# Enerpac Heavy Lifting Technology

ENERPAC

**Enerpac Heavy Lifting Technology provides customers with tailored solutions, combining hydraulics, steel fabrication and electronic control technology. Global Leader providing best in class solutions for safe and precise positioning of heavy loads.**

**With more than 50 years supporting industrial markets, Enerpac has gained the unique and in-depth expertise that is respected by industrial professionals around the world. Across every continent, Enerpac's network of application engineers, authorized distributors and technical service centers can reach any location, and deliver innovative solutions, technical assistance and quality products.**

**Enerpac's complete line of standard and customized products and a unique systems approach offers the benefits of safety and efficiency to applications where high forces are required.**

**Whether constructing a signature bridge across a deep valley, lifting a national landmark for seismic retrofit or simultaneously testing hundreds of foundation pilings to support a new building, Enerpac will supply the hydraulic solutions to get the job done safely and efficiently.**

Precision lift and position of heavy loads

Synchronous superlift and launch

Bridge lifting and launching

Jacking with high capacity precision control

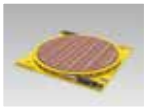
Synchronous hoisting and load positioning

Incremental bridge lifting

Transportation

Special high tonnage cylinders for the Pioneering Spirit lifting beams

# Heavy Lifting Technology - Section Overview

| Capacity<br>ton (kN) | Type and Capabilities | Series | | Page |
|---|---|---|---|---|
| **Flow: 0,27 - 2,10 l/min**<br>**Power: 0,75 - 15 kW** | **Split-Flow Hydraulic Pumps**<br>Multiple outlets with equal flow for lifting and lowering | **SFP** |  | **344** ▶ |
| **Flow: 2,1 - 8,0 l/min**<br>**Power: 3,0 - 7,5 - 15 kW** | **Synchronous Lifting System, Pump-per-Point**<br>Provides industry leading speed and accuracy | **EVOP** |  | **348** ▶ |
| **Flow: 0,75 - 4,80 l/min**<br>**Power: 3,5 - 7,5 kW** | **Synchronous Lifting Systems, standard pumps**<br>The multi-functional synchronous lifting system | **EVO** |  | **350** ▶ |
| **50 -100**<br>(500 - 1000) | **Self-Locking Cube Jack**<br>Incremental lifting, automated mechanical locking | **SCJ** |  | **352** ▶ |
| **50 - 200**<br>(498 - 1995) | **Climbing Jacks**<br>A simple solution to incremental lifting | **BLS** |  | **356** ▶ |
| **250 - 500**<br>(2500 - 5000) | **Jack-Up Systems**<br>Synchronically lift, mechanically hold, incremental lifting | **JS** |  | **358** ▶ |
| **15 - 1250**<br>(147 - 12.250) | **Heavy Lifting Strand Jacks**<br>High capacity precision control | **HSL** |  | **360** ▶ |
| **55 - 110**<br>(550 - 1100) | **Synchronous Hoisting Systems - SyncHoist**<br>Precision positioning jacks | **SHC**<br>**SHP** |  | **362** ▶ |
| **40**<br>(400) | **Mini-Lift Hydraulic Gantries**<br>Portable design with precision control | **ML** |  | **364** ▶ |
| **1000 - 1100**<br>(100 - 10.484) | **Telescopic Hydraulic Gantries**<br>Precision lift and position of heavy loads | **SL**<br>**SBL** |  | **366** ▶ |
| **100 - 250**<br>(860- 2500) | **Skidding Systems**<br>The ideal jack and slide solution | **LH**<br>**HSK** |  | **368** ▶<br>**372** ▶ |
| **127** (1250)<br>**25 - 50 m/hr** | **Electric Trolley System**<br>Synchronized travel | **ETR** |  | **374** ▶ |
| **200 - 400**<br>(2000- 4000) | **Hydraulic Turntables**<br>Controlled rotation of heavy loads | **ETT** |  | **376** ▶ |
| **60** (600)<br>**Speed: 3 - 1,5 km/hr** | **Self-Propelled Modular Transporters**<br>Hydraulic strength in a linear drive transport system | **SPMT** |  | **377** ▶ |
| – | **Custom Heavy Lifting Solutions**<br>**Solution Consultations, On-Demand Support** | – |  | **378** ▶<br>**380** ▶ |

▼ **SFP414SW and SFP403SW** (Gauges and retract valves not shown)


# Multiple Outlets with Equal Flow for Lifting and Lowering

- **2, 4, 6 or 8 split-flow outlets**
- **Individual or simultaneously operation of valves, with advance/hold/retract function**
- **Joystick (manual) controlled or pendant (solenoid) controlled valves**
- **Flow per outlet ranging from 0,27 to 2,10 l/min at 700 bar**
- **For double- and single-acting cylinders**
- **Adjustable pressure relief valve per circuit**
- **Reservoir: 20, 40 or 150 litres**
- **All models include pressure gauges.**

**Typical Split-Flow Pump Applications**

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.

The SFP-Series pumps feature both single and synchronized multiple outlet control either through joystick or pendant operation.

**Application examples:**

- Bridge deck lifting for bearing maintenance
- Stage lifting in construction and shipbuilding
- Skidding to move structures and buildings
- Levelling of constructions such as wind turbines.

▼ *Step-by-step stage lifting an old windmill using double-acting RR506 cylinders powered by a split-flow pump.*

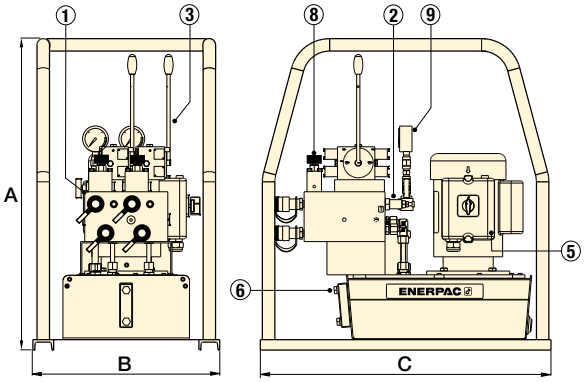
**Remote Control Pendant**

Split-Flow pumps with solenoid valves include a remote pendant with selector switches for each individual outlet, allowing single or multiple cylinder operation.

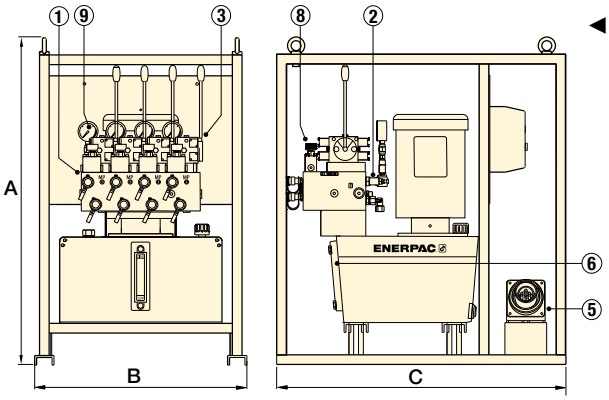
**High Pressure Hoses**

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

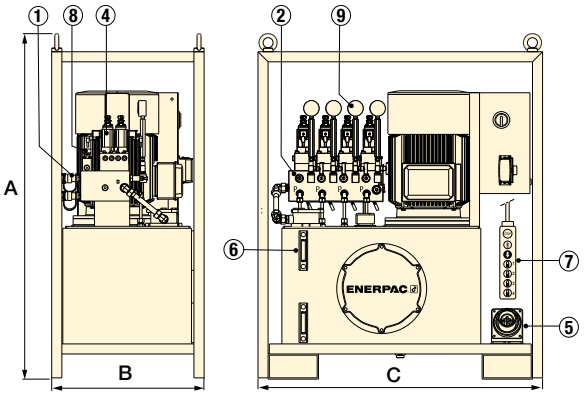
*Page:* 128




◀ **SFP-Series with 20 litres reservoir (shown with 2 split-flow outlets)**




◀ **SFP-Series with 40 litres reservoir (shown with 4 split-flow outlets)**




◀ **SFP-Series with 150 litres reservoir (shown with 4 split-flow outlets)**

| Number of Split-Flow Outlets | Usable Oil Capacity (litres) | Oil Flow per Outlet @ 700 bar (l/min) | Pump Model Number 4/3 Valve Operation Advance/Hold/Retract Manual (Joystick) | Pump Model Number 4/3 Valve Operation Advance/Hold/Retract 24 V Solenoid (Pendant) | Motor Size 400 V, 3ph 50 Hz (kW) | Dimensions (mm) A | Dimensions (mm) B | Dimensions (mm) C | (kg) |
|---|---|---|---|---|---|---|---|---|---|
| **2** | 20 | 0,27 | **SFP202MW** | – | 0,75 | 748 | 450 | 700 | 115 |
| **4** | 40 | 0,30 | **SFP403MW** | **SFP403SW** | 2,2 | 1016 | 640 | 970 | 257 |
| | 135 | 0,90 | **SFP409MW** | **SFP409SW** | 5,5 | 1356 | 605 | 1160 | 475 |
| | 135 | 1,40 | **SFP414MW** | **SFP414SW** | 7,5 | 1356 | 605 | 1160 | 490 |
| | 135 | 2,10 | **SFP421MW** | **SFP421SW** | 10 | 1356 | 605 | 1160 | 596 |
| **6** | 135 | 1,30 | – | **SFP613SW** | 10 | 1356 | 805 | 1200 | 562 |
| **8** | 40 | 0,30 | – | **SFP803SW** | 5,5 | 1163 | 830 | 1113 | 450 |
| | 135 | 1,30 | – | **SFP813SW** | 15 | 1356 | 805 | 1200 | 620 |

# SFP Series


Reservoir Capacity:
**20 - 40 - 150 litres**

Split-Flow Outlets:
**2, 4, 6 and 8 outlets**

Flow at Rated Pressure:
**0,27 - 2,10 l/min**

Motor Size:
**0,75 - 15 kW**

Maximum Operating Pressure:
**700 bar**

**Lifting Cylinders**

For a complete line of Enerpac cylinders, see the Cylinder and Lifting Products in our catalogue.

*Page:* 5

① Manifold with split-flow outlets and CR400 couplers
② Adjustable pressure relief valve per circuit
③ Manual 4/3 control valves with joysticks
④ Solenoid 4/3 control valves (24 VDC)
⑤ Power socket
⑥ Oil sight gauge(s)
⑦ Remote control pendant with 5 m cord
⑧ Return flow control valve in each circuit
⑨ Hydraulic pressure gauge in each circuit

**Motor Voltage**

Motor voltage is specified by the last letter in the model number.

Other motor voltages are available from Enerpac. Change "**W**" in the model as follows for other options:

**J** = 460-480V, 3 ph, 50-60 Hz
**G** = 208-240V, 3 ph, 50-60 Hz

▼ **SFP-Series Split-Flow Pump Kit Components**


## Connecting Split-Flow Pumps for more lift points and greater accuracy

- **Control multiple Split-Flow Pumps with one control unit**
- **Pumps can be closer to the lifting points, requiring shorter hoses and increasing accuracy**
- **Synchronize all lift points to within 1,0 mm (0.04 inch)**
- **Network control boxes expand the number of lifting points by combining up to four split-flow pumps together, simplifying lifting operations by using a single operator station**
- **Plug and play synchronous lift upgrade kits limit initial investment and provide everyday flexibility to tailor the controls to the applications needs.**

**Split-Flow Pumps Kits**

SFP-Series kits are customized from standard components to meet the needs of your unique applications. On the next page is the guide to help you choose the right components to upgrade or expand your equipment based on your application needs.

Contact your regional Enerpac representative / territory manager for support with your specific project.

**Split-Flow Pump Network Kits**

Split-Flow Pump Network Kits connect multiple Split-Flow Pumps under one control system.

**Split-Flow Pump Synchro Kits**

Split-Flow Pump Synchro Kits connect and electronically synchronize each lift point of a single Split-Flow Pump or multiple Split-Flow Pumps under one control system.

### Junction Box

**SFPKSS4** and **SFPKSS8** junction boxes consolidate the signals from pressure and stroke sensors, allowing the master control box to synchronize the lifting operation.

### SFPKMN, Master Control Box

All SFP-Series Synchro Kits include a master control box to allow the operator to easily monitor and control a multi-point synchronized lift and adjust individual lift points as needed.
All master control boxes feature an industrial grade touch screen and a user-friendly interface.

### EVO-SC, Stroke Sensor Cables

Can be connected together for additional length. Ordered separately, requires one for each stroke sensor.

| Model Number | Length (m) | Model Number | Length (m) |
|---|---|---|---|
| EVO-SC-6 | 6 | EVO-SC-25 | 25 |

### EVO-WSS, Wire Stroke Sensors

Provides stroke feedback to controls. Includes magnets for mounting. Ordered separately, requires one sensor for each lifting point. Available in measuring range from 375 to 1000 mm.

| Model Number | Range (mm) | Model Number | Range (mm) |
|---|---|---|---|
| EVO-WSS-375 | 375 | EVO-WSS-1000 | 1000 |
| EVO-WSS-500 | 500 | – | – |

### Communication Cables

EVO-COMM-Series communication cables transfer information about the synchronized lift operation from the master control panel to each of the connected split-flow pumps.

| Model Number | Length (m) | Model Number | Length (m) |
|---|---|---|---|
| EVO-COMM-25 | 25 | EVO-COMM-75 | 75 |
| EVO-COMM-50 | 50 | EVO-COMM-100 | 100 |

**Upgrading Split-Flow Pumps**

To network multiple SFP-pumps together with standard function see drawing and table ①.

To upgrade a single SFP-pump to synchronous lift capability, see drawing and table ②.

To upgrade and network multiple SFP-pumps together with synchronous lift capabilities, see drawing and table ③.

