Basic Synchronous Lifting Systems

**EVOB 816W**

- Pumps to control 4 to 8 lifting points
- Intuitive user interface provides easy set-up and control
- For use with standard single- or double-acting cylinders
- Built in warning and stop alarms for optimum safety
- Available in two oil flow options.

The economical solution to basic lifting applications

**The Basic EVOB-System**
Leveraging Enerpac’s market leading Z-Class pumps and components from the standard EVO, the Basic EVOB offers an economical solution to basic applications requiring stroke only control for a maximum of 8 lifting points.

The Basic EVOB-System has three work modes. The operator can navigate to any of these menus:
1. Manual
2. Automatic
3. Depressurize.

**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.

**Bridge maintenance:** A 200 ton bridge was lifted using 8 cylinders to replace the old bearings.

**Foundation repair:** Synchronous lift system used to lift a 1000 ton building.
Basic Synchronous Lifting Systems

What is Synchronous Lifting?
To achieve high-precision movement of heavy objects it is necessary to control and synchronize the movements of multiple lifting points.

The PLC-control uses feedback from multiple sensors to control the lifting, lowering and positioning of any large, heavy or complex structure, regardless of weight distribution.

By varying the oil flow to each cylinder, the system maintains very accurate positional control. By eliminating manual intervention, the sync lift helps maintain structural integrity and increases the productivity and safety of the lift.

PLC-controlled synchronous lifting systems reduce the risk of bending, twisting or tilting, due to uneven weight distribution or load-shifts between the lift points.

Wire Stroke Sensors
- Ordered separately, requires one for each lifting point
- Provides stroke feedback to controls
- Includes magnets for mounting.

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

Voltage Options:
- B = 115 V, 1 Ph, 50-60 Hz
- E = 208-240 V, 1 Ph, 50-60 Hz
- G = 208-240 V, 3 Ph, 50-60 Hz
- W = 380-415 V, 3 Ph, 50-60 Hz
- J = 460-480 V, 3 Ph, 60 Hz
- R = 575 V, 3 Ph, 60 Hz.

Example: EVOB408E. EVOB Basic Pump for 4 lift points, 0.82 l/min at 700 bar, and 1.12 kW motor 208-240 V, 1 Ph, 50-60 Hz.

Lifting Points

<table>
<thead>
<tr>
<th>Lifting Points</th>
<th>Oil Flow at 50 Hz</th>
<th>Model Number</th>
<th>Usable Oil Capacity</th>
<th>Motor Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>(&lt; 80 bar)</td>
<td>(litres)</td>
<td>(litres)</td>
<td>(kW)</td>
<td>(kg)</td>
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<tr>
<td>4</td>
<td>8.88</td>
<td>EVOB408W</td>
<td>40</td>
<td>1.12</td>
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<td>4</td>
<td>11.61</td>
<td>EVOB416W</td>
<td>40</td>
<td>2.24</td>
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<td>EVOB808W</td>
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<td>1.12</td>
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<td>11.61</td>
<td>EVOB816W</td>
<td>40</td>
<td>2.24</td>
</tr>
</tbody>
</table>

1) Oil flow will be approximately 6/5 of these values at 60 Hz.
2) For other voltages options see information above this selection chart.

Multi-functional Synchronous Lifting Systems
For more than 8 lifting points, to link up to 4 systems together and weighing system see the EVO-

Standard Series.

Box jacking: Multi-point synchronous system to push hydraulically the tunnel segments under the railway.

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ENERPAC POWERFUL SOLUTIONS, GLOBAL FORCE.
EVO-Series, Synchronous Lifting Systems

• 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 HPUs to a separate master control box 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 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. Tilling
7. Stage Lift
8. Weighing *
9. Center of Gravity determination *

* Available in the EVO-W-models.

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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 resources 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 (VFDm) 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.

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

Evo-Series (Standard)

<table>
<thead>
<tr>
<th>Lifting Points</th>
<th>Variable Oil Flow at 50 Hz</th>
<th>Model Number</th>
<th>Usable Oil Capacity</th>
<th>Motor Size</th>
<th>Motor Speed</th>
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<tbody>
<tr>
<td>(&lt; 125 bar)</td>
<td>(&gt; 125 bar)</td>
<td>(l/min)</td>
<td>(litres)</td>
<td>(kW)</td>
<td>(kNm)</td>
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<td>4</td>
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<td>3.5</td>
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<td>VFDM 1025</td>
</tr>
</tbody>
</table>

1) Oil flow will be approximately 0.5/3 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.