

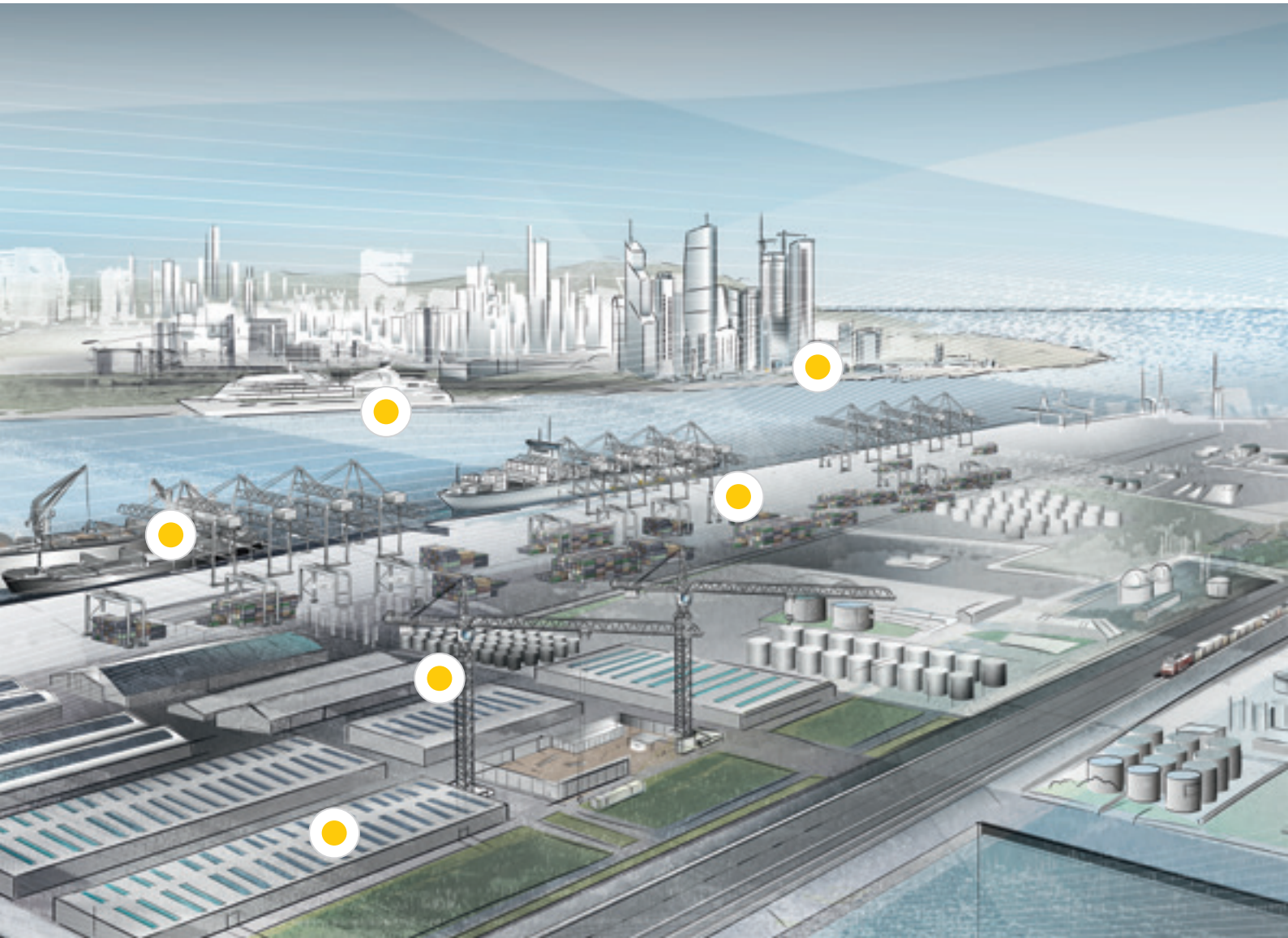
Liduro Series

Energy Storage



LIEBHERR

Energy Storage



Liduro Energy Storage: Efficient use of recuperation energy

The modular Liduro Energy Storage systems are designed for highly dynamic applications with high peak loads and variable power requirements. In drive and control systems, especially in lifting and lowering applications in industry, transport and logistics, energy costs can be reduced by 20 – 40% through the storage and efficient use of recuperative energy.