# SFP Series

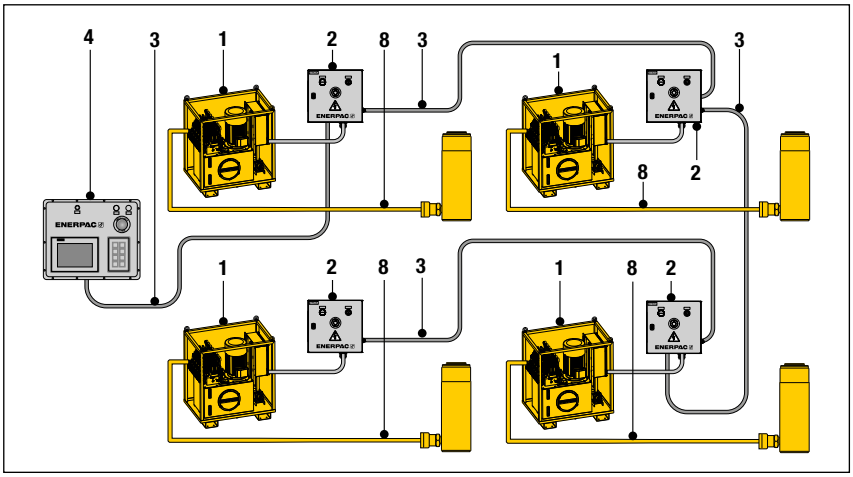
Multiple Pumps in Network System:

**1 - 4 pumps**

Maximum Lifting Points:

**32x cylinders**

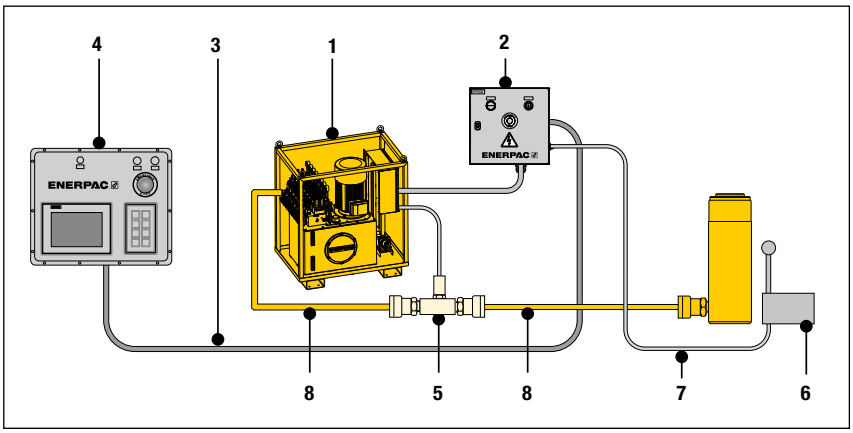
## ① Networked SFP-Pumps in Standard Operation




① **Networked SFP-Pumps in Standard Operation**

| Nr. | Qty | Model Nr. & Description |
|---|---|---|
| 1 | 4x | **SFP...SW** Pumps with solenoid valves |
| 2 | 4x | **SFPKSN** Junction Box, 1x per pump |
| 3 | 4x | **SFPCOMM-25** Communication Cable, 1x per pump |
| 4 | 1x | **SFPKMN** Master Control Box |
| 8 | | HC-700-Series, Hydraulic Hoses |

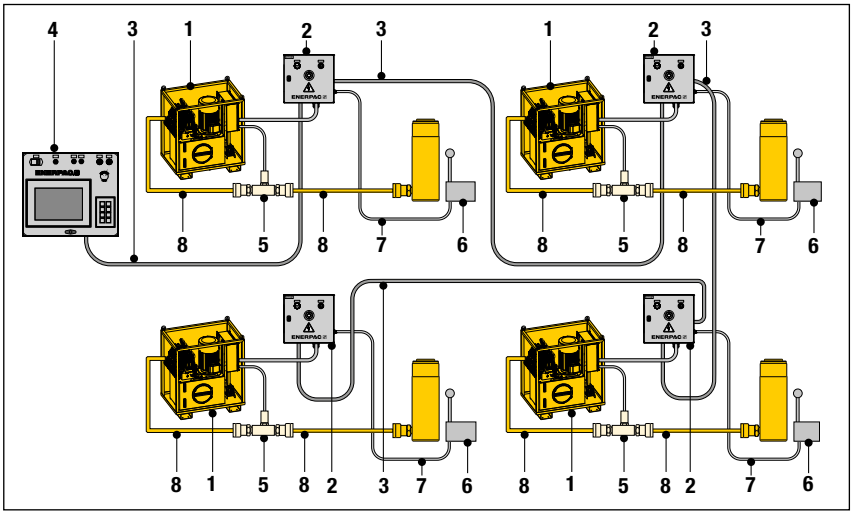
## ② Single SFP-Pump in Multiple-Point Synchronous Lifting Operation




② **Single SFP-Pump in Multiple-Point Synchronous Lifting Operation**

| Nr. | Qty | Model Nr. & Description |
|---|---|---|
| 1 | 1x | **SFP...SW** Pump with solenoid valves |
| 2 | 1x | **SFPKSS4** Junction Box for 2-4 lifting points or **SFPKSS8** for 6-8 lifting points |
| 3 | 1x | **SFPCOMM-25** Communication Cables |
| 4 | 1x | **SFPSSC** Single Slave Control Box |
| 5 | | **SFPKPT** Pressure Transducer Kit (1x per cylinder A-port) |
| 6 | | **EVO-WSS-XXX** Stroke Sensor, 1x per cylinder |
| 7 | | **EVO-SC-25** Stroke Sensor Cable, 1x per cylinder |
| 8 | | HC-700-Series, Hydraulic Hoses |

## ③ Networked SFP-Pumps in Multiple-Point Synchronous Lifting Operation




③ **Networked SFP-Pumps in Multiple-Point Synchronous Lifting Operation**

| Nr. | Qty | Model Nr. & Description |
|---|---|---|
| 1 | 4x | **SFP...SW** Pump with solenoid valves |
| 2 | 4x | **SFPKSS4** Junction Box, 1x per pump, for 2-4 lifting points or **SFPKSS8** Junction Box for 6-8 lifting points) |
| 3 | 4x | **EVO-COMM-XXX** Communication Cable, 1x per pump |
| 4 | 1x | **EVOMASTER** Master Control Box |
| 5 | | **SFPKPT** Pressure Transducer Kit, 1x per cylinder A-port) |
| 6 | | **EVO-WSS-XXX** Stroke Sensor, 1x per cylinder |
| 7 | | **EVO-SC-25** Stroke Sensor Cable, 1x per cylinder |
| 8 | | HC-700-Series, Hydraulic Hoses |

▼ EVOP140150W Hydraulic Power Unit

- **Lifting system controls multiple lifting points**
- **Each EVOP-Series pump (Pump-per-Point) controls only one lifting point, providing the best combination of high flow rate and exceptional accuracy**
  - **Ideal for high-tonnage cylinders, 300 to 1000-ton capacities**
  - **Increased lifting speeds for long stroke cylinders and repetitive operations such as with climbing jacks**
  - **Up to 8x lifting speed compared to similar methods**
- **Synchronization controlled via a variable frequency drive (VFD) on the motor, enables smoother operation and tight accuracy at high lifting speeds**
- **Standard control interface provides easy set-up and operation/selection of multiple lifting options**
- **Accuracy of up to 1,0 mm (0.040 inch) between leading and lagging cylinders**
- **Built-in warning and stop alarms for optimal safety.**

◀ *A 1200-ton electric mining shovel being separated using custom 500-ton RR-Series cylinders and a pump per point synchronous lift system.*

# Raising the speed limit on synchronized lifting operations

**CLNC12 Network Controller**

Easily monitor and control a multipoint synchronized lift. All network control boxes feature an industrial grade touch screen and a user-friendly interface.
Same controller can be used to operate either SFP-Series Split-Flow Pumps or multifunctional EVO-Series lifting systems.

**EVO-SC-25, Stroke Sensor Cable, 25 metres**

Can be connected together for additional length. Ordered separately, requires one for each stroke sensor.

**EVO-WSS, Wire Stroke Sensors**

Provides stroke feedback to controls. Includes magnets for mounting. Ordered separately, requires one sensor for each lifting point. Available in measuring range from 100 to 1250 mm.

| Model Number | Range (mm) | Model Number | Range (mm) |
|---|---|---|---|
| EVO-WSS-100 | 100 | EVO-WSS-750 | 750 |
| EVO-WSS-125 | 125 | EVO-WSS-1000 | 1000 |
| EVO-WSS-375 | 375 | EVO-WSS-1250 | 1250 |
| EVO-WSS-500 | 500 | – | – |

**Communication Cables**

EVO-COMM-Series communication cables transfer information about the synchronized lift operation from the network control panel to each of the connected hydraulic pumps.

| Model Number | Length (m) | Model Number | Length (m) |
|---|---|---|---|
| EVO-COMM-25 | 25 | EVO-COMM-75 | 75 |
| EVO-COMM-50 | 50 | EVO-COMM-100 | 100 |

# Synchronous Lift System, Pump-per-Point

**EVOP-Series Pumps**

The Enerpac EVOP-Series (Pump-per-Point) synchronous lift system provides industry leading speed and accuracy for 700 bar lifting operations.

**Safety**: Stroke synchronization ensures level lift regardless of load distribution.

**Lifting Speed**: Improve lifting speed up to 8 times over traditional multi-point lifting systems. Save time on long stroke lifts and repetitive operations

**Accuracy**: Variable speed motor control allows accuracy down to 1,0 mm (0.040") between cylinders and smooth operation without the start and stop associated with opening and closing hydraulic valves.

## EVOP Series

Lifting Points per Pump:
**1x cylinder/pump**

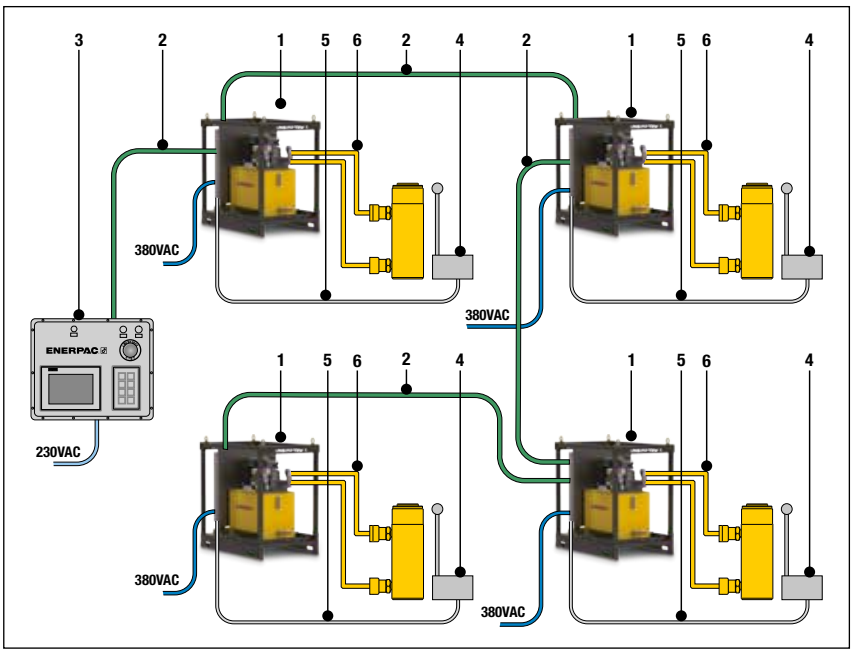
Reservoir Capacity:
**40 - 150 litres**

Flow at Rated Pressure:
**2,1 - 8,0 l/min**

Motor Size:
**3,0 - 7,5 - 15 kW**

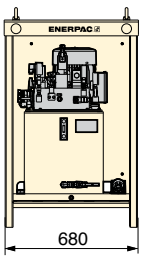
Maximum Operating Pressure:
**700 bar**

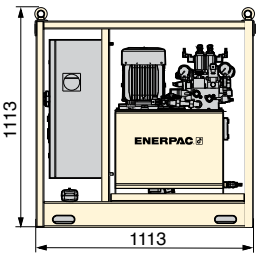
**Networked EVOP-Pumps in Multipoint Synchronous Lifting Set-Up**



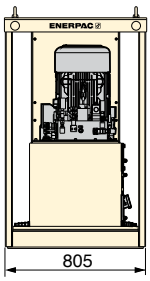

**Networked EVOP-Pumps in Multipoint Synchronous Lifting Set-Up (with double-acting cylinders)**

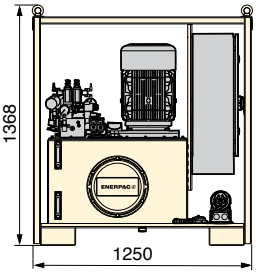
| Nr. | Model Nr. & Description | Quantity |
|---|---|---|
| 1 | **EVOP-Series** Pump with Solenoid Valves | 1x/cylinder |
| 2 | **EVO-COMM-XXX** Communication Cable | 1x/pump |
| 3 | **CLNC12** Network Control Box | 1x/system |
| 4 | **EVO-WSS-XXX** Stroke Sensor | 1x/cylinder |
| 5 | **EVO-SC-25** Stroke Sensor Cable | 1x/cylinder |
| 6 | **HC700-Series** Hydraulic Hoses | 2x/cylinder |




**3,0 kW**




**7,5 - 15 kW**

**EVOP-Series (Pump-per-Point)**

| Lifting Points per Pump (cylinder) | Reservoir Capacity (litres) | Oil Flow [1] (l/min) (< 120 bar) | Oil Flow [1] (l/min) (> 120 bar) | Model Number [2] 380 - 415 V, 3 phase, 50-60 Hz | Motor Size (kW) | (kg) |
|---|---|---|---|---|---|---|
| 1x | 40 | 11,1 | 2,1 | **EVOP12140W** | 3,0 | 310 |
| 1x | 150 | 13,0 | 4,0 | **EVOP140150W** | 7,5 | 490 |
| 1x | 150 | 17,0 | 8,0 | **EVOP180150W** | 15 | 506 |

[1] First stage high oil flow only available in manual control mode.
[2] For 440-480 Volt - 3ph - 60 Hz change suffix "**W**"into "**J**". Example: **EVOP140150J**.

**High-Tonnage Cylinders**

The Enerpac High-Tonnage Cylinders are particularly suitable for (multipoint) lifting applications. Double-acting cylinders are recommended to take advantage of speed and time saving with EVOP-Series pumps.

*Page:* 44

**BLS-Series Climbing Jacks**

Climbing Jacks overcome the usual limitation of lift height imposed by the jack's plunger stroke length. Large objects, such as oil tanks, can be lifted, held and lowered for maintenance without sending for a crane.

*Page:* 356

▼ EVO 841460W

- **Modular lifting pumps to control 4, 8 or 12 lifting points**
- **Can be connected to single- or double-acting cylinders with the same or different lifting capacities**
- **PLC-controlled system with integrated 700 bar hydraulic power unit and 250 litres reservoir**
- **Network capability to link up to 4 EVO-units (HPUs) to a separate network controller via wireless control**
- **Intuitive user interface providing easy set up, control and navigation**
- **Data storage and recording capabilities**
- **Variable frequency drive motor (VFDM) and PLC for precise synchronization and oil flow control.**

# The multi-functional synchronous lifting systems

**EVO-System Work Modes**

The application possibilities are infinite with the standard EVO-System, powering interlinked hydraulic cylinders – single or double-acting, push or pull, stage lift, hollow plunger or lock nut cylinders. The EVO-System has 9 work modes. The operator can navigate to any of these menus:

1. Manual
2. Pre-Load
3. Automatic
4. Retract Fast
5. Depressurize
6. Tilting
7. Stage Lift
8. Weighing *
9. Center of Gravity determination *

* Available in the **EVO-W-models**.

**Typical Synchronous Lifting Applications**

- Bridge lifting and repositioning
- Bridge launching
- Bridge maintenance
- Incremental launching and box jacking
- Lifting and lowering of heavy equipment
- Lifting, lowering, levelling and weighing of heavy structures and buildings
- Structural and pile testing
- Lifting and weighing of oil platforms
- Foundation levelling of onshore and offshore wind turbines
- De-propping/load transfer from temporary steel work
- Foundation shoring.

