter (SPMT)

Features a minimized height and slim design, which makes it very easy to operate in confined spaces.



### Self-Locking Cube Jack

Easy-to-use, compact and portable jacking system that utilizes base lifting frames and self-aligning, lightweight steel cribbing blocks, instead of wooden cribbing materials.



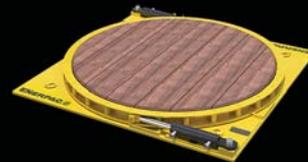
### Split Flow Pumps

For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using independently operated pumps. Where synchronization of maximum 4% is acceptable, Split-Flow Pumps are a safe and economical solution.



### Synchronous Lifting Systems

Used to control and synchronize the movements of multiple lifting points to achieve high-precision movement of heavy objects.



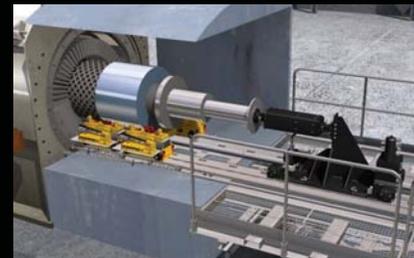
### Turntables

For safe and controlled rotation of heavy loads. Turntables are your solution for rotating heavy loads during, before or after a lifting and skidding operation.



### Trolley Systems

Electrically-driven with wireless controls which can carry heavy loads along a fixed track system. Trolley Systems provide an alternative method to traditional skidding systems and provide continuous fast movement over long distances.



### Custom Solutions

When your application requires something other than our standard product offering, look to Enerpac's Heavy Lifting Technology team. Our group of engineers, designers and specialist, will work with you to understand your specific application and provide a turn-key solution that will exceed your expectations.



Infrastructure



Manufacturing



Mining



Oil & Gas



Power Generation

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# FROM SIMPLE TO COMPLEX – LIFTING SOLUTIONS FOR YOUR APPLICATION

For those who do the heavy lifting today, the stakes are high and the challenges complex. We know our customers put their own and their company's reputations on the line to get the job done right. We take that very seriously.

Technology is pushing the industry forward with a wide range of advanced solutions that first and foremost ensure our customers operate safely and productively every day. It isn't about being compliant, or "as good" as the next guy; we outpace the competition by delivering technically superior solutions that are easy to integrate, safe to use and are built to outlast.

## CONSULTATIVE APPROACH TO HEAVY LIFTING

From the very first discussion to gain an understanding of your application to solution design, training and ongoing field support of your operators, you will find a structured process and a team of application experts who will advise you towards a successful solution.

### SOLUTION CONSULTATION

- Requirements Specifications
- Selecting the Right Solution for your Application

