



High Efficiency IE4 Motors - ECOPM



ECOPM Synchronous Motors the High efficiency makes them compatible with current and future Energy saving regulations.

Their efficiency classification exceeds the standard defined by 60034-30-2 regulation as IE4 premium.

ECOPM motors can only be fed by inverter

- Rare earth magnets for high temperature
- **8 poles** construction, Sinusoidal Bemf
- Integrated Thermal Protection with PTC
- Sensorless, standard version self-ventilated
- Standard IEC housing, B3 B5 and B14 shape
- Compact design, reduced weight
- High efficiency, low losses
- Silent, high protection degree

ECO5 1500rpm – DCBus 560Vdc

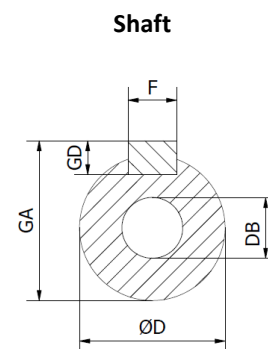
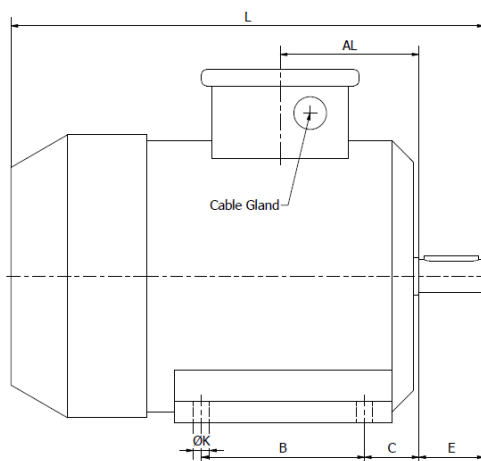
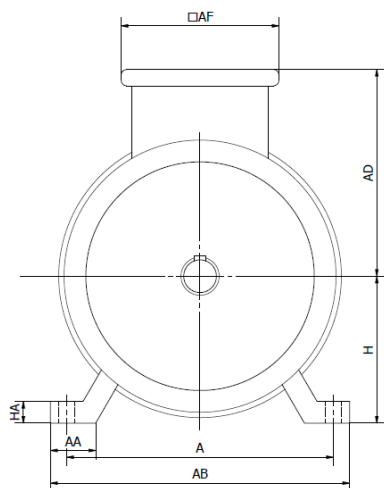
| Frame & Stack | | | 56 | | 71 | | 90 | | 112 | |
|--------------------|-----------------|--------------------|------|------|------|------|------|------|------|------|
| | | | A | B | A | B | A | B | A | B |
| Description | | | | | | | | | | |
| Rated Power | P _n | kW | 0,25 | 0,5 | 0,65 | 1,3 | 1,5 | 3 | 5 | 10 |
| Rated Speed | N _n | rpm | 1500 | | | | | | | |
| Rated Torque | M _n | Nm | 1,6 | 3,2 | 4,1 | 8,3 | 9,7 | 19,2 | 31,7 | 64,0 |
| Rated Current | I _n | A | 0,7 | 1,4 | 1,5 | 2,9 | 3,6 | 6,5 | 9,2 | 18,1 |
| Rated Efficiency | η _n | % | 76,2 | 82,3 | 83,9 | 86,5 | 87,1 | 89,7 | 91 | 92,6 |
| Efficiency Class | - | - | IE4 | IE4 | IE4 | IE4 | IE4 | IE4 | IE4 | IE4 |
| Stall Torque | M _o | Nm | 2 | 4 | 5 | 10 | 13 | 25 | 34 | 64 |
| Stall Current | I _o | A | 0,7 | 1,4 | 1,5 | 2,9 | 3,6 | 7,2 | 9,2 | 18,1 |
| Peak Torque | M _{pk} | Nm | 5,2 | 10 | 14 | 26 | 35 | 64 | 72 | 130 |
| Peak Current | I _{pk} | A | 2,1 | 4,1 | 5,1 | 9,1 | 12 | 22 | 23 | 41 |
| Mass | m | Kg | 2,6 | 3,5 | 5,1 | 7,3 | 10,2 | 14,8 | 21 | 32 |
| Rotor Inertia | J _r | Kg cm ² | 0,9 | 1,7 | 4,5 | 8,5 | 20 | 40 | 90 | 170 |