◀ *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 EVO-Series synchronous hydraulics to lift, balance, weigh and smoothly launch massive resource structures.*

**Benefits of the EVO-Series System**

**Precise control of multiple lift points**
- Comprehensive understanding and management of a lifting operation from a central control system improves safety and operational productivity.
- Programmable synchronized lifting.
- Automatic stop at pre-set cylinder stroke or load limit.

**Safe and efficient movement of loads**
- System secured with warning and stop features to realize optimal safety.

**High accuracy**
- Variable frequency drive (VDFM) and PLC for precise synchronization and control of oil flow, stroke and speed.
- Depending the cylinder capacities used, an accuracy of 1,0 mm between lifting points is achieved.

**Ease of operation**
- User friendly interface: visual screens, icons, symbols and color coding.
- A single operator controls the entire operation.

**Monitoring and Data Recording**
- Displays data of the operation.
- Data recording at user-defined intervals.
- Data storage and read-out for reporting.

**Network capability**
- Ethernet IP protocol for communication between hydraulic power units, allow easy “plug and play”.

**EVO-W Weighing System**
**Weighing applications with 1% accuracy**
- Includes calibrated sensors and auto-calibration of external load cells.
- Center of gravity determination functionality.
- Parameters for “waiting time for stabilization” and “number of cycles”.

**Global standardized system**
- Enerpac global coverage ensures local support.

# EVO Series

Number of Lifting Points:
**4 - 8 -12 (up to 48)**

Reservoir Capacity:
**250 litres**

Flow at Rated Pressure:
**0,75 - 4,80 l/min**

Motor Size:
**3,50 - 7,50 kW**

Maximum Operating Pressure:
**700 bar**

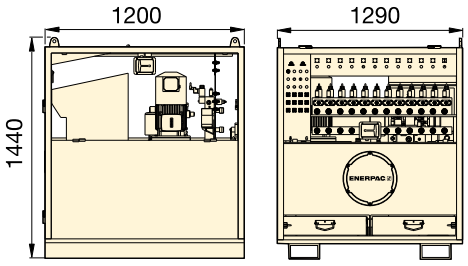
**Stroke Sensors and Cables**

Optional accessories required for each lifting point and stroke sensor.

*Page:* 348

**CLNC12 Network Controller**

Required to link up to 4 standard EVO-pumps together to achieve a maximum of 48 lifting points. Contact Enerpac for more information.




**EVO-Series (Standard)**

| Lifting Points | Variable Oil Flow at 50 Hz [1] (l/min) (< 125 bar) | (> 125 bar) | Model Number [2] 380-415 V, 3ph, 50-60Hz | Usable Oil Capacity (litres) | Motor Size (kW) | Motor Speed [4] | (kg) |
|---|---|---|---|---|---|---|---|
| 4 | 4,0 - 13,3 | 0,75 - 2,51 | **EVO421380** | 250 | 3,5 | VFDM | 910 |
| 4 | 4,0 - 13,3 | 0,75 - 2,51 | **EVO421380W** [3] | 250 | 3,5 | VFDM | 910 |
| 4 | 4,7 - 15,6 | 1,44 - 4,80 | **EVO440380** | 250 | 7,5 | VFDM | 1005 |
| 4 | 4,7 - 15,6 | 1,44 - 4,80 | **EVO440380W** [3] | 250 | 7,5 | VFDM | 1005 |
| 8 | 4,0 - 13,3 | 0,75 - 2,51 | **EVO821380** | 250 | 3,5 | VFDM | 910 |
| 8 | 4,0 - 13,3 | 0,75 - 2,51 | **EVO821380W** [3] | 250 | 3,5 | VFDM | 910 |
| 8 | 4,7 - 15,6 | 1,44 - 4,80 | **EVO840380** | 250 | 7,5 | VFDM | 910 |
| 8 | 4,7 - 15,6 | 1,44 - 4,80 | **EVO840380W** [3] | 250 | 7,5 | VFDM | 910 |
| 12 | 4,0 - 13,3 | 0,75 - 2,51 | **EVO1221380** | 250 | 3,5 | VFDM | 920 |
| 12 | 4,0 - 13,3 | 0,75 - 2,51 | **EVO1221380W** [3] | 250 | 3,5 | VFDM | 920 |
| 12 | 4,7 - 15,6 | 1,44 - 4,80 | **EVO1240380** | 250 | 7,5 | VFDM | 1025 |
| 12 | 4,7 - 15,6 | 1,44 - 4,80 | **EVO1240380W** [3] | 250 | 7,5 | VFDM | 1025 |

[1] Oil flow will be approximately 6/5 of these values at 60 Hz.
[2] For 460-480 VAC, 3 phase, 50-60 Hz change 380 in model number into 460. Example **EVO421460.**
[3] Model numbers with suffix **W** are pumps for weighing systems. [4] VFDM = Variable Frequency Drive 15-50 Hz.

▼ *Precision levelling caisson pier box: 3 EVO-Systems connected with 32 jacks lowered the 1100 ton bascule pier box.*

▼ SCJ50, Enerpac Self-Locking Cube Jack

# Incremental lifting system with automated mechanical locking

- **System is automatically mechanically locked after the lifting or lowering stroke**
- **Self-aligning steel cribbing blocks save time, improve side load, and eliminate the need for wooden cribbing materials**
- **Jobs are completed more efficiently due to simplified operation sequence with 50% less cycles than climbing jacks**
- **End block with adjustable swivel saddle allows fine adjustment during set-up: 50 mm screw extension**
- **Can be operated with Enerpac's 700 bar hydraulic power units**
- **Lloyds witness tested to 125% of maximum working load.**

**Why use Self-Locking Cube Jacks?**

The Self-Locking Cube Jack is a safer, more efficient alternative to the jack-and-pack method with wooden cribbing. The Self-Locking Cube Jack is derived from the proven Enerpac Jack-up System.

The Cube Jack has a small footprint and is useable in confined spaces, providing heavy lift contractors with a stable lift up to 3 metres. The cribbing blocks are lightweight and can be handled manualy.

**Markets & Applications**

Applications with a minimum starting height of 494 or 558 mm and requirement to lift up to 2067 or 3006 mm.

- Power Generation - transformer jacking
- Mining - equipment maintenance
- Heavy Transport - vehicle unloading
- Oil & Gas - module jacking
- Construction - bridge jacking
- Industrial Movers - lifting, lowering and levelling of heavy equipment.

◀ *Completed in just over one hour, the 160 ton 50 x 7 meters steel racking system was lifted synchronously to a height of 2,2 meters using 16 Enerpac SCJ50 Cube Jacks powered by a single SFP-Series Split-Flow Pump. Lifting large racking systems can be hazardous, complex and difficult involving forklift trucks and chain blocks. Photo by courtesy of PHL Hydraulics Ireland Ltd.*

▼ *Forklift tabs on Cube Jacks for easy transportation and positioning with a pallet truck. See dimensions D and I to select the right pallet truck size.*

**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.

**Operation is simple:**

1. Connect the Cube Jacks to the Enerpac Split-Flow Pump and select lifting mode on each base lifting frame.
2. Insert a cribbing block and actuate the Cube Jack until the cribbing block engages the lock mechanism.
3. Retract the jack and repeat the process until the desired lifting height is reached. For the lowering operation select lowering mode on each base lifting frame and reverse the process.

The Cube Jack End Block is equipped with an adjustable saddle for initial alignment with the load.

All controls except for the main directional valve, which is on the hydraulic power unit, are included on the Cube Jack.

**Manual cribbing block insertion**

Cribbing blocks are easily managed by hand and the Cube Jack includes integrated fork pockets and lifting rings for effortless positioning.

**Synchronous Lifting & Lowering**

Enerpac recommends using the SFP-Series Split-Flow Pumps with multiple outlets with equal oil flow. For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using separately operated pumps.

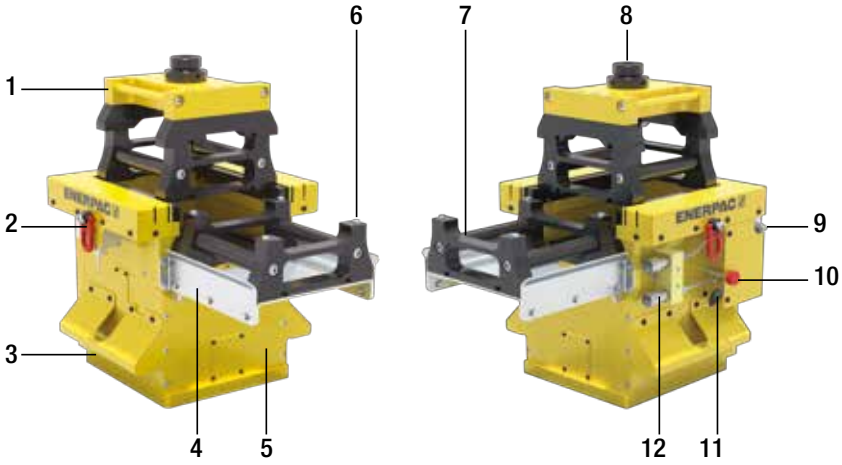
If synchronous lifting & lowering is required, the SFP-Series Pumps can be configured to accommodate stroke sensors and provide accurate computer controlled lifting function.

# SCJ Series

Capacity Per Cube Jack:
**500 - 1000 kN**

Maximum Lifting Height:
**2067 - 3006 mm**

Maximum Operating Pressure:
**700 bar**




**Self-Locking Cube Jack**

| | |
|---|---|
| 1 | End block with tilting saddle |
| 2 | Eye-bolts for hoisting |
| 3 | Forklift tabs |
| 4 | Removable insert table |
| 5 | Cube Jack base frame |
| 6 | Locating pins |
| 7 | Steel cribbing blocks |
| 8 | Adjustable tilting saddle |
| 9 | Flow control |
| 10 | Mode locking pin |
| 11 | Mode selector lever |
| 12 | Hydraulic connections (Advance / Retract) |

▼ *Cube Jack close-up of lifting and lowering valving mode and lock handle.*

▼ *Optional wire stroke sensor can provide stroke feedback to pump control.*

▼ SCJ100, Enerpac Self-Locking Cube Jack


# Incremental lifting system with automated mechanical locking

**Included with the Cube Jack are:**

- **– Cube Jack Basic Unit**
- **– End Block with adjustable swivel saddle**
- **– Multiple cribbing blocks: 11x on SCJ50**
  **18x on SCJ100**
- **– Transportation Frame**

- **Cribbing blocks can be manually inserted into the Cube Jack by one person.**

**Transport Frame**

Provided with purchase of each Cube Jack. Provides storage and transport for base unit, end block, and all included cribbing blocks.

**Lightweight Cribbing Blocks**

Provided with purchase of each Cube Jack. Cribbing blocks can be manually inserted into the Cube Jack by one person. Spare cribbing blocks can be ordered separately.

| Description | Model Nr. |
|---|---|
| 1x Cribbing Block, 50 ton | **SCJ5B** |
| 1x Cribbing Block, 100 ton | **SCJ10B** |

**Split-Flow Pumps**

Enerpac recommend to use the **SFP-Series Pumps** with multiple outlets with equal oil flow.
For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using separately operated pumps.

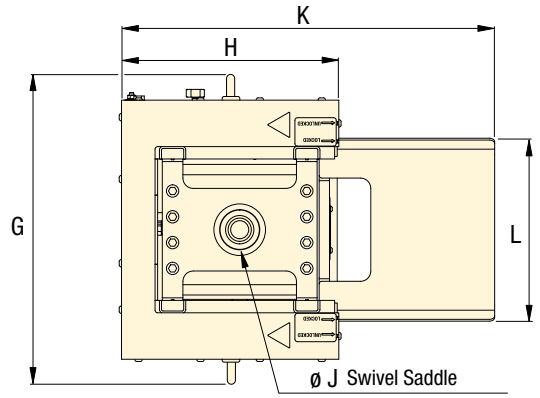
*Page:* 344

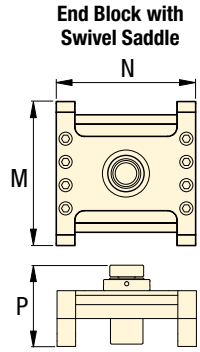
◀ *Heat exchanger maintenance job on the piping and condensers at a refinery using a combination of Enerpac Heavy Lifting Technology: SCJ-Series Cube Jacks, the ETT-Series Hydraulic Turntable and LH-Series Low-Height Skidding Systems.*

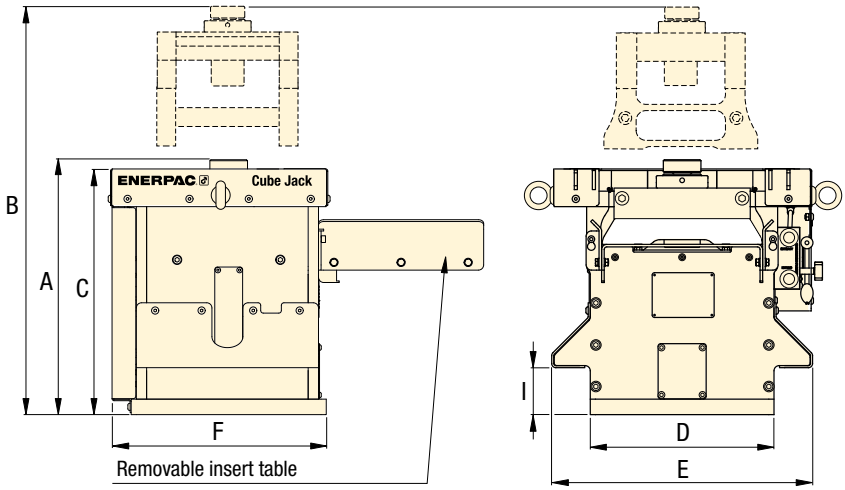
**Self-Locking Cube Jacks**

| Lifting Capacity per Base Unit **ton** (kN) | Lifting Stroke (mm) | Model Number | Maximum Sideload at full extension | Maximum Pump Oil Flow Rate (l/min) | Oil Capacity per Base Unit ($cm^3$) Advance | Retract |
|---|---|---|---|---|---|---|
| **50** (500) | 156 | **SCJ50** | 1,5% | 0,9 | 1229 | 623 |
| **100** (1000) | 156 | **SCJ100** | 1,5% | 1,8 | 2500 | 1400 |

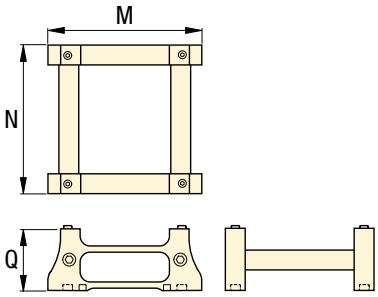
# Self-Locking Cube Jack and Accessories




**Basic Unit**




**Cribbing Block**

## SCJ Series

Capacity Per Cube Jack:
**500 - 1000 kN**

Maximum Lifting Height:
**2067 - 3006 mm**

Maximum Operating Pressure:
**700 bar**

▼ *Typical set-up with 4 Self-Locking Cube Jacks and cribbing blocks in a Factory Acceptance Test (FAT). Enerpac recommends to power the Cube Jack using SFP-Series Split-Flow Pump.*


| Base Unit | | End Block | | Cribbing Block | | Transport Frame * | |
|---|---|---|---|---|---|---|---|
| Model Number | (kg) | Model Number | (kg) | Model Number | (kg) | Model Number | (kg) |
| SCJ50 | 360 | SCJ5EB | 40 | SCJ5B | 16 | SCJ5F | 110 |
| SCJ100 | 820 | SCJ10EB | 100 | SCJ10B | 23,5 | SCJ10F | 250 |

| Dimensions (mm) | | | | | | | | | | | | | | | | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | P Min. | P Max. | Q | |
| 494 | 2067 | 476 | 356 | 505 | 443 | 556 | 428 | 91 | 125 | 726 | 351 | 300 | 310 | 175 | 225 | 125 | SCJ50 |
| 558 | 3006 | 526 | 506 | 655 | 636 | 772 | 598 | 101 | 170 | 1046 | 504 | 450 | 460 | 189 | 239 | 125 | SCJ100 |

* Dimensions Transport Frame L x W x H: **SCF5F**: 920 x 850 x 860 mm
**SCF10F**: 1600 x 1200 x 1500 mm

▼ **BLS1006**

- **Climbing jacks include integral tilt saddles with maximum tilt angles up to 5 degree**
- **Large base plate with anti-rotation rod for stability and safety**
- **Built-in safety valve prevents accidental over-pressurization**
- **Ideal in combination with the stage lift work mode of the EVO-Series synchronous lifting system**
- **Baked enamel finish for increased corrosion resistance**
- **CR400 couplers included on all models.**

▼ *Synchronous Stage Lifting: 48 double-acting jacks (25 and 50 ton) are networked in to a 16 points synchronous system to lift this 50 metres long, 1000 ton building up to a height of 2,5 metres to construct a new floor level.*

# A Simple Solution to Incremental Lifting

**Lifting Height**

Climbing Jacks overcome the usual limitation of lifting height imposed by the cylinder's plunger stroke length. Large objects, such as oil tanks, can be lifted, held and lowered for maintenance without sending for a crane.

