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Press release

Energy storage and energy planning for construction sites

- **Liduro Power Ports (LPO) enable locally emission-free operation and charging of construction machinery**
- **The mobile energy storage systems supply tower cranes and work machines with up to 160 kWh**
- **LPO 600 allows the supply of several large machines via two DC fast charging stations (150 kW each) and additional AC charging connections**
- **The Energy Planner software can be used to plan the power and energy requirements of construction sites in different construction phases**

The Liduro Power Port (LPO) is an energy storage system for power supply on construction sites. It allows for locally emission-free operation and charging of hybrid or fully electric construction machinery and equipment. The high power density and compact design of the LPOs enable an efficient and flexible supply of machines or construction sites with diverse power requirements.

Baden (Switzerland), January 28, 2025 – The call for the electrification of construction sites will gain even more importance in the coming years, to meet local and global climate targets for the reduction of emissions. Therefore, construction site operators have a dynamically growing energy demand in response to the existing and upcoming emissions regulations.

Sometimes, access to power supply on construction sites is either limited or missing at all. Consequently, electrified construction sites face such challenges as machine operation at a maximum power, charging of numerous machines during breaks and smoothing load peaks. The LPO offers a highly efficient solution for the power supply of machines, being a market-leader in power and energy density to date.

Mobility and flexibility with the LPO 100

Liebherr’s components product segment presents the smallest model range of the Liduro Power Port as a series product in the LPO 100 version on the Liebherr main booth (809 – 813) at this year's Bauma. It can be used with maximum efficiency to supply tower cranes, fast-erecting cranes and small to medium-sized machines – for example Liebherr’s wheel loader L 507 E. The gross energy content spans from 40 kWh to 160 kWh, depending on the version, with peak outputs ranging from approx. 60 to 150 kVA.

The energy storage system can supplement an insufficient grid connection or be used as an isolated grid - i.e. when no grid connection is available. “Using the LPO as a supplement to the grid connection allows to significantly reduce the dimensioning of the grid connection power, as the energy storage system covers the load peaks of the machines,” explains Fabian Zell, product group manager at Liebherr-

Electronics and Drives GmbH in Biberach (Germany). “In stand-alone operation, the LPO is a flexible and highly efficient solution: High load peaks, on the one hand, and longer periods with very low power requirements, on the other, are typical of construction sites - for example for lighting or small appliances,” says Zell. The mobile energy storage system supplies power on demand and without surplus, i.e. with an optimum price-performance ratio. Compared to diesel generators, which have a consistently high consumption of fossil energy regardless of their consumers, the LPO delivers power with a significantly higher level of efficiency and without idling phases.

The energy storage units in this series can be charged with up to 32 A and supply power to consumers via several connections that can be used simultaneously: 16 A / 32 A / 63 A / 125 A. The LPO also allows concurrent charging and discharging. Energy and status monitoring is carried out via the local controller or the digital "LPO Monitoring" app for smartphones and tablets.

The series is available as "LPO Basic" without a chassis or as "LPO Drive" with a trailer chassis. Moreover, the LPO can be moved on site via suspension points, using a crane or excavator, and lifted and moved from all sides, using a forklift truck. The basic dimensions of the “LPO Basic” variant are 2,434 x 1,520 x 1,433 mm, the “LPO Drive” version measures 3,903 x 2,031 x 1,899 mm (L x W x H).

LPO 600: energy supply for large machines and fleets

The LPO 600 represents the medium model range of the Liduro Power Port series. This battery-based energy storage with integrated DC fast charging stations and further AC charging connections has the gross energy content of 564 kWh, and therefore sufficient power for the supply of large machines or fleets – even with no grid connection available. The two folding DC fast charging stations (150 kW each) or additional AC charging connections (type 2, 32 / 65 / 125 A, powerlock) allow for a quick and flexible charging of mobile machines. It is also possible to charge the LPO 600 via different connections, like 32 / 63 / 125 A, CCS2 or powerlock. Its basic dimensions are those of a standard ten-feet-container (3,048 mm).

The medium and large LPO variants with the gross energy content ranging between 300 and 1,200 kWh are currently under development.

"Energy Planner" – a valuable companion on the LPO’s side

Energy Planner is a browser-based software for holistic planning of the power and energy requirements of a construction site in various construction phases. The tool helps construction site and fleet managers, electrical and energy planners or dispatchers with the energy planning, set-up and monitoring of a construction site.

And what are the functions? The first step is to locate a planned construction site on the map. The software offers the users the relevant network providers and connection points with the respective cost indicators. An integrated library contains a wide range of machine types and specific performance ranges, from which the planned machines can then be selected and put together into a fleet. In the planning area, it is possible to determine the duration of the construction phases or to create and name several construction phases thereby.

The Energy Planner now derives the energy requirements and charging phases from each construction phase for the specific machines, which can be adapted in the app based on consumption. The software draws on an extensive integrated library of construction machinery and Liebherr's operational knowledge brand wide. "All users involved in a project can collaboratively access the current energy requirements stored in the app for each construction phase and, based on the available grid connections, select and plan an appropriate additional energy storage system or power source to supply the machines in an efficiency-optimised manner," summarises Zell. Thus, the Energy Planner significantly increases planning security, as well as the smooth and efficient sequence of construction activities.

About the Liebherr-Components AG

In this segment, the Liebherr Group specialises in the development, design, manufacturing of high-performance components in the fields of mechanical, hydraulic and electric drive and control technology. Liebherr-Component Technologies AG, based in Bulle (Switzerland), coordinates all activities in the components product segment.

The extensive product range includes combustion engines, injection systems, engine control units, axial piston pumps and motors, hydraulic cylinders, slewing bearings, gearboxes and winches, switchgear, electronic and power electronics components, and software. The high-quality components are used in cranes and earthmoving machinery, in the mining industry, maritime applications, wind turbines, automotive engineering or in aviation and transport technology. Synergy effects with other product segments of the Liebherr Group are used to drive continuous technological development.

About the Liebherr Group

The Liebherr Group is a family-run technology company with a highly diversified product portfolio. The company is one of the largest construction equipment manufacturers in the world. It also provides high-quality and user-oriented products and services in a wide range of other areas. The Liebherr Group includes over 140 companies across all continents. In 2024, it employed more than 49,000 staff and achieved combined revenues of over 11.6 billion euros. Liebherr was founded in Kirchdorf an der Iller in Southern Germany in 1949. Since then, the employees have been pursuing the goal of achieving continuous technological innovation, and bringing industry-leading solutions to its customers.

Images

liebherr-liduro-power-port-lpo-100.jpg
The LPO 100 series is available as a drive and basic version.

liebherr-liduro-power-port-lpo-600.jpg
The LPO 600 is equipped with DC fast charging stations (closed variant).

liebherr-liduro-power-port-lpo-600-open.jpg
This is how an open LPO 600 with fast charging stations looks like.

liebherr-lliduro-power-port-lpo-600-closed.jpg
The LPO 600 contains AC charging connections and a display (closed variant)

liebherr-liduro-power-port-lpo-600-open.jpg
This is how the LPO 600 with AC charging connections and a display looks like (open variant).

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Published by

Liebherr-Components AG
Baden / Switzerland
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