Peak shaving and downsizing

Energy cost efficiency

The storage and return of recuperation energy to the application for smoothing peak loads has a significant effect on the dimensioning and the total costs of the application. It can be downsized on various levels:

- Gensets
- Cable cross-sections
- Point of common connection
- Overall energy consumption

Extreme power density

The scalable Liduro Energy Storage systems for stationary and mobile applications are characterised by a very high power density. With their compact dimensions, they can easily be integrated in applications with limited space.

Reliability and application safety

The highly efficient storage and reuse of recuperation energy provides for maximum reliability and operational safety during network fluctuations and prevents applications from malfunctions related to the network supply.

Low2no maintenance

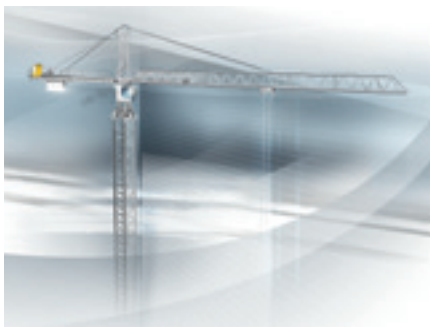
The Liduro Energy Storage system is a low2no maintenance product based on its design, quality and protection concept. It is water-cooled and hardly includes wearing parts. Continuous monitoring of the process and status information increases the intrinsic protection and extends the device's overall operating time.

Easy integration

The mechanical and electrical integration of the complete system in an application is easy: Including the storage, converter, controlling and cooling units, only the electrical power cables as well as the power supply and cooling need to be connected. A CANopen and Profinet interface is available for extended functionality.

Applications:

- Manufacturing and process industry
- Transport and logistics
- Marine and offshore
- Material handling, mining



Construction/Tower cranes



Gantry cranes



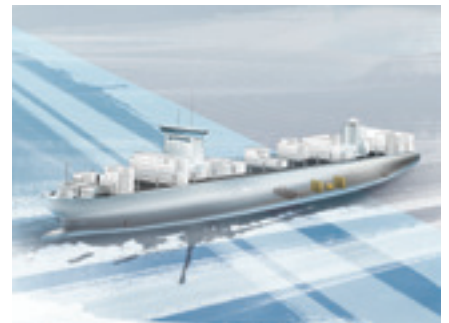
Passenger and freight elevators



Leisure: Freefall towers, gondolas, etc.

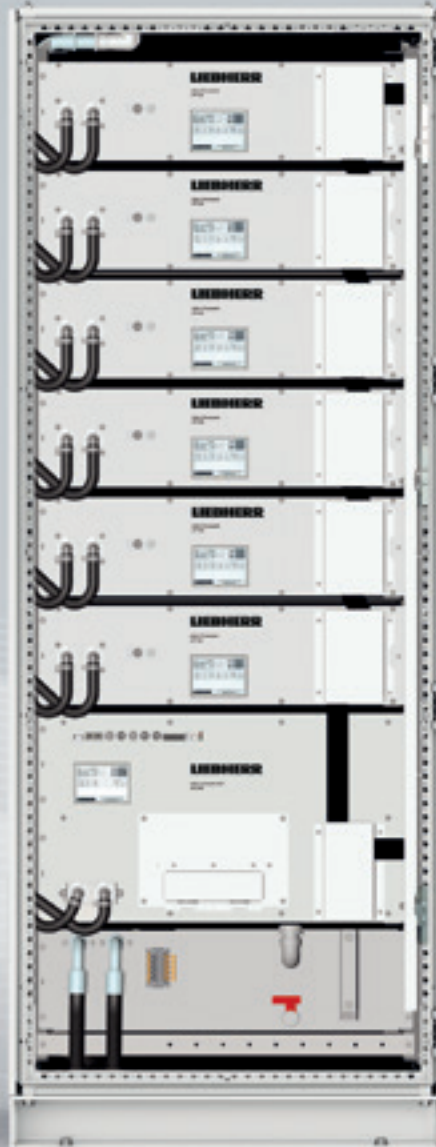


Industry: Presses, centrifuges, etc.



