



ECOPM High Efficiency Motors



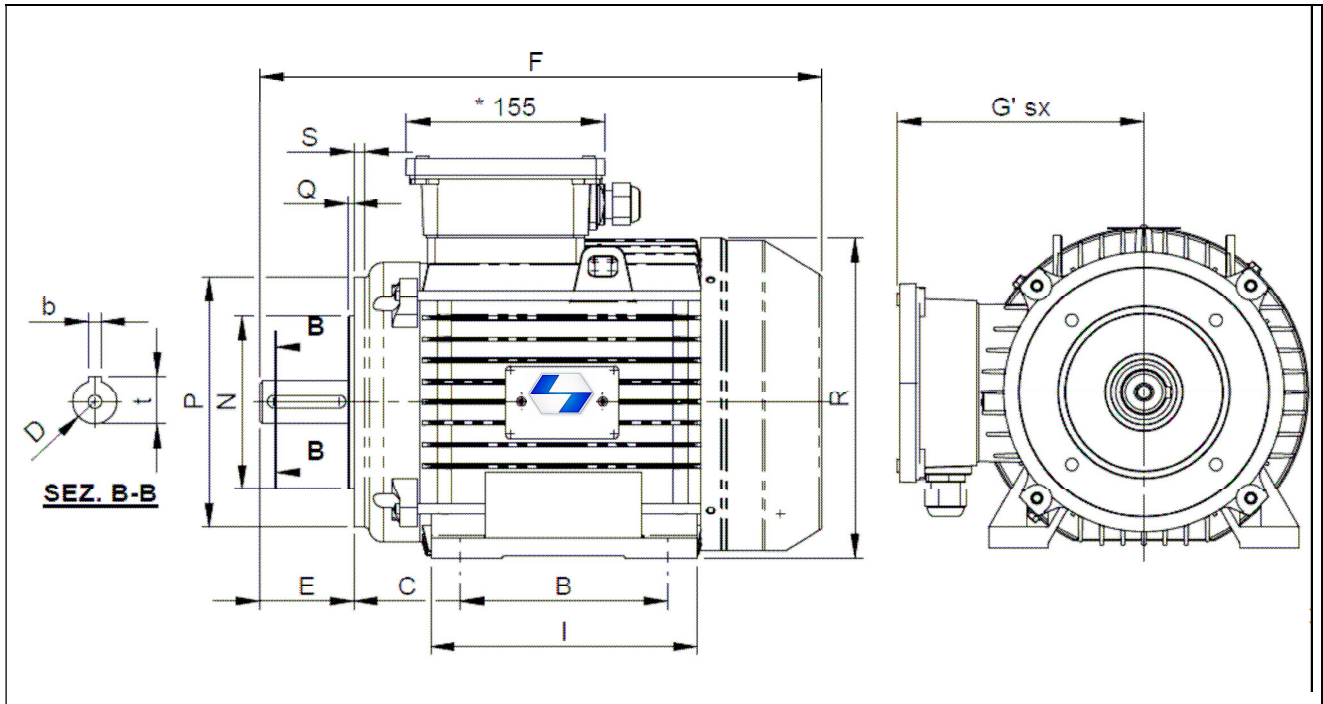
ECOPM Synchronous Motors
the High efficiency makes them compatible with current and future Energy saving regulations. Their efficiency classification exceeds the standard defined by 64030-31 regulation as IE4 premium. ECOPM motors can only work with inverter.

