

## Short Description

# Modular Frequency Converter System



The modular cabinet frequency converter system from Liebherr is suitable for use in stationary facilities as well as for mobile applications within an enclosed cabinet housing. It is characterized not only by its great flexibility regarding the configuration of the driving or regenerative unit but also by its wide power range and a high power density. Its modular architecture allows to build a redundant system, which significantly increases the availability. For an economical and sustainable operation of the respective application, multiple units can be connected via a common DC-Link voltage bus as well as a common liquid cooling circuit.

### Features:

- High power density
- Highest level of reliability and efficiency
- High flexibility thanks to modular design
- Compact dimensions thanks to liquid cooling
- For mains energy recovery and motor operation
- Multiple motor drive possible
- Sustainable due to use of common DC bus and cooling circuit between individual frequency converter units
- Service-friendly

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# Technical Data

## Frequency Converter System <sup>1</sup>

### Technical Data

Power range	up to 2,000 kW <sup>2</sup>
Input voltage range	Motor operation: $U_N = 970$ VDC Mains energy recovery unit: $U_N = 690$ VAC, 3-phase, $\pm 15\%$
Input frequency range <sup>3</sup>	50/60 Hz
Output voltage range	Motor operation: $U_{out} = 0-650$ VAC Mains energy recovery unit: $U_{out} = 690$ VAC, 3-phase, 50/60 Hz
Output frequency range <sup>4</sup>	0-150 Hz
Maximum output current <sup>2, 4</sup>	2,000 A
Output rated current <sup>2, 5</sup>	3,200 A
Switch frequency	Variable up to 5,000 Hz
Protection class	IP54
Cooling	Liquid-cooled (water/glycol)
Communication	CAN (standard)
Motor type <sup>3</sup>	Asynchronous motors, permanently-excited synchronous motors, externally-excited synchronous motors
Control type	Torque, speed, voltage regulator for mains energy recovery
Dimensions (H x W x D)	2,000 x 800 x 600 mm
Min. weight	450 kg
Operating temperature	-20° C ... +50° C (without reduction in performance)
Operating altitude	<ul style="list-style-type: none"><li>• 2,000 m (without reduction in performance)</li><li>• Max. 5,000 m (with -1% reduction in performance per 100 m)</li></ul>
Protection functions	<ul style="list-style-type: none"><li>• Excess current</li><li>• Excess voltage</li><li>• Short circuit</li><li>• Excess speed</li><li>• Excess temperature</li><li>• Short to earth</li></ul>
Optional	<ul style="list-style-type: none"><li>• Communication: Ethernet, Ethercat, Profinet, RS485</li><li>• IEC61131-3 programming interface for application software</li></ul>

<sup>1</sup> Data relating to one switch cabinet unit

<sup>2</sup> Performance expansion through parallel connection

<sup>3</sup> Mains energy recovery only

<sup>4</sup> Motor operation only

<sup>5</sup> Motor operation only with output frequency of 3 Hz, for 10 seconds

# Technical Data

## Power Modules

**Inverter unit  
C-Series**



**Inverter unit  
A-series**



### Technical Data

Voltage class	V	380–500, 500–690	380–500, 500–690
Model		DC/AC	DC/AC
Power range	kW	110/160/200/250/315	500/710/1,000
Output frequency	Hz	0–150	0–150
Cooling		Liquid	Liquid
Temperature range	°C	-20 up to +50	-20 up to +50
Weight	kg	35	50
Dimensions (HxWxD)	mm	765x150x410	950x260x370
Protection class		IP21	IP21
Installation		Cabinet and wall mounting	Cabinet mounting

