

Integrated Solutions



Enerpac Integrated Solutions

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.

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EXPERIENCE and EXPERTISE



HYDRAULIC POWER UNITS

Enerpac designs, assembles and tests small to large hydraulic power units in-house. Power units range from 0,5 to 240 kW and are tested with the system they are intended to operate.



STEEL FABRICATION

In our dedicated facility for steel fabrication and welding, we design and manufacture custom structures used in demanding heavy-lifting applications.



ELECTRONICS

Enerpac designs all control systems in-house. This capability keeps control technology close to the design engineers who are developing the rest of the system. In doing so, we can tailor the control system to match unique project requirements.



ENGINEERING

The Integrated Solutions multi-disciplined engineering team is capable of the design and development of all aspects of an Integrated Solutions system. Leveraging design and application experience with the latest in computer software, rapid prototyping and analysis methods ensures delivery of the highest quality systems.



MACHINING

Enerpac utilizes the latest in CNC machining technologies and manufactures all large and special hydraulic cylinders in-house. We can machine diameters up to 1000 mm with lengths to 6000 mm.



FIELD SUPPORT

Enerpac Integrated Solutions is available to provide on-site support including training and troubleshooting of systems. We also stock repair parts and consumable items at several locations to ensure fast delivery and minimal downtime.



MAINTENANCE and REPAIR

Due to the unique nature of Enerpac's Integrated Solutions systems, we offer complete maintenance and repair services. Our M&R group is available to assist customers who do not have access to local service facilities qualified to work on these systems.

HYDRAULIC GANTRIES

The complete range of hydraulic gantries for your most demanding lifting and rigging operations

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.

Hydraulic Gantries are placed on skid tracks to provide a means for moving and placing heavy loads, many times with only one pick.

Enerpac offers three series of Hydraulic Gantry systems:

- SL-Series Super Lift**
 The cost-effective SL-Series Super Lift offer control and stability for everyday lifting applications below 400 ton up to 9 metres
- SBL-Series Super Boom Lift**
 The heavy-duty SBL-Series Super Boom Lift boom style gantries offer increased lifting capacity of over 400 ton to heights of almost 12,2 metres.
- MBL-Series Mega Boom Lift**
 The massive MBL-Series Mega Boom Lift offers capacities and lifting heights of over 600 ton at almost 14,6 metres extreme lifting conditions.

All Enerpac gantries are delivered with specific properties and control systems to ensure optimum stability and safety.

Hydraulic Gantries							
Capacity (with 4 towers) (ton)			Model Number	Lift Height (mm)			Weight (per tower) (kg)
1st stage	2nd stage	3rd stage		1st stage	2nd stage	3rd stage	
60	60	N/A	SL60	3397	4956	N/A	1050
125	125	N/A	SL125	4635	6700	N/A	2130
400	400	195	SL400	5228	7236	9144	4600
500	500	300	SBL500	4988	6898	8608	6300
900	600	N/A	SBL900	8300	11.300	N/A	13.350
1069	688	383	SBL1100	7004	9688	12002	11.950
500	500	N/A	MBL500*	N/A	12.867	N/A	19.750
600	600	N/A	MBL600*	N/A	14.522	N/A	20.950

* Extends simultaneously through all stages with constant lifting capacity



OVERVIEW



KEY FEATURES:

- Self-contained hydraulics and electronics
- Intelli-Lift wireless control system
- Self-propelled wheels or tank rollers
- Foldable boom on **SBL900**, **SBL1100**, **MBL500** and **MBL600**
- Full range of supplementary equipment: header beams, lifting lugs, side shift, skid tracks
- Designed and tested to meet ASME B30.1-2015 safety standards
- Lloyds witness tested to 120% of maximum working load.

STRAND JACKS

Compact high-capacity system for controlled lifting and lowering

A strand jack can be considered a linear winch.

In a strand jack, a bundle of steel cables or strands are guided through a hydraulic cylinder. Above and below the cylinder are anchor systems with wedges that grip the strand bundle simultaneously, this is how the strand jack is able to carry a load. Lifting and lowering a load is achieved by hydraulically controlling the main jack and both mini jacks alternately.