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

Tab. 1

Description Winding Code	Symbol	Motor	MEC56		MEC71		MEC90		MEC112	
		UM	A	B	A	B	A	B	A	B
Stall Torque	M_0	Nm	2	4	5	10	13	25	32	64
Max Voltage	U_{MAX}	V	400	400	400	400	400	400	400	400
Stall Current	I_0	A	0,8	1,6	1,6	3,3	4,3	8,3	8,5	16,5
Nominal Current	I_N	A	0,83	1,7	1,7	3,4	4,4	8,5	8,7	17
Nominal Torque	M_N	Nm	2	4	5	10	13	25	32	64
Nominal Power	P_N	Kw	0,4	0,8	0,9	1,8	2,5	4,7	5	10
Nominal Speed	N_N	min^{-1}	2000		1800		1800		1500	
Maximal Speed	N_{MAX}	min^{-1}	5000		4500		4000		3000	
Nominal Frequency	F_n	Hz	133	133	120	120	120	120	100	100
Peak Current	I_{MAX}	A	3	6	6	12	12	24	25	50
Voltage Constant	K_E	V/Krpm	180	180	200	200	200	200	240	240
Torque Costant	K_T	Nm/A	2,7	2,7	3,3	3,3	3,3	3,3	4	4
Rotor Inertia	J_R	Kg m^2	0,9	1,7	4,5	8,5	20	40	90	170
Resistance @ 20°C	R_{U-V}	ohm	75	30	22	9	5,5	2	1,7	0,7
Inductance	L_{U-V}	mH	170	80	40	20	25	14	11	6
Mass	m	Kg	2,6	3	5,4	6	10,2	12	28	31,6
Efficiency @ I_n	η	%	87,5	88,2	89,3	90,2	92	93,1	94	94,6

Torque and Current data referred to the servoventilated version.



Quote in mm

Tab. 2

Motor Type	56	71	90	112
A	90	112	140	190
B	71	90	100	140
N	50	70	95	110
P	80	105	140	160
M	65	85	115	130
s	M5	M6	M8	M8
R	110	140	180	226
E	30	40	50	60
D	14	19	24	28
b	5	6	8	8
C	36	45	56	70
Q	2,5	2,5	3	3,5

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
- IP54 protection (shaft excluded)
- B3-B14 construction shape
- Values tollerance ±10%
- Overtemperature max 100K
- 8 pols motors. Only with inverter

We can also offer a complete range of accessories, options and customizations :

- Gearboxes
- Planetary gearboxes
- Customized voltage and turns number
- Sensorless Inverter 1x230Vac or 3x400 Vac
- EMC filters, cables , brake resistors
- Line Inductance

Data of this catalogue may be changed without notice.