### DESIGN & MANUFACTURING

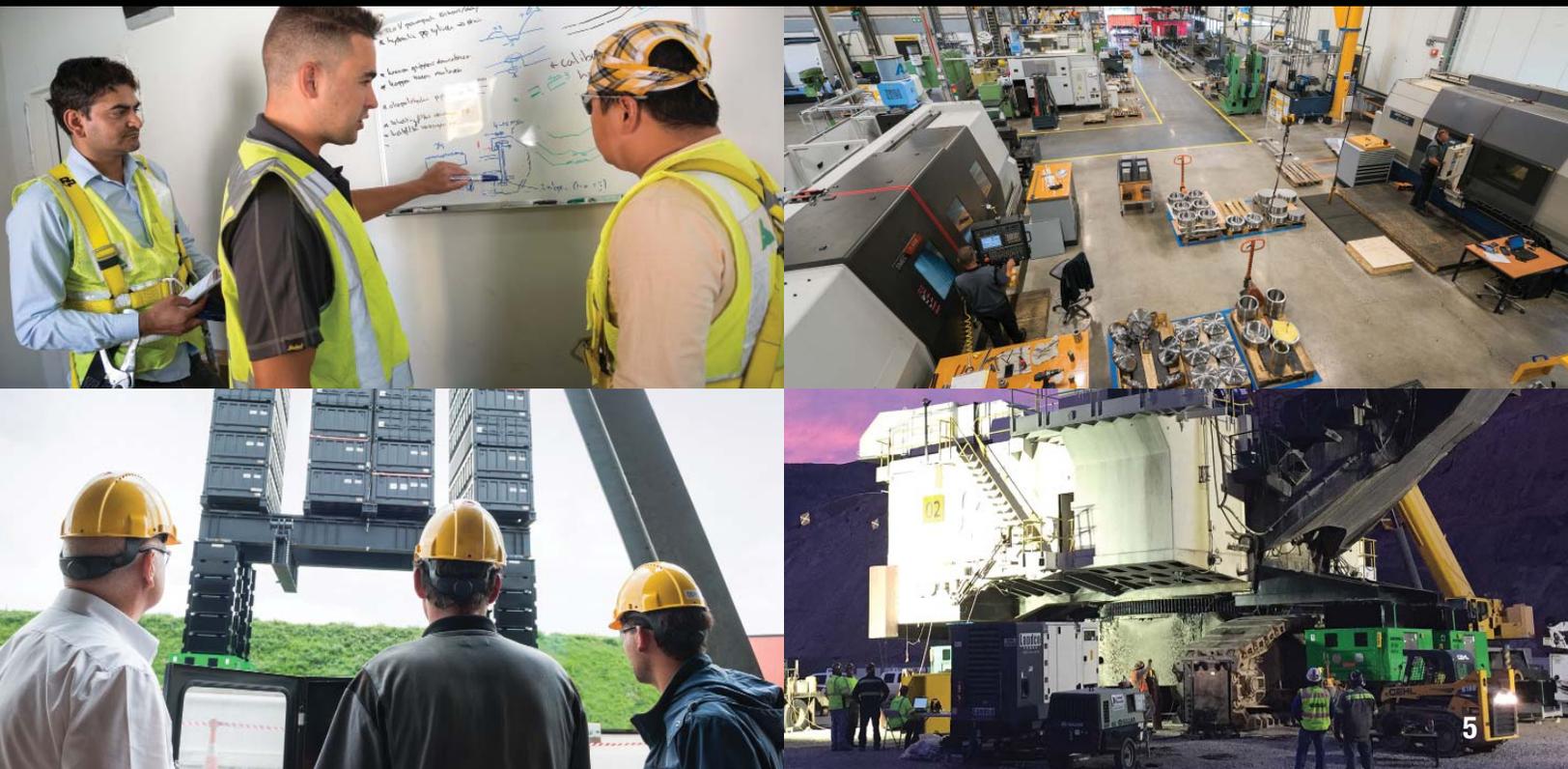
- Design & Engineering
- Manufacturing Excellence

### TESTING & TRAINING

- Quality Assurance
- Operation & Safety Training

### ON-DEMAND SUPPORT

- On-the-job Application Engineer Support
- Routine Maintenance & Repair Services





# SOLUTION CONSULTATION

Since the late 1950's, Enerpac has been steadfast in their commitment to work closely with customers to understand their lift needs and work site environment. Not all lifts are the same. There are several factors that must be taken into consideration before recommending the best solution.

## APPLICATION CONSIDERATIONS

### LOAD CAPACITY

How much weight needs to be lifted, moved and/or positioned?

### LIFT HEIGHT

How high does the load need to be lifted? Are there height restrictions?

### TYPE OF LIFT

Will you lift from above or below?

### SPACE

How much space is available to complete the task?

### TIME

Does the job need to be completed within a set timeframe due to operational or environmental factors?

### TRANSPORTATION

Will the solution need to be moved from job to job?

### TOTAL COST OF OWNERSHIP

What productivity, labor or training costs need to be factored into the solution to make it the best long-term investment?

