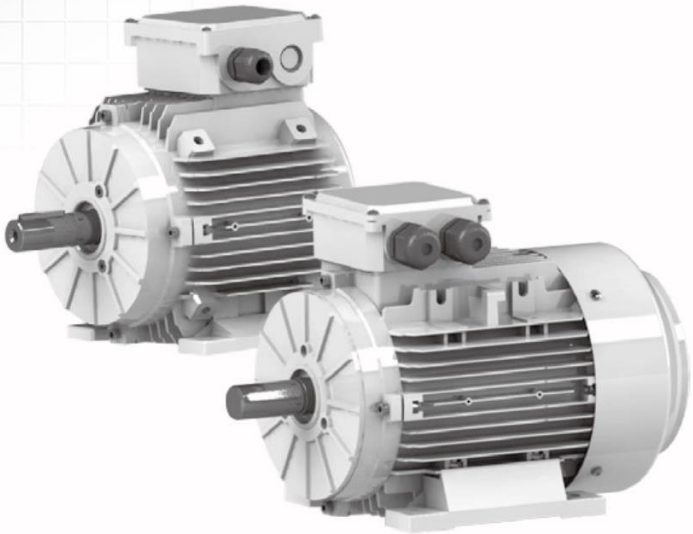
Electronically Commutated Motors

HUNTERHEX®
Smart Green Climate and Energy Solutions

As a professional electric motors manufacturer who cares about environment and energy saving, one of our most important goals is to help our partners to reduce total life operation costs, increase profitability and make production more environmentally friendly.



EC (Electronically Commutated) motors is the special designed PMS (permanent magnet synchronous) motors which constructed on the base of the IEC norm, it is now available in four frame sizes: IEC-71#, IEC-90#, IEC-100#, IEC-132#, the maximum output is 22kW and the maximum torque is 70Nm.

To be qualified for the next generation which requires for higher energy saving products, EC motors has the following advantages:

- Extremely high efficiency, average value is over IE4 norms.
- Very high efficiency in wide speed up to 3600rpm and power range.
- Compact and light design with high uniformity in appearance design with other products.
- Mounting dimensions according to the IEC norm, easy to replace from standard AC motors to EC motors.
- Various and flexible mounting types suitable for different applications.

E-Max motors is the first generation of EC motors which has led to develop the next generation of technology in motor efficiency and performance.

E-Max motors contains two series:

- **E-max commercial**
  IEC frame size 71# to 90# permanent magnet synchronous motors with integrated drive.

- **E-max industrial**
  IEC frame size 71# to 132# permanent magnet synchronous motors

E-Max 71# motor with integrated drive:

E-Max 90# motor with integrated drive:

E-Max Commercial series (ECI series)

Model	Frame size	Rated torque (Nm)**	Output@1500rpm (kW)	Output@3000rpm (kW)	Maximum speed (rpm)
T71ECI01X36	71	1.2	0.2	0.41	3600
T71ECI02X36		2.4	0.41	0.82	3000
T71ECI03X18		3.2	0.55	-	1800
T90ECI03X36	90	3.2	0.55	1.1	3600
T90ECI05X30		4.8	0.75	1.5	3000
T90ECI07X18		7	1.1	-	1800

** The rated torque is based on the motor cooling method. The detail torque please see data sheet.

E-Max Commercial Motor Drive Function

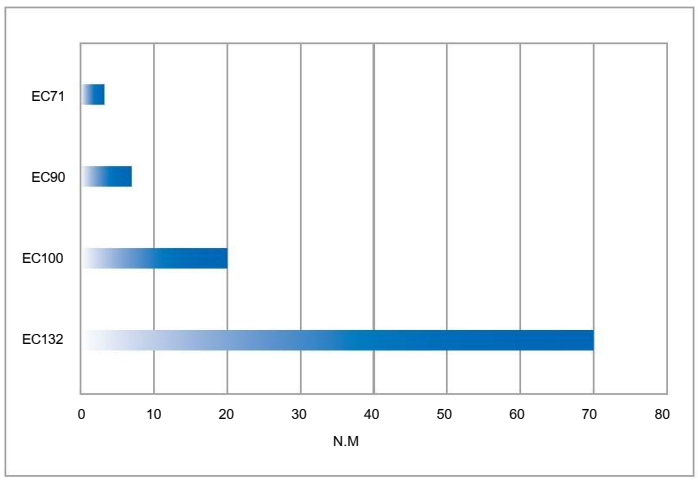
- CW/CCW choose
- Start-stop terminal
- 0 -10VDC speed control
- RS485 Modbus
- Speed hand control by adjustable resistance
- Speed feedback

