MF Three-phase motors

+i550 motec

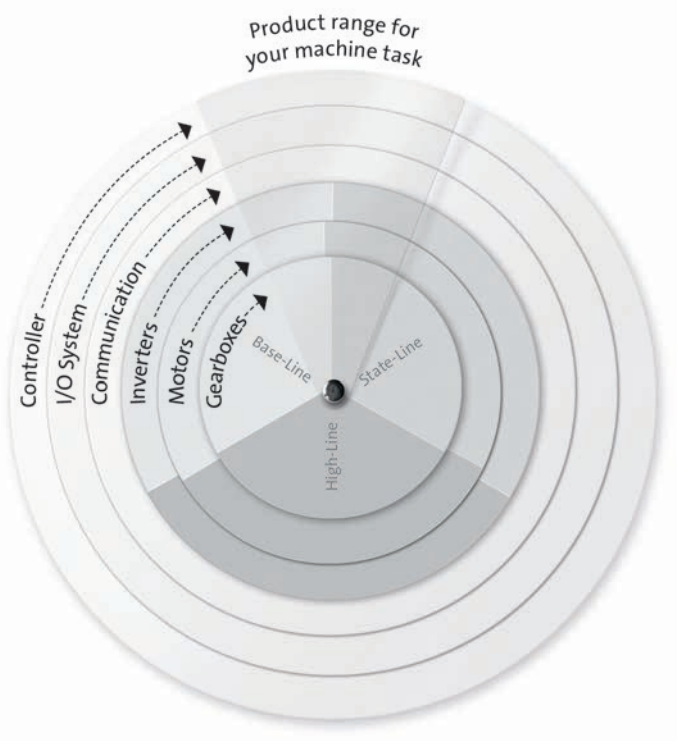
A matter of principle: the right products for every application.

Lenze's extensive L-force product portfolio follows a very simple principle. The functions of our finely scaled products are assigned to the three lines Base-Line, State-Line or High-Line.

But what does this mean for you? It allows you to quickly recognise which products represent the best solution for your own specific requirements.

Powerful products with a major impact:
- Easy handling
- High quality and durability
- Reliable technologies in tune with the latest developments

Lenze products undergo the most stringent testing in our own laboratory. This allows us to ensure that you will receive consistently high quality and a long service life. In addition to this, five logistics centres ensure that the Lenze products you select are available for quick delivery anywhere across the globe. It's as easy as that!



Compact and dynamic for inverter operation.

Dynamic, inverter-optimised three-phase AC motor for variable movements.
Power range:
0.55 to 22 kW (1.53 to 59.2 Nm)

This high-efficiency powerhouse is ideally suited to: applications that require large setting ranges in conjunction with compact dimensions.

Features

- More dynamic than a conventional three-phase AC motor
- More energy-efficient than IE2
- Available in the models B3, B5, B14 (4-pole) and as geared motors (2-pole, 4-pole and 6-pole)
- Setting range during inverter operation up to 1:24 with constant torque
- Enclosure IP55
- Inverter-compatible windings as standard

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Specifications Inverter operation at 120 Hz

Size		063	071	080	090	100	112	132
Rated power	P [kW]	0.55 0.75	1.1 1.5	2.2 3	4	5.5 7.5	11	15 18.5 22
Rated current	I [A]	1.8 2.3	3.2 3.9	5.3 6.6	8.5	12.9 15.9	23.5	31.2 39 44.5
Rated torque	M [Nm]	1.53 2.11	3.01 4.15	6 8.2	10.9	14.9 20.3	29.7	40.3 49.6 59.2
Rated speed	n [rpm]	3440 3400	3490 3450	3500 3480	3480	3525 3515	3530	3560 3560 3550

The modular system for your application

Thanks to their flexible modular design, the three-phase AC motors are ideal for use with any application:

- Brake attachments
  - Scalable braking torques
  - Long-life design
  - Various controls
- Feedback systems
  - Resolver
  - Incremental encoder
  - Absolute value encoder
- Self-ventilated or separate blower
- Connection options
  - Plug connectors
  - Terminal box
- Various thermal sensors

Other properties

Degree of protection	
EN 60529	IP55
Energy efficiency class	
	Better than IE2
Approvals	
	cURus, EAC, CCC and UkrSepro
Temperature class	
IEC / EN 60034-1 utilisation	B
IEC / EN 60034-1 insulation system	F
Climatic conditions	
Storage temperature	-30°C to +60°C
Operating temperature	-20°C to +40°C
Connection	
Power connection	Terminal box or plug connectors
Brake connection	
Blower connection	
Feedback connection	
Colour	
	Primered Uncoated Paint in various corrosion-protection designs in accordance with RAL colours

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i550/i650 motec frequency inverters

The i550 motec and i650 motec frequency inverters for wall mounting and motor mounting in protection class IP66 (UL Type 4X indoor) are the ideal decentralized drive solution. The inverters can be extended for universal use with an extension box with disconnect switch with/without Type E combination motor controller and operating elements.