Because Enerpac engineers have designed solutions for a variety of applications over the years, they are well-equipped to minimize risks and to recommend a simpler solution that others may overlook. Built on a world-class reputation for developing products that meet the most common lifting applications, once your specifications are in the hands of the Enerpac experts, you are sure to receive a comprehensive recommendation that will save time and money while ensuring safety above all else.



# DESIGN AND MANUFACTURING

Enerpac has the most complete offering of standard heavy lifting and positioning tools in the market. These products are designed to highest standards of performance and offer great flexibility to meet the demands of even the most challenging applications. Our manufacturing facility adheres to world class production planning and inventory management to ensure your product arrives at your facility on time as specified.



## Design & Engineering

Enerpac engineers are experienced in the latest software, rapid prototyping, failure analysis methods and engineering standards. This allows us to continuously improve and expand our product offering to meet ever changing needs of the market.

- CE, Machinery Directive 2006/42/E 
- ASME: B30.1



## Assembly & Quality Assurance

- All Enerpac products are assembled by highly trained individuals, utilizing guidance from our team of manufacturing engineers to work safely and efficiently from start to finish.
- The Hengelo, NL facility that manufactures the Enerpac heavy lifting equipment holds several quality certifications.
- ISO 9001: 2015 certified quality management system
- ISO 3834-2: 2005 certified welding quality
- ISO 14001: 2015 certified environmental management system
- ISO 45001: 2018 certified health and safety management system 



## Fabrication & Machining

- A dedicated steel fabrication and certified welding facility manufactures product components and support structures for the most demanding heavy lifting applications.
- Complete in-house production is delivered using the latest CNC and conventional turning machines plus a full range of milling and boring equipment.



## TESTING AND TRAINING

The Enerpac facility that makes and builds your heavy lifting equipment holds several quality system certifications giving you extra confidence in the safety and reliability of your heavy lifting equipment. Whether your first lift or move is scheduled upon taking delivery of your new equipment or months later, you will have access to the dedicated Heavy Lifting team to support your training or troubleshooting needs.



### Factory Acceptance Testing (FAT)

Customers are invited to witness FAT, often combined with operator training. Under witness of Lloyd's Register, all equipment is functionally tested to maximum capacity, and in many cases up to 125% of rated load. Additional testing to meet standards compliance, government regulations or specific customer requirements are performed and documented at the same time.



### Documentation

Upon delivery of your new Heavy Lifting equipment, an operator's manual outlines the configuration of your system, how-to-operate detailed instructions with safety guidelines and maintenance recommendations.



### Training

Customers who attend factory acceptance training at Enerpac's facility can also receive a day of training on their heavy lifting equipment. Additional training or on-site custom training can also be arranged.



# ON-DEMAND SUPPORT

Once you take possession of your new heavy lifting equipment, you have on-demand access to our field support team. And support continues with ongoing maintenance or system upgrades throughout the life of your assets.



## On-the-Job Field Support

Should you ever require extra support while using your Enerpac Heavy Lifting system on the job, our dedicated application engineers will work closely to guide your operators. And to ensure job safety, they will travel to your job site as needed to ensure your project is completed timely and without incident.



## Industry 4.0

Enerpac products incorporate state of the art technology that allows enhanced performance in line with Industry 4.0 standards.

**Data Analysis** - Lift data can be downloaded after completion of work to review and identify trends in similar operations.

**Remote Monitoring** - Lift parameters can be accessed and reviewed from remote locations.

**Remote Troubleshooting** - When necessary, Enerpac service engineers can access and troubleshoot many common problems without having to travel to job site, saving money and minimizing downtime.



## Maintenance & Repair

Downtime is minimized with fast delivery of repair parts and consumables stocked at several locations worldwide. For those that want the added confidence of specialized technicians, the Enerpac Maintenance & Repair team are ready to perform your maintenance or repair services for you.