Enerpac utilizes Smart Cylinder Control (SCC), ensuring full control of the lifting and lowering operation.

Today strand jacks are widely recognized as the most sophisticated heavy lifting solution. Strand jacks are used all over the world to erect bridges, load out offshore structures, and lift/lower heavy loads where the use of conventional cranes is neither economical nor practical.

Strand Jack				
Capacity (ton)	Strand Diameter (mm)	Model Number	Number of Strands	Weight (kg)
15	18	HSL1507	1	100
30	15,7	HSL3006	3	500
45	18	HSL4507	3	500
60	18	HSL6007	4	650
70	15,7	HSL7006	7	640
100	18	HSL10007	7	850
200	15,7	HSL20006	19	1300
200	18	HSL20007	12	1400
300	18	HSL30006	31	2180
300	15,7	HSL30007	19	2180
450	18	HSL45007	31	3050
500	15,7	HSL50006	48	3150
650	18	HSL65007	43	3950
850	18	HSL85007	55	5000
1000	18	HSL100007	66	7650
1250	18	HSL125007	84	8300



OVERVIEW



KEY FEATURES:

- Full control of lifting and lowering through SCC control
- Two sizes strand diameter: 15,7 and 18 mm
- Complete line of electric and diesel power packs
- Nickel plated telescopic pipes preventing bird caging
- Standard supplied with lifting anchor
- Automated locking – unlocking operation
- Special corrosion treated high endurance multi-use wedges
- Full range of accessories: strand dispenser, strand guide, re-coiler, strand tensioner.

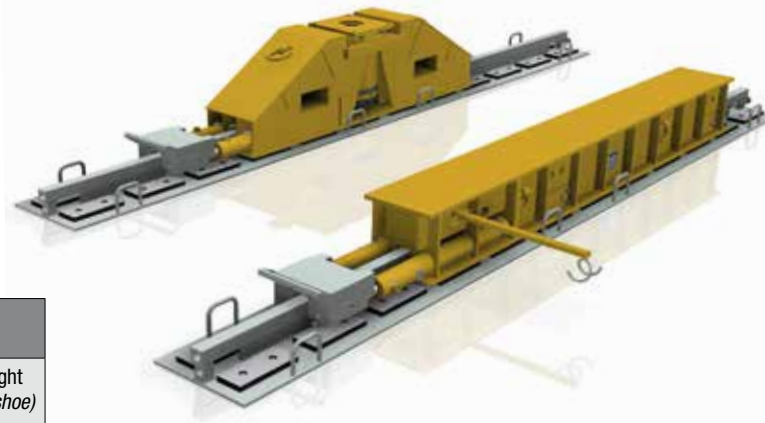
SKIDDING SYSTEMS

The ideal Jack and Slide Solution

Enerpac Skidding Systems are available in several versions:

- **HSKB-Series (Skid Shoe Beam)** utilizes a tall skid shoe with built-in push/pull cylinders. Skidding direction can be easily switch by flipping a lever on the attached gripper box.
- **HSKJ-Series (Skid Shoe Jack)** provide the same functionality as the HSKB with the added benefit of having a built-in cylinder for lifting or leveling the load.
- **HSKLH-Series (Low Height Skid Shoe)** designed with low height skid shoes that can be linked together. The push/pull cylinder (sold separately) is connected to the first shoe. We also offer a support beam for using the thin track that is not fully supported.

To calculate the minimum required capacity per shoe, the entire load has to be able to rest safely on 2 of the 4 shoes. To skid a load of 500 ton, the required skidding system is **HSK2500**.