Fast mounting and easy commissioning thanks to user-friendly tools as well as connections for commercially available connectors are the focus of these inverters. Parameters, drive behavior and usability correspond to our proven frequency inverters. Rounded off by high energy efficiency, we thus offer a modern and sustainable drive solution.

The i650 motec frequency inverter stands out from the i550 motec due to its extended range of functions: For simple automation tasks, a logic PLC based on CODESYS in accordance with the IEC 61131-3 standard is integrated in the i650 motec. Table positioning is available for the realization of independent axes and machine modules. The “Extended Safety“ option (safety technology with various functions) rounds off the overall package.

Highlights

- Compact solution for decentralized drive technology, wall-mounted or motor-mounted, with high protection class IP66 (UL Type 4X indoor)
- Wall-mounted expandable: Extension box with disconnect switch with/without Type E combination motor controller and operating elements
- Fast mounting due to pluggable, standardized connections (plug & play)
- Four IO-Link ports with limited IO-Link master functionality for easy data exchange between IO-Link sensors and actuators
- Integrated regenerative module for very high energy efficiency - a brake resistor is no longer required
- Extended range of functions with the i650 motec: Logic PLC, Table positioning, and Extended Safety

Inverters

	i550 motec	i650 motec
		
Design/mounting	Wall or motor	Wall or motor
Degree of protection	IP66	IP66

Mains connection/power range

	i550 motec	i650 motec
3 AC 230/240 V	0.37 ... 22 kW	0.37 ... 22 kW
3 AC 400 V	0.37 ... 45 kW	0.37 ... 45 kW
3 AC 480 V	0.37 ... 45 kW	0.37 ... 45 kW

Market approvals

	i550 motec	i650 motec
CE	✓	✓
UKCA	✓	✓
cULus	✓	✓
RoHS	✓	✓
Energy efficiency	Class IE2	Class IE2

Ambient conditions

	i550 motec	i650 motec
Degree of pollution	2	2
Vibration resistance during operation	Up to 1 g	Up to 1 g
Insulation resistance	Category III	Category III
Operation (EN 60721-3-3)	3K3 (-30 ... +60 °C)	3K3 (-30 ... +60 °C)
Derating	2.5 % / °C above 40 °C	2.5 % / °C above 40 °C
Storage (EN 60721-3-1)	1K3 (-30 ... +60°C)	1K3 (-30 ... +60°C)
Transport (EN 60721-3-2)	2K3 (-30 ... +70 °C)	2K3 (-30 ... +70 °C)

Control connections

	i550 motec	i650 motec
Digital inputs	4/3 or 8/4	8/4
Digital outputs	0/1 or 0/4	0/4
Analog inputs	-	-
Analog outputs	-	-
Relay	-	-

Operation on public supply systems

	i550 motec	i650 motec
Devices below 1 kW (EN IEC 61000-3-2)	✓	✓
Devices above 1 kW up to 16 A (EN IEC 61000-3-2)	✓	✓
Devices above 16 A up to 75 A (EN IEC 61000-3-12)	Rsce ≥ 250	Rsce ≥ 250

Communication

	i550 motec	i650 motec
EtherCAT	✓	✓
EtherNet/IP	✓	✓
IO-Link	✓ (Master)	✓ (Master)
Modbus TCP	✓	✓
PROFINET	✓	✓

Feedback

	i550 motec	i650 motec
HTL incremental encoder	✓	✓

Motor controls

	i550 motec	i650 motec
V/f characteristic control	✓	✓
Vector control for asynchronous motors	✓	✓
Vector control for synchronous motors with frequency support at low speeds	✓	✓
V/f characteristic control with feedback	✓	✓
Vector control for asynchronous motors with feedback	✓	✓

Additional functions for the motor controls

	i550 motec	i650 motec
Boost	✓	✓
Slip compensation	✓	✓
Oscillation damping	✓	✓
Torque control	✓	✓
Skip frequencies	✓	✓
Stall protection	✓	✓
Motor monitoring	✓	✓

Component control

	i550 motec	i650 motec
Fixed frequencies (jog values)	✓	✓
Motor potentiometer	✓	✓
Logic PLC		✓ (Version Logic PLC & Table positioning)
Table positioning		✓ (Version Logic PLC & Table positioning)
PID controller	✓	✓
Position counter	✓	✓
Parameter set changeover	✓	✓

Energy efficiency

	i550 motec	i650 motec
Energy-saving function "VFC eco"	✓	✓
Regenerative feedback mode	✓	✓

Additional motor functions

	i550 motec	i650 motec
Flying restart circuit	✓	✓
DC-injection brake	✓	✓
Holding brake control	✓	✓
Switching frequency setting	✓	✓

Safe stop functions

	i550 motec	i650 motec
Safe torque off (STO)	✓	✓
Safe stop 1 (SS1)	-	✓

Auxiliary and maintenance functions for functional safety

	i550 motec	i650 motec
Safe Muting (MUT)	-	✓

Safety bus

	i550 motec	i650 motec
CIP Safety	-	✓

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