# PRECISE POSITIONING OF STADIUM RETRACTABLE ROOF TRUSSES





# YOUR TRUSTED PARTNER IN INFRASTRUCTURE

## End Customer:

Texas Rangers® Major League Baseball Team

## Project Contractor:

Manhattan Construction and W&W Steel

## Location:

Arlington, TX, USA

**Project Overview:** Live sporting events are fast becoming immersive entertainment experiences. Today's stadiums are designed to make a statement – and that creativity stretches all the way to how the roof opens. The Globe Life Field®, with an extensive retractable roof, is the new home of the Texas Rangers, the American professional baseball team. The stadium's retractable roof when closed provides relief from the hot summer heat to attract fan attendance.

With larger retractable roofs, trusses are getting longer in length and much heavier. During stadium construction, enormous trusses can be assembled on the ground, lifted and put into place with cranes. However, the capacity and precision needed to place the trusses cannot be found in just the use of cranes.

**Application:** Integrate with the 3,000 ton Manitowoc 3100 crawler crane to extend lifting capacity and precisely lift and position 33 trusses, each weighing between 450 and 750 tons, and averaging over 600 feet in length. The lift and placement must be controlled from the ground for safety.

**Solution:** Enerpac SyncHoist 250 ton cylinders with 20 inch stroke, internal stroke sensor and pressure transducers. Custom Enerpac ZU4-Series pumps were operated by a wireless control pendant while stroke and load were monitored via a touchscreen tablet.

**Results:** By using the Enerpac SyncHoist system, only one crane was necessary for the roof truss pick plan throughout the project. The steel contractor was able to wirelessly control each roof truss 200 feet in air and precisely position it within millimeters.



Enerpac SyncHoist system in use during roof truss picks.



# COMPLEX LIFT OF 1,500 TON FORE RIVER BRIDGE SPAN





# YOUR TRUSTED PARTNER IN INFRASTRUCTURE

## End Customer:

Skanska Koch | Massachusetts Department of Transportation

## Project Contractor:

Barnhart Crane & Rigging (Burkhalter Rigging Inc.)

## Location:

Weymouth, MA, USA

**Project Overview:** No one would call the temporary bridge that was constructed in 2002 over the Fore River between Quincy and Weymouth, Massachusetts a work of art. The bridge replaced a 1936 Art Deco gem when it could no longer safely carry the 32,000 cars that cross the river each weekday. The design and build team of Skanska Koch was selected by the Massachusetts Department of Transportation to build the new, permanent Fore River Bridge. Burkhalter Rigging Inc., of Columbus, Mississippi, was selected to lift the 1,500 ton bridge span into place. The life expectancy of the new bridge is 75 years.

**Application:** Replace the existing temporary bridge built in 2002 with a new \$272 million steel vertical lift bridge that will smooth traffic flow and reduce wait times by opening and closing in half the time (in good weather) compared to the temporary bridge.

**Solution:** Although familiar with Enerpac products, Burkhalter officials asked for help in selecting the best system to do the lift safely and correctly. An Enerpac Jack-Up system was developed for the job. The system is a custom-developed multi-point lifting system. The most common system set-up includes four Jack-Up units but can be expanded to include more. The four-tower setup has a lifting capacity of 2,000 tons (500 tons per tower).

**Results:** The Enerpac Jack-Up system effectively and safely lifted the bridge span at the assembly site to prepare it for transport. Once received at the bridge site, the Jack-Up system was used again to precisely lift the bridge span. Safety must come first especially when working from barges.



Beginning the lifting operations of new bridge from assembly site.



Fully lifted bridge ready for transport.



Positioning new bridge span into place.

# SKIDDING SYSTEM TAKES THE HEAT OUT OF A DIFFICULT BOILER MOVE





# YOUR TRUSTED PARTNER IN MANUFACTURING

## End Customer:

Alderley Park

## Project Contractor:

Ritchie Services

## Location:

Nether Alderley, Cheshire, UK

**Project Overview:** Alderley Park is a world-class science research and innovation center set on 400 acres near Manchester, UK. With the introduction of a new, greener heating system, existing boilers were to be removed and kept intact for use elsewhere.

