Lenze three-phase AC motors are designed for operation on 230/400 V three-phase mains with Lenze 8200, 8210, 9300 vector control and motec inverters.

Please refer to the table for the rated data for operation at 50 Hz.

The motors can be operated on 60 Hz mains. The table below shows how the rated data is affected by the operating frequency.

**Rated data for operation at 50 Hz**

Type of protection: IP54, insulation class F

| Motor type | Shaft height h [mm] | Speed $n_r$ [rpm$^{-1}$] | Torque $M_r$ [Nm] | Power $P_r$ [kW] | Current I [A] | Supply voltage U [V] | Fre-quency [Hz] | Power-factor cos φ | Effici-ency h | Stalling torque $M_{stall}$ [Nm] | Starting torque $M_A$ [Nm] | Starting current $I_A/I_r$ | Moment of inertia J [kgm²] | Weight m [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDXMA 71-12 | 71 | 1355 | 1.8 | 0.25 | 0.85/1.5 | 400/230 | 50 | 0.70 | 0.61 | 3.4 | 3.4 | 3.8 | 0.0006 | 5.9 |
| MDXMA 71-32 | 71 | 1345 | 2.6 | 0.37 | 1.15/2.0 | 400/230 | 50 | 0.74 | 0.63 | 5.2 | 5.2 | 3.7 | 0.0008 | 6.6 |
| MDXMA 80-12 | 80 | 1370 | 3.9 | 0.55 | 1.6/2.8 | 400/230 | 50 | 0.78 | 0.65 | 6.8 | 6.5 | 3.8 | 0.0016 | 8.6 |
| MDXMA 80-32 | 80 | 1390 | 5.2 | 0.75 | 1.9/3.3 | 400/230 | 50 | 0.80 | 0.71 | 9.7 | 9.2 | 4.5 | 0.0019 | 9.8 |
| MDXMA 90-12 | 90 | 1405 | 7.5 | 1.1 | 2.6/4.5 | 400/230 | 50 | 0.80 | 0.77 | 21.0 | 16.5 | 4.9 | 0.0026 | 14.0 |
| MDXMA 90-32 | 90 | 1410 | 10.2 | 1.5 | 3.5/6.1 | 400/230 | 50 | 0.78 | 0.79 | 28.6 | 25.5 | 5.3 | 0.0034 | 17.2 |
| MDXMA 100-12 | 100 | 1425 | 14.7 | 2.2 | 4.8/8.3 | 400/230 | 50 | 0.80 | 0.82 | 37.8 | 35.0 | 6.1 | 0.0057 | 25.0 |
| MDXMA 100-32 | 100 | 1415 | 20.2 | 3.0 | 6.5/11.4 | 400/230 | 50 | 0.81 | 0.82 | 48.5 | 46.5 | 6.1 | 0.0065 | 26.0 |
| MDXMA 112-22 | 112 | 1435 | 26.6 | 4.0 | 8.3/14.3 | 400/230 | 50 | 0.82 | 0.85 | 73.4 | 66.5 | 6.3 | 0.0118 | 34.0 |
| MDXMA 132-12 | 132 | 1450 | 36.2 | 5.5 | 11.0/19.1 | 400/230 | 50 | 0.84 | 0.86 | 103.0 | 72.5 | 6.9 | 0.0290 | 62.0 |
| MDXMA 132-22 | 132 | 1450 | 49.4 | 7.5 | 14.6/25.4 | 400/230 | 50 | 0.85 | 0.87 | 140.0 | 107.0 | 6.7 | 0.0350 | 73.0 |
| MDXMA 160-22 | 160 | 1460 | 71.9 | 11.0 | 21.0/36.5 | 400/230 | 50 | 0.85 | 0.89 | 204.0 | 150.0 | 7.0 | 0.0610 | 110.0 |
| MDXMA 160-32 | 160 | 1460 | 98.1 | 15.0 | 27.8/48.4 | 400/230 | 50 | 0.87 | 0.90 | 288.0 | 214.0 | 7.1 | 0.0750 | 130.0 |
| MDXMA 180-12 | 180 | 1470 | 120.2 | 18.5 | 32.8/57.8 | 400/230 | 50 | 0.90 | 0.905 | 313.0 | 260.0 | 6.8 | 0.1350 | 165.0 |
| MDXMA 180-22 | 180 | 1456 | 144.3 | 22.0 | 38.8/67.4 | 400/230 | 50 | 0.90 | 0.91 | 360.0 | 330.0 | 7.3 | 0.1550 | 175.0 |

* The motors can be operated at their rated torque in the voltage range between 360 and 440 V without thermally overloading the motor.