**Split-Flow Pumps**

SFP-Series Split-Flow Pumps with multiple outlets with equal oil flow. For lifting and lowering applications on multiple points Split-Flow Pumps are a far better alternative than using separately operated pumps.

*Page:* 344

**Synchronous Lifting System**

The standard EVO-Series System is ideal for stage lifting, powering interlinked hydraulic cylinders. The EVO-system has 9 work modes including the stage lift work mode.

*Page:* 350

**Jack-Up Systems**

For incremental lifting with higher lifting capacities and up to 20 m lifting height, see our JS-Series Jack-Up Systems.

*Page:* 358

| Cylinder Capacity ton | Stroke (mm) | Model Number | Max. Cylinder Capacity (kN) Push | Pull |
|---|---|---|---|---|
| **50** | 150 | **BLS506** | 498 | 103 |
| **95** | 161 | **BLS1006** | 933 | 435 |
| **140** | 151 | **BLS1506** | 1386 | 668 |
| **200** | 151 | **BLS2006** | 1995 | 1017 |

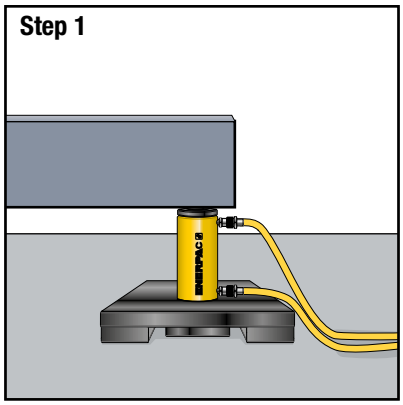
◀ *Typical stage-lift application using a custom built Enerpac system to lift the 360 ton Akkerwinde wooden bridge in the Netherlands.*

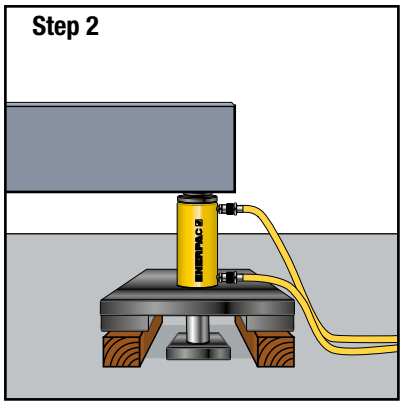
## BLS Series

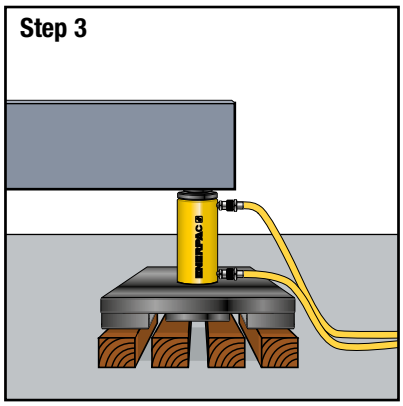
Capacity per Lifting Point:
**50 - 200 ton**

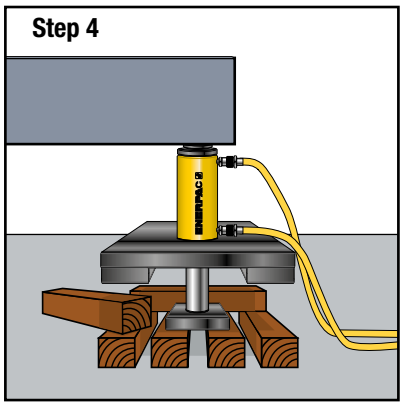
Stroke per Stage:
**150 - 161 mm**

Maximum Operating Pressure:
**700 bar**



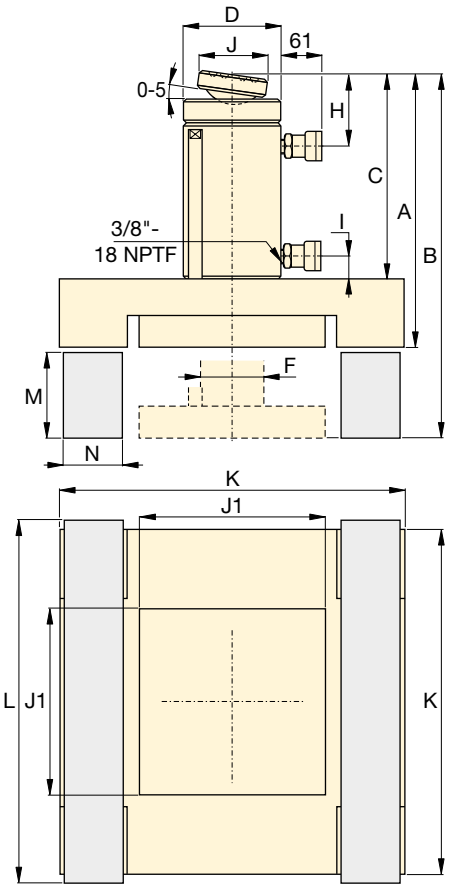

**▲ Stage Lifting Sequence**

**Step 1**: The climbing jack is placed on a solid support under the load (retracted plunger).

**Step 2**: Plunger extends, lifting the load and giving clearance to insert two outer blocks under the spreading plate.

**Step 3**: Plunger retracts, giving clearance to position the central blocks which will support the plunger plate for the next extension.

**Step 4**: Plunger extends, lifting the load, giving clearance to insert two new blocks, placed crosswise under the spreading plate.




| Cylinder Effective Area ($cm^2$) | | Oil Capacity ($cm^3$) | | Dimensions (mm) | | | | | | | | | | Cribbing Blocks * and Dimensions (mm) | | | | | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Push | Pull | Push | Pull | A | B | C | D | F | H | I | J | J1 | K | Material | L | M | N | (kg) | |
| 71,2 | 21,5 | 1111 | 335 | 406 | 556 | 318 | 127 | 79 | 56 | 36 | 50 | 240 | 515 | Azobe Wood | 565 | 140 | 120 | 170 | **BLS506** |
| 133,3 | 62,2 | 2238 | 1045 | 445 | 606 | 343 | 177 | 95 | 76 | 24 | 71 | 330 | 670 | | 720 | 150 | 160 | 315 | **BLS1006** |
| 198,1 | 95,4 | 3090 | 1488 | 472 | 624 | 370 | 203 | 114 | 94 | 39 | 130 | 230 | 475 | Solid Aluminium or Steel | 500 | 140 | 115 | 322 | **BLS1506** |
| 285,6 | 145,6 | 4332 | 2209 | 510 | 661 | 387 | 248 | 133 | 102 | 37 | 130 | 270 | 550 | | 575 | 140 | 135 | 373 | **BLS2006** |

* Cribbing blocks are not supplied by Enerpac.

▼ **JS250 and JS500 Enerpac Jack-Up System** (one lifting tower shown)


# Incremental Lifting System – Synchronously Lift and Mechanically Hold

- **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**
- **Adjustable top barrel is standard on all models**
- **Lifting barrels are stacked together to mechanically hold the load**
- **Up to 4% side load capacity depending on lifting height**
- **Computer controls for operating the jack-up system with automatic and manual lifting settings.**

**Typical Applications**

- Bridge maintenance
- Lifting and lowering of heavy equipment
- Lifting, lowering and levelling of heavy structures and buildings
- De-propping/load transfer from temporary steel work.

**Computer Controls**

Enerpac Jack-up Systems provide precision control suitable for many demanding lifting/lowering applications. The comprehensive self-contained design features simple to use software.

- Automatic synchronization of multiple networked lift points.
- Overload and stroke alarms
- Emergency stop switch at jack-up units and controls.

▼ *Enerpac has been awarded a contract by Burkhalter to extend the height of Enerpac's 2000 ton (500 ton per tower) jack-up system from 20m to 36m for future projects.*

▼ *Enerpac Jack-Up System lifts 1500 ton span on Fore River Bridge.*

▼ *Undecking an 1500 ton Electric Rope Shovel in a Copper Mine with a JS500 Jack-Up System for bearing inspection and maintenance.*

**Enerpac Jack-Up Systems**

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.

Example: A four unit setup with JS250 has a lifting capacity of 1000 ton (250 ton per unit). The lifting frame of a jack-up unit contains four hydraulic lifting cylinders, one in each corner, which lift the load using the stacked steel barrels.

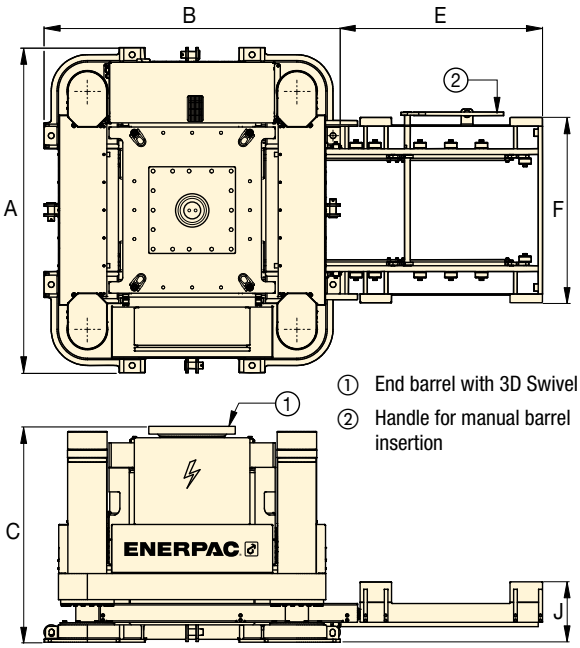
A load is lifted in increments as barrels are slid into the system, lifted, and stacked; forming 'lifting towers'. A jack-up system is operated and controlled by a computer control unit.

Each unit's lifting and lowering operations occur simultaneously; the computer control unit's synchronous technology maintains the balance of the load.

# JS Series

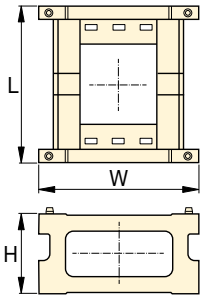
Capacity Per Lifting Tower:
**250 - 500 ton**

Lifting Height:
**10 - 15 metres**




① End barrel with 3D Swivel
② Handle for manual barrel insertion

**Jack-Up System (JS)**




**Steel Barrel (BLJS)**

**Jack-up System Smart Box**

The **Smart Box SBSJ-SCCV4** is Enerpac's proprietary control platform. It allows an operator to control up to 8 jack-up towers simultaneously with one **SBLT1** standard laptop.

- Single operator control from a central location provides safe and reliable operation
- Synchronous lift /lower and load control between the lifting positions
- Automatic lifting and lowering cycles
- Displays individual and accumulative stroke/load
- Simple graphical user interface.

**Adjustable Top Barrel**

Adjustable top barrel is standard on all models.
Includes double-acting lock nut cylinder with swivel saddle.
Cylinder can be extended to contact the load.
Provides ability to adjust starting height of each leg, ensuring safe and stable lifting.
Must be operated with separate 700 bar pump with 4/3 directional valve.

## Steel Barrels

| For use with Jack-Up System | Barrel Set Model Number | Number of Barrels per Set | Barrel Dimensions (mm) | | | Weight per Barrel |
|---|---|---|---|---|---|---|
| | | | L | W | H | (kg) |
| JS250 | **BLJS250** | 4 | 1150 | 1150 | 500 | 360 |
| JS500 | **BLJS500** | 4 | 1700 | 1700 | 700 | 950 |

## Jack-Up Systems

| Capacity per Tower | Model Number | Maximum Sideload | Maximum Lifting Speed | Base Frame Dimensions (mm) | | | Barrel Loading System (mm) | | | Electric Power Pack | Weight per Jack-Up Unit * | Weight Adjustable Top Barrel (3D Swivel) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ton (kN) | | | (m/hr) | A | B | C | E | F | J | (kW) | (kg) | (kg) |
| **250** (2500) | **JS250** | 3% @ 10m | 4 | 2250 | 2050 | 1475 | 1400 | 1341 | 418 | 15 | 7500 | 2880 |
| **500** (5000) | **JS500** | 4% @ 15m | 4 | 2800 | 2300 | 1700 | 1980 | 1771 | 458 | 30 | 13.750 | 3850 |

* Weight per jack-up tower, excluding adjustable top barrel.

▼ Shown: **HSL50006 Strand Jack**


# High Capacity Precision Control

- **Precision control of synchronous lifting and lowering**
- **Can be controlled by a single operator from a central location for increased safety**
- **Automated locking - unlocking operation**
- **Two strand sizes: 15,7 mm and 18 mm (0.62 and 0.71 inch)**
- **Telescopic strand guide pipes prevent bird caging**
- **Internal components are coated with Lunac, an anti-corrosion coating, making it suitable for marine environments**
- **Lifting anchor included with all strand jacks**
- **Lloyd's witness tested to 125% of maximum working load.**

**Heavy Lifting Strand Jacks**

Enerpac strand jacks are the strand jacks of choice for customers seeking precise synchronous control with heavy-lifting capacity in an economical, compact, and reliable foot print.