**Application:** To remove two, large, 70 ton boilers from a custom-built boiler house with a net 6 inch clearance. The removal needed to be completed without substantial engineering work to the building and without damage to the boilers. Removing the roof to allow access for heavy lifting equipment would have meant working at height, cost a great deal more and taken substantially longer.

**Solution:** The Enerpac LH400 low-height skidding system. Compact, it easily fit under the boilers where space was at a premium. The LH400's portability and modular construction allowed easy setup in tight quarters by workers without special equipment. The transfer was safe, smooth, and fast, allowing over a meter's travel every five minutes.

**Results:** The Enerpac LH400 low-height skidding system allowed the boilers to be removed intact, without major impact to the building or project cost.



Preparing to skid the boiler out of the building.



Boilers skidding in process.



The boilers safely outside the boiler house.

# THE UNDECKING OF AN ELECTRIC ROPE SHOVEL IN A COPPER MINE





# YOUR TRUSTED PARTNER IN MINING

## Project Contractor:

Elko Wire Rope

## Location:

Southwestern USA

**Project Overview:** Large mining equipment needs routine maintenance for peak performance given the rough environment. The upper works of the rope shovel needed to be lifted in order to inspect the bearings and perform related work. The machine weighs approximately 1,500 tons, requiring lifting with significant force and control.

**Application:** Typically, the solution for this kind of lift is using custom long stroke cylinders or doing a staged lift, which gets the job done, but not as efficiently. Elko was looking for a more sophisticated, next level solution to be able to provide better service to their mining customers for this particular application.

**Solution:** The Enerpac JS500 Jack-Up system, with a lifting capacity of 2,000 tons was recommended as the best solution by providing extensive information on how it would work for this particular application. After analyzing all the information and talking through the features, benefits, capabilities, and ease of implementation and mobilization in the field, Elko chose to invest in a new Enerpac Jack-Up system to improve their process.

**Results:** The Enerpac JS500 Jack-Up system is truly an innovative solution to use for undocking. The automation is smooth, safe and with the option to add barrels to the system to go as high as you need. Other products for this application had much lower height limits, but with this equipment, lifts can go up to 65 feet, much more than was ever thought to be required for this job. The JS500's lifting capacities and versatility will serve the customer well in future projects.



The Enerpac JS500 Jack-Up system has a lifting capacity of 2,000 tons.



The Enerpac JS500 Jack-Up starts lifting operation.



Lifting barrels are stacked together to mechanically hold the load.

# **SUPER COMPLEX PLATFORM** **MODULE LOAD-OUT**





# YOUR TRUSTED PARTNER IN OIL & GAS

## Location:

Abu Dhabi, UAE

**Project Overview:** The largest module of an offshore ‘super complex’ platform containing an accommodation platform, utilities platform, water disposal platform, separation platform, and riser platform required weighing and load-out. Enerpac Weighing and Skidding systems were developed for the 32,000 ton module. Two further modules weighing 18,000 and 20,000 tons also used the Enerpac system.

**Application:** As each platform module is completed, its weight and Center of Gravity (CoG) must be determined. In addition, the modules must be loaded-out from the construction site to barges for transport offshore. Traditionally, an array of load cells is used to weigh the platform module, however, the module size meant another approach was needed. For the load-out, the operator was looking for a contingency plan in the event the load-out operation had to be aborted and the module retrieved back to shore.

**Solution:** An Enerpac multifunctional synchronous lifting EVO system operating 96 cylinders was used to weigh the platforms. It provided an accuracy of lifting synchronization such that the difference in plunger stroke of each cylinder was less than 1mm. For the load-out, Enerpac developed a Push-Pull Gripper Jack system that gripped the load-out track. It formed a moving anchor, enabling both forward and reverse movement should the module need to be recovered to shore.