E-Max Industrial series (EC series)

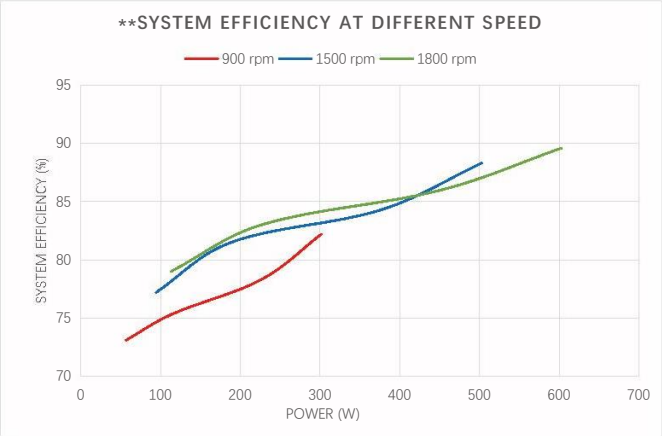
Model	Frame size	Rated torque (Nm)**	Output@1500rpm (kW)	Output@3000rpm (kW)	Maximum speed (rpm)
T71EC01X36	71	1.2	0.2	0.41	3600
T71EC02X36		2.4	0.41	0.82	3600
T71EC03X36		3.2	0.55	1.1	3000
T90EC03X36	90	3.2	0.55	1.1	3600
T90EC05X36		4.8	0.75	1.5	3600
T90EC07X36		7	1.1	2.2	3600
T100EC10X36	100	9.5	1.5	3	3600
T100EC14X36		14	2.2	4	3600
T100EC19X30		19.1	3	5.5	3000
T132EC26X30	132	25.5	4	7.5	3000
T132EC35X30		35	5.5	11	3000
T132EC48X30		47.7	7.5	15	3000
T132EC59X30		58.9	9.2	18.5	3000
T132EC70X30		70	11	22	3000

** The rated torque is based on the motor cooling method. The detail torque please see data sheet.

Product Range

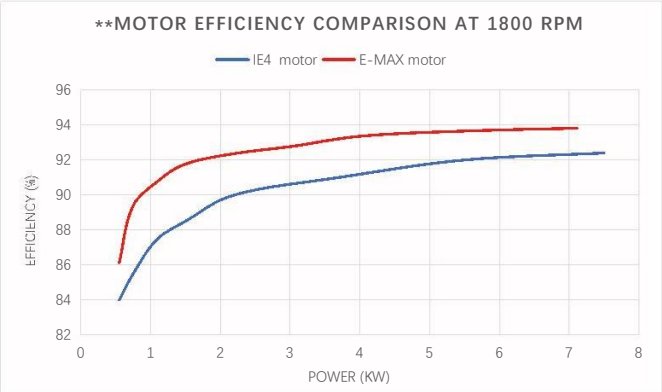


E-Max Commercial series



** System efficiency include the motor and drive efficiency.

E-Max Industrial series



** Efficiency is only motor efficiency.

Model Number Nomenclature

T	90	EC	03	V	36	C2	B14	P	T1
1	2	3	4	5	6	7	8	9	10

Position	Character	Description
1	“T”	Product platform
2	“90”	Frame size: IEC 90#
3	“EC”	EC: permanent magnet motor ECI: permanent magnet motor with integrated drvie
4	“03”	Rated torque
5	“V”	Cooling method: G = General purposes, with fan and fan hood. IC411 V = Ventilation applications, without fan and fan hood.
6	“36”	Maximum speed: 3600 rpm
7	C2	Power line connection method: T1 = Terminal box on top T2 = Terminal box on NDE C1 = No terminal box, power line from housing C2 = No terminal box, power line from NDE
8	B14	Mounting method: B3, B14, B5, B34, B35
9	P	P = Slid rail
10	T1	Voltage code: T1: 3 phase 360-440 V, T2: 3 phase 200-240 V S1: 1 phase 200-240 V, S2: 1 phase 115 V

VFD consideration

PMS motors must be drove by VSD, the motor cannot connect to the normal AC power directly. The VSD can be the commercial drive with vector control or PM motor control mode. VSD need to be set up the correct motor parameter (see below table). The detailed parameters can be find in the model data sheet.

