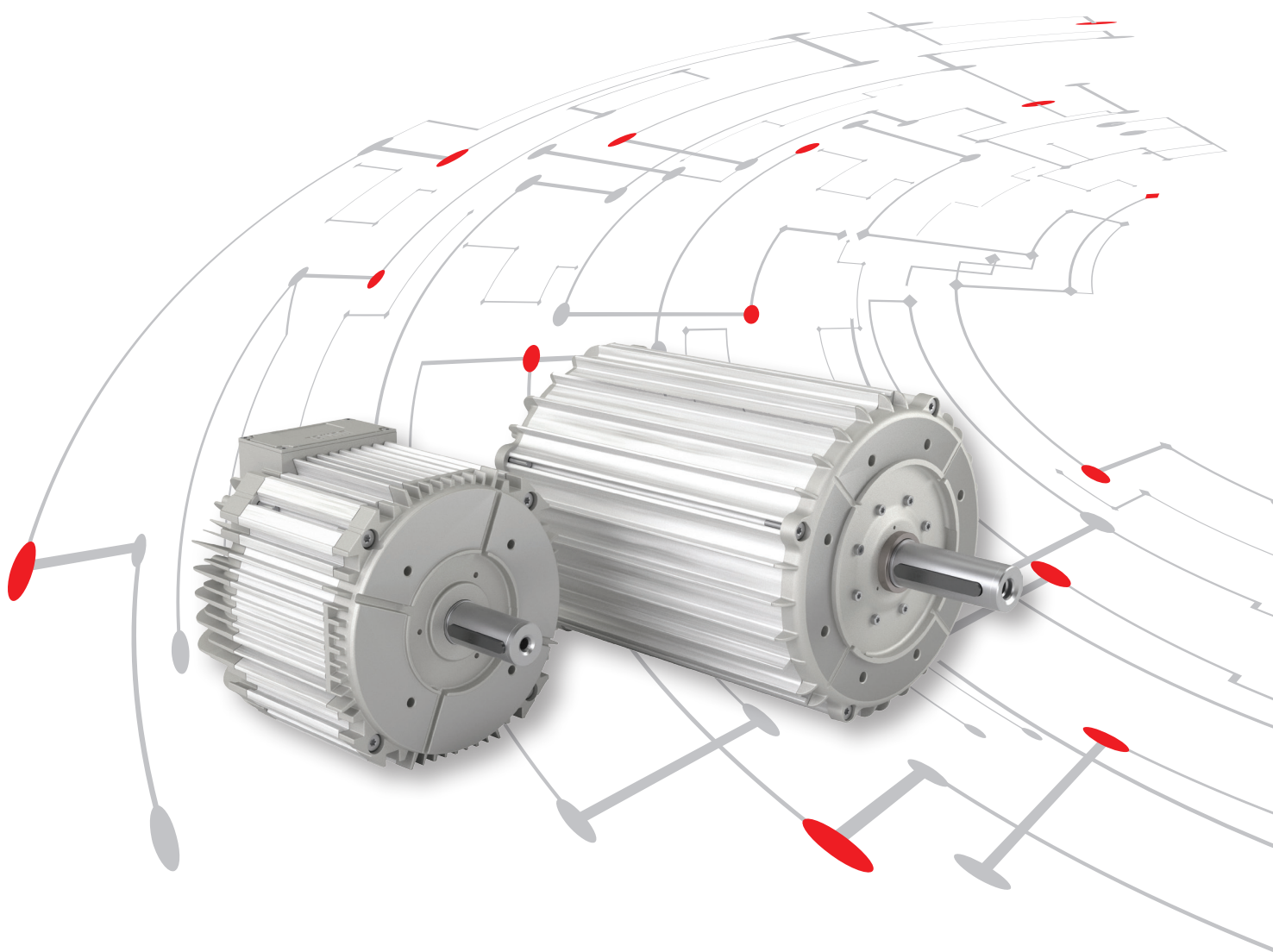


DOMEL

www.domel.com



ELECTRONICALLY COMUTATED (EC) MOTORS
PERMANENT MAGNET SYNCHRONOUS MOTORS (PMSM)

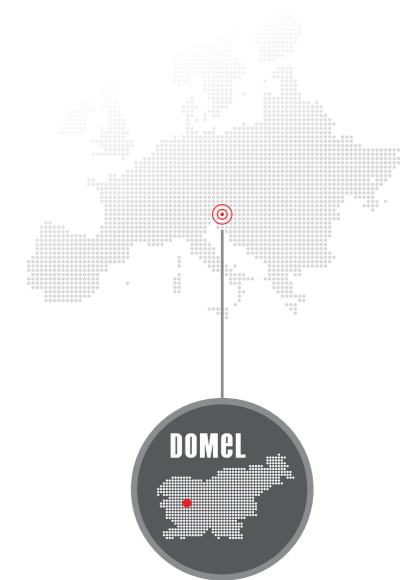
DOMEL, SLOVENIA



Domel draws its creative energy from its rich industrial tradition, and is a globally recognized developmental manufacturer and supplier of various electric motors. Through our network of representative offices, Domel is present on all of the world's leading markets and our motors are used in over 250 million appliances worldwide.

We are a developmental supplier with a clear vision and in-house development, through which we create trends and technical solutions at all levels of individual products and devices. Domel has received numerous awards from independent technical and consumer organizations, our laboratories are part of the national and international development network, we invest a great deal into social responsibility and enjoy long-standing collaboration with manufacturers in numerous branches of industry.

Our organizational structure allows us to respond flexibly to our customer's individual requirements. First-class standards are assured by our in-house quality management system, where the development phase is strongly connected to the needs of our customers. With the help of various simulation techniques we can design the right electric motor for any application. The basis of our expertise lies in our highly motivated staff, who can, by the use of modern methods and equipment, develop a state-of-the-art product.



MISSION

Domel is a socially responsible company. As a global developer and supplier of advanced solutions in the field of electric motors and components based on our own innovative technologies.

FUTURE VISION

We are global development supplier of EC systems and components and maintain a leading position as a developer in the vacuum units market.

VALUES

- Creativity and ambition
- Responsibility and economizing
- Respect and cooperation
- Customer and employee orientation
- Loyalty

FACTS ABOUT SLOVENIA

- Area: 20.273 km² (7,827 mi²)
- Population: about 2 million
- Capital city: Ljubljana
- Language: Slovenian
- Currency: euro (EUR)
- Neighboring countries: Italy, Austria, Hungary and Croatia
- Calling Code: +386
- Time Zone: Central European Time (CET) and Central European Summer Time (CEST) in summer

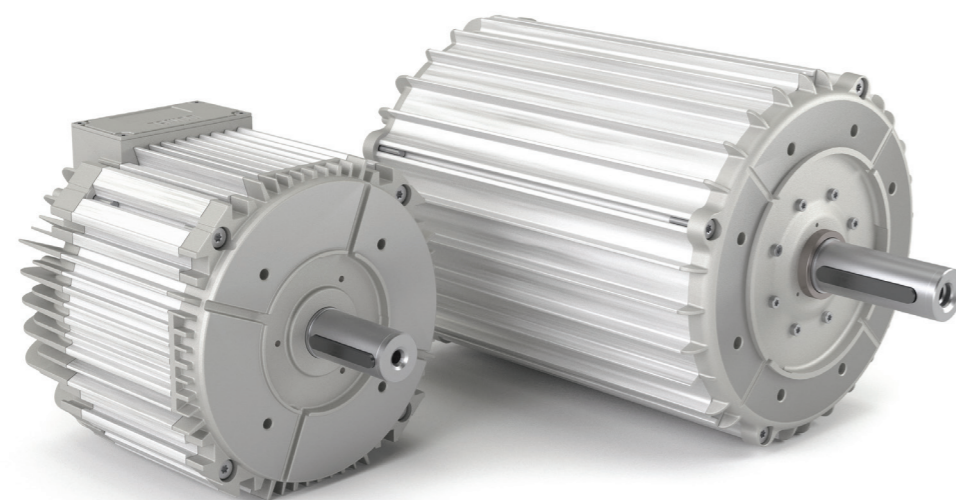
With Domel towards an energy-efficient future.

EC TECHNOLOGY

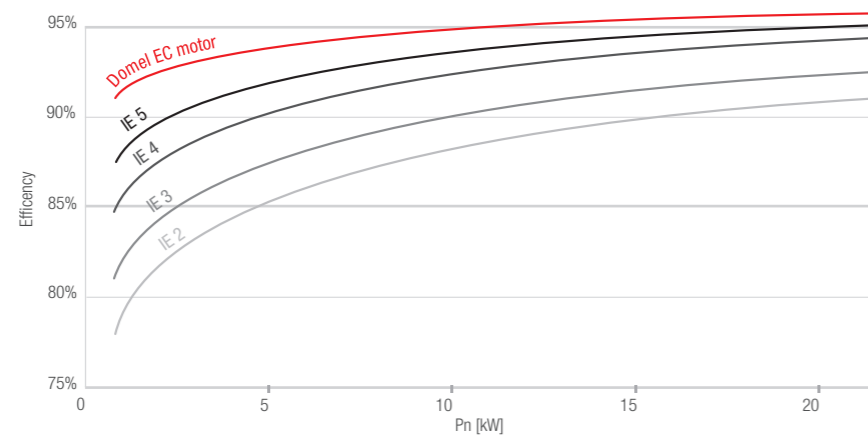
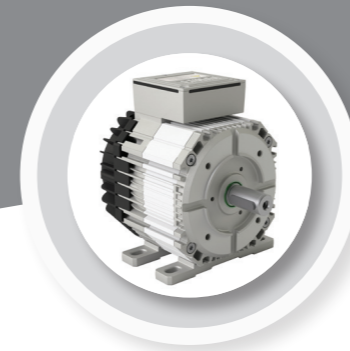


Domel has been independently developing EC motors since 1986. Over the years we have gained the knowledge and expertise of key motor technologies (stamping and molding) and enriched core R&D competences in electromagnetics, aerodynamics, acoustics, rotodynamics, power electronics, rapid prototyping and testing. With all the in-house knowhow Domel is now present in various markets where EC technology is becoming more and more noticeable.

