

Lenze MDERA 3 phase ac motors

Fitting and maintenance instructions

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Description

Lenze MDERA are 3 phase asynchronous motors with totally enclosed fan cooled (TEFC) design. Construction in aluminium up to frame size 132 and cast iron for 160 frame and above. Motor windings are insulated to class F and standard duty rating is S1, 100% (this may vary, see motor nameplate). Enclosure is to IP55 (also may vary, see motor nameplate). Motors meet the requirement of applicable DIN and IEC standards, and conform to the Low Voltage Directive.

Installation

Mounting is possible in any orientation. B3 motors with aluminium frames (56-132) feature bolt-on feet that can be repositioned in increments of 90°. B14 motors have 8 tapped holes in the face. Use connection flanges that cover any unused holes, or separately plug them, to maintain the IP65 enclosure.

Rated powers are produced in ambient temperatures between -15 and 40°C and operation up to 1000m above sea level. Derating factors apply outside these ranges. The relative humidity should be 30-95% without condensation.

As far as possible install motors free of vibration. In the case of direct coupling, the motor needs to be accurately aligned to the driven machine. When a transmission component (clutch, pinion, pulley, etc) is to be mounted or removed from the motor shaft, use a puller to prevent damage to shaft bearings. Do not hammer.

All components mounted on the motor shaft should be balanced. The rotor is factory balanced with a half key.

Vent holes and cooling ribs should be maintained free of obstruction.

For outside installation, protect from rain, snow and freezing of the fan blade.

Installation test

Before starting a new motor and after long periods of inactivity or storage, the insulation resistance of the windings is to be measured.

The resistance should be higher than 5 MΩ at 25°C ambient temperature.

If this value cannot be obtained, the winding is damp and must be dried by a skilled company.

Maintenance

The motors should always be kept clean, free from dust, oil or other grime.

As a good rule it is recommended to periodically check:

- the motor operates without any vibrations or unusual noises.
- the tension of any driving belt is correct,
- the ventilation inlet is not obstructed causing overheating of the windings

Storage & transport

Motors should be protected against shocks and mechanical damage. Store in a dry place. Never leave motors resting on the fan cowl.

Thermal protection

Up to 132 frame a Klixon thermal switch is fitted. From 160 frame, three PTC thermistors are fitted in the windings. Separate terminals are provided in the terminal box, and a M16 gland allows external connection.

For direct starting the motors should have a triple-pole protection switch, and an additional motor protection switch for star-delta starting is recommended.

Commissioning

Putting motors into service should be done by skilled personnel working to the appropriate local safety standards.

Match the supply to the motor nameplate data, as standard:

Up to 3kW	- 230/400V/3 phase/50Hz +/- 10%
	- 277/480V/3 phase/60Hz +/- 10%
4kW and above	- 400V Δ /3 phase/50Hz +/- 10%
	- 480V Δ /3 phase/60Hz +/- 10%

} suits star/delta starting

At 60Hz speeds increase by 20%. If voltage is not increased, output torque falls by 17% (more towards the bottom of the supply voltage range). Carefully test the direction of rotation before coupling to the machine. The direction can be reversed by exchanging the connection of 2 phases.

Inverter drives

Motors are supplied wired in star up to 3kW and delta from 4kW suitable for connection to 3 phase inverters. Up to 2.2kW single phase inverters can be used - wire the motor in delta configuration.

Self cooled motors without blowers require derating if run continuously at low speeds.

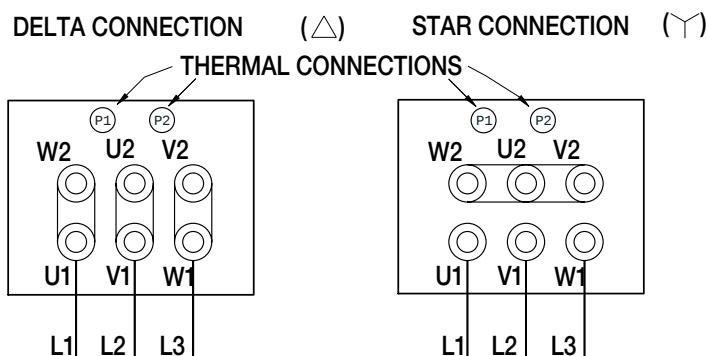
Bearings

All motors are fitted with high quality lifetime-lubricated bearings having a nominal full load rating of 20000 hours.

Up to 280 frame bearings are same size at each end:

Frame	Bearings		Frame	Bearings
56,63	6201	2RS-C3	160	6309-C3
71	6202	2RS-C3	180	6311-C3
80	6204	2RS-C3	200	6312-C3
90	6205	2RS-C3	225	6313-C3
100	6206	2RS-C3	250	6314-C3
112	6206	2RS-C3	280-2 pole	6314-C3
132	6208	2RS-C3	280-4,6 pole	6317-C3

Bearing sizes for 315 & 355 frames on request



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