Enerpac strand jacks are powered by electrical or diesel driven hydraulic power packs and controlled by Enerpac's proprietary SCC-Smart Cylinder Control System to ensure full control of lifting and lowering operations.

Enerpac continually improves reliability, durability, and safety of their strand jacks, making them an industry standard for heavy lifting.

▼ *HSL85007 Strand Jack System used on Enerpac custom Self Erecting Tower.*


▼ *Enerpac's SCC-Smart Cylinder Control System simplifies synchronous operation with intuitive controls and a user-friendly graphical interface.*

# Heavy Lifting Strand Jacks

### Strand Jacks

A strand jack can be considered a linear winch. In a strand jack, a bundle of steel strands are guided through a main “lifting” jack.

Above and below the cylinder are anchor systems with wedges that grip the strand bundle simultaneously. Lifting and lowering a load is achieved by hydraulically controlling the main jack and both mini jacks alternately.

In the case of system pressure loss, the wedges are mechanically closed automatically, holding the suspended load in place.

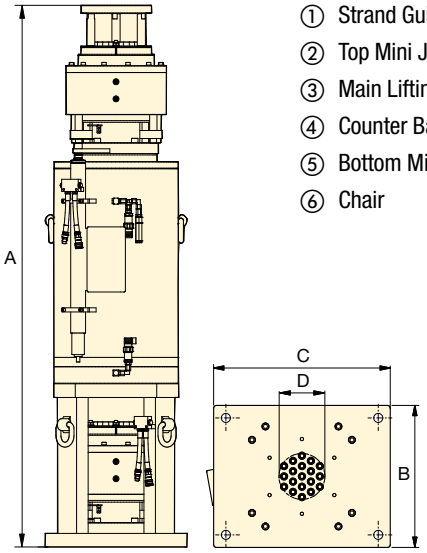
Today strand jacks are widely recognized as the most sophisticated heavy lifting solution. They are used all over the world to erect bridges, load out offshore structures, and lift/lower heavy loads where the use of conventional cranes is neither economical nor practical.

## HSL Series

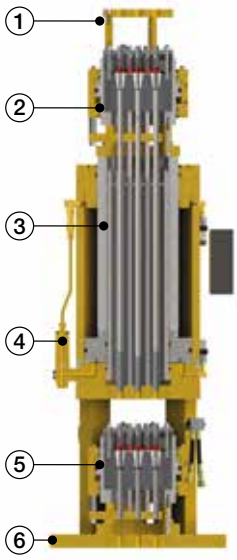
Capacity:
**15 - 1250 ton**

Stroke:
**250 - 600 mm**

Maximum Operating Pressure:
**350 bar**




① Strand Guide
② Top Mini Jack
③ Main Lifting Jack
④ Counter Balance Valve
⑤ Bottom Mini Jack
⑥ Chair




| Strand Diameter | Capacity * | | Model Number | Number of Strands | Stroke | Dimensions (mm) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm (inch) | ton | (kN) | | | (mm) | A | B | C | D | (kg) |
| 15,7 (.62) | **30** | (300) | **HSL3006** | 3 | 480 | 1851 | 350 | 500 | 59 | 500 |
| | **70** | (700) | **HSL7006** | 7 | 480 | 1915 | 360 | 575 | 93 | 640 |
| | **200** | (2000) | **HSL20006** | 19 | 480 | 1992 | 522 | 650 | 169 | 1300 |
| | **300** | (3000) | **HSL30006** | 31 | 480 | 2046 | 673 | 673 | 216 | 2180 |
| | **500** | (5000) | **HSL50006** | 48 | 480 | 2136 | 733 | 733 | 273 | 3150 |
| 18 (.71) | **15** | (150) | **HSL1507** | 1 | 250 | 1242 | 220 | 220 | 20 | 100 |
| | **45** | (450) | **HSL4507** | 3 | 480 | 1728 | 350 | 500 | 73 | 500 |
| | **60** | (600) | **HSL6007** | 4 | 480 | 1752 | 400 | 625 | 88 | 650 |
| | **100** | (1000) | **HSL10007** | 7 | 480 | 1926 | 408 | 625 | 116 | 850 |
| | **200** | (2000) | **HSL20007** | 12 | 480 | 2001 | 522 | 650 | 165 | 1400 |
| | **300** | (3000) | **HSL30007** | 19 | 480 | 2055 | 673 | 673 | 210 | 2180 |
| | **450** | (4500) | **HSL45007** | 31 | 480 | 2223 | 733 | 733 | 272 | 3050 |
| | **650** | (6500) | **HSL65007** | 43 | 480 | 2237 | 850 | 850 | 351 | 3950 |
| | **850** | (8500) | **HSL85007** | 55 | 480 | 2402 | 900 | 900 | 364 | 5000 |
| | **1000** | (10.000) | **HSL100007** | 66 | 480 | 2558 | 1092 | 1092 | 436 | 7650 |
| | **1250** | (12.500) | **HSL125007** | 84 | 600 | 2658 | 1100 | 1100 | 458 | 8300 |

* Capacity is based on 2,5 minimum safety factor over strand breaking load.

### ▼ Strand Jack Accessories

Contact Enerpac for assistance at **enerpac.com/contact-us**

**SLPP-Series Hydraulic Power Packs**

Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with their industry leading heavy lifting strand jacks.

**SG-Series Strand Guides**

Provides a guide for the strand as a strand jack lifts the load.

**SR-Series Strand Recoilers**

Passively pays in or pays out strands while jacking and lowering.

**SD1 Strand Dispenser**

Essential to safely unbundle a new strand coil.

**Lifting Anchor**

Each Strand Jack includes a lifting anchor for attaching strand to the load.

▼ SyncHoist System with SHC5540S Cylinders and SHP-Series Pump

# Accurate Hoisting and Load Positioning Enhancing a Crane's Capability

- **High precision load manoeuvering, vertically and horizontally – using one crane**
- **Reduces the risk of damage from oscillations of wire rope due to crane jogging and sudden starts/stops**
- **Vastly improving worker safety, operating speed and control**
- **Weather conditions play less critical role**
- **PLC-controlled hydraulics turn lifting into high accuracy hoisting and load positioning system**
- **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 with load and position monitoring for up to four cylinders as standard**
- **Automatic control available with addition of SFPSSC control panel provides automatic movements as well as stroke and load warning functions.**

**Synchronous Hoisting**

Enerpac 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.

**Functions**

- High precision horizontal and vertical load positioning
- Load and position monitoring standard on all units to ensure safe and accurate operation.

**Applications**

- Positioning of rotor, stator and propeller blades of wind turbines
- Positioning of roof sections, concrete elements, steel structures
- Positioning of turbines, transformers, fuel rods
- Precise machinery loading, mill rod changes, bearing changes
- Precise positioning of pipe lines, blow out valves
- Positioning and aligning of ship segments prior to assembly.

▼ *Bridge segments are hoisted from the ground, being positioned with a 4-point SyncHoist system with fully monitorized cylinders.*

▼ *Rigging engineers used the SyncHoist system to precisely monitor and adjust each lifting point independently, or together in a synchronized manner to position the 1140 ton nuclear plant module.*

▼ *Enerpac SyncHoist system in use during roof truss picks: precise lift and positioning of stadium retractable roof trusses. 33 trusses weighing between 450 - 750 ton.*

# SyncHoist - High Precision Load Positioning

**What is SyncHoist?**

Enerpac SyncHoist is a hydraulically operated auxiliary attachment for high precision load positioning for cranes.

The automatic version with PLC-controlled hydraulic pump monitors and guides the powerful double-acting push-pull cylinders integrated into the lifting points above the load. The SyncHoist system can be used for positioning, tilting and aligning of loads.

- Patented system
- European lifting directive and safety requirements as well as ASME BTH-1 standard for below the hook lifting devices.

**SyncHoist 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 SyncHoist system can be used for controlled hydraulic horizontal and vertical material handling.

**SHC-Series Cylinders**

Standard stroke lengths and capacities shown serve most common applications. Contact Enerpac for custom stroke lengths and additional capacities to suit your specific application.

**SHP-Series Manual Control**

- Push button pendant control of up to four cylinders
- Load and position readout from sensors on SHC-series cylinders
- Visual check oil level, filter indicator.

**Automatic Control Available**

- Connect control panel **SFPSSC** to SHP-Series pumps to enable automatic control
- PLC-control and touch screen
- Pre-programmable motions and data recording
- System warnings for:
  – maximum cylinder load control setting
  – stroke and position control
  – thermal motor protection.

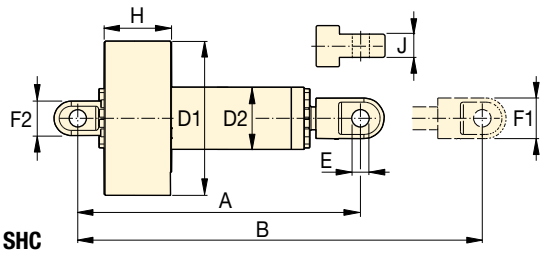
## SHC, SHP Series

Capacity Per Lifting Point:
**55 - 85 - 110 ton**

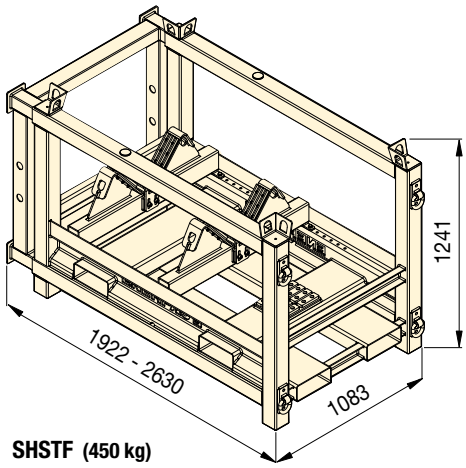
Maximum Stroke:
**1000 - 1500 mm**

Accuracy Over Full Stroke:
**± 1,0 mm**

Maximum Operating Pressure:
**700 bar**




**SHC**

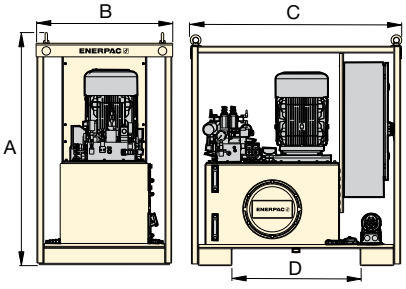



**SHSTF (450 kg)**

| Cylinder Capacity ton (kN) | Cylinder Stroke (mm) | Cylinder Model Number * | Dimensions (mm) A | B | D1 | D2 | E | F1 | F2 | H | J | (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **55** (550) | 1000 | **SHC5540S** | 1800 | 2800 | 690 | 245 | 59 | 160 | 160 | 395 | 80 | 624 |
| **85** (850) | 1000 | **SHC8540S** | 1830 | 2830 | 680 | 265 | 72 | 164 | 164 | 385 | 100 | 700 |
| **110** (1100) | 1500 | **SHC11060S** | 2355 | 3855 | 780 | 315 | 85 | 205 | 174 | 405 | 124 | 1235 |

* Each cylinder requires separate purchase of (1) **EVO-SC-25** sensor cable (25 m length) and (2) **SHH25** hydraulic hoses (25 m length) for connection to SHP-series pumps.
All SHC-cylinders supplied with adjustable steel transport frame (model nr. **SHSTF**) to protect your investment.

| Maximum Lifting Points | Reservoir Size (litres) | Pump Model Number | Oil Flow per Outlet (l/min) | Motor Size 400V, 3 ph, 50 Hz (kW) | Dimensions (mm) A | B | C | D | (kg) |
|---|---|---|---|---|---|---|---|---|---|
| **4** | 250 | **SHP414SW** | 1,40 | 7,5 | 1368 | 805 | 1250 | 760 | 780 |
| **4** | 250 | **SHP421SW** | 2,10 | 10 | 1368 | 805 | 1250 | 760 | 780 |



▼ One leg of ML40 Mini-Lift Hydraulic Gantry


# Lift Heavy Machinery Safely

## Portable design with precision control

- **Compact design for use in areas with limited space**
- **Self-contained hydraulics with synchronized lifting for enhanced safety**
- **Powered travel, under load, standard on all models for ultimate utilization**
- **Three-stage, double-acting cylinder provides extended lifting capacity**
- **Easy-to-use handheld pendant control can operate four legs simultaneously**
- **Compatible with standard Enerpac gantry accessories**
- **Operates on 115, 230 VAC 1-phase or 380-415 VAC 3-phase power (1 circuit per leg)**
- **ASME B30.1 compliant and load tested under witness of Lloyd's Register.**

**Header Beams**

Sold in pairs and includes lifting points and fork pockets for easy positioning on gantry towers.

| Description | Model Number |
|---|---|
| 6 metres length | **HBH6** |
| 8 metres length | **HBH8** |

**Skid Tracks**

Skid tracks used for leveling and load distribution to reduce ground bearing pressure. Available in two standard lengths.

| Description | Model Number |
|---|---|
| 3 metres length | **GST100-3** |
| 6 metres length | **GST100-6** |

**Lifting Anchors**

Designed to transfer the load to the top of the header beam. Can accommodate a 250-ton shackle or attach directly to the lifted load.

**Higher Capacities SL and SBL-Series Hydraulic Gantries**

When the ML-Series Mini Gantry isn't quite enough capacity or height for your application, Enerpac offers a full range of safe-to-operate full featured telescopic hydraulic gantries, up to 10.484 kN capacity and lifting heights up to 12 metres. Contact Enerpac for more details.

▼ *SL400 gantry used to offload and install new forming press.*

▼ *SBL1100 gantry offloading a large generator for installation in a power plant.*

# Mini-Lift Hydraulic Gantry

**ML-Series, Mini-Lift Gantry**

The cost-effective, compact ML40 Mini-Lift Hydraulic Gantry System, with wireless controls offers several key features:

**Safety:**
Stroke synchronization ensures a level lift regardless of load distribution.
PLC-controlled lifting using feedback from a stroke encoder maintains even height on all legs and will stop the lift if necessary to prevent issues.