**How operating frequency affects rated data**

| Frequency $f$ in Hz | Voltage $\frac{U}{U_n}$ in % | Power $\frac{P}{P_n}$ in % | Speed $\frac{n}{n_n}$ in % | Torque $\frac{M}{M_n}$ in % | Motor starting torque $\frac{M_A}{M_{AN}}$ in % |
|---|---|---|---|---|---|
| 50 | 100 | 100 | 100 | 100 | 100 |
| 60 | 100 | 100 | 120 | 83 | 70 |
| 60 | 120 | 120 | 120 | 100 | 100 |

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Setting the motor reference point (inverter parameter setting) to 87 Hz at a rated voltage of 400 V in a Δ-connection makes it possible to operate the motors at up to 87 Hz rated speed with the rated torque. Above the rated speed, the motors can be operated at up to the maximum speed of 4500 rpm with constant power.

Please refer to the table below for the rated data for operation at 87 Hz.

**Rated data for operation at 60 Hz**
Type of protection: IP54, insulation class F

| Motor type | Shaft height h [mm] | Speed $n_r$ [rpm] | Torque $M_r$ [Nm] | Power $P_r$ [kW] | Current I [A] | Supply voltage U [V] | Frequency [Hz] | Power factor cosφ | Efficiency h | Stalling torque $M_{stall}$ [Nm] | Starting torque $M_A$ [Nm] | Starting current $I_A/I_r$ | Moment of inertia J [kgm²] | Weight m [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDXMA 71-12 | 71 | 1655 | 1.8 | 0.31 | 0.85/1.5 | 480/277 | 60 | 0.70 | 0.61 | 3.4 | 3.4 | 3.8 | 0.0006 | 5.9 |
| MDXMA 71-32 | 71 | 1645 | 2.6 | 0.45 | 1.15/2.0 | 480/277 | 60 | 0.74 | 0.63 | 5.2 | 5.2 | 3.7 | 0.0008 | 6.6 |
| MDXMA 80-12 | 80 | 1670 | 3.9 | 0.68 | 1.6/2.8 | 480/277 | 60 | 0.78 | 0.65 | 6.8 | 6.5 | 3.8 | 0.0016 | 8.6 |
| MDXMA 80-32 | 80 | 1690 | 5.2 | 0.92 | 1.9/3.3 | 480/277 | 60 | 0.80 | 0.71 | 9.7 | 9.2 | 4.5 | 0.0019 | 9.8 |
| MDXMA 90-12 | 90 | 1705 | 7.5 | 1.3 | 2.6/4.5 | 480/277 | 60 | 0.80 | 0.77 | 21.0 | 16.5 | 4.9 | 0.0026 | 14.0 |
| MDXMA 90-32 | 90 | 1710 | 10.2 | 1.8 | 3.5/6.1 | 480/277 | 60 | 0.78 | 0.79 | 28.6 | 25.5 | 5.3 | 0.0034 | 17.2 |
| MDXMA 100-12 | 100 | 1725 | 14.7 | 2.6 | 4.8/8.3 | 480/277 | 60 | 0.80 | 0.82 | 37.8 | 35.0 | 6.1 | 0.0057 | 25.0 |
| MDXMA 100-32 | 100 | 1715 | 20.2 | 3.6 | 6.5/11.4 | 480/277 | 60 | 0.81 | 0.82 | 48.5 | 46.5 | 6.1 | 0.0065 | 26.0 |
| MDXMA 112-22 | 112 | 1735 | 26.6 | 4.8 | 8.3/14.3 | 480/277 | 60 | 0.82 | 0.85 | 73.4 | 66.5 | 6.3 | 0.0118 | 34.0 |
| MDXMA 132-12 | 132 | 1750 | 36.2 | 6.6 | 11.0/19.1 | 480/277 | 60 | 0.84 | 0.86 | 103.0 | 72.5 | 6.9 | 0.0290 | 62.0 |
| MDXMA 132-22 | 132 | 1750 | 49.4 | 9.0 | 14.6/25.4 | 480/277 | 60 | 0.85 | 0.87 | 140.0 | 107.0 | 6.7 | 0.0350 | 73.0 |
| MDXMA 160-22 | 160 | 1760 | 71.9 | 13.2 | 21.0/36.5 | 480/277 | 60 | 0.85 | 0.89 | 204.0 | 150.0 | 7.0 | 0.0610 | 110.0 |
| MDXMA 160-32 | 160 | 1760 | 98.1 | 18.0 | 27.8/48.4 | 480/277 | 60 | 0.87 | 0.90 | 288.0 | 214.0 | 7.1 | 0.0750 | 130.0 |
| MDXMA 180-12 | 180 | 1770 | 120.2 | 22.2 | 32.8/57.8 | 480/277 | 60 | 0.90 | 0.905 | 313.0 | 260.0 | 6.8 | 0.1350 | 165.0 |
| MDXMA 180-22 | 180 | 1756 | 144.3 | 26.4 | 38.8/67.4 | 480/277 | 60 | 0.90 | 0.91 | 360.0 | 330.0 | 7.3 | 0.1550 | 175.0 |

