The Liebherr Group of Companies

MACS 8.0

Wide Product Range

The Liebherr Group is one of the largest construction equipment manufacturers in the world. Liebherr's high-value products and services enjoy a high reputation in many other fields. The wide range includes domestic appliances, aerospace and transportation systems, machine tools and maritime cranes.

Exceptional Customer Benefit

Every product line provides a complete range of models in many different versions. With both their technical excellence and acknowledged quality, Liebherr products offer a maximum of customer benefits in practical application.

State-of-the-art Technology

To provide consistent, top quality products, Liebherr attaches great importance to each product area, its components and core technologies. Important modules and components are developed and manufactured in-house, for instance the entire drive and control technology for construction equipment.

Worldwide and Independent

Hans Liebherr founded the Liebherr family company in 1949. Since that time, the enterprise has steadily grown to a group of more than 130 companies with over 41,000 employees located on all continents. The corporate headquarters of the Group is Liebherr-International AG in Bulle, Switzerland. The Liebherr family is the sole owner of the company.
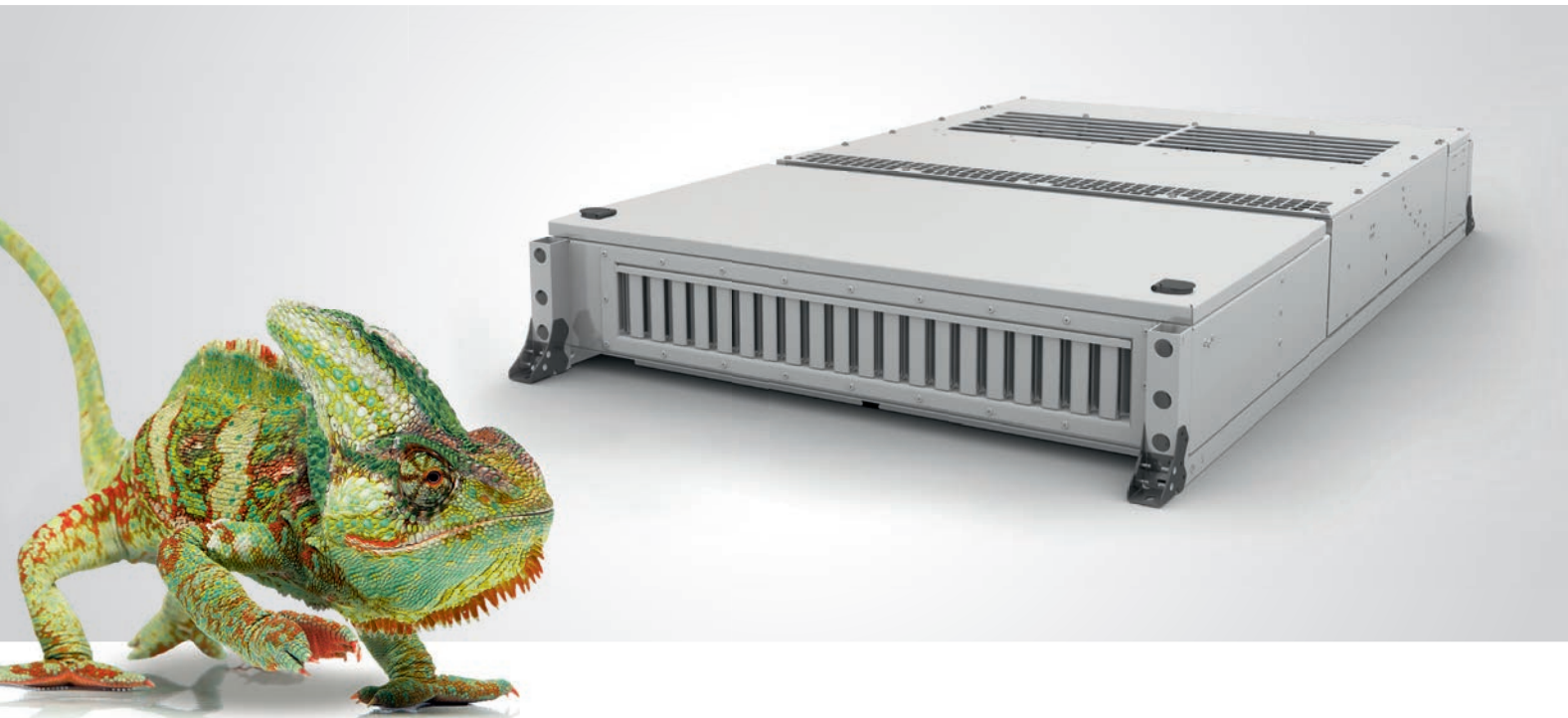
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LIEBHERR

MACS 8.0

The Universal HVAC Standard for Multiple Railway Platforms

Liebherr-Transportation Systems has developed a modular air conditioning system which responds to the most challenging market requirements of the railway industry.

MACS 8.0 provides the highest degree of standardization. The modular architecture of MACS 8.0 allows flexibility and adaptability to serve diverse rolling stock applications.

A Multi-Platform Standard

MACS 8.0 is a readily developed modular HVAC design that is suitable for different rolling stock platforms with different cooling power demands. Each module consists of identical standardized components.

		1 module	2 modules	3 modules	4 modules
length	mm	1,000	2,000	3,000	4,000
width	mm		1,600		
height	mm		220		

		1 module	2 modules	3 modules	4 modules
cooling power	kW	8	16	24	32
heating power	kW	8	16	24	32

Additional Benefits of a Standardized Design

MACS 8.0 is lighter, smaller and more energy efficient than a typical HVAC system.

Technical Features

- Flat profile: just 220 mm high
- Weighs only 125 kg per module
- 70 % greater cooling power density
- 8 % less power consumption

Flexible Configuration

The MACS 8.0 HVAC system enables flexible integration by arranging the modules in accordance with the individual car design and the required cooling power demand. The module can also be used for controlling the cab climate.

Flexible Service Concepts

Individual modules can be easily replaced for "off-car" repair. This optimizes maintenance schedules and simplifies spare parts inventory management. Liebherr offers customized service concepts to suit the operator's precise needs.

Availability Secured by Modularity

Multiple cycle redundancy ensures maximum availability. The system can continue to partially function even if one module shuts down. This ensures that unplanned downtime is kept to an absolute minimum.

Cost Efficient Operation

MACS 8.0 offers a truly customer-oriented service concept at comparable life cycle costs. In addition, it can easily reduce development time and related costs by up to 70 %. Total cost of ownership is typically 10 % lower than that of a comparable HVAC system.

A Constantly Evolving Product

MACS 8.0 is being continually developed to maintain the high maturity level of the product design and to ensure a risk free integration into any new project. Liebherr's life-cycle engineering approach provides regular product upgrades and eliminates obsolescence issues.

Future-Proofed HVAC Standard Anticipates New Cooling Technologies

Liebherr is developing CO_2-cooled modules with identical interfaces. The modular architecture of MACS 8.0 enables a small-cycle CO_2 concept, which is easy to maintain and safe in operation.

Flexible configuration of the MACS 8.0 modules