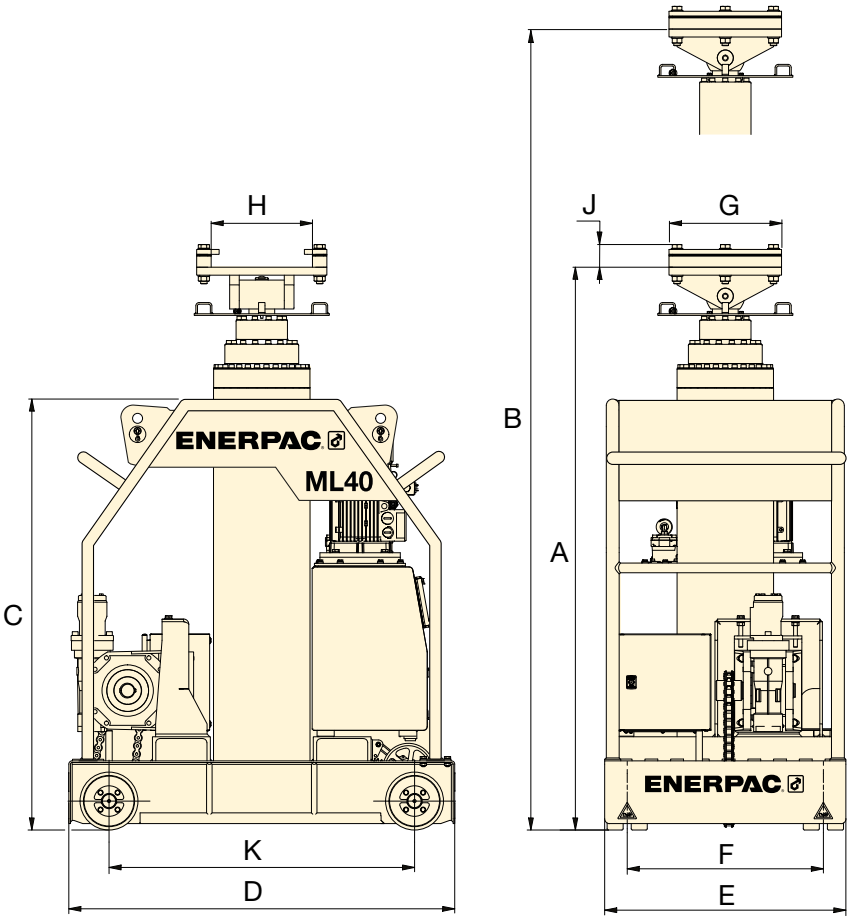
**Capacity:**
400 kN lifting capacity at full extended lift height. Even with its compact size, the ML40 can lift full capacity to full height of 5,5 metres (18 ft), making it the most versatile portable gantry in the market.

**Compact:**
Fits through standard doorway and is easily moved and set up. The ML40 gantry can be moved through the tightest spaces imaginable in all industrial settings.
Easy to push, pull and maneuver, the ML40 can get into spaces that no other gantry can.

## ML Series

Capacity (with 4 legs):
**400 kN**

Maximum Lifting Height:
**5,5 metres**




**Wireless Pendant**

- Stroke measurement and closed loop synchronization ensure level lifting and lowering
- Integrated 1.8 inch color display provides load and stroke information for all four lift points.

**Mini-Lift Gantry Transport Frame**

Galvanized steel transport frames to allow shipment of mini gantry legs via standard truck lines. Two legs mount on each frame which includes storage for controls and accessories.

| Description | Model Number |
|---|---|
| Set of two frames | ML40TF |

**Operating Voltages**

ML40 is available in three voltages. 1 circuit per leg.

| Voltage | Model Number |
|---|---|
| 115 V, 1 phase, 16 A | ML40B |
| 208-240 V, 1 phase, 8 A | ML40E |
| 380-415 V, 3 phase, 2 A | ML40W |

| Max. Capacity * (kN) | Model Number (4 legs) | Retracted Height A (mm) | Stage 1 Max. Height B (mm) | Stage 1 Max. Capacity * (kN) | Stage 2 Max. Height B (mm) | Stage 2 Max. Capacity * (kN) | Stage 3 Max. Height B (mm) | Stage 3 Max. Capacity * (kN) | Base Height C (mm) | Base Length D (mm) | Base Width E (mm) | Track Gauge F (mm) | Beam Plate Length G (mm) | Beam Plate Width H (mm) | Beam Plate Height J (mm) | Wheel Base K (mm) | ** (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **400** | **ML40** | 1900 | 3000 | 400 | 4200 | 400 | 5500 | 400 | 1390 | 1200 | 750 | 610 | 350 | 315 | 71 | 950 | 1350 |

* Capacity with 4 legs.

** Weight per leg including oil.

▼ SBL1100 with optional skid tracks, header beams, powered side shifts and lifting anchors

- **Self-contained hydraulics and electronics**
- **Intelli-Lift wireless control system**
- **Self-propelled wheels or tank rollers**
- **Foldable boom on SBL600, SBL900 and SBL1100 to enable easy transport and setup**
- **Full range of supplementary equipment: header beams, lifting anchors, side shifts and skid tracks**
- **All gantries comply to ASME B30.1, CE, UKCA and other safety standards**
- **Lloyds witness tested to 125% of maximum working load.**

# Precision Lift and Position of Heavy Loads

## The Ultimate in Safety and Control

**Intelli-Lift Wireless Control**

The Intelli-Lift wireless control system is included with all Enerpac hydraulic gantries.

The Intelli-Lift controller offers superior safety and control and includes the following features:

- Encrypted bi-directional communication that eliminates interference from other devices
- Remote operation using multi channel wireless (2.4 GHz) or wired (RS-485) control
- High and low speed settings
- Automatic synchronization of lifting with an accuracy of 24 mm (0.95 inch)
- Automatic synchronization of travelling with an accuracy of 15 mm (0.60 inch)
- Overload and stroke alarms
- Remote side shift control
- Emergency stop switch.

**ML40, Mini-Lift Hydraulic Gantry**

400 kN lifting capacity at full extended lift height. Even with its compact size, the ML40 can lift full capacity to full height of 5,5 metres (18 ft), making it the most versatile portable gantry in the market.

*Page:* 364

| Maximum Capacity (with 4 towers) (kN) | Model Number (4 towers) | Retracted Height A (mm) |
|---|---|---|
| 1000 | SL100 | 2050 |
| 2000 | SL200 | 2731 |
| 3000 | SL300 | 2715 |
| 4000 | SL400N | 2725 |
| 4000 | SL400 | 3166 |
| 5200 | SBL500 | 3028 |
| 6000 | SBL600 | 4300 |
| 8976 | SBL900 | 5004 |
| 10.484 | SBL1100 | 4370 |

▼ *Enerpac SBL-Series hydraulic gantries are used in a variety of applications to install turbines, transformers and other power generation equipment all over the world.*

**Hydraulic Gantries**

Telescopic 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 Hydraulic Gantry Systems:**

- **ML-Serie Mini-Lift**
  Fits through standard doorway and is easily moved and set up. The ML40 gantry can be moved through the tightest spaces imaginable in all industrial settings.
- **SL-Series Super Lift**
  The cost-effective SL-Series Super Lift offer control and stability for everyday lifting applications below 4000 kN 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 4000 kN to heights of 12 metres.

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

## SL, SBL Series

Capacity with 4 towers:
**1000 - 10.484 kN**

Lift Height:
**3,5 - 12 meters**

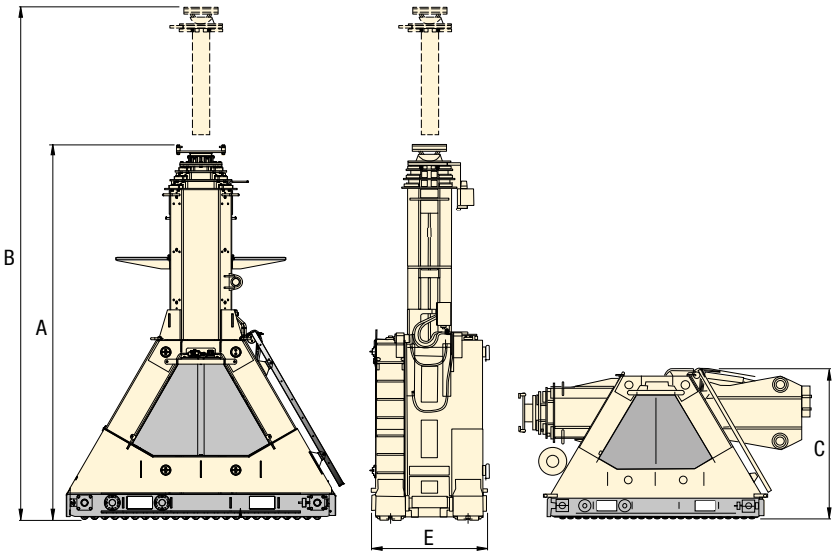
▼ **Optional Gantry Accessories**
Contact Enerpac for assistance by email at **enerpac.com/contact-us**

**Skid Tracks**
Allows for easy levelling of the gantry tower and reduce ground bearing pressure, available in two standard lengths, 3 and 6 m.

**Header Beams**
Sold in pairs and includes lifting points and fork pockets for easy positioning on gantry towers. Available in standard lengths of 8, 10 and 12 meters

**Powered Side Shift**
Electric propulsion controlled by standard gantry controls. Each set consists of 4 units.

**Lifting Anchors**
Designed to transfer the load to the top of the header beam. Can accommodate a 250 ton shackle or attach directly to the lifted load.




| | Stage 1 | | Stage 2 | | Stage 3 | | Transport Height [1] | Skid Track Width | | Model Number (4 towers) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Max. Height B (mm) | Max. Capacity * (kN) | Max. Height B (mm) | Max. Capacity * (kN) | Max. Height B (mm) | Max. Capacity * (kN) | C (mm) | E (mm) | (kg) [2] | |
| | 3400 | 1000 | 4750 | 600 | – | – | 1930 | 812 | 1735 | **SL100** |
| | 4716 | 2000 | 6700 | 1360 | – | – | 2611 | 812 | 2200 | **SL200** |
| | 4615 | 3000 | 6710 | 2000 | – | – | 2900 | 812 | 3250 | **SL300** |
| | 4365 | 4000 | 6025 | 3000 | 7700 | 2000 | 2725 | 812 | 3600 | **SL400N** |
| | 5224 | 4000 | 7232 | 4000 | 9140 | 1840 | 3170 | 1218 | 4600 | **SL400** |
| | 4998 | 5200 | 6908 | 5200 | 8618 | 3000 | 3028 | 1218 | 6300 | **SBL500** |
| | 6500 | 6000 | 8600 | 5000 | 10.600 | 3700 | 2250 | 1218 | 9000 | **SBL600** [1] |
| | 8304 | 8976 | 11.304 | 5924 | – | – | 2243 | 1218 | 13.350 | **SBL900** [1] |
| | 7004 | 10.484 | 9668 | 6756 | 12.002 | 3780 | 2244 | 1218 | 11.950 | **SBL1100** [1] |

* Maximum capacity with 4 towers.
[1] Foldable boom on SBL600, SBL900 and SBL1100.
[2] Weight per tower.

▼ **LH-Series, Low-Height Skidding System**

# Low-Height Skidding System for Heavy Loads

## The Ideal Low-Height Jack & Slide Solution

- **Low starting height saves time and increases versatility**
- **Portable design allows for easy transport and setup**
- **System can push or pull load without relocating skidding cylinder**
- **Skid track sections bolt together to allow each setup to be customized as needed**
- **Replaceable PTFE skid pads lower the total cost of ownership.**

**Skidding Systems**

The Skidding System is comprised of a series of skid beams moved by hydraulic push-pull cylinders, travelling over a pre-constructed skid track.

A series of special PTFE-coated Teflon® pads are placed on the skid tracks to reduce friction. The push-pull cylinders are then connected by hydraulic hoses to our Split-Flow Pump. The Split-Flow Pump can be mounted on an optional pump cart for easy transport.

An optional storage and transport frame easily holds the equipment in between use.

▼ *LH400, Low-Height Skidding System provides the service team with the ability to maneuver and transport a press frame.*

▼ *LH400 Skidding used to remove an old press from a facility to make room for new equipment.*

**Low-Height Skidding Jack Starter Kit - LH400SK**

A complete starter kit is available to fit the needs of any jack and slide application. This system comes with two skidding units that will support up to 3560 kN in total. This kit will get the job done, but there are optional accessories available in addition (see page 370-371).

Each skidding unit will have 1 push-pull unit, 2 skid beams and 5 skid tracks.

The Split-Flow Pump (to be ordered separately) has 2 outlets and can be easily towed on the pump cart. After the job is complete, components can be stowed on the included storage frame.

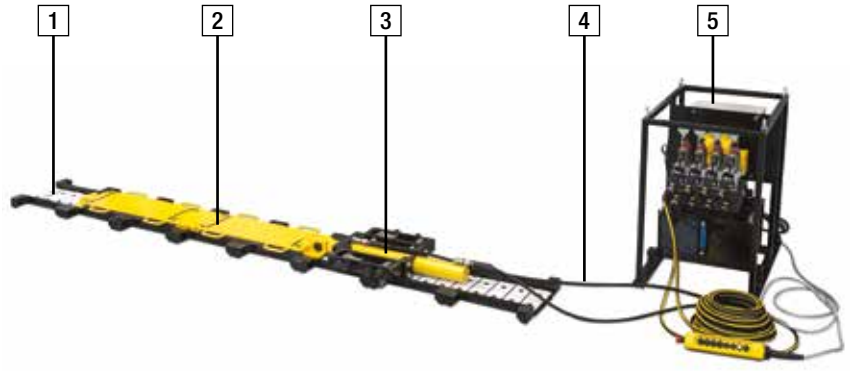
| LH400SK Starter Kit includes: | Model Numbers | Qty |
|---|---|---|
| Push-Pull Unit (1780 kN) | **LHPP25** | 2x |
| Skid Beam A (1 meter) | **LHSB1A** | 2x |
| Skid Beam B (1 meter) | **LHSB1B** | 2x |
| Skid Track (1 meter) | **LHST1** | 10x |
| Storage/Transport Frame | **LHSF** | 1x |

## LH Series

Skidding Capacity with two push-pull units:
**3560 kN**

Push-Pull Stroke:
**600 mm**

Maximum Operating Pressure:
**700 bar**

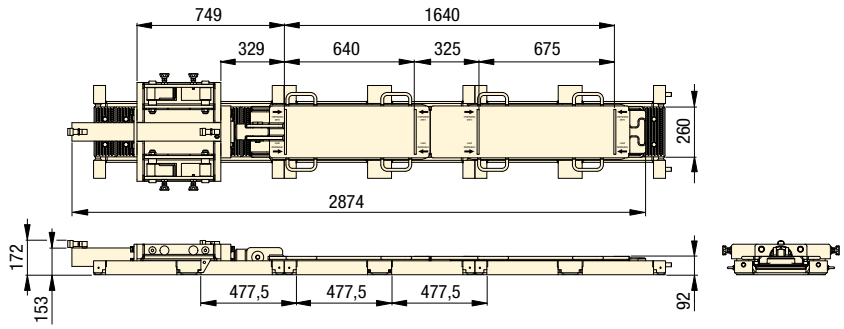



**LH-Series, Low-Height Skidding System Requirements**

| | | |
|---|---|---|
| 1 | Skid Track **LHST1** | Required |
| 2 | Skid Beam **LHSB1A + LHSB1B** | Required |
| 3 | Push-Pull Cylinder Unit **LHPP25** | Required |
| 4 | Hydraulic Hoses | Required |
| 5 | Split-Flow Electric Pump **SFP** | Required |
| 6 * | Track Support | Application dependant |
| 7 * | Storage-Transport Frame **LHSF** | Optional |
| 8 * | Pump Cart **LHPC** | Optional |

* not shown

**LH400, Low-Height Skidding System** (dimensions in mm)




**SFP-Series, Split-Flow Pump**

Split-Flow pumps distribute an equal amount of hydraulic oil to a maximum of 8 outlets. Smart valve technology allows both controlled lifting and lowering of heavy loads.