**Rated data for operation at 87 Hz**
Type of protection: IP54, insulation class F

| Motor type | Shaft height h [mm] | Speed $n_r$ [min⁻¹] | Torque $M_r$ [Nm] | Power $P_r$ [kW] | Current I [A] | Supply voltage U [V] | Frequency [Hz] | Power factor cos φ | Efficiency h | Stalling torque $M_{stall}$ [Nm] | Moment of inertia J [kgm²] | Weight m [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MDXMA 71-12 | 71 | 2475 | 1.8 | 0.47 | 1.5 | 400 | 87 | 0.66 | 0.68 | 3.8 | 0.0006 | 5.9 |
| MDXMA 71-32 | 71 | 2470 | 2.6 | 0.67 | 2.0 | 400 | 87 | 0.70 | 0.69 | 6.0 | 0.0008 | 6.6 |
| MDXMA 80-12 | 80 | 2480 | 3.9 | 1.0 | 2.8 | 400 | 87 | 0.73 | 0.77 | 8.3 | 0.0016 | 8.6 |
| MDXMA 80-32 | 80 | 2510 | 5.2 | 1.35 | 3.3 | 400 | 87 | 0.77 | 0.78 | 12.0 | 0.0019 | 9.8 |
| MDXMA 90-12 | 90 | 2520 | 7.6 | 2.0 | 4.5 | 400 | 87 | 0.77 | 0.83 | 25.0 | 0.0026 | 14.0 |
| MDXMA 90-32 | 90 | 2525 | 10.2 | 2.7 | 6.1 | 400 | 87 | 0.76 | 0.84 | 36.0 | 0.0034 | 17.2 |
| MDXMA 100-12 | 100 | 2535 | 14.7 | 3.9 | 8.3 | 400 | 87 | 0.76 | 0.84 | 47.2 | 0.0057 | 25.0 |
| MDXMA 100-32 | 100 | 2530 | 20.2 | 5.4 | 11.4 | 400 | 87 | 0.78 | 0.84 | 68.7 | 0.0065 | 26.0 |
| MDXMA 112-22 | 112 | 2545 | 26.6 | 7.1 | 14.3 | 400 | 87 | 0.83 | 0.84 | 82.5 | 0.0118 | 34.0 |
| MDXMA 132-12 | 132 | 2555 | 36.2 | 9.7 | 19.1 | 400 | 87 | 0.83 | 0.88 | 115.0 | 0.0290 | 62.0 |
| MDXMA 132-22 | 132 | 2555 | 49.4 | 13.2 | 25.4 | 400 | 87 | 0.84 | 0.89 | 148.0 | 0.0350 | 73.0 |
| MDXMA 160-22 | 160 | 2565 | 71.9 | 19.3 | 36.5 | 400 | 87 | 0.85 | 0.90 | 216.0 | 0.0610 | 110.0 |
| MDXMA 160-32 | 160 | 2565 | 98.1 | 26.4 | 48.4 | 400 | 87 | 0.86 | 0.92 | 294.0 | 0.0750 | 130.0 |
| MDXMA 180-12 | 180 | 2575 | 120.2 | 32.4 | 57.8 | 400 | 87 | 0.89 | 0.920 | 330.0 | 0.1350 | 165.0 |
| MDXMA 180-22 | 180 | 2560 | 144.3 | 38.7 | 67.4 | 400 | 87 | 0.89 | 0.920 | 378.0 | 0.1550 | 175.0 |

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