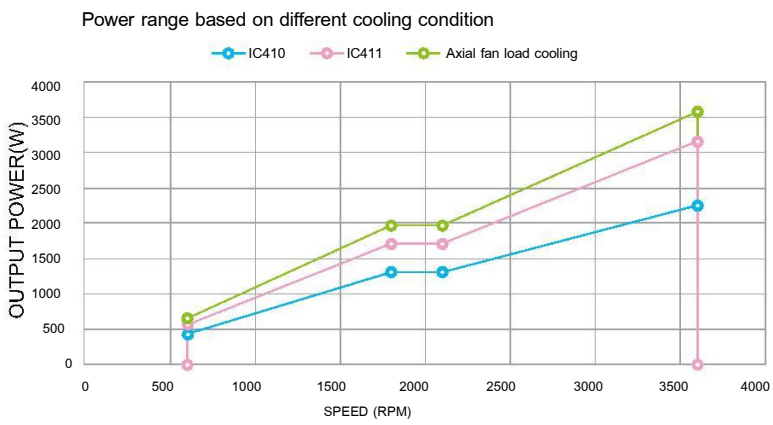
Motor Parameters for VSD

Items	Y	Δ	Unit	Note
VSD input voltage:	360-440	360-440	V	
Max speed:	1800	3600	rpm	
Max frequency:	150	300	Hz	
VSD output voltage:	360	360	V	
Rated current:	2.65	4.8	A	
Resistance:	1.45	0.49	Ohm	Phase
Ld:	9.5	3.1	mH	Phase
Lq:	9.5	3.1	mH	Phase
Back EMF value:	167	90	Vrms per 100 rpm	

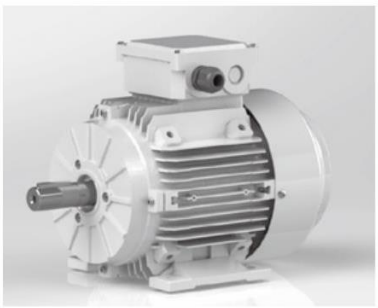
Power choose consideration

The power and torque in above model list is the rated power or torque when the motor has not any cooling method (IC410). If the motor cooled by the wheel or the load the motor power can be higher. The detail running range please see detail model data sheet. Below chart is a sample to decide the power at different cooling condition.

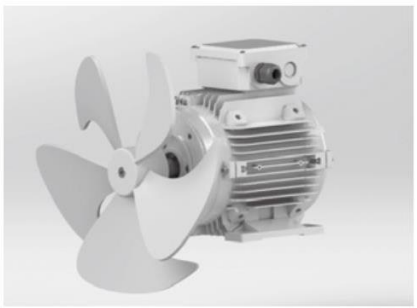
Duty cycle: S1
Cooling condition: IC410, IC411, Cooling by axial fan load



IC 410

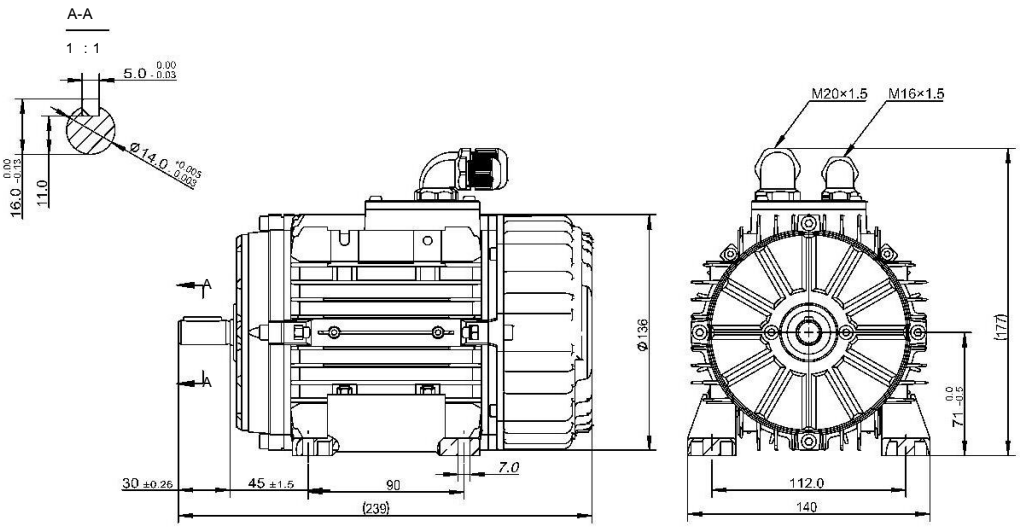


IC 411