Code Composition

1	2	3	4	5	6	7	8	9	10	11	12
E	C	O	5	7	1	2	1	A	1	x	x

Tab. 3

Pos. Description

1-3 Product

ECOPM : Permanent Magnet Synchronous Motor SPMSM

4 Motor Type

5=SPM

5-6 Motor Size

6 Motor Length

7 Voltage

1= DC bus 320 V

2= DC bus 560 V

8 Speed

1= 1.000 rpm

2= 1.500 rpm

3= 1.800 rpm

4= 2.000 rpm

5= 2.500 rpm

6= 3.000 rpm

7= 3.500 rpm

8= 4.000 rpm

9 Ventilation

A= self ventilated

F= forced ventilated

0= without ventilation

10 Motor Type

1= B3/B14 standard, terminal board cover at the top

2= B5 shape

3= B3, terminal board cover at the top

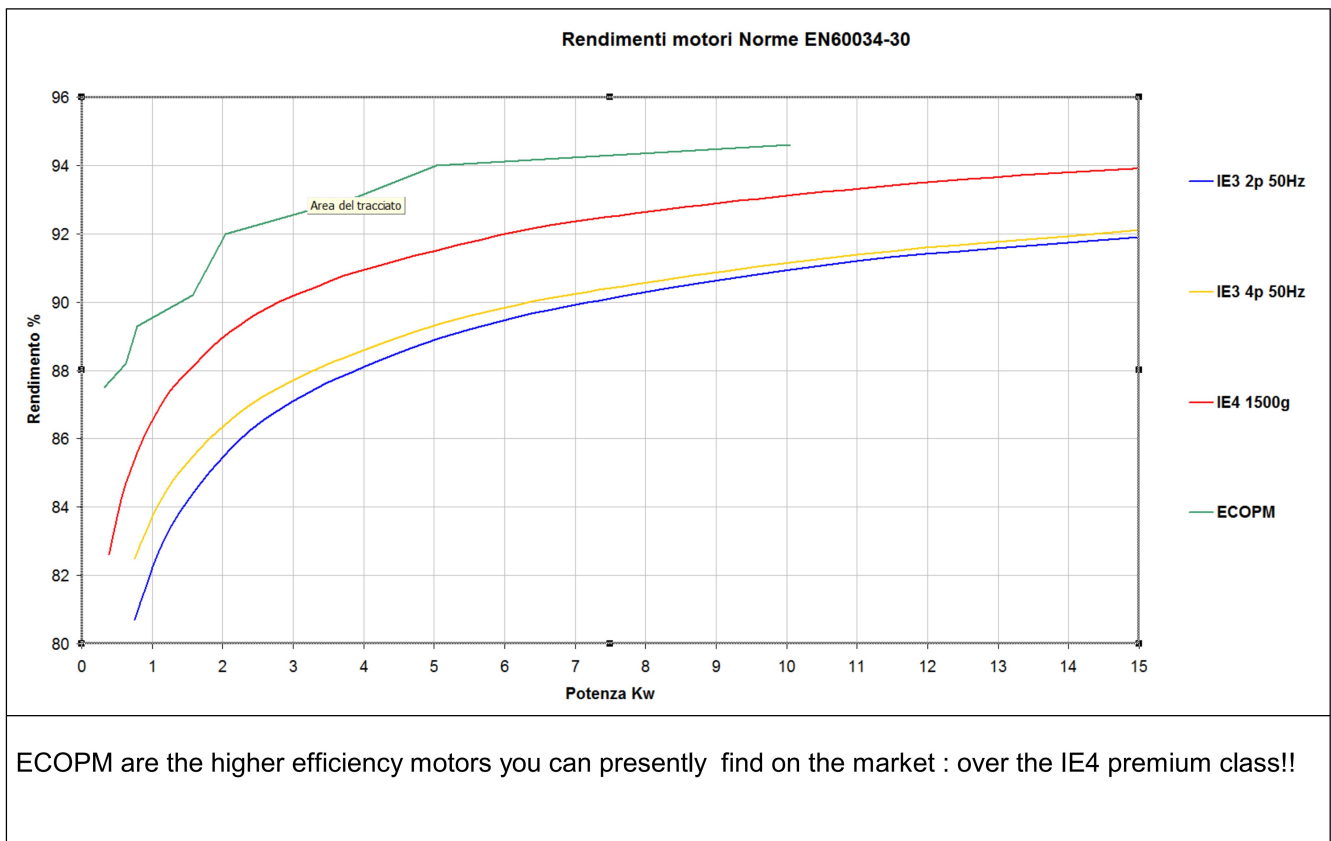
4= B14 shape

11-12 Special version

66 = ring seal

IMPORTANT : our **ECOPM** 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 type of inverters able to perform this function very well. Not all inverters are suitable to 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.



Matching Table motor-inverter

Motor Type	Recommended Inverter 1x230		Recommended Inverter 3x400	
	Type	Total Efficiency	Type	Total Efficiency
ECOPMxx				

The perfect combination with a suitable inverter allows to take advantage of the characteristics of the ECOPM motors. The ability to vary the speed, especially in applications with pumps and fans, leads to a drastic reduction of consumptions, due to the very high efficiency of the motor and the lower power demand when the motor operates at reduced speed.

The economic benefits in terms of energy saved allow to compensate the higher cost in a very short time.

Any contributions or/and incentives can be added to the saving of the price. We should not forget also the environmental aspects in terms of lower emissions and less energy wasted.

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