Some of the applications where you can find Domel's EC motors are HVAC systems, gardening appliances, power tools, automotive components, white goods, vacuum cleaners, fume/smoke extraction devices, boilers, handling devices, medical and laboratory equipment, and much more ... HVAC industry users are one of the leading electricity consumers. Increased awareness about energy savings lead Domel to develop highly efficient EC motors and controllers. In 2009 serial production of EC motors for HVAC systems was industrialized. When developing highly efficient EC motors, we placed considerable emphasis on the optimum use of materials, state-of-the-art technology and long-life operation. The excellence of these motors is further enhanced by their high capacity and strongly wear-resistant housing, optimal coordination between the motor and controller, and the monitoring of the rotor position without Hall sensors. They require no maintenance since, with the exception of the bearing system, they do not contain any mechanical parts which are susceptible to wear and tear. The motors are highly efficient (up to a level of approx. 96%) and have an excellent power capability. It is worth adding that EC motors are extremely compact with very short bed length.



ENERGY SAVING

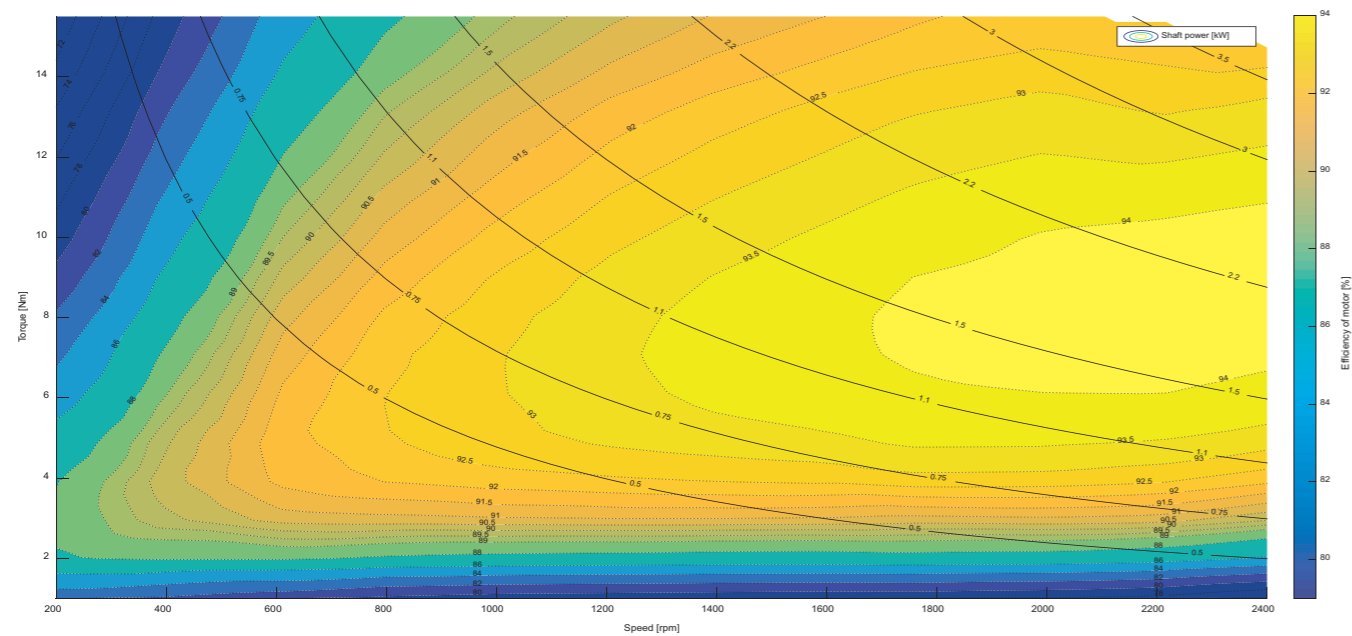


In an era of rising energy prices, concerns about reliance on gas, climate changes and environmental taxes, the awareness of the importance of the environment and energy saving has never been higher. Naturally, this trend is not only driven by increased awareness about energy saving, but also as a result of international political activities, which are becoming increasingly stringent.

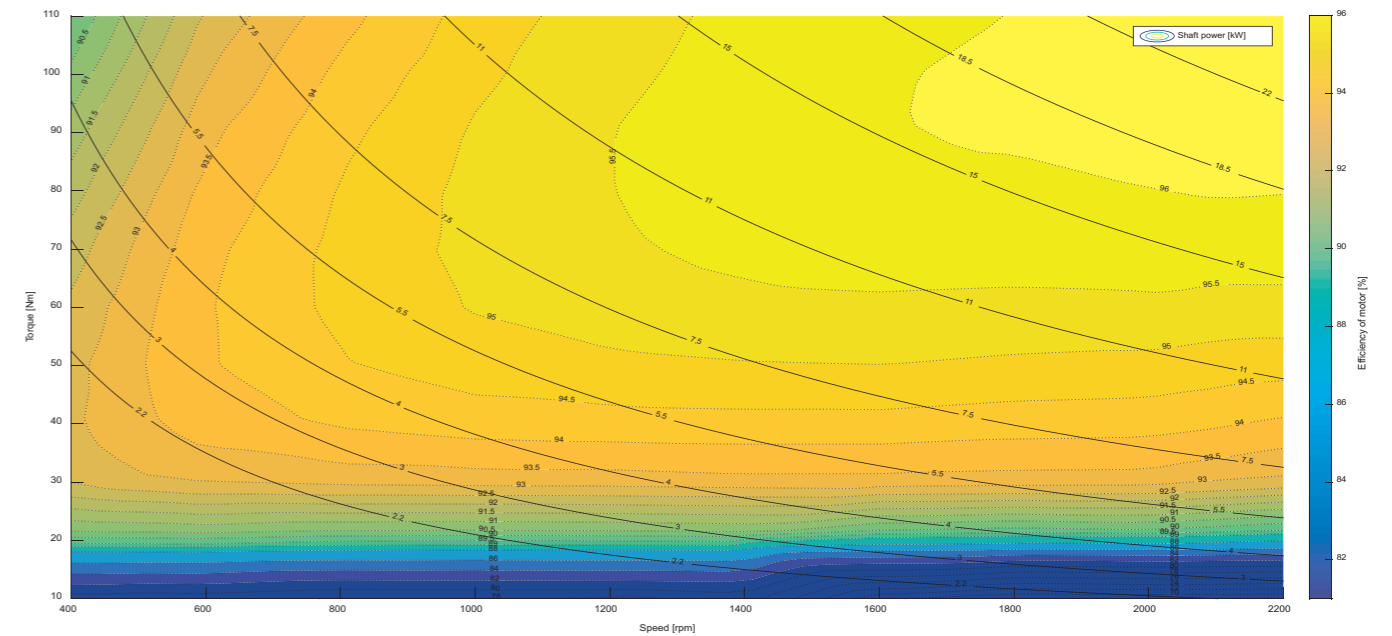
Heating, ventilation and air conditioning are among the five leading users of electricity consumption. Domel followed the trend in contributing to energy savings and, in 2009, commenced with the serial production of EC motors specifically designed for HVAC applications. These motors adhere to the regulations and directives for motor efficiency requirements and guarantee enormous energy savings and hence improved Return on Investment. The products exceed the IE5 efficiency class (according to IEC 60034-30-2).



Efficiency map of Outer Rotor Motor - ZZ150070S070



Efficiency map of Inner Rotor Motor - NZ270240S005



ENVIRONMENTAL CARE



Saving environment

In comparison to standard AC motors in the IE2 efficiency class, annual production of Domel's PMS motors additionally saves more than 100 GWh of electricity each year, which is comparable to the annual supply of a medium-sized hydro power plant.

