

**Pump  
applications -  
optimally solved with  
Lenze inverters**





# Wide range of pump applications

In the past, most pumps were operated directly on the mains, but operation with frequency inverters offers significant economic advantages.

More stringent energy-efficiency requirements, greater use of synchronous motors, the desire for more precise controllability, and the possibility of using the application more intelligently, are the main drivers in this regard.

## **Decentralized flexibility**

Thanks to the high degree of protection IP66/NEMA 4X provides, the decentralized inverters of the i-series offer maximum flexibility. i550 motec for wall or motor mounting impresses with its simple cable plug-in design. This makes installation quick and error-free.

The i-series inverters increase **energy efficiency** and ensure that systems are future-proof in the face of **increasing requirements**.



# Compelling solutions with Lenze inverters

The most compact i550 protec inverter is cost-optimized and suitable for installation on the wall or on a mounting frame near the pump, if one is available.

## Energy efficiency

Lenze inverters achieve the lowest energy losses in an industry-wide comparison. This improves the increasingly important overall efficiency, simplifies cooling in the control cabinet, and ensures planning reliability in view of the

increasingly stricter requirements of the European Ecodesign Directive.

## Easiest handling

Programming without mains power, easy menu navigation, practical default settings, and plug-in connections all make the device easier to handle. It's reducing valuable time usually wasted in installation, commissioning and servicing.

## Compact size

The i550 cabinet, is just 60 mm | 2.36 in wide (up to 4 kW | 5.0 hp) and 130 mm | 5.12 in deep (up to 11 kW | 15 hp). The decentralized i550 protec with 22 kW (30 hp) in IP66/NEMA 4X is 405 mm | 9.06 in wide and 184 mm | 7.36 in deep and weighs only 10 kg | 22.5 lb.

## Our i-series solution space from 0.25 to 132 kW (0.33 to 180 hp)

### i510 cabinet i550 cabinet



Lowest investment costs for inverters

Lowest space requirement for control cabinet

### i510 protec (for UL installations)



Cubic design for control cabinet

Compact and economical for decentralized installations in accordance with NEMA Type 1

### i550 protec



Save the costs of motor cables and control cabinets

The most compact NEMA 4X/IP66 inverter allows for operation in rough environments

Optional service/disconnect switch for safe servicing

### i550 motec i650 motec



NEMA 4X/IP66 wall or motor mounting

High vibration resistance

Highest power factor of 0.95

Fast braking without brake resistor

Easiest installation

CANopen

EtherCAT

EtherNet/IP

IO-Link

Modbus

ETHERNET POWERLINK

PROFI BUS

PROFI NET



# Industry, agriculture, building services and water technology

**Lenze provides suitable inverters and in-depth expertise for the redesign of an existing system or when integrating a frequency inverter into the pump system from scratch.**

Lenze inverters offer solutions for the serial production of machines and for small installation space at an excellent price-performance ratio for the following voltages and power ratings:

- 1ph/110V to 3ph/600V
- 0.25 to 132 kW (0.33 to 180 hp)

**Lenze frequency inverters have proven themselves in this market with the following features:**

- Lowest energy losses in the motor thanks to optimized pump motor regulation (U/f Eco) and highest inverter efficiency in the market
- Robust motor control for asynchronous and permanent magnet with a higher motor frequency (50 to 300 Hz) for a more economical design of the machine
- Integrated PID controller with sleep and rinse function
- Integrated cascade function for control of up to 3 motors
- Integrated, flexible step-by-step control for recurring operation (sequencer) and relieving of higher-level control systems
- Integrated EMC filter C2 and 30 mA residual current operation; higher requirements fulfilled by optional footprint filter
- The i550 motec with integrated 24V IO feed for sensors and actuators up to 400 mA and IO-Link master functionality



# Fully scalable – in terms of power and function

**For every application**, we offer the right inverter. Here are some possible applications.

## **Mobile pumps**

These are often used in the beverage and food industries, and the decentralized i550 protec is a good choice due to its high IP66/ NEMA 4X protection rating. It is easy to install and operate, and has a particularly compact design.

## **Dosing pump systems**

Control cabinet space is often very limited in these applications, which is why the slim i510 cabinet inverter is recommended for

optimal space utilization. It is characterized by a low power loss. Installation is quick and easy thanks to the plug-in connection terminals.

## **Progressive cavity pumps**

Pumps for processing wastewater and industrial fluids usually require higher outputs of between 11 to 75 kW | 15 to 100 hp. They are often mounted as a stand-alone module on a mounting frame. The i550 protec with a IP66/55/NEMA 4X/12 rating and the optional expansion box is suitable for this. It can certainly replace an expensive control cabinet.

## **Hydraulic pump units**

The mechanical design of hydraulic units for presses, machine tools and lifting platforms is extremely compact and simple, and receives optimal support from the motor-mounted i550 motec – as shown in the graphic below.



## **Quickly installed**

This pump is controlled with the i550 motec, which offers a **variety of potential savings** for our customers: maximum efficiency, fast installation time thanks to plug technology, no need for expensive motor cables, and **easy commissioning via RFID or USB**. A drive package consisting of a Lenze motor and inverter further facilitates handling, especially with the compact 120-Hz MF motor.



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