**Results:** The EVO system allowed an unprecedented level of weighing accuracy for this type of project. The load-out of all three modules was achieved successfully.



Enerpac Self-Propelled Power Pack that powered the ‘Push-Pull’ system for the platform load-out.



Enerpac ‘Push-Pull’ system for the platform module load-out.



Effective control of the EVO system’s network of 96 cylinders.

# THE SAFE LOAD-OUT OF OFFSHORE WIND TURBINE FOUNDATIONS





# YOUR TRUSTED PARTNER IN POWER GENERATION

## End Customer:

EnBW Hohe See and Albatros Wind Farms

## Project Contractor:

GeoSea Geotechnical & Offshore Solutions

## Location:

North Sea Port, Off the Coast of Germany

**Project Overview:** GeoSea was looking for a way to minimize the time in Port during load-out of offshore wind turbine foundations on board their installation vessels.

**Application:** Enerpac supplied GeoSea Geotechnical & Offshore Solutions with an integrated trolley system for loading transition pieces onto a jack-up vessel for the foundation installation of the Hohe See and Albatros wind farms, offshore Germany.

**Solution:** The Enerpac trolley system was mounted on two 295 feet steel tracks running across the deck of the jack-up installation vessel. Three 500 ton transition pieces were securely fastened by hydraulic cylinders in the frames. Each clamping frame was powered by four electrically-driven trolleys allowing higher speeds than traditional skidding systems. An integrated hydraulic clamping and levelling system was also included as part of the overall solution. The trolley system is controlled by a single Intellilift wireless control unit allowing fully integrated, synchronized operation.

During load-out, the transition pieces were positioned in the clamping frames and moved along the track. As monopiles were installed, the transition pieces were advanced along the track to bring them within reach of the on-board crane.

**Results:** Rapid loading of transition pieces using the Enerpac Trolley System ensured a quick turnaround in port.



Trolley system with clamping frame.



Loading of transition segments.



Enerpac Trolley System in use.

# PRECISE POSITIONING OF HIGH-PRESSURE POWER PLANT HEATERS





# YOUR TRUSTED PARTNER IN POWER GENERATION

## End Customer:

Safi Energy Company

## Project Contractor:

Marine Maroc

## Location:

Safi, Morocco

**Project Overview:** The Safi power plant is the first coal-fired project in Africa to use ultra-supercritical technology offering 10% higher efficiency compared to conventional plants, enabling significant CO2 reductions and lower fuel costs. With a capacity of 1,386 MW, the Safi power plant is part of Morocco's national strategic plan to meet its growing electricity demand at the lowest possible cost while respecting the environment.

**Application:** Lift the 138-ton heaters from the hydraulic modular trailers and place in a storage area ready for installation.

**Solution:** Marine Maroc transported the high-pressure heaters from Safi port to the power plant on multi-wheel hydraulic modular trailers. On arrival at the plant, an Enerpac SL400 Telescopic Hydraulic Gantry was deployed to lift the heaters. The gantry's powered side shift units enabled the heaters to be accurately positioned on a temporary support base.

**Results:** The Enerpac SL400 Gantry provided a simpler lifting solution that was quicker to mobilize and demobilize than a crane.



The Enerpac SL400 Gantry lifts the 138-ton high-pressure heater.



Delivering the high-pressure heater.



Lifting the high-pressure heater off the transport trailer.



## **WORLD CLASS SUPPORT** **RESULTS IN THE RIGHT TOOL**

Whether you're looking for help identifying the right product, receive technical support, training or request product materials, we have experts ready to answer your questions and provide guidance on the tool or accessory that will help get your toughest job done. Reach out to us at [Enerpac.com/support](https://enerpac.com/support).

[enerpac.com/heavy](https://enerpac.com/heavy)

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