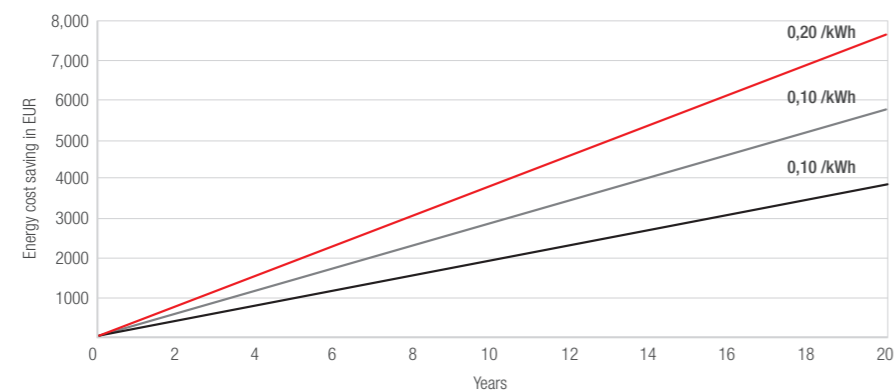
In other words, Domel annually saves about 60.000 t CO₂, which is equivalent to:

- the average generated exhaust of a vehicle traveling 300 million kilometers
- 2.200 hectares of forest preserved
- 9.500 home's electricity use.



Source: Europe's Energy Portal (www.energy.eu), Greenhouse Gas Equivalencies Calculator (www.epa.gov/energy)

Savings in EUR for 5,5 kW motor operating 4000 hours per year in comparison to AC motor (IE2)



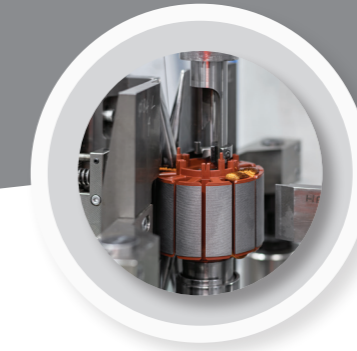
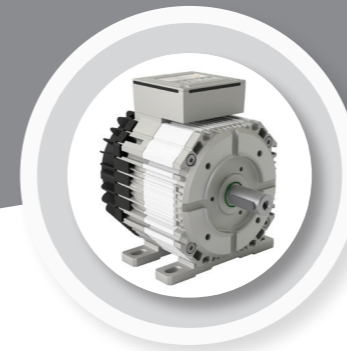
Pay attention to the lifetime operating costs

When purchasing a motor driven system, lifetime costs are of considerable importance. To only compare purchase prices is a false economy which overlooks the considerable financial benefits of the lower operating costs that may be achieved with a more efficient and quality system.

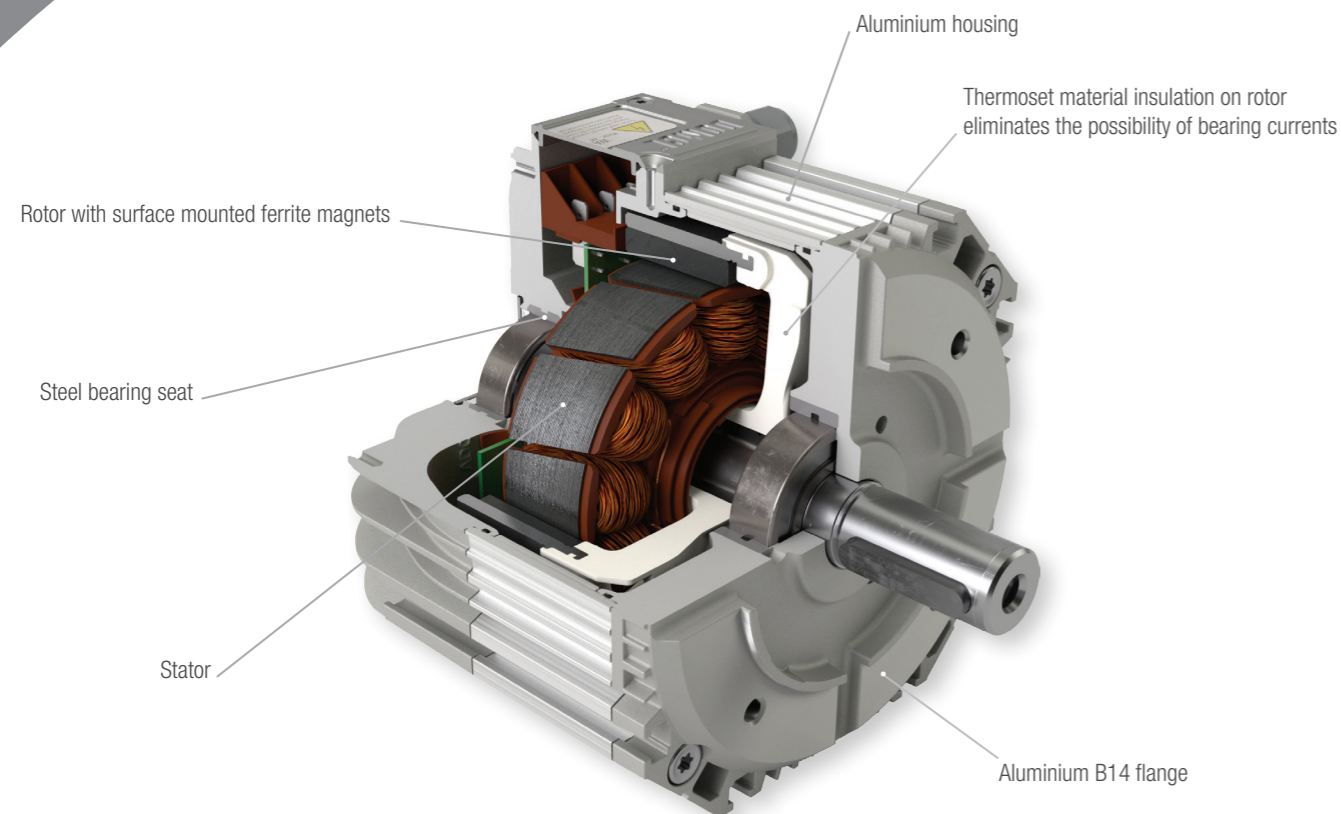
Our motors reduce operating costs by working at very high level of efficiency within a wide speed and power range. Advanced technology and state-of-the-art equipment assures highest quality and long lifetime of the product with maintenancefree operation.



OUTER ROTOR DESIGN



Outer rotor motors are available in five frame sizes: AZ 84, ZZ108, ZZ150, ZZ185 and ZZ220.



FEATURES

| | |
|------------------------------|--|
| Torque | from 1,5 Nm to 66 Nm / from 1.0 Ft-Lb to 49 Ft-Lb |
| Efficiency | all motors exceed IE5 Ultra Premium efficiency class |
| Speed | variable nominal speeds |
| Supply voltage | 110-115 VAC, 208-240 VAC, 380-480 VAC |
| Dust and humidity protection | IP54 or IP65 (with additional sealing) |
| Ambient temperature | between -40 °C and +40 °C* / between -40 °F and +120 °F * |
| Insulation class | 180 (H) |
| Temperature rise class | 80 (B) |
| Mounting | B14, B3 |
| Assembly | in Slovenia (European Union); ISO 9001, ISO 14001 and ISO/TS 16949 certified |
| Certification | CE, UL/CSA |

HIGHLIGHTS

- extremely high efficiency up to 95%
- very high efficiency throughout the entire operating area
- use of non-rare earth magnets (ferrite magnets)
- highest quality with long lifetime
- maintenance-free operation
- very low noise
- low weight
- compact design
- improved Return On Investment (ROI)
- compatible with all leading controller brands

*Motors are available in two options – with or without additional cooling.

Motors without additional cooling can only be used in applications where motor is mounted into the airstream. For all other applications motor needs to be temperature tested or additional cooling is needed.

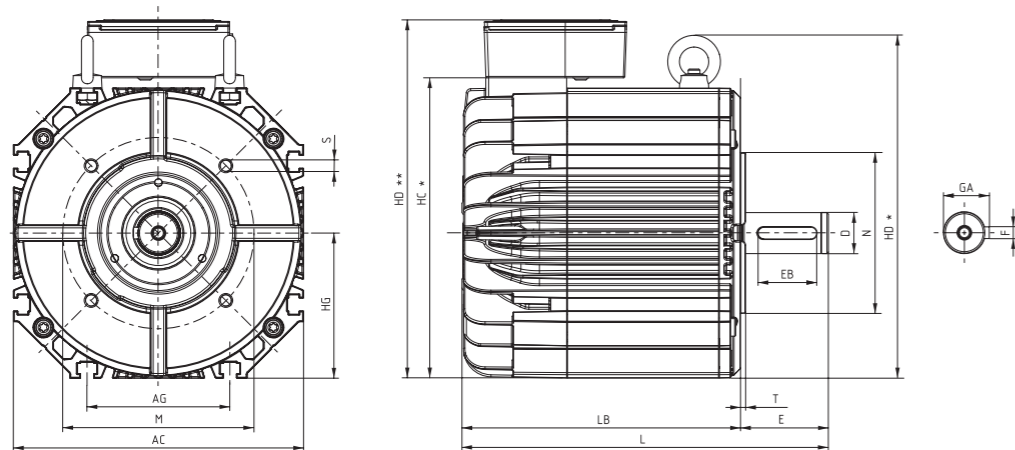
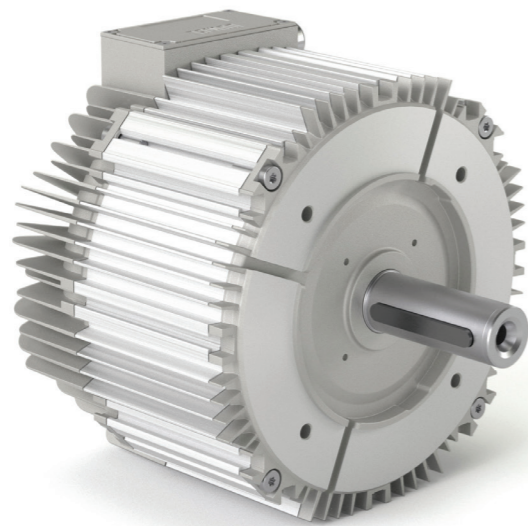
APPLICATIONS

- axial fans
- plug fans
- centrifugal fans (backward or forward curved blades)
- mixed flow fans
- pumps
- compressors
- other



EC motors require a motor controller and must not be connected directly to the AC power supply.