ECO5 3000rpm – DCBus 560Vdc

| Frame & Stack | | | 56 | | 71 | | 90 | | 112 | |
|--------------------|-----------------|--------------------|------|------|------|------|------|------|------|------|
| | | | A | B | A | B | A | B | A | B |
| Description | | | | | | | | | | |
| Rated Power | P _n | kW | 0,55 | 1,1 | 1,5 | 3 | 3,5 | 7 | 8 | 16 |
| Rated Speed | N _n | rpm | 3000 | | | | | | | |
| Rated Torque | M _n | Nm | 1,8 | 3,5 | 4,8 | 9,5 | 11,1 | 22,3 | 25,5 | 51,0 |
| Rated Current | I _n | A | 1,1 | 2,2 | 2,9 | 5,7 | 7,3 | 14,3 | 18,4 | 33,0 |
| Rated Efficiency | η _n | % | 81 | 84,5 | 85,8 | 88,5 | 88,9 | 91 | 91,3 | 92,9 |
| Efficiency Class | - | - | IE4 | IE4 | IE4 | IE4 | IE4 | IE4 | IE4 | IE4 |
| Stall Torque | M _o | Nm | 2 | 4 | 5 | 10 | 13 | 25 | 34 | 68 |
| Stall Current | I _o | A | 1,1 | 2,2 | 2,9 | 5,7 | 7,3 | 14,3 | 18,4 | 38,1 |
| Peak Torque | M _{pk} | Nm | 5,2 | 10 | 14 | 26 | 35 | 64 | 72 | 130 |
| Peak Current | I _{pk} | A | 3,4 | 6,5 | 9,3 | 17 | 24 | 43 | 46 | 87 |
| Mass | m | Kg | 2,6 | 3,5 | 5,1 | 7,3 | 10,2 | 14,8 | 21 | 32 |
| Rotor Inertia | J _r | Kg cm ² | 0,9 | 1,7 | 4,5 | 8,5 | 20 | 40 | 90 | 170 |

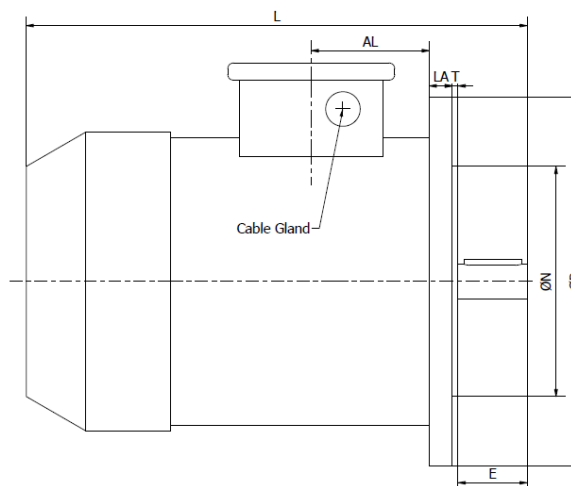
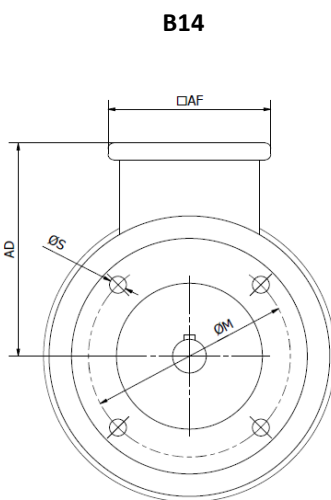
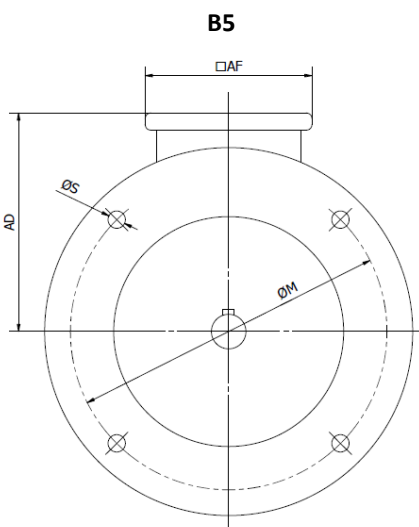
*PWM switching frequency 8kHz

Feet Mounting Dimensions (B3)



| Frame | A | AA | AB | AD | AF | AL | B | C | H | HA | K | L | D | DB | E | F | GA | GD |
|-------|-----|----|-----|-------|-----|------|-----|----|-----|----|------|-------|-------|--------|----|---|------|----|
| 56 | 90 | 20 | 110 | 102 | 100 | 50 | 71 | 36 | 56 | 9 | 9 | 188 | 14 j6 | M5x15 | 30 | 5 | 16 | 5 |
| 71 | 112 | 24 | 136 | 115,5 | 100 | 58 | 90 | 45 | 71 | 11 | 7 | 249,7 | 19 j6 | M6x16 | 40 | 6 | 21,5 | 6 |
| 90 | 140 | 34 | 174 | 137,8 | 115 | 68 | 100 | 56 | 90 | 14 | 10 | 297 | 24 j6 | M8x15 | 50 | 8 | 27 | 7 |
| 112 | 190 | 34 | 224 | 160,8 | 115 | 72,5 | 140 | 70 | 112 | 14 | 12,5 | 387,5 | 28 j6 | M10x22 | 60 | 8 | 31 | 7 |