*Page:* 344

**LHPC Pump Cart**

The LHPC pump cart easily tows pump around jobsite and can be used with all models of SFP-Series Split-Flow Pumps.

**Hydraulic Power Packs**

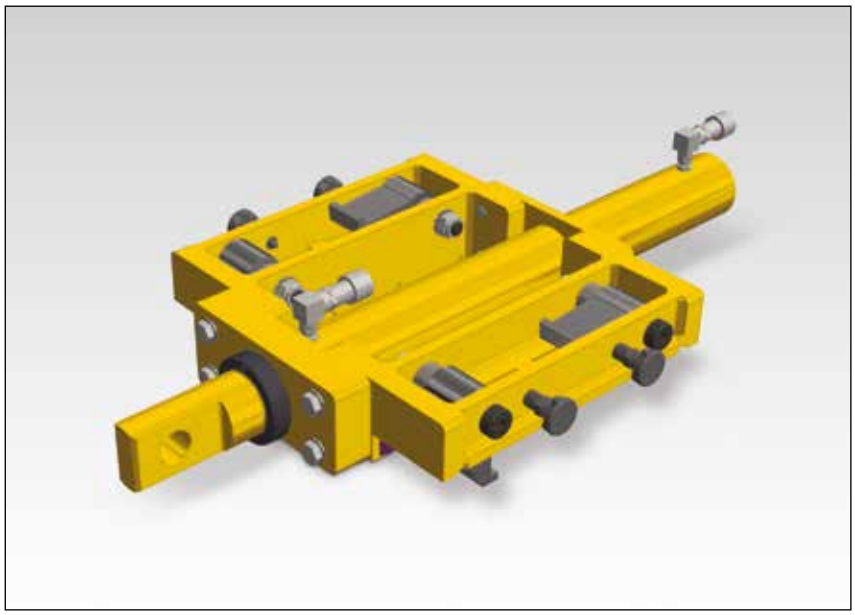
Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with Skidding Systems.

**Hoses**

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 128

▼ LHPP25 Low-Height Push-Pull Unit



## Push-Pull Unit

- Connects to first skid beam to push or pull load along skid track
- Easily reverse direction by switching reaction tabs
- Complies to ASME B30.1 and other safety standards.

### ▼ Low-Height Push-Pull Unit

| Maximum Capacity (kN) | | Model Number | Stroke | Weight |
|---|---|---|---|---|
| Push | Pull | | (mm) | (kg) |
| 222 | 97,8 | **LHPP25** | 600 | 111 |

▼ LHSB1A and LHSB1B Skid Beams

## Skid Beams

- Interlocks without any fasteners to slide load over skid track;
  skid beam A (LHSB1A) attaches to the push-pull unit
  skid beam B (LHSB1B) attaches to skid beam A
- Polished stainless steel skid surface
- Carrying handles for easy transport.

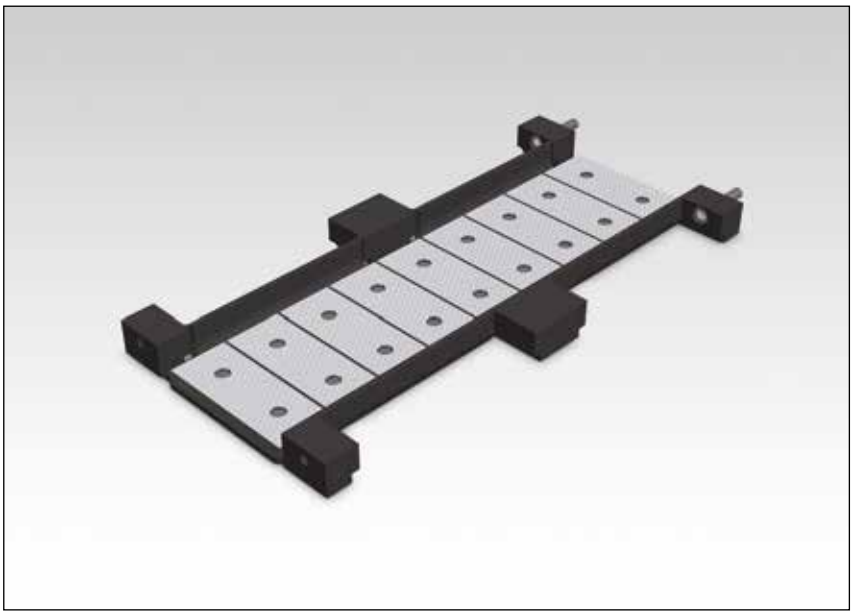
### ▼ Skid Beams

| Capacity (kN) | Model Number | Weight (kg) |
|---|---|---|
| 890 | **LHSB1A** | 66 |
| 890 | **LHSB1B** | 63 |

◄ *Details of push-pull unit of LH400.*

# Low-Height Skidding Components

▼ **LHST1 Skid Track**



## LH Series

Skidding Capacity with two push-pull units:
**3560 kN**

Push-Pull Stroke:
**600 mm**

Maximum Operating Pressure:
**700 bar**

### Skid Track

- **Support the load for skidding operations**
- **Track sections bolt together**
- **Includes 9 pieces easily replaceable PTFE skid pads.**

**Teflon® Pads**

A series of special PTFE coated Teflon® pads are placed on the skid tracks. The PTFE surface is matched with the skid beam and designed to achive minimum friction coefficients.

Replacement Teflon® Pads come in packs of 12 pieces. Order model number **HSKSPS1**.

### ▼ Skid Track

| Maximum Capacity (per skid track) (kN) | Model Number | Track Length (mm) | Weight (incl. pads) (kg) |
|---|---|---|---|
| 890 | **LHST1** | 955 | 67 |

**Storage and Transport Frame**

For easy storage and transport of all low-height skidding components.

Fits following components:
2x **LLPP25** Push-Pull Unit
2x **LHSB1A** Skid Beam A
2x **LHBS1B** Skid Beam B
10x **LHST1** Skid Tracks

| Model Number | Overall Dimensions L x W x H (mm) | (kg) |
|---|---|---|
| **LHSF** | 1080 x 935 x 895 | 200 |

With all components stored dimensions are:
1080 x 935 x 1003 mm, and total weight 1350 kg.

▼ *An LH400 Skidding System allows the maintenance team to transport transformers with access limitations.*

▼ *Low-Height Skidding System assembly (LH400).*

▼ Shown: **HSK1250 Skidding System**

# The Ideal Jack and Slide Solution

### HSK-Series, Skidding System

- **PTFE skid pads with dimpled surface for low friction and long lifetime**
- **Easy to replace skid pads, no tools necessary**
- **Bi-directional operation using push-pull cylinders avoid the need to reposition cylinders for switching direction**
- **Large load support surface on the skid beams for distributing load**
- **Bottom of skid shoes equipped with stainless steel sliding plates.**

### LH-Series, Low-Height Skidding System

- **2-in-1 track design for added support**
- **Intuitive pump controls (SFP-Series Split-Flow Pump)**
- **Easily reversible to change skidding direction**
- **Portable design for quick setup.**

**Skidding Systems**

The skidding system is comprised of a series of skid beams moved by hydraulic push-pull cylinders, travelling over a pre-constructed track.

A series of special PTFE coated pads are placed on the skid tracks. The PTFE surface is matched with a sliding plate under the Enerpac skid beams, designed to achieve minimum friction coefficients. The skid beams are connected by hoses to a hydraulic electric or diesel driven power pack.

In addition to our standard skidding systems, we have the capability to create customized skidding systems to meet your specific requirements.

**Controls**

Enerpac offers several options for controlling our skidding systems. Wireless Controls allows the operator the freedom to view the skidding operation from multiple locations while providing complete control of all system functions.
Manual controls offer a cost-effective solution by utilizing manual hydraulic valves mounted directly on the skidding system power unit.

▼ *A custom hydraulic Low-Height Skidding System will provide the maintenance team with the ability to maneuver and transport transformers with physical access limitations.*

▼ *HSKJ2500 Skid Shoe Jack.*

**Skidding Systems**

Enerpac Skidding Systems are available in several versions:

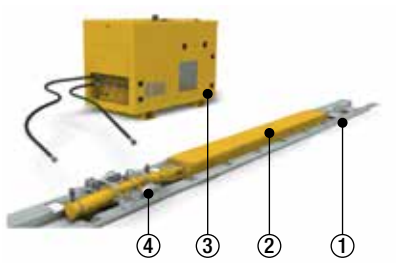
- **B-Series (Skid Beam)** utilizes a tall skid beam with built-in push-pull cylinders. Skidding direction can be easily switched by flipping a lever on the attached gripper box.
- **J-Series (Skid Jack)** provides the same functionality as the B-Series with the added benefit of having a built-in cylinder for lifting or leveling the load.
- **LH-Series (Low-Height)** includes low-height skid beams that can fit in tight spaces while still offering high capacity. We also offer a track support for added rigidity when the surface is not fully supported.

# HSK LH Series

Capacity:
**125 - 250 ton**

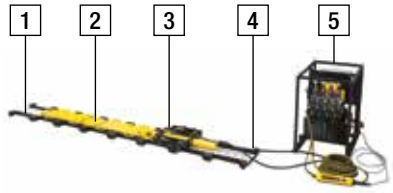
Push/Pull Stroke:
**600 mm**

Lifting Stroke:
**175 mm**



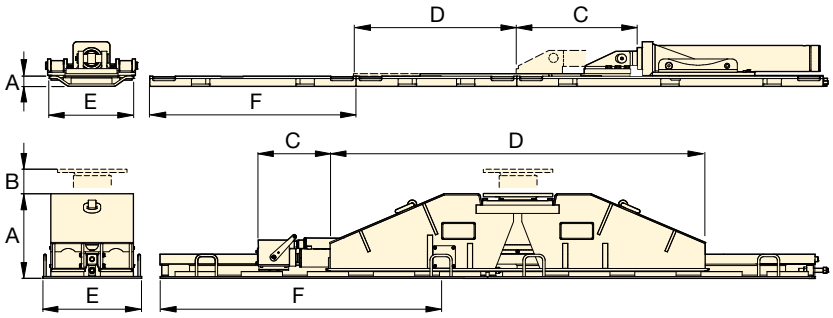

**HSK-Series Skidding System Requirements**

① Skid Track
② Skid Beam
③ Hydraulic Power Pack
④ Hydraulic Push-Pull Unit




**LH-Series Skidding System Requirements**

1 Skid Track (required)
2 Skid Beam (required)
3 Push-Pull Cylinder Unit (required)
4 Hydraulic Hoses (required)
5 Split-Flow Electric Pump (required)
6 Track Support (optional, not shown)
7 Storage/Transport Frame (optional, not shown)
8 Pump Cart (optional, not shown)




**Skid Tracks**

Include specially constructed and easily replaceable PTFE coated pads. Skid track is sold separately.

**Hydraulic Power Packs**

Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with Skidding Systems.

**ETT-Series Turntables, Safe and controlled rotation**

The ETT-Series Turntables is your solution for rotating heavy loads during, before or after a lifting and skidding operation.

*Page:* 376

**Skidding Systems**

| Maximum Capacity (per beam) ton (kN) | Maximum Push-Pull Capacity ton (kN) Push | Pull | Model Number | Skid Beam Height (with track) A (mm) | Lifting Stroke B (mm) | Push-Pull Stroke C (mm) | Skid Beam Length D (mm) | Skid Beam Weight (kg) | Skid Track Width E (mm) | Skid Track Length F (mm) | Skid Track Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **125** (1250) | **22** (220) | **16** (160) | **HSKB1250** | 309 | – | 600 | 2500 | 740 | 400 | 1983 | 120 |
| **125** (1250) | **22** (220) | **16** (160) | **HSKJ1250** | 502 | 175 | 600 | 1690 | 790 | 400 | 1983 | 120 |
| **200** (2000) | **25** (255) | **14** (141) | **HSKLH2000** | 204 | – | 600 | 2902 | 340 | 540 | 1998 | 120 |
| **250** (2500) | **40** (400) | **26** (260) | **HSKB2500** | 374 | – | 600 | 3000 | 1020 | 600 | 1946 | 290 |
| **250** (2500) | **40** (400) | **26** (260) | **HSKJ2500** | 600 | 175 | 600 | 1784 | 1450 | 600 | 1946 | 290 |
| **180** (1780) | **25** (255) | **11** (98) | **LH400** * | 92 | – | 600 | 1080 | 63 | 250 | 955 | 67 |

* Low-Height Skidding System, see pages 368 - 371 for detailed and technical information.

▼ **ETR50H, Enerpac Trolley System** (shown with Trolley Track Plates)


- **High transport speed:**
  **25 - 50 m/hour loaded,**
  **100 m/hour unloaded**
- **Suited for repetitive movements**
- **Runs on simple flat steel plate**
- **Ease of maintenance:**
  **– long maintenance intervals**
  **– no consumables**
- **Clean usage – electric driven**
- **Built-in synchronization – no need for forced external mechanical connection to synchronize movements**
- **Easy transport - compact design**
- **Hydraulic lifting cylinder option available**
- **Kits to accommodate other lifting options also available.**

# Safe & Synchronized Travel

**Product Overview**

The ETR-Series Trolley System is comprised of electrically-driven trolleys which can carry heavy loads along a fixed track system.

The entire system is controlled by a hand held wireless control system.

A typical system is comprised of 4 Trolleys, 2 Tracks and one Controller. Trolley Tracks and Wireless Control must be ordered separately.

**Control Panel and Cables**

Operate up to 8 trolleys (same capacity each) using control panel with included wireless controller:

- Automatic synchronization of traveling with an accuracy of 10 mm (0.39 inch)
- Dual-band radio with automatic frequency search
- Wireless remote operation
- High and low speed settings
- Emergency stop switch
- Control cables operate trolley and provide feedback to controller.

**Control Panel**

| Model Number (380-415 VAC, 32A) | Dimensions (mm) | | | (kg) |
|---|---|---|---|---|
| | L | W | H | |
| ETR-CPW8 | 1290 | 600 | 1100 | 250 |

**Control Cables**

| Model Number | Description |
|---|---|
| ETR-CBL-15 | 15 metres control cable |
| ETR-CBL-25 | 25 metres control cable |

▼ *The trolley system speeds up offshore wind transition piece load out: the transition pieces are positioned in the clamping frames and moved along the track.*

▼ *ETR-Series electric trolley undergoing factory acceptance testing prior to shipment.*

**ETR-Trolley System**

The Enerpac Trolley System provides an alternative method with increased benefits over traditional skidding methods.

Load movements are more stable due to the continuous movement and ability to precisely control travel speed including acceleration and deceleration.