OUTER ROTOR MOTOR FRAME SIZES



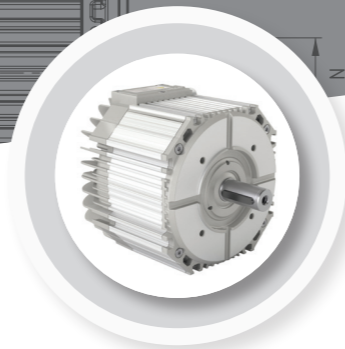
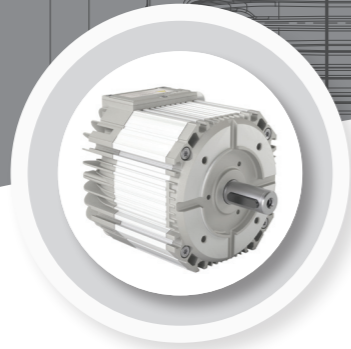
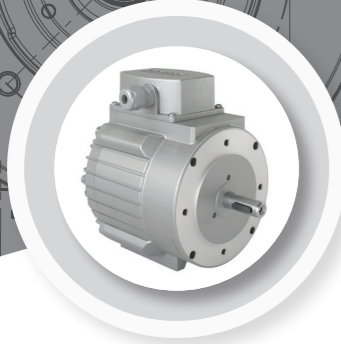
| Motor Type | IEC Frame | AC | | AG | | LB | | | | L | | | |
|------------|-----------|------|--------|------|--------|-----------------|--------|--------------|--------|-----------------|--------|--------------|--------|
| | | | | | | without cooling | | with cooling | | without cooling | | with cooling | |
| | | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] |
| AZ 84-50 | IEC 80 | 132 | 5,20 | 60 | 2,36 | 140,7 | 5,54 | 164 | 6,46 | 182 | 7,17 | 205,3 | 8,08 |
| ZZ108030 | IEC 90 | 153 | 6,02 | 76 | 2,99 | 141 | 5,55 | 179,5 | 7,07 | 191 | 7,52 | 229,5 | 9,04 |
| ZZ108055 | IEC 90 | 153 | 6,02 | 76 | 2,99 | 166 | 6,54 | 204,5 | 8,05 | 216 | 8,50 | 254,5 | 10,02 |
| ZZ150045 | IEC 112 | 198 | 7,80 | 97,5 | 3,84 | 165,15 | 6,50 | 203,2 | 8,00 | 225,15 | 8,86 | 263,2 | 10,36 |
| ZZ150070 | IEC 112 | 198 | 7,80 | 97,5 | 3,84 | 190,15 | 7,49 | 228,2 | 8,98 | 250,15 | 9,85 | 288,2 | 11,35 |
| ZZ185055 | IEC 132 | 251 | 9,88 | 144 | 5,67 | 184,2 | 7,25 | 246,2 | 9,69 | 264,2 | 10,40 | 326,2 | 12,84 |
| ZZ185080 | IEC 132 | 251 | 9,88 | 144 | 5,67 | 213,7 | 8,41 | 275,7 | 10,85 | 293,7 | 11,56 | 355,7 | 14,00 |
| ZZ185110 | IEC 132 | 251 | 9,88 | 144 | 5,67 | 243,7 | 9,59 | 305,7 | 12,04 | 323,7 | 12,74 | 385,7 | 15,19 |
| ZZ220055 | IEC 160 | 303 | 11,93 | 179 | 7,05 | 176,8 | 6,96 | 238,8 | 9,40 | 286,8 | 11,29 | 348,8 | 13,73 |
| ZZ220080 | IEC 160 | 303 | 11,93 | 179 | 7,05 | 206,3 | 8,12 | 268,3 | 10,56 | 316,3 | 12,45 | 378,3 | 14,89 |
| ZZ220110 | IEC 160 | 303 | 11,93 | 179 | 7,05 | 236,3 | 9,30 | 298,3 | 11,74 | 346,3 | 13,63 | 408,3 | 16,07 |

| Motor Type | HG | | HC * | | HD* | | HD ** | | S | M | | N | |
|------------|--------------|--------|--------------|--------|--------------|--------|--------------|--------|--------------------|------------|--------------|------|--------|
| | without feet | | without feet | | without feet | | without feet | | | [mm] | [inch] | [mm] | [inch] |
| | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | | | | | |
| AZ 84-50 | 67 | 2,64 | | | | | 169 | 6,65 | M6 (4x) M8 (4x) | 100 115 | 3,94 4,53 | 80 | 3,15 |
| ZZ108030 | 76,5 | 3,01 | 161,5 | 6,36 | 189 | 7,44 | 198,2 | 7,80 | M8 (4x) | 115 | 4,53 | 95 | 3,74 |
| ZZ108055 | 76,5 | 3,01 | 161,5 | 6,36 | 189 | 7,44 | 197,5 | 7,78 | M8 (4x) | 115 | 4,53 | 95 | 3,74 |
| ZZ150045 | 99 | 3,90 | 208,5 | 8,21 | 234 | 9,21 | 244,5 | 9,63 | M8 (4x) | 130 | 5,12 | 110 | 4,33 |
| ZZ150070 | 99 | 3,90 | 208,5 | 8,21 | 234 | 9,21 | 244,5 | 9,63 | M8 (4x) | 130 | 5,12 | 110 | 4,33 |
| ZZ185055 | 125,5 | 4,94 | 261 | 10,28 | 276,5 | 10,89 | | | M10 (4x) | 165 | 6,50 | 130 | 5,12 |
| ZZ185080 | 125,5 | 4,94 | 261 | 10,28 | 276,5 | 10,89 | | | M10 (4x) | 165 | 6,50 | 130 | 5,12 |
| ZZ185110 | 125,5 | 4,94 | 261 | 10,28 | 276,5 | 10,89 | | | M10 (4x) | 165 | 6,50 | 130 | 5,12 |
| ZZ220055 | 151,5 | 5,96 | 316,6 | 12,46 | 311,5 | 12,26 | | | M12 (4x) | 215 | 8,46 | 180 | 7,09 |
| ZZ220080 | 151,5 | 5,96 | 316,6 | 12,46 | 311,5 | 12,26 | | | M12 (4x) | 215 | 8,46 | 180 | 7,09 |
| ZZ220110 | 151,5 | 5,96 | 316,6 | 12,46 | 311,5 | 12,26 | | | M12 (4x) | 215 | 8,46 | 180 | 7,09 |

| Motor Type | T | | D | | E | | EB | | F | | GA | |
|------------|------|--------|------|--------|------|--------|------|--------|------|--------|------|--------|
| | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] |
| AZ 84-50 | 3 | 0,12 | 14 | 0,55 | 30 | 1,18 | 20 | 0,79 | 5 | 0,20 | 16 | 0,63 |
| ZZ108030 | 3 | 0,12 | 24 | 0,94 | 50 | 1,97 | 40 | 1,57 | 8 | 0,31 | 27 | 1,06 |
| ZZ108055 | 3 | 0,12 | 24 | 0,94 | 50 | 1,97 | 40 | 1,57 | 8 | 0,31 | 27 | 1,06 |
| ZZ150045 | 3,5 | 0,14 | 28 | 1,10 | 60 | 2,36 | 50 | 1,97 | 8 | 0,31 | 31 | 1,22 |
| ZZ150070 | 3,5 | 0,14 | 28 | 1,10 | 60 | 2,36 | 50 | 1,97 | 8 | 0,31 | 31 | 1,22 |
| ZZ185055 | 3,5 | 0,14 | 38 | 1,50 | 80 | 3,15 | 70 | 2,76 | 10 | 0,39 | 41 | 1,61 |
| ZZ185080 | 3,5 | 0,14 | 38 | 1,50 | 80 | 3,15 | 70 | 2,76 | 10 | 0,39 | 41 | 1,61 |
| ZZ185110 | 3,5 | 0,14 | 38 | 1,50 | 80 | 3,15 | 70 | 2,76 | 10 | 0,39 | 41 | 1,61 |
| ZZ220055 | 4 | 0,16 | 42 | 1,65 | 110 | 4,33 | 90 | 3,54 | 12 | 0,47 | 45 | 1,77 |
| ZZ220080 | 4 | 0,16 | 42 | 1,65 | 110 | 4,33 | 90 | 3,54 | 12 | 0,47 | 45 | 1,77 |
| ZZ220110 | 4 | 0,16 | 42 | 1,65 | 110 | 4,33 | 90 | 3,54 | 12 | 0,47 | 45 | 1,77 |

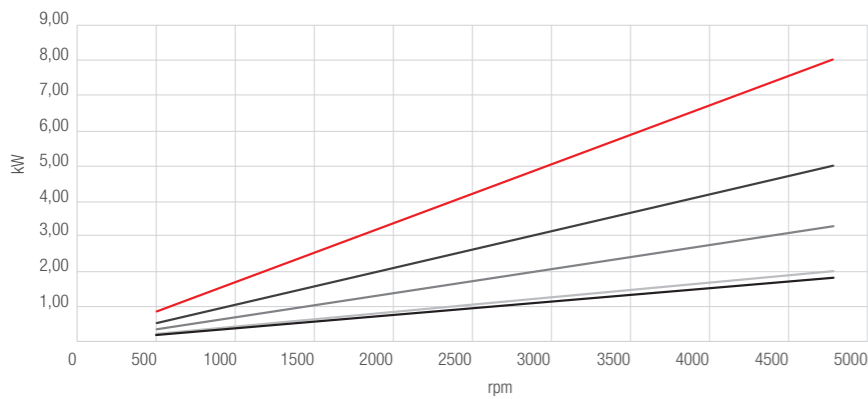
* At motors without terminal box
 ** At motors with terminal box
 Dimensions are in mm.

MOTOR'S POWER AND SPEED



Maximal powers of motors AZ 84, ZZ108 and ZZ150

Maximum speed depends on maximum output frequency of the controller (VFD). Speed curves presented in the graph apply to maximum output frequency 400 Hz.



- ZZ150070
- ZZ150045
- ZZ108055
- ZZ108030
- AZ 84-50

AZ 84

230 VAC

| Motor type | Rated power | | Motor Current [A] | Rated speed [min-1] |
|----------------|-------------|------|----------------------|------------------------|
| | [kW] | [HP] | | |
| AZ 84-XX-S140A | 0,4 | 0,5 | 1,6 | 1300 |
| AZ 84-XX-S105A | 0,5 | 0,7 | 2,2 | 1730 |
| AZ 84-XX-D140A | 0,7 | 0,9 | 2,8 | 2250 |
| AZ 84-XX-D120A | 0,8 | 1,1 | 3,3 | 2650 |
| AZ 84-XX-D105A | 0,9 | 1,2 | 3,8 | 3000 |
| AZ 84-XX-D085A | 1,2 | 1,6 | 4,7 | 3720 |
| AZ 84-XX-D070A | 1,4 | 1,9 | 5,7 | 4480 |

400 VAC

| | | | | |
|----------------|-----|-----|-----|------|
| AZ 84-XX-S140A | 0,7 | 0,9 | 1,6 | 2250 |
| AZ 84-XX-S120A | 0,8 | 1,1 | 1,9 | 2650 |
| AZ 84-XX-S105A | 0,9 | 1,2 | 2,2 | 3000 |
| AZ 84-XX-S085A | 1,2 | 1,6 | 2,7 | 3720 |
| AZ 84-XX-S070A | 1,4 | 1,9 | 3,3 | 4480 |

| | |
|-------------------|-----|
| Motor mass [kg]* | 4,9 |
| Motor mass [Lbs]* | 11 |

* Motor mass may vary due to additional construction differences between motors.

*Graphs present maximal curves for different motor sizes. Different motor possibilities are presented in the table. Data is informative and is subject to change without prior notice.

AZ 84, ZZ108, ZZ150

ZZ108

230 VAC

| Motor type | Rated power | | Motor Current [A] | Rated speed [min-1] | |
|-------------|-------------|------|----------------------|------------------------|------|
| | [kW] | [HP] | | | |
| ZZ108XXS160 | 0,55 | 0,7 | 2,1 | 1310 | 810 |
| ZZ108XXS120 | 0,75 | 1 | 2,8 | 1790 | 1100 |
| ZZ108XXD090 | 1,5 | 2 | 6,4 | 3580 | 2200 |
| ZZ108XXD060 | 2,2 | 2,9 | 9,7 | 5250 | 3230 |

400 VAC

| | | | | | |
|-------------|------|-----|-----|------|------|
| ZZ108XXS160 | 0,75 | 1 | 2,1 | 1790 | 1100 |
| ZZ108XXS090 | 1,5 | 2 | 3,7 | 3580 | 2200 |
| ZZ108XXS060 | 2,2 | 2,9 | 5,6 | 5250 | 3230 |
| ZZ108XXD080 | 3 | 4 | 7,2 | / | 4410 |

| | | |
|-------------------|-----|-----|
| Motor mass [kg]* | 6,5 | 8,6 |
| Motor mass [Lbs]* | 14 | 19 |

ZZ150

230 VAC

| Motor type | Rated power | | Motor Current [A] | Rated speed [min-1] | |
|-------------|-------------|------|----------------------|------------------------|------|
| | [kW] | [HP] | | | |
| ZZ150XXD180 | 1,1 | 1,5 | 4,5 | 1050 | 660 |
| ZZ150XXD120 | 1,5 | 2 | 6,6 | 1430 | 900 |
| ZZ150XXD085 | 2,2 | 2,9 | 9,4 | 2100 | 1310 |
| ZZ150XXD065 | 3 | 4 | 12,3 | 2860 | 1790 |

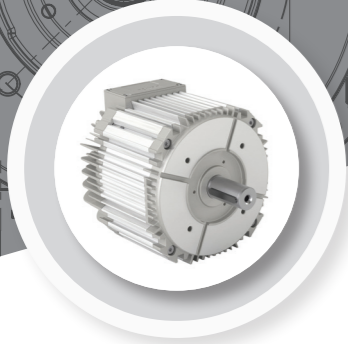
400 VAC

| | | | | | |
|-------------|-----|-----|-----|------|------|
| ZZ150XXS180 | 1,1 | 1,5 | 2,6 | 1050 | 660 |
| ZZ150XXS120 | 1,5 | 2 | 3,8 | 1430 | 900 |
| ZZ150XXS085 | 2,2 | 2,9 | 5,4 | 2100 | 1310 |
| ZZ150XXS065 | 3 | 4 | 7,1 | 2860 | 1790 |
| ZZ150XXD080 | 4 | 5 | 10 | 3820 | 2390 |
| ZZ150XXD060 | 5,5 | 7,5 | 13 | 5250 | 3280 |

| | | |
|-------------------|------|----|
| Motor mass [kg]* | 13,5 | 17 |
| Motor mass [Lbs]* | 30 | 37 |

* Motor mass may vary due to additional construction differences between motors.

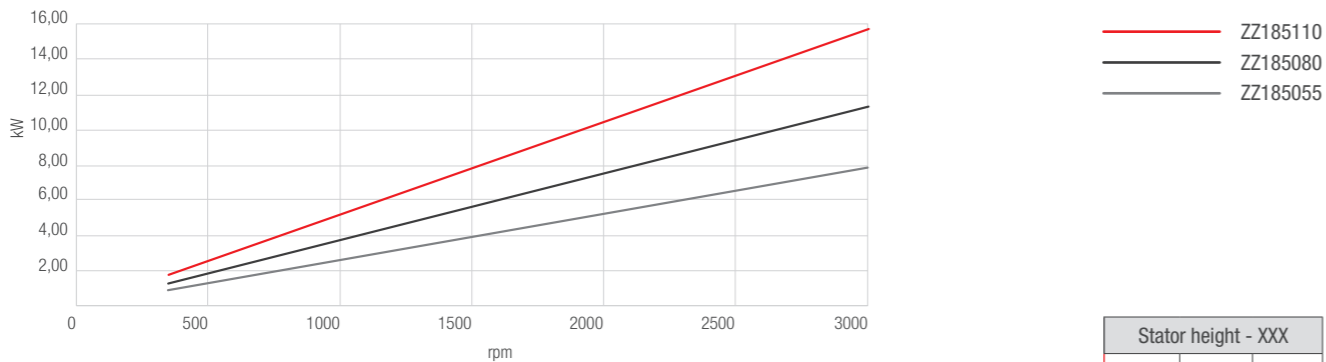
MOTOR'S POWER AND SPEED



ZZ185

Maximal powers of motors ZZ185

Maximum speed depends on maximum output frequency of the controller (VFD). Speed curves presented in the graph apply to maximum output frequency 400 Hz.



ZZ185

Torque [Nm]
Torque [Ft-Lb]

| Stator height - XXX | | |
|---------------------|-----|-----|
| 055 | 080 | 110 |
| 25 | 36 | 50 |
| 18 | 27 | 37 |

230 VAC

| Motor type | Rated power | | Motor Current [A] | Rated speed | | |
|-------------|-------------|------|-------------------|-------------|------|------|
| | [kW] | [HP] | | [min-1] | | |
| ZZ185XXD090 | 2,5 | 3 | 9,8 | 950 | 660 | 480 |
| ZZ185XXD070 | 3 | 4 | 12,5 | 1150 | 800 | 570 |
| ZZ185XXD055 | 4 | 5 | 16,1 | 1530 | 1060 | 760 |
| ZZ185XXD040 | 5,5 | 8 | 22,1 | 2100 | 1460 | 1050 |
| ZZ185XXD030 | 7,5 | 10 | 29,5 | 2860 | 1990 | 1430 |

400 VAC

| | | | | | | |
|-------------|-----|----|------|------|------|------|
| ZZ185XXS090 | 2,5 | 3 | 5,7 | 950 | 660 | 480 |
| ZZ185XXS070 | 3 | 4 | 7,2 | 1150 | 800 | 570 |
| ZZ185XXS055 | 4 | 5 | 9,3 | 1530 | 1060 | 760 |
| ZZ185XXS040 | 5,5 | 8 | 12,8 | 2100 | 1460 | 1050 |
| ZZ185XXS030 | 7,5 | 10 | 17 | 2860 | 1990 | 1430 |
| ZZ185XXD035 | 11 | 15 | 24 | / | 2920 | 2100 |

460 VAC

| | | | | | | |
|-------------|-----|----|------|------|------|------|
| ZZ185XXS100 | 2,5 | 3 | 5,1 | 950 | 660 | 480 |
| ZZ185XXS085 | 3 | 4 | 6 | 1150 | 800 | 570 |
| ZZ185XXS065 | 4 | 5 | 7,9 | 1530 | 1060 | 760 |
| ZZ185XXS045 | 5,5 | 8 | 11,4 | 2100 | 1460 | 1050 |
| ZZ185XXS035 | 7,5 | 10 | 14,6 | 2860 | 1990 | 1430 |
| ZZ185XXD040 | 11 | 15 | 22,1 | / | 2920 | 2100 |

| | | | | |
|-------------------|--|----|----|----|
| Motor mass [kg]* | | 24 | 29 | 35 |
| Motor mass [Lbs]* | | 53 | 64 | 77 |

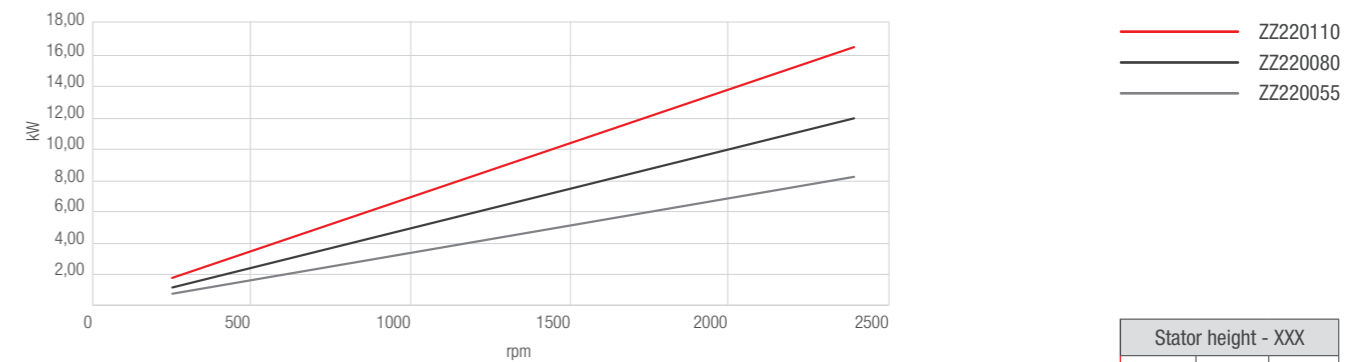
* Motor mass may vary due to additional construction differences between motors.



ZZ220

Maximal powers of motors ZZ220

Maximum speed depends on maximum output frequency of the controller (VFD). Speed curves presented in the graph apply to maximum output frequency 400 Hz.



ZZ220

Torque [Nm]
Torque [Ft-Lb]

| Stator height - XXX | | |
|---------------------|-----|-----|
| 055 | 080 | 110 |
| 33 | 48 | 66 |
| 24 | 35 | 49 |

230 VAC

| Motor type | Rated power | | Motor Current [A] | Rated speed | | |
|-------------|-------------|------|-------------------|-------------|------|------|
| | [kW] | [HP] | | [min-1] | | |
| ZZ220XXD075 | 2,5 | 3 | 9,9 | 720 | 500 | 360 |
| ZZ220XXD060 | 3 | 4 | 12,4 | 870 | 600 | 430 |
| ZZ220XXD045 | 4 | 5 | 15,6 | 1160 | 800 | 580 |
| ZZ220XXD035 | 5,5 | 8 | 21,2 | 1590 | 1090 | 800 |
| ZZ220XXP050 | 7,5 | 10 | 29,7 | 2170 | 1490 | 1090 |

400 VAC

| | | | | | | |
|-------------|-----|----|------|------|------|------|
| ZZ220XXS060 | 3 | 4 | 7,2 | 870 | 600 | 430 |
| ZZ220XXS045 | 4 | 5 | 9,5 | 1160 | 800 | 580 |
| ZZ220XXS035 | 5,5 | 8 | 12,3 | 1590 | 1090 | 800 |
| ZZ220XXD045 | 7,5 | 10 | 16,5 | 2170 | 1490 | 1090 |
| ZZ220XXZ035 | 11 | 15 | 24,5 | 3180 | 2190 | 1590 |
| ZZ220XXP045 | 15 | 20 | 33 | / | 2980 | 2170 |

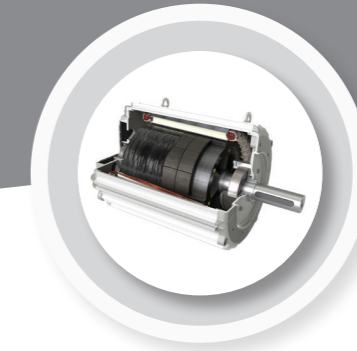
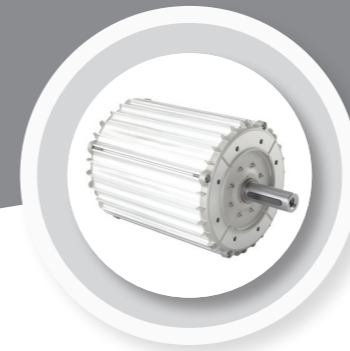
460 VAC

| | | | | | | |
|-------------|-----|----|------|------|------|------|
| ZZ220XXS070 | 3 | 4 | 6,1 | 870 | 600 | 430 |
| ZZ220XXS055 | 4 | 5 | 7,8 | 1160 | 800 | 580 |
| ZZ220XXS040 | 5,5 | 8 | 10,7 | 1590 | 1090 | 800 |
| ZZ220XXS060 | 7,5 | 10 | 14,3 | 2170 | 1490 | 1090 |
| ZZ220XXD034 | 11 | 15 | 21,9 | 3180 | 2190 | 1590 |
| ZZ220XXP050 | 15 | 20 | 29,7 | / | 2980 | 2170 |

| | | | | |
|-------------------|--|----|----|----|
| Motor mass [kg]* | | 27 | 34 | 40 |
| Motor mass [Lbs]* | | 60 | 75 | 88 |

* Motor mass may vary due to additional construction differences between motors.

INNER ROTOR DESIGN



Inner rotor motors are available in one frame size: NZ270.

FEATURES

| | |
|------------------------------|--|
| Torque | from 40 Nm to 140 Nm / from 30 Ft-Lb to 103 Ft-Lb |
| Efficiency | all motors exceed IE5 Ultra Premium efficiency class |
| Speed | variable nominal speeds |
| Supply voltage | 208-240 VAC, 380-480 VAC, 500-600 VAC |
| Dust and humidity protection | IP54 or IP65 (with additional sealing) |
| Ambient temperature | between -40 °C and + 40 °C* / between -40 °F and 104 °F* |
| Insulation class | 155 (F) |
| Temperature rise class | 80 (B) |
| Mounting | B14 |
| Assembly | in Slovenia (European Union); ISO 9001, ISO 14001 and ISO/TS 16949 certified |
| Certification | CE, UL/CSA |

HIGHLIGHTS

- extremely high efficiency up to 96%
- very high efficiency throughout the entire operating area
- use of non-rare earth magnets (ferrite magnets)
- highest quality with long lifetime
- maintenance-free operation
- very low noise
- low weight
- compact design
- improved Return On Investment (ROI)
- compatible with all leading controller brands

*Motors are available in two options – with or without additional cooling.

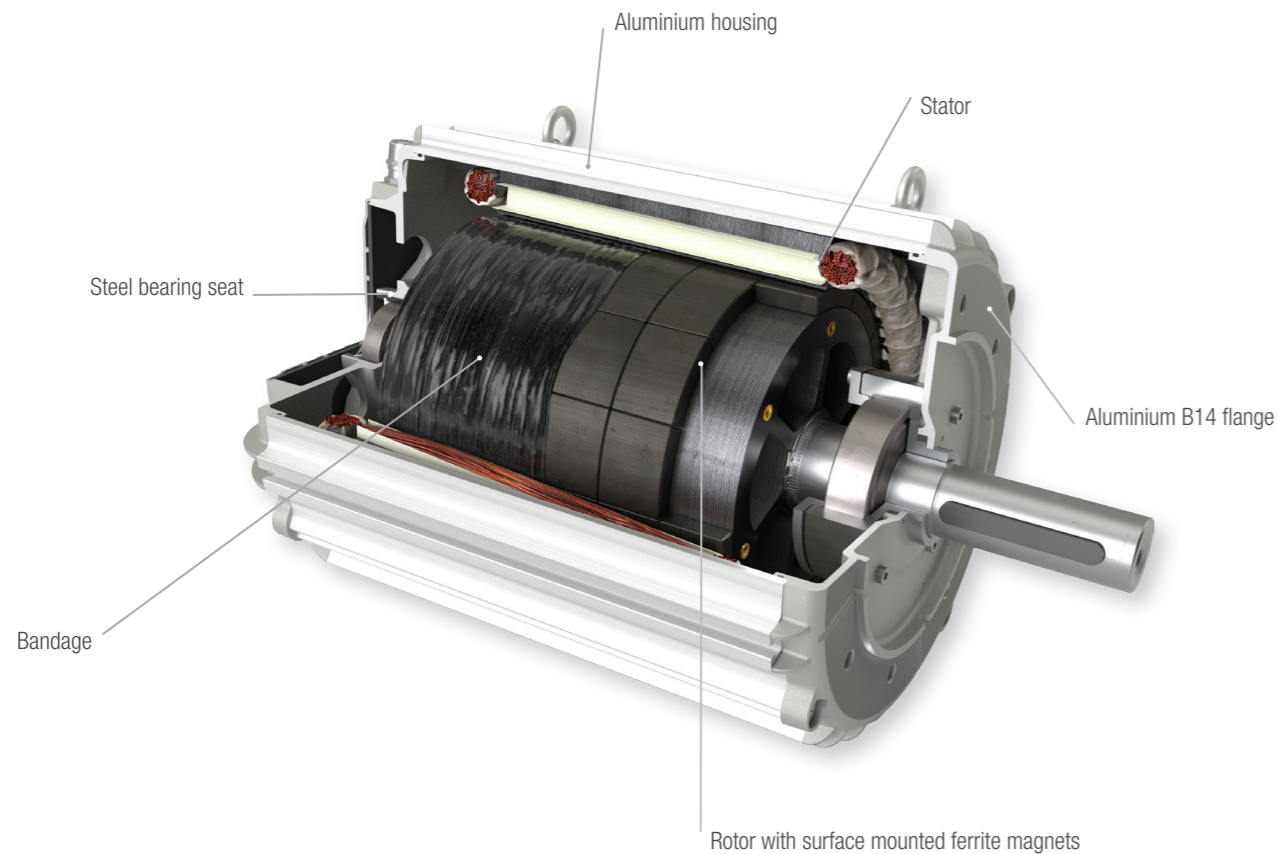
Motors without additional cooling can only be used in applications where motor is mounted into the airstream. For all other applications motor needs to be temperature tested or additional cooling is needed.

APPLICATIONS

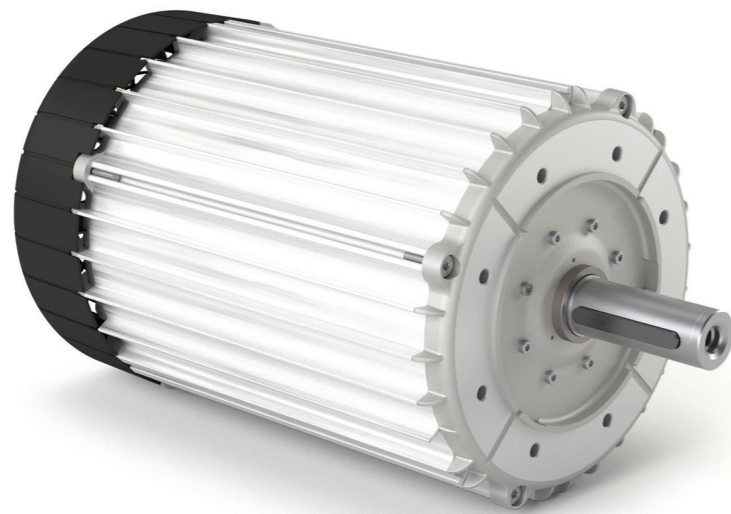
- axial fans
- plug fans
- centrifugal fans (backward or forward curved blades)
- mixed flow fans
- pumps
- compressors
- other



EC motors require a motor controller and must not be connected directly to the AC power supply.

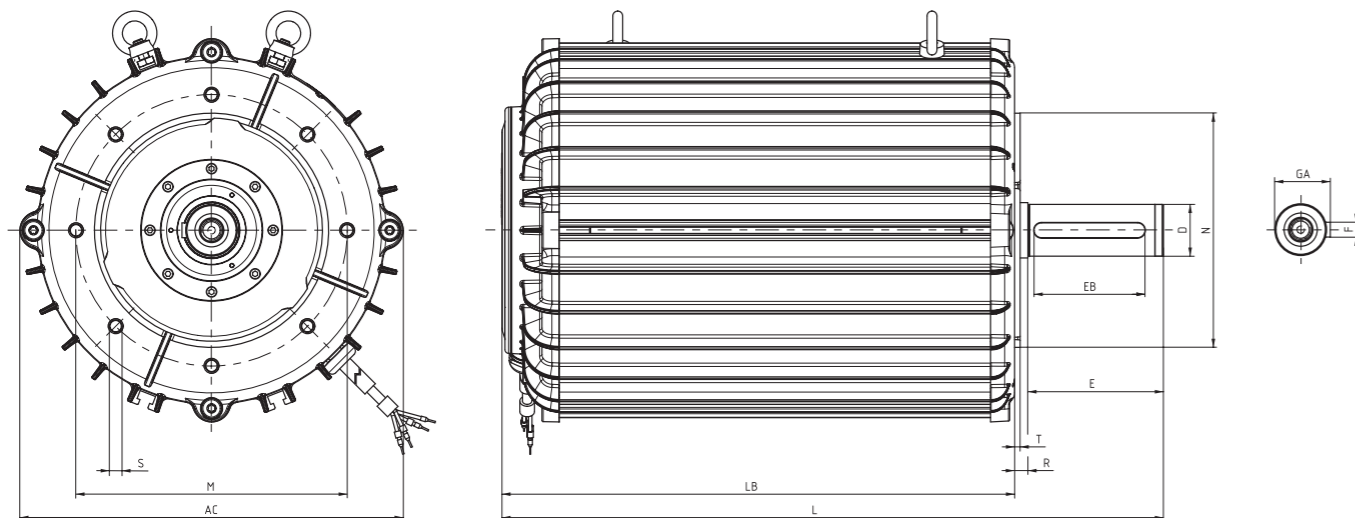


INNER ROTOR MOTOR FRAME SIZES WITH B14 FLANGE MOUNTING



| Motor Type | AC | | LB | | | | L | | | |
|------------|------|--------|-----------------|--------|--------------|--------|-----------------|--------|--------------|--------|
| | | | without cooling | | with cooling | | without cooling | | with cooling | |
| | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] |
| NZ270080 | 311 | 12,24 | 256 | 10,08 | 311,30 | 12,26 | 326,3 | 12,85 | 381,6 | 15,02 |
| NZ270120 | 311 | 12,24 | 296 | 11,65 | 351,30 | 13,83 | 366,3 | 14,42 | 421,6 | 16,60 |
| NZ270160 | 311 | 12,24 | 336 | 13,23 | 391,30 | 15,41 | 456,5 | 17,97 | 511,8 | 20,15 |
| NZ270200 | 311 | 12,24 | 376 | 14,80 | 431,30 | 16,98 | 496,5 | 19,55 | 551,8 | 21,72 |
| NZ270240 | 311 | 12,24 | 416 | 16,38 | 471,30 | 18,56 | 536,5 | 21,12 | 591,8 | 23,30 |
| NZ270280 | 311 | 12,24 | 456 | 17,95 | 511,30 | 20,13 | 576,5 | 22,70 | 631,8 | 24,87 |

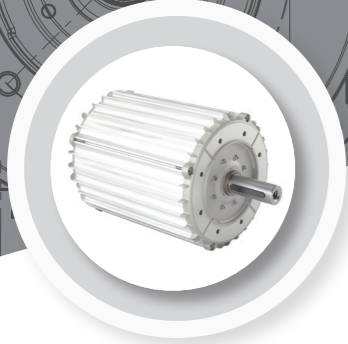
| Motor Type | S | M | | N | | T | | R | |
|------------|----------|----------|--------|------|--------|------|--------|------|--------|
| | | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] |
| | NZ270080 | M12 (8x) | 220 | 8,66 | 190 | 7,48 | 4,5 | 0,18 | 10,3 |
| NZ270120 | M12 (8x) | 220 | 8,66 | 190 | 7,48 | 4,5 | 0,18 | 10,3 | 0,41 |
| NZ270160 | M12 (8x) | 220 | 8,66 | 190 | 7,48 | 4,5 | 0,18 | 10,5 | 0,41 |
| NZ270200 | M12 (8x) | 220 | 8,66 | 190 | 7,48 | 4,5 | 0,18 | 10,5 | 0,41 |
| NZ270240 | M12 (8x) | 220 | 8,66 | 190 | 7,48 | 4,5 | 0,18 | 10,5 | 0,41 |
| NZ270280 | M12 (8x) | 220 | 8,66 | 190 | 7,48 | 4,5 | 0,18 | 10,5 | 0,41 |



| Motor Type | D | | E | | EB | | F | | GA | |
|------------|----------|--------|------|--------|------|--------|------|--------|------|--------|
| | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] | [mm] | [inch] |
| | NZ270080 | 28 | 1,10 | 60 | 2,36 | 36 | 1,42 | 8 | 0,31 | 31 |
| NZ270120 | 28 | 1,10 | 60 | 2,36 | 36 | 1,42 | 8 | 0,31 | 31 | 1,22 |
| NZ270160 | 42 | 1,65 | 110 | 4,33 | 90 | 3,54 | 12 | 0,47 | 45 | 1,77 |
| NZ270200 | 42 | 1,65 | 110 | 4,33 | 90 | 3,54 | 12 | 0,47 | 45 | 1,77 |
| NZ270240 | 42 | 1,65 | 110 | 4,33 | 90 | 3,54 | 12 | 0,47 | 45 | 1,77 |
| NZ270280 | 42 | 1,65 | 110 | 4,33 | 90 | 3,54 | 12 | 0,47 | 45 | 1,77 |

Dimensions are in mm.

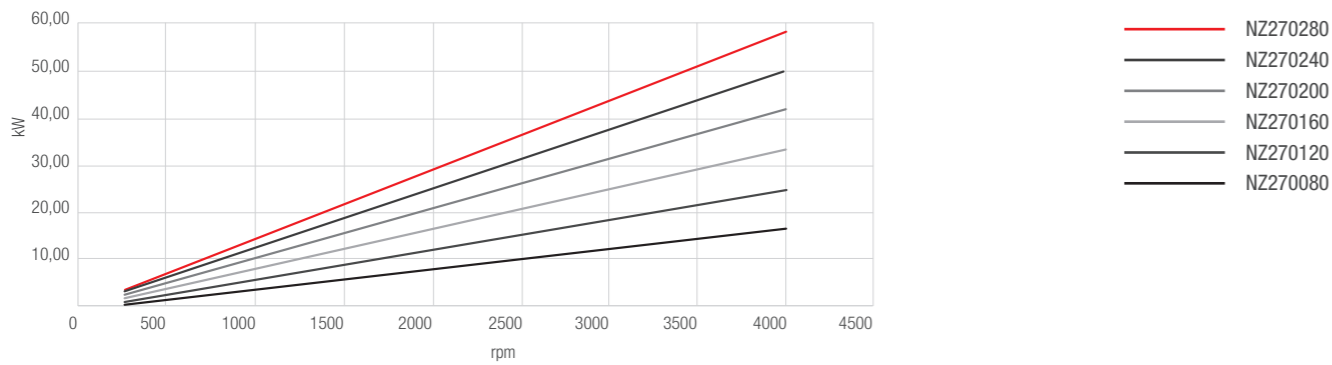
MOTOR'S POWER AND SPEED



NZ270

Maximal powers of motors NZ270

Maximum speed depends on maximum output frequency of the controller (VFD). Speed curves presented in the graph apply to maximum output frequency 400 Hz.



NZ270

| Motor type | Rated power | | Motor Current [A] | Stator height - XXX | | | | | | |
|-------------------|-------------|------|----------------------|------------------------|------|------|------|------|------|--|
| | [kW] | [HP] | | 080 | 120 | 160 | 200 | 240 | 280 | |
| | | | | Rated speed [min-1] | | | | | | |
| | | | Torque [Nm] | 40 | 60 | 80 | 100 | 120 | 140 | |
| | | | Torque [Ft-Lb] | 30 | 44 | 59 | 74 | 89 | 103 | |
| 230 VAC | | | | | | | | | | |
| NZ270XXXS018 | 4 | 5 | 14,3 | 950 | 640 | 480 | 380 | 320 | 270 | |
| NZ270XXXS013 | 5,5 | 7,5 | 19,8 | 1310 | 880 | 660 | 530 | 440 | 380 | |
| NZ270XXXS010 | 7,5 | 10 | 25,7 | 1790 | 1190 | 900 | 720 | 600 | 510 | |
| NZ270XXXS007 | 11 | 15 | 36,8 | 2630 | 1750 | 1310 | 1050 | 880 | 750 | |
| NZ270XXXS005 | 15 | 22 | 51,5 | 3580 | 2390 | 1790 | 1430 | 1190 | 1020 | |
| 400 VAC | | | | | | | | | | |
| NZ270XXXS031 | 4 | 5 | 8,3 | 950 | 640 | 480 | 380 | 320 | 270 | |
| NZ270XXXS023 | 5,5 | 7,5 | 11,2 | 1310 | 880 | 660 | 530 | 440 | 380 | |
| NZ270XXXS017 | 7,5 | 10 | 15,1 | 1790 | 1190 | 900 | 720 | 600 | 510 | |
| NZ270XXXS011 | 11 | 15 | 23,4 | 2630 | 1750 | 1310 | 1050 | 880 | 750 | |
| NZ270XXXS009 | 15 | 22 | 28,6 | 3580 | 2390 | 1790 | 1430 | 1190 | 1020 | |
| NZ270XXXS007 | 18,5 | 25 | 36,8 | 4420 | 2940 | 2210 | 1770 | 1470 | 1260 | |
| NZ270XXXS006 | 22 | 30 | 42,9 | / | 3500 | 2630 | 2100 | 1750 | 1500 | |
| NZ270XXXS005 | 30 | 40 | 51,5 | / | 4770 | 3580 | 2860 | 2390 | 2050 | |
| 460 VAC | | | | | | | | | | |
| NZ270XXXS037 | 4 | 5 | 7 | 950 | 640 | 480 | 380 | 320 | 270 | |
| NZ270XXXS027 | 5,5 | 7,5 | 9,2 | 1310 | 880 | 660 | 530 | 440 | 380 | |
| NZ270XXXS020 | 7,5 | 10 | 12,9 | 1790 | 1190 | 900 | 720 | 600 | 510 | |
| NZ270XXXS013 | 11 | 15 | 19,8 | 2630 | 1750 | 1310 | 1050 | 880 | 750 | |
| NZ270XXXS010 | 15 | 22 | 25,7 | 3580 | 2390 | 1790 | 1430 | 1190 | 1020 | |
| NZ270XXXS008 | 18,5 | 25 | 32,2 | 4420 | 2940 | 2210 | 1770 | 1470 | 1260 | |
| NZ270XXXS007 | 22 | 30 | 36,8 | / | 3500 | 2630 | 2100 | 1750 | 1500 | |
| NZ270XXXS005 | 30 | 40 | 51,5 | / | 4770 | 3580 | 2860 | 2390 | 2050 | |
| 575 VAC | | | | | | | | | | |
| NZ270XXXS046 | 4 | 5 | 5,6 | 950 | 640 | 480 | 380 | 320 | 270 | |
| NZ270XXXS031 | 5,5 | 7,5 | 8,3 | 1310 | 880 | 660 | 530 | 440 | 380 | |
| NZ270XXXS024 | 7,5 | 10 | 10,7 | 1790 | 1190 | 900 | 720 | 600 | 510 | |
| NZ270XXXS017 | 11 | 15 | 15,1 | 2630 | 1750 | 1310 | 1050 | 880 | 750 | |
| NZ270XXXS013 | 15 | 22 | 19,8 | 3580 | 2390 | 1790 | 1430 | 1190 | 1020 | |
| NZ270XXXS010 | 18,5 | 25 | 25,7 | 4420 | 2940 | 2210 | 1770 | 1470 | 1260 | |
| NZ270XXXS008 | 22 | 30 | 32,2 | / | 3500 | 2630 | 2100 | 1750 | 1500 | |
| NZ270XXXS006 | 30 | 40 | 42,9 | / | 4770 | 3580 | 2860 | 2390 | 2050 | |
| NZ270XXXS005 | 37 | 50 | 51,5 | / | / | 4420 | 3530 | 2940 | 2520 | |
| Motor mass [kg]* | | | | 38 | 51 | 66 | 80 | 92 | 110 | |
| Motor mass [Lbs]* | | | | 84 | 112 | 146 | 176 | 203 | 243 | |

*Graphs present maximal curves for different motor sizes. Different motor possibilities are presented in the table. Data is informative and is subject to change without prior notice.

* Motor mass may vary due to additional construction differences between motors.



Headquarters and locations

Headquarter

Domel, Otoki, Železniki, Slovenia

- Vacuum cleaner Motors
- Automotive
- PM Motors

Locations

Na Plavžu, Železniki, Slovenia

- EC Systems
- Laboratory equipment

Trata, Škofja Loka, Slovenia

- Components and Tools

Reteče, Škofja Loka, Slovenia

- DC Motors
- PM Motors

Domel Electric Motors Suzhou, China

- Vacuum cleaner Motors

Domel motors Odžaci, Serbia

- Vacuum cleaner Motors