Flange Mounting Dimensions (B5 & B14)



| B5 | Frame | AD | AF | AL | LA | L | M | N | P | S | T | D | DB | E | F | GA | GD |
|----|-------|-------|-----|------|-----|-------|-----|--------|-----|----|-----|-------|--------|----|---|------|----|
| | 56 | 102 | 100 | 50 | 8,3 | 195 | 100 | 80 j6 | 120 | 7 | 3 | 14 j6 | M5x15 | 30 | 5 | 16 | 5 |
| | 71 | 115,5 | 100 | 58 | 9,3 | 249,7 | 130 | 110 j6 | 160 | 10 | 3,5 | 19 j6 | M6x16 | 40 | 6 | 21,5 | 6 |
| | 90 | 137,8 | 115 | 68 | 10 | 297 | 165 | 130 j6 | 200 | 12 | 3,5 | 24 j6 | M8x15 | 50 | 8 | 27 | 7 |
| | 112 | 160,8 | 115 | 72,5 | 15 | 387,5 | 215 | 180 j6 | 250 | 15 | 4 | 28 j6 | M10x22 | 60 | 8 | 31 | 7 |

| B14 | Frame | AD | AF | AL | L | M | N | P | S | T | D | DB | E | F | GA | GD |
|-----|-------|-------|-----|------|-------|-----|--------|-----|----|-----|-------|--------|----|---|------|----|
| | 56 | 102 | 100 | 54,5 | 188 | 65 | 50 j6 | 80 | M5 | 2,5 | 14 j6 | M5x15 | 30 | 5 | 16 | 5 |
| | 71 | 115,5 | 100 | 67,5 | 249,7 | 85 | 70j6 | 105 | M6 | 2,5 | 19 j6 | M6x16 | 40 | 6 | 21,5 | 6 |
| | 90 | 137,8 | 115 | 78 | 298 | 115 | 95 j6 | 140 | M8 | 3 | 24 j6 | M8x15 | 50 | 8 | 27 | 7 |
| | 112 | 160,8 | 115 | 87,5 | 387,5 | 130 | 110 j6 | 160 | M8 | 3,5 | 28 j6 | M10x22 | 60 | 8 | 31 | 7 |

Data shown on this catalogue are referred to the following conditions:

- Room Temperature max 40° C
- Room Temperature min. 0° C
- Altitude max 1000 m asl
- F insulation class, F and H insulating
- Rms value
- B3-B5-B14 construction shape
- IP55 protection (shaft IP54)
- Values tolerance ±10%
- Overtemperature max 100K
- 8 poles motors. Only with inverter

Data of this catalogue may be changed without notice.

Nomenclature Breakdown

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| E | C | O | 5 | 1 | 1 | 2 | B | 2 | 1 | A | 1 | x | x |

POS. DESCRIPTION

1-3 **Product**
ECOPM: Permanent Magnet Synchronous Motor SPMSM

4 **Motor Type**
5=SPM

5-6-7 **Motor Frame Size**
Available frames 56, 71, 90, 112

8 **Motor Stack Length**

9 **Voltage**
1= DC bus 320 V
2= DC bus 560 V

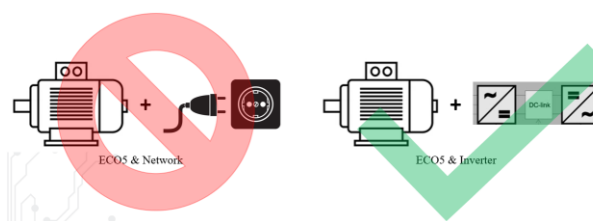
10 **Speed**
1= 1.000 rpm*
2= 1.500 rpm
4= 2.000 rpm*
6= 3.000 rpm
8= 4.000 rpm*
**special version*

11 **Ventilation**
A= self ventilated
0= without ventilation

12 **Motor Type**
1= B3/B14 terminal board cover at the top
2= B5 shape
3= B3, terminal board cover at the top
4= B14 shape
5= B3/B5 terminal board cover at the top

13-14 **Special version**
xx = custom configuration

On request, TTL encoder Kit Available



IMPORTANT: Our **ECOPM** ECO5 Synchronous Motors are not suitable to be directly connected to the supply mains. Their operation is expected only in combination with an inverter.

The inverter chosen must be able to drive a PMSM motor without feedback (function sensorless PMSM). On the market there are some types of inverters able to perform this function very well.

Not all inverters are suitable for this function. It's very important to carefully match the combination motor-inverter-load.

Our technical department is at your disposal for more detailed information

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MOTORS & MOTION CONTROL

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- **DSG SYNCHRONOUS PM GENERATORS**
- **RARE EARTH SC DC SERVOMOTORS**
- **DSW WATER-COOLED**
- **LOW-COST SOLUTIONS**
- **PLANETARY GEARS**
- **CUSTOMISED SOLUTIONS**
- **TORQUE MOTORS**
- **FRAMELESS SPINDLE MOTORS**



ISD : E220486