Cargo, passenger and specialized ships

Liduro Energy Storage



LES 300



LES 300 as a standalone system



LES 300 connected parallel



LES 300 with a frequency converter

LES 300

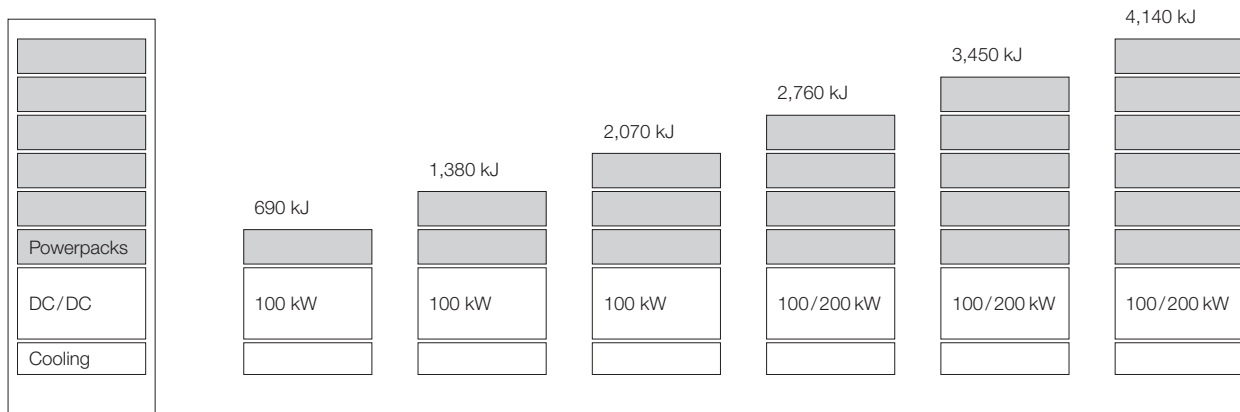
Storage medium	Double-layer capacitors
Cooling	Liquid-cooled
Energy content	690–4,140 kJ
Power output	100 kW/200 kW
Input voltage range	550–1,100 VDC
Temperature range	-20 to 45°C
Rating	IP54
Dimensions	800/600/2,000 mm (W/D/H)
Weight (maximum)	550 kg
Protocols	CANopen/Profinet

Integrated features

- Flexible energy scaling
- Integrated precharge unit
- Emergency discharge function
- Extended device protection unit
- Optional integrated cooling unit
- Five operation modes

Scalable system

The Liduro Energy Storage system can be scaled within its cabinet: Energy contents from 690 kJ to 4,140 kJ are possible as well as power outputs of 100 kW or 200 kW. Both systems, the LES 300 and LES 200, can be connected in parallel up to ten times.



Liduro Energy Storage



LES 200



LES 200: Connections



LES 200: Compact design

LES 200

Storage medium	Double-layer capacitors
Cooling	Liquid-cooled
Energy content	1,500 kJ
Power output	100 kW
Input voltage range	530–800 VDC
Temperature range	-30 to 45°C
Rating	IP65
Dimensions	750 / 1,120 / 1,100 mm (W/D/H)
Weight	500 kg
Protocols	CANopen/Profinet

Device protection and safety

The housing of the LES 200 combines utility and design. Dust and water do not pose any problem. The connection unit of the power cables and the plug interfaces are correspondingly sealed, this allowing both indoor and outdoor operation. The modern design is optimised for the high power contained in the energy storage unit.

Liduro Energy Storage systems have well thought-out protection concepts: In the event of a fault, an isolating unit with fuses and switching contacts separates the storage from the power supply. An integrated discharge unit discharges the stored energy, the status of which is visible on a display.

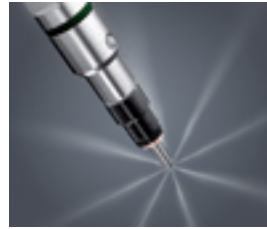
Liebherr Components



Gas engines



Diesel engines



Fuel injection systems



Axial piston hydraulics



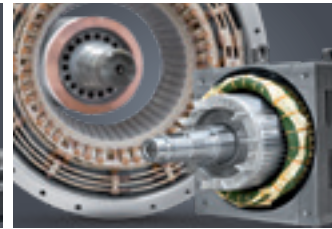
Hydraulic cylinders



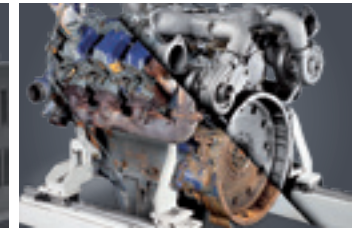
Slewing bearings



Gearboxes and winches



Electric machines



Remanufacturing



Human-machine interfaces and gateways



Control electronics and sensor technology



Power electronics



Control cabinets



Software

From A to Z – the components division of the Liebherr Group offers a broad range of solutions in the area of mechanical, hydraulic, electric and electronic drive system and control technology. The efficient components and systems are produced at a total of ten production sites around the world to the highest standards of quality. Central contact persons for all product lines are available to our customers at Liebherr-

Components AG and the regional sales and distribution branches.

Liebherr is your partner for joint success: from the product idea to development, manufacture and commissioning right through to customer service solutions like remanufacturing.

components.liebherr.com