Skidding Systems					
Capacity (per shoe)	Model Number	Skid Shoe Height	Stroke Push/Pull Cylinders	Stroke Lifting Cylinder	Weight (per shoe)
ton (kN)		(with track) (mm)	(mm)	(mm)	(kg)
90 (900)	HSKLH900	62	600	N/A	61
115 (1150)	HSKLH1150	62	600	N/A	61
125 (1250)	HSKB1250	309	600	N/A	740
125 (1250)	HSKJ1250	502	600	175	790
200 (2000)	HSKLH2000	204	600	N/A	340
250 (2500)	HSKB2500	374	600	N/A	1020
250 (2500)	HSKJ2500	600	600	175	1450

OVERVIEW



KEY FEATURES:

- PTFE skid pads with dimpled surface for low friction and long lifetime
- Easy to replace skid pads, no tools necessary
- Unique gripper anchor system complete with lever for easy selection of skidding direction
- Double acting hydraulic cylinders with sufficient capacity in both push and pull direction. No need to turn the skid shoe for reverse skidding direction
- Large load support surface on the skid beam
- Bottom of skid shoes equipped with stainless steel sliding plates.

SELF-PROPELLED MODULAR TRANSPORTERS

Hydraulic strength in a linear drive transport system

The Enerpac Self-Propelled Modular Transporter (SPMT) features a minimized height and slim design, which makes it very easy to operate in confined spaces. Each wheel unit has a steering function as well as a lifting cylinder at its disposal. Wheel propulsion is established by wheel drives.

The SPMT is operated by the Intelli-Drive Remote Controller. This remote controller can be used both hard wired and wireless (based on radio frequency).

The SPMT is a modular system and can be built up to a maximum configuration of six transporters in a row and two in the width.

This is the maximum setup of units that can work together on just one Intelli-Drive Remote Controller.

The SPMT is a modular system comprised of transporters with 3 axle lines each and diesel hydraulic power units (HPU). Depending on the model number, the transporters and HPUs can be configured to a maximum of 4 transporters in 2 rows (4x2) or 6 transporters in 2 rows (6x2).



Self-Propelled Modular Transporters								
Load Capacity (per trailer)	Model Number	Maximum Configuration (transporter in rows)	Steering Range	Lifting Range	Collapsed Height	Length (1 trailer)	Width (1 trailer)	Weight (per trailer)
ton (kN)			((degrees)	(mm)	(mm)	(mm)	(mm)	(kg)
60 (600)	SPMT 600-100	4 x 2	+50° to -50°	384	770	3075	2300	8000
60 (600)	SPMT 600-360	6 x 2	+179° to -179°	384	770	3075	2300	8300

OVERVIEW



KEY FEATURES:

- Modular design for multiple configurations
- Minimized height and slim design are ideal for in-plant operation
- Intelli-Drive wireless control system is intuitive and easy to use
- One power pack can operate 2-3 trailers maximum depending on model
- Two trailers and power pack can be shipped inside a 20 ft. container
- The hydraulic power unit diesel engine meets the highest Tier-4 emission regulations.

JACK-UP SYSTEMS

Incremental Lifting System Synchronously Lift and Mechanically Hold

The Jack-Up system is a custom developed multi-point lifting system. A typical system setup includes four jack-up units positioned under each corner of a load.



A load is lifted in increments as barrels are slid into the system, lifted, and stacked; forming 'lifting towers'.

A Jack-Up system is operated and controlled by a computer control unit. Each unit's lifting and lowering operations occur simultaneously; the computer control unit's synchronous technology maintains the balance of the load.

Jack-Up Systems				
Capacity per Tower	Model Number	Maximum Sideload	Barrel Dimensions LxWxH	Weight
ton (kN)			(mm)	(kg)
125 (1250)	JS-125	3% @ 6m	600x600x250	2200
250 (2500)	JS-250	3% @ 10m	1150x1150x500	7500
500 (5000)	JS-500	4% @ 15m	1700x1700x700	13.000
750 (7500)	JS-750	5% @ 20m	2300x2300x1000	24.000

OVERVIEW



KEY FEATURES:

- Self-contained hydraulics in each Jack-Up unit for uncluttered work area
- Synchronously lift loads with multiple Jack-Up units. The most common system set-up includes 4 Jack-Up units
- Lifting barrels are stacked together to mechanically hold the load
- Up to 5% side load capacity depending on lifting height
- Computer controls for operating the Jack-Up system with automatic and manual lifting settings.

SYNCHRONOUS LIFTING SYSTEMS

The combined strength of hydraulics and digital control

To achieve high-precision movement of heavy objects it is necessary to control and synchronize the movements of multiple lifting points. The PLC-control uses feedback from multiple sensors to control the lifting, lowering and positioning of any large, heavy or complex load, regardless of weight distribution.

The Enerpac EVO-Series provide the required level of force and control for most applications. We can also provide custom systems tailored to unique project requirements.

The EVO system offers additional features including a greater number of lift points, center of gravity, and tilting/ weighing capabilities.

The Basic EVOB offers an economical solution to basic applications requiring stroke only control for a maximum of 8 lifting points.



Synchronous Lifting Systems							
Lift Points	Model Number	Accuracy (mm)	Touch Screen Control	Options			
				Leveling	Weighing	CoG	Expandable
4, 8, 12	EVO	1	yes	yes	yes	yes	yes
4, 8	EVOB	1	yes	no	no	no	no

OVERVIEW



KEY FEATURES:

- Single operator controls all movements from a central position
- Modular lifting system to control 4, 8 or 12* lifting points
- Single or double-acting cylinders with the same or different lifting capacities
- Accuracy of 1 mm between leading and lagging cylinders
- Intuitive user interface provides easy set-up and control with multiple lifting points
- Network capability to link up to 4 HPU's to a separate master control box via wireless control*.

* EVO only

SYNCHRONOUS HOISTING SYSTEMS

Accurate Hoisting and Load Positioning Enhancing a Crane's Capability

SynchHoist improves safety, operating speed and control of load movement. Geometric positioning of heavy loads in a horizontal and vertical plane are frequently done using more than one crane. Synchronising movements between cranes are difficult and risky. The lifting inaccuracy can result in damage to the load and support structures and puts workers at risks. The SynchHoist system can be used for controlled hydraulic horizontal and vertical material handling.

The wireless system (SHAS) is designed with integrated PLC-controlled hydraulics that monitor and guides the powerful double-acting push-pull cylinders that are integrated into the lifting points.



Synchronous Hoisting Systems					
Capacity ton (kN)	Total Load ton (kN)	Cylinder Stroke (mm)	Model Number (400 VAC, 3 ph - 50 Hz)		
			Control System		
			Manual	Automatic	Wireless
4 x 55 (539)	220 (2156)	500	SHS 45520 MW	SHS 45520 AW	-
		1000	SHS 45540 MW	SHS 45540 AW	-
		1500	SHS 45560 MW	SHS 45560 AW	-
4 x 85 (833)	340 (3332)	500	SHS 48520 MW	SHS 48520 AW	-
		1000	SHS 48540 MW	SHS 48540 AW	-
		1500	SHS 48560 MW	SHS 48560 AW	-
4 x 110 (1078)	440 (4312)	1000	SHS 411040 MW	SHS 411040 AW	SHAS 411040 WE
		1500	SHS 411060 MW	SHS 411060 AW	SHAS 411060 WE
4 x 225 (2204)	900 (8820)	1000	-	-	SHAS 422540 WE
		1500	-	-	SHAS 422560 WE

OVERVIEW



KEY FEATURES:

- High precision load manoeuvring using one crane
- Vastly improving worker safety, operating speed and control
- Double-acting push/pull cylinders with load holding valves for added safety in case of hose rupture or coupler damage
- Cost reduction compared to conventional load positioning methods
- Options for system management & control:
 - Manual control: system warning functions
 - Automatic control: fully PLC-monitored system with programmable functions using touch screen and system warning functions
 - Wireless control: Integrated PLC-controlled hydraulics in each lifting device – no need for external powerpack and hydraulic hoses.

CUSTOM SOLUTIONS

TRAVEL GANTRY



The Enerpac travel gantry is a self-folding rubber tire gantry with a 60 ton lifting capacity. It features self-contained hydraulics, telescopic cylinders and wireless controls.

BRIDGE LAUNCHING



Providing a solution for the most complex and demanding bridge construction applications, Enerpac has over 20 years experience providing unique customer bridge launching systems.

STRAND JACK GANTRY



The strand jack gantry is a steel structure to facilitate lifting and skidding back, forth and sideways of heavy loads. The Enerpac strand jack gantry allows you to operate in confined spaces.

SELF-ERECTING TOWER



The Enerpac Self-Erecting Tower is a self-erecting-tower-lift system that enables you to build a free standing gantry from ground level. The Self-Erecting Tower can be supplied in various capacities and heights and is built with standard modular components, enabling a flexible solution to future project demands.

OBSERVATION WHEEL DRIVES AND ERECTION



Enerpac provided a hydraulic drive system that provides the propulsion and normal braking force. The system consists of a total of eight drive units, each of which has four large tires that provide the traction force to rotate the wheel.

VERTICAL CASK TRANSPORTER



The Enerpac vertical cask transporter combines the lifting capability of a hydraulic gantry with the flexibility of a self-propelled modular transporter (SPMT) to provide safe handling of nuclear casks at spent fuel storage facilities. Each system developed is built to meet the customer's specifications.

PROJECT GALLERY

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ENTERTAINMENT *pages 30-31*



- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Réunion Island offshore highway
Réunion
2016
OFFSHORE GANTRY CRANE

BRIDGE CONSTRUCTION



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The Enerpac Over Head Travel Crane (OHTC) comprises two pairs of lifting beams, with an overall width of 30m, and a lifting capacity of 4800 ton for lifting, moving and lowering the concrete blocks for the offshore highway.



- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Songdo Bridge

South Korea

2014

HSL8500 STRAND JACKS

BRIDGE CONSTRUCTION



Four HSL8500 strand jacks were installed on top of a temporary bent tower and simultaneously lifted both pylons up to their permanent position at 75 degrees. The lift was monitored and controlled using a computer controlled strand jack system with 30kw hydraulic power units, supplied by Enerpac. The whole process was completed in 2 days.

- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Golden Horn Metro Bridge
Istanbul, Turkey
2013
HSL2000 STRAND JACKS

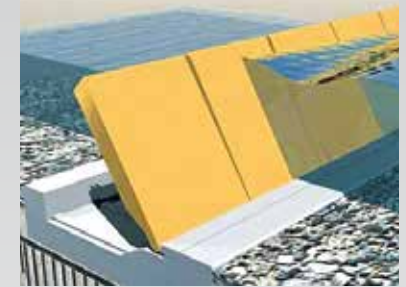
BRIDGE CONSTRUCTION



The Golden Horn Metro Bridge is a 936 m (3071 ft.) long cable-stayed bridge which spans the Golden Horn waterway in Istanbul, Turkey. Portions of the bridge deck will rotate in order to permit large shipping vessels through the waterway. Mounted on the top of two temporary steel gantries were two 200 ton capacity HSL2000 hydraulic strand jacks. A custom made bracket was built to connect the deck sections to the strand jack's lifting lug. Operating in unison, the strand jacks lifted the deck sections synchronously. The strand jacks successfully lifted a total of 11 deck sections into position.

■ PROJECT	Venice MOSE Caissons
■ LOCATION	Venice, Italy
■ YEAR	2015
■ EQUIPMENT	Custom High Tonnage Cylinders, Custom Pull Cylinders SFP-Series Split Flow Pumps

INFRASTRUCTURE



Enerpac developed a dedicated damping and leveling control system with high tonnage cylinders fitted underneath the caissons in all four corners. When a caisson hits the seabed, tremendous forces could be generated if not properly damped. Enerpac cylinders and huge hydraulic accumulators were used to absorb these forces and make sure the caissons can be lowered onto the seabed in a safe and controlled fashion.

- PROJECT Tunnel Boring Machine Launch
- LOCATION Auckland, New Zealand
- YEAR 2014
- EQUIPMENT EVO-Series, Synchronous Lifting System, CLRG-Series Cylinders

INFRASTRUCTURE



Ten 600 ton cylinders with internal stroke sensors controlled by the EVO-Series, synchronous lifting system lowered and tilted the tunnel boring machine into its starting position. Once positioned, the synchronous lift system pushed the machine a few meters forward to gain purchase and begin tunneling. After the length of the first tunnel is complete, the synchronous lifting system will be redeployed to lift and tilt the machine to complete the other parallel length of the twin tunnel, eventually arriving back at the starting point.

- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Transformer installation at sub-station
San Angelo, Texas, USA
2016
SBL900 HYDRAULIC GANTRY

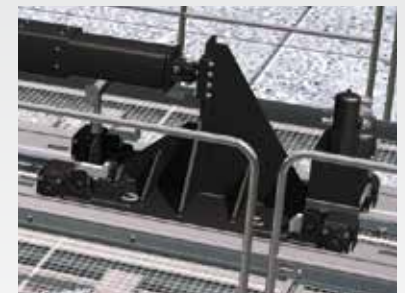
POWER GENERATION



An SBL900 hydraulic gantry was used to transfer the transformer from the rail car to the heavy haul truck. Upon arriving at the sub-station, the hydraulic gantry was utilized to install the transformer on its platform.



- PROJECT Rotor removal and installation system
- LOCATION Used at multiple sites
- YEAR 2014
- EQUIPMENT Custom rotor removal with modular platform



The generator rotor removal and installation system is a custom developed product for removing and installing the rotor (field) in a power plant's generator. The system is designed to comply with the varying dimensions and challenging accessibility of a plant's generator.

- PROJECT Installation of tidal turbines
- LOCATION Schiedam, Vlissingen, The Netherlands
- YEAR 2015
- EQUIPMENT Custom CLRG-Series, hydraulic cylinders and multiple ZE-Pumps

POWER GENERATION



Together with Huisman Equipment Enerpac developed 4 custom 400 ton double-acting CLRG-Series hydraulic cylinder with tilt saddles, these saddles were integrated into the steel mounting structure. During the positioning of the tidal turbines the cylinders applied a precise amount of tension in order to mount the structure securely on the storm surge barrier. The Tidal Power Plant was successfully mounted on the barrier and will be producing clean, hydroelectric power.

- PROJECT Placement of 1140 ton Nuclear Plant Module
- LOCATION Jenkinsville, South Carolina, USA
- YEAR 2015
- EQUIPMENT an 800 ton SyncHoist cylinder and two 400 ton SyncHoist cylinders

POWER GENERATION



The Enerpac SyncHoist System, consisting of an 800 metric ton SyncHoist cylinder and two 400 metric ton SyncHoist cylinders, allowed operators the freedom to precisely monitor and adjust each lifting point independently, or together in a synchronized manner. The rigging engineers were able to easily and accurately adjust the length of the rigging to position and level the CA01 module to within the tight tolerance requirements in both the X and Y coordinates. With the ability to adjust each point independently, the rigging engineers were able to level the module more efficiently and accurately, which saved a considerable amount of time.

- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Napoli Vessel Salvage
English Channel, United Kingdom
2009
CHAIN PULLERS

SHIPBUILDING & SALVAGE



The MCS Napoli was caught in a storm and was beached in Lyme Bay in 2007. The ship cracked and was broken up into sections. The 3450 ton back of the ship, measuring 65 m by 36 m, was hoisted onto two pontoons using 24 hydraulically operated chain pullers, each with a lifting capacity of 227 ton. Once on the pontoon, the wreck was sawn into pieces before being transported to land.

- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Hoisting Ship Sections
Williamstown, Australia

2012

SHS-SERIES SYNCHRONOUS HOISTING SYSTEM

SHIPBUILDING & SALVAGE



The Enerpac SyncHoist system enhances crane performance and safety, offering horizontal and vertical load maneuvering. A system of 4 x 110 metric ton cylinders with 1500 mm stroke lengths was used with one crane to align the steel blocks of the ship's control tower sections. The SyncHoist system allowed a gradual lift of the load and dynamic adjustment in relation to the center of gravity during the lift.

- PROJECT Joy Global Shovel Lift
- LOCATION Gillette, WY, USA
- YEAR 2015
- EQUIPMENT Custom cylinders and pump-per-point Synchronous Lift System

MINING



The second generation Shovel Lift system includes four 500 ton cylinders with 72 inches of stroke, an EVO synchronous control unit and four custom 8000 series hydraulic pumps. Each pump was built to operate in extremely cold or hot environments. The EVO synchronous control unit enabled a single operator to control the entire lift and ensure each lifting point remained within 3/8 of an inch. The shovel was successfully undecked in approximately one hour and the entire system was transported on the highway without oversized load permits.

- PROJECT Lifting reclaimer stacker for bearing replacement
- LOCATION Brazil
- YEAR 2013
- EQUIPMENT 4-point EVO-Series, Synchronous Lift System



A four-point EVO-Series, Synchronous Lifting System and four hydraulic cylinders were used to lift and lower a stacker 400 mm. The EVO system provided the ability to synchronize and control each lifting point and monitor the load's center of gravity from a touchscreen display interface. A centralized control unit allowed the maintenance team to perform the lifting and lowering operations from a safe distance of 30 meters from the load. In collaboration with Rotec Equipamentos, Vale Victoria was able to replace the stacker's bearing without injury or damage, and within the scheduled timeframe.

- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Hydro-Cracker Installation

Russia

2014

ENERPAC SELF-ERECTING TOWER (ESET)

OIL & GAS PETROCHEMICAL



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.

- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Offshore Production Facility

Gulf of Mexico

2013

4 x HSL6500 with 65kW HPU's and controls

OIL & GAS PETROCHEMICAL



During construction of a Tension Leg Platform, which will serve as an offshore production facility in the Gulf of Mexico and is projected to be located in water depths of in excess of 1525 m, Enerpac strand jacks were utilized for loading out the utility, drilling, and process modules. Each of these modules weighed approximately 6350 ton and required 1360 ton of pulling force during the load-out procedure.

- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

Adriatic LNG
Porto Levante, Italy
2007

HSK-SERIES SKIDDING SYSTEM
HSL-SERIES HEAVY LIFTING STRAND JACKS

OIL & GAS PETROCHEMICAL



Construction of the world's first LGN regasifier, built with 90.000 m³ of cement and 30.00 ton 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.

- PROJECT Malaysia Marine and Heavy Engineering (MMHE)
- LOCATION Johor Bahru, Malaysia
- YEAR 2013
- EQUIPMENT PLC-CONTROLLED SYNCHRONOUS LIFTING TECHNOLOGY
352 HIGH-PRESSURE 300-TON HYDRAULIC CYLINDERS

OIL & GAS PETROCHEMICAL



The superlifting and launch of a 43,000-ton floating oil production system in Malaysia for the Gumusut-Kakap offshore field has set high benchmarks for safety through its use of sophisticated synchronous hydraulics to lift, balance, weigh and smoothly launch massive resources structures. The active skids, mounted on guidance tracks, were used for weighing and establishing structures' centre of gravity to ensure safety and structural integrity.

■ PROJECT	Vegas High Roller Observation Wheel
■ LOCATION	Las Vegas, Nevada, USA
■ YEAR	2014
■ EQUIPMENT	MECHANIZATION SYSTEM & HYDRAULIC ROTATING MECHANISM

ENTERTAINMENT



The skyline in Las Vegas has changed thanks to the construction of the 168 m High Roller Observation Wheel. Enerpac supplied two major components for the wheel. The first and major component was the Mechanization System which is the primary system used to drive the wheel every day for the expected 50 year life span. The second component was the HRM (Hydraulic Rotating Mechanism) which was used to erect the rim of the wheel.



- PROJECT
- LOCATION
- YEAR
- EQUIPMENT

U2 360° Tour Stage

Global

2009

SYNCHRONOUS LIFTING SYSTEM

ENTERTAINMENT



A Synchronous Lifting and Climbing System was used to assemble and dismantle the 230 ton stage construction for U2's 360° Tour. The steel construction consisted of a central block that rests upon four legs, each made up of six sections. The central block was gradually lifted off the ground in 38 steps and a section was added to each of the four legs after every 6 steps. The complete climbing system for each stage consisted of 16 lifting cylinders, 16 locking cylinders and 4 hydraulic power units. Enerpac's Synchronous Lifting System raised the modular stage construction to a height of 30 m quickly and safely.



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- **INTEGRATED SOLUTIONS Locations**
- **ENERPAC Locations**

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