**Key features:**

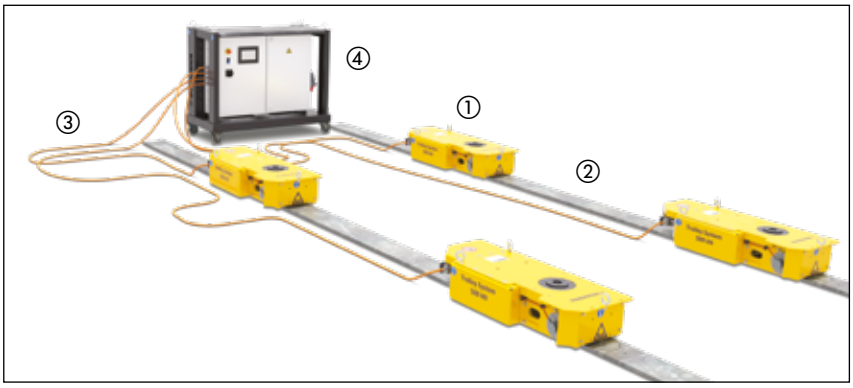
| | |
|---|---|
| Low speed (loaded): | 25 m/hr |
| High speed (loaded): | 50 m/hr |
| Travel speed unloaded: | 100 m/hr |
| Accuracy: | 10 mm |
| Sideload: | 1,5% rated load |
| Sound Level: | < 80 dBA |

# ETR Series

Capacity Per Trolley:
**500 - 1000 kN**

Travel Speed (loaded):
**25 - 50 m/hr**

Motor Power:
**0,38 - 0,75 kW**




① Electric Trolley ETR-Series
② Track Plate **ETR-TP-015** or **ETR-TP-030**
③ Control Cable **ETR-CBL-15** or **ETR-CBL-25**
④ Control Panel **ETR-CPW8** (including.wireless remote)
⑤ Split-Flow Electric Pump - **SFP-Series** Not shown. Optional for units with hydraulic cylinders

**Trolley Track Plates**

Track plates provide level guidance and support for the trolley. Two plates placed side-by-side are used for operation of ETR100-Series Trolleys. Maximum inclination of tracks is 0,2 degree.

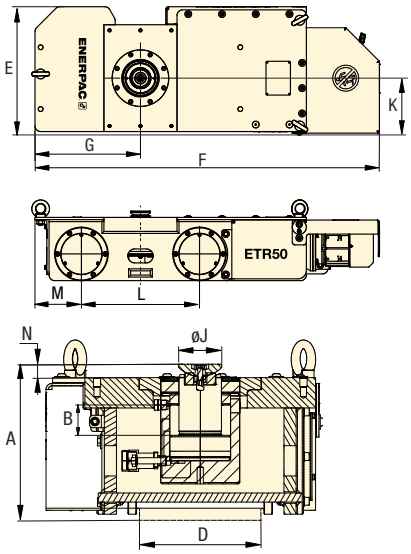
| Model Number | Description |
|---|---|
| ETR-TP-015 | 1,5 m Trolley track plate |
| ETR-TP-030 | 3,0 m Trolley track plate |

**Additional Mounting Options**

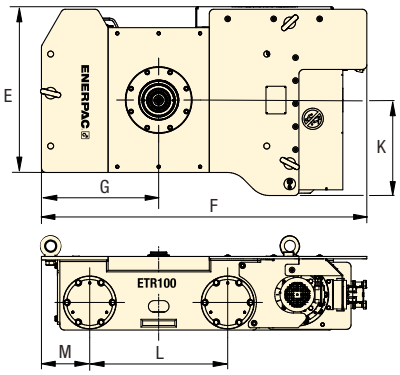
Mounting kits are available to accommodate other lifting and rigging solutions.

| Model Number | Description |
|---|---|
| ETR50-SMK | Enerpac SCJ50 on ETR50 |
| ETR100-SMK | Enerpac SCJ100 on ETR100 |
| ETR50-BMK | Swivel beam mount on ETR50 |
| ETR100-BMK | Swivel beam mount on ETR100 |

**ETR50**



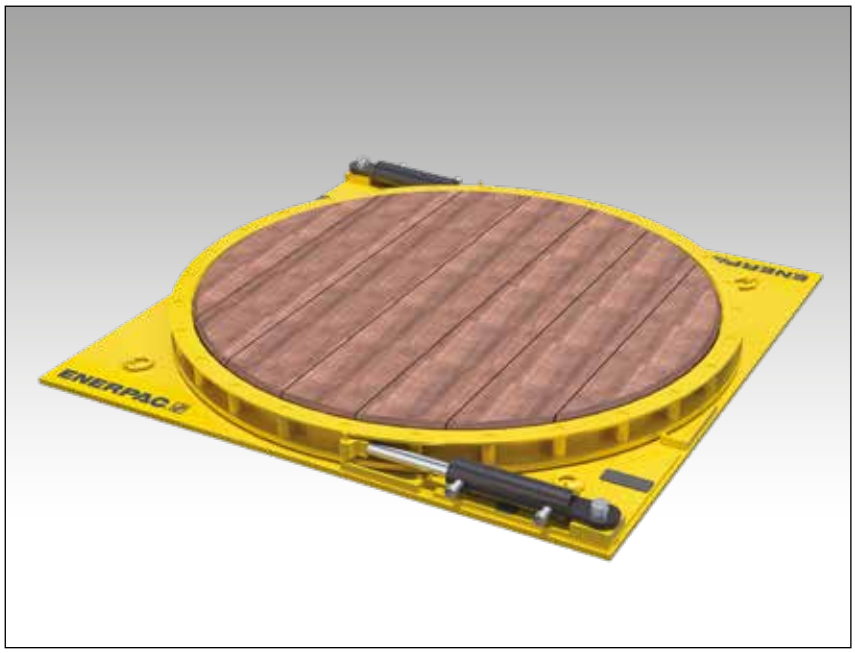

**ETR100**




| Capacity per Trolley Unit ton (kN) | Model Number (one unit) | Motor Power (kW) | Dimensions (mm) A | Hydraulic Stroke [1] | Track Width [2] | E | F | G | J | K | L | M | N | (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **50** (500) | **ETR50** | 0,38 | 245 | – | 200 | 456 | 1225 | 375 | 125 | 202 | 420 | 165 | 10 | 310 |
| | **ETR50H** | | 257 | 50 | | | | | 71 | | | | 22 | 320 |
| **100** (1000) | **ETR100** | 0,75 | 346 | – | 400 | 821 | 1415 | 510 | 170 | 415 | 600 | 210 | 15 | 850 |
| | **ETR100H** | | 349 | 100 | | | | | 71 | | | | 19 | 860 |

[1] ETR50H includes HCG502 Cylinder with CATS50 Swivel Saddle. ETR100H includes HCG1004 Cylinder with CATS101 Swivel Saddle.
[2] ETR100 series uses two track plates side-by-side.

▼ ETT400 Turntable




# ETT
## Series

Maximum Capacity:
**200 - 400 ton**

Cylinder Capacity:
**25 ton (222 kN)**

Maximum Operating Pressure:
**700 bar**

**Safe and controlled rotation**

The ETT-Series is your solution for rotating heavy loads during, before or after a lifting and skidding operation.

- **Safe and controlled rotation of heavy loads**
- **Easily change rotation direction**
- **Dual capacity: 200 ton with one cylinder, 400 ton with two cylinders**
- **Compact size for use in applications with limited space**
- **Compatible with standard Enerpac pumps**
- **Hardwood surface.**

**SFP-Series, Split-Flow Pumps**

Split-Flow pumps distribute an equal amount of hydraulic oil to a maximum of 8 outlets. Smart valve technology allows both controlled lifting and lowering of heavy loads.

*Page:* 344

**LH-Series, Low-Height Skidding**

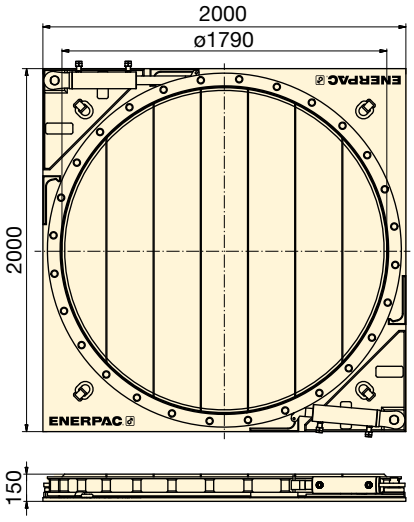
The ETT-Series are ideal in combination with our skidding systems, particular the LH-Series. Skidding and rotating in confined spaces is simplified.

*Page:* 368

**Telescopic Hydraulic Gantries**

The ETT-Series in combination with our hydraulic gantry SL-Series makes load handling in the most demanding situations easy.

*Page:* 366




▼ **SELECTION CHART**

| Maximum Load Capacity (kN) | Model Number | Cylinder Capacity * (kN) | Cylinder Oil Capacity * ($cm^3$) advance | retract | No. of Cylinders * | Rotation per Stroke (degrees) | Platform Diameter (mm) | (kg) |
|---|---|---|---|---|---|---|---|---|
| 2000 | **ETT200** | 222 | 792 | 344 | 1 | 12,5 | 1790 | 1700 |
| 4000 | **ETT400** | 222 | 792 | 344 | 2 | 12,5 | 1790 | 1725 |

* Per cylinder. Cylinder modelnumber: **BRD259-ETT**

# SPMT, Self-Propelled Modular Transporter

▼ SPMT600-360 with MTPP360 hydraulic power unit (HPU)

## SPMT Series

Capacity:
**60 ton (600 kN)**

Transport Speed (unloaded - loaded):
**3 - 1,5 km/h**

Motor Size:
**54 kW**

- **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**
- **Hydraulic power unit is tier-4 diesel engine for reduced emissions.**

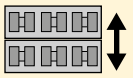
**Self-Propelled Modular Transporter**

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. Two axles are driven, the centre axle is non-driven. Wheel propulsion is established by wheel drives.

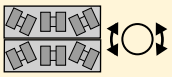
The SPMT is operated by the Intelli-Drive Remote Controller. This remote controller can be used both hard wired and wireless (based on radio frequency).

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.

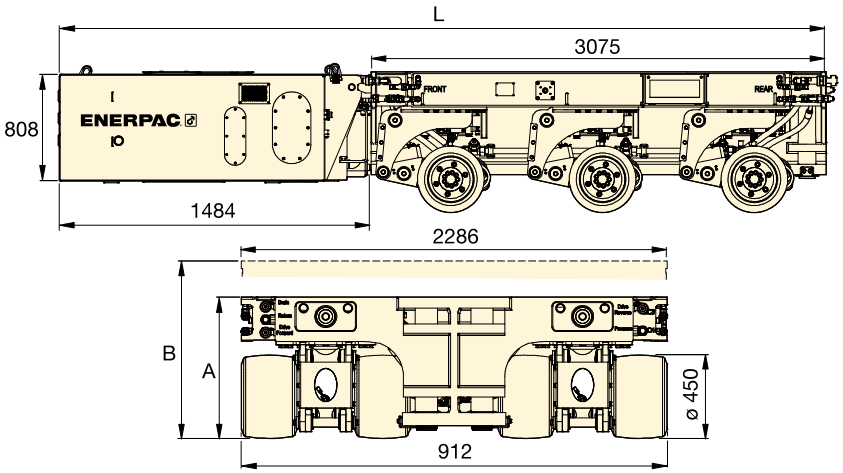
The SPMT is a modular system comprised of trailers with 3 axle lines each and diesel hydraulic power units (HPU). Depending on the model number, the trailers and HPUs can be configured to a maximum of 4 trailers in 2 rows (4x2) or 6 trailers in 2 rows (6x2).



**Crab**



**Carousel**




| Capacity (per transporter) ton (kN) | Transporter Model Number | Maximum Configuration (transporters in rows) | Steering Range (degrees) | Steering Mode crab | Steering Mode carousel | Retracted Height A (mm) | Average Travel Height B (mm) | Overall Length L (mm) | Lifting Stroke (mm) | SPMT (kg) | HPU * Model Number | HPU * (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **60** (600) | **SPMT600-100** | 4 x 2 | +/- 50 | ● | – | 767 | 959 | 4560 | 384 | 8000 | **MTPP-100** | 2500 |
| | **SPMT600-360** | 6 x 2 | +/- 179 | ● | ● | 764 | 956 | 5188 | 384 | 8300 | **MTPP-360** | 2800 |

* HPU = 54 kW Power Pack Diesel is sold separately.

# Custom Heavy Lifting Solutions

**OFFSHORE GANTRY CRANE**
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.

**STRAND JACK GANTRY**
The strand jack gantry is a steel structure to facilitate erection and skidding back, forth and sideways of heavy loads. The Enerpac strand jack gantry can be used with either skidding systems or hydraulic gantries on top.

**TRAVEL GANTRY**
The travel gantry combines the safety and efficiency of a hydraulic gantry with the ease of use of SPMT (self-propelled modular transporter) technology. With a lifting capacity of 67 ton, the travel gantry sets a new standard in equipment and container handling.

**BRIDGE LAUNCHING SYSTEMS**
**Spindle Bar System**: group of in-line hollow plunger cylinders. The hollow plungers allow the steel bars to be inserted through the cylinders, which are used for pushing, pulling and braking. **Enerpac Enerlauncher** is an automatic and synchronous incremental hydraulic tandem launching system with a 800 ton lifting section and an 300 ton push/pull section.

**JACK-UP SYSTEMS**
The jack-up system is a custom developed multipoint lifting system – synchronically lift and mechanically hold. A typical system setup includes four jack-up units positioned under each corner of a load.

**ROTOR REMOVAL AND INSTALLATION SYSTEM**
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.

**CUSTOM HYDRAULIC PRESSES**
Our hydraulic presses can be configured to fulfill a broad range of applications. Each press is designed and manufactured according to customer specifications and in cooperation with our engineering team.

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

**LAS VEGAS WHEEL**
Our 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. At the time of construction the Las Vegas High Roller was the largest observation wheel in the world. A custom hydraulic drive system was developed to propel the wheel for daily use and was also used to construct the wheel in sections.

# 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 reputations and physical well-being on the line to get the job done right. We take that very seriously.

Backed by a global legacy of ultra-reliable quality and superior precision, Enerpac Heavy Lifting 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 design, safe to use and 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

- Requirements Specifications
- Selecting the Right Solution for Your Application

**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 restrictions above or below the load?

### TYPE OF LIFT
Will you lift from above or below?

### SPACE
How much space is available to complete the task?

### TIME
How the job needs to be completed within a set timeframe due to operational or environmental factors.

### TRANSPORTATION
Does the load need to be transported as well as being lifted? How far and how often?

### 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 & 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 & MANUFACTURING

- Design & Engineering
- Manufacturing Excellence

### 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, working 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
- ISO 3834-2: 2005
- ISO 14001: 2015
- ISO 45001: 2018

### 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 & TRAINING

- Quality Assurance
- Operation & Safety 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, detailed operating 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-DEMAND SUPPORT

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

### 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 on appropriate use of our equipment. And to ensure job safety, they will travel to your job site as needed to ensure your project is completed timely and without incident.


### Product Warranty

All Enerpac Heavy-Lifting equipment is built to stringent specifications and built to last. Should you ever encounter a defect in materials or workmanship under normal use, it will be remedied through our standard one-year warranty program.

### 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.