


# Country Fact Sheet Motors

## European Union



| Regional Characteristics   |   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
|----------------------------|---|------------------|-----------------------------------|------------------|--------------------------------------|------------------|--------------------------------------|------------------|---------------------------------|------------------|-------------------------|
| Voltage                    | 3 ~ 400V ± 10%<br>1 ~ 230V ± 10%  |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Frequency                  | 50 Hz   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Approval Mark              | CE Conformity   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Standard                   | EN IEC 60034  |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Regulation                 | Low Voltage Directive 2014/35/EU<br>ErP Directive 2009/125/EG<br>RoHS Directive 2011/65/EU  |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Scope                      | All machines and electronic devices which are affected by any EU Directive.   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Marking                    |    |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Energy Efficiency          | Ecodesign Directive   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Regional Standard          | Directive 2009/125/EC   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Regulation                 | Commission Regulation (EU) No. 2019/1781  |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Mandatory Efficiency Class | IE2 from 0.12 kW<br>IE3 from 0.75 kW<br>IE4 from 75 kW  |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Scope                      | <ul style="list-style-type: none"> <li>- Directive 2009/125/EC</li> <li>- Commission Regulation (EU) No. 2019/1781</li> <li>- IE2 from 0.12 kW, IE3 from 0.75 kW</li> <li>- Rated output power from 0.12 up to 1000 kW</li> <li>- Rated voltage from 50 up to 1000 V</li> <li>- Rated frequency 50 and 60 Hz</li> <li>- 2-, 4-, 6- and 8-pole</li> <li>- For continuous duty operation</li> </ul>   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Exemptions                 | <ul style="list-style-type: none"> <li>- Motors with intermittent duty like S3 (duty factor &lt; 80%) or S6 (duty factor &lt; 80%)</li> <li>- Exclusively suitable for inverter operation</li> <li>- Motors with integrated variable speed drive as integral part of the motor</li> <li>- Motors for heavy environmental conditions like ambient temperature above +60°C or below -30°C, installation altitude above 4000m</li> <li>- Motors for heavy environmental conditions like ambient temperature above +60°C or below -30°C, installation altitude above 4000m</li> <li>- Pole-changeable motors</li> <li>- Motors placed on the market before 1st July 2029 as substitutes for identical motors integrated in products placed on the market before 1st July 2022, and specifically marketed as such</li> <li>- Motors that share common components with the driven unit and cannot operate as a motor if separated from it</li> <li>- Motors specifically designed and specified to operate wholly immersed in a liquid</li> </ul> |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Marking                    | <ul style="list-style-type: none"> <li>- IE-Class</li> <li>- Nominal efficiency (η) at 50%, 75% and 100 % load</li> </ul>   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Solutions from Lenze       |   |                  |                                   |                  |                                      |                  |                                      |                  |                                 |                  |                         |
| Three-phase AC motors      | <table border="0"> <tr> <td>0.12 ... 0.55 kW</td> <td>m550-H IE2-high efficiency motors</td> </tr> <tr> <td>0.75 ... 22.0 kW</td> <td>m550-P IE3-premium efficiency motors</td> </tr> <tr> <td>30.0 ... 55.0 kW</td> <td>m540-P IE3-premium efficiency motors</td> </tr> <tr> <td>0.55 ... 22.0 kW</td> <td>MF inverter-optimized AC motors</td> </tr> <tr> <td>0.47 ... 1.36 kW</td> <td>m300 Lenze Smart Motors</td> </tr> </table>   | 0.12 ... 0.55 kW | m550-H IE2-high efficiency motors | 0.75 ... 22.0 kW | m550-P IE3-premium efficiency motors | 30.0 ... 55.0 kW | m540-P IE3-premium efficiency motors | 0.55 ... 22.0 kW | MF inverter-optimized AC motors | 0.47 ... 1.36 kW | m300 Lenze Smart Motors |
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| Asynchronous servo motors  | <table border="0"> <tr> <td>0.075 ... 0.6 kW</td> <td>SDSGA asynchronous servo motors</td> </tr> <tr> <td>0.80 ... 53.8 kW</td> <td>MCA asynchronous servo motors</td> </tr> <tr> <td>10.6 ... 60.2 kW</td> <td>MQA asynchronous servo motors</td> </tr> </table>   | 0.075 ... 0.6 kW | SDSGA asynchronous servo motors   | 0.80 ... 53.8 kW | MCA asynchronous servo motors        | 10.6 ... 60.2 kW | MQA asynchronous servo motors        |                  |                                 |                  |                         |
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| Synchronous servo motor    | <table border="0"> <tr> <td>2.00 ... 9.20 kW</td> <td>m850 synchronous servo motors</td> </tr> <tr> <td>0.25 ... 15.8 kW</td> <td>MCS synchronous servo motors</td> </tr> </table>  | 2.00 ... 9.20 kW | m850 synchronous servo motors     | 0.25 ... 15.8 kW | MCS synchronous servo motors         |                  |                                      |                  |                                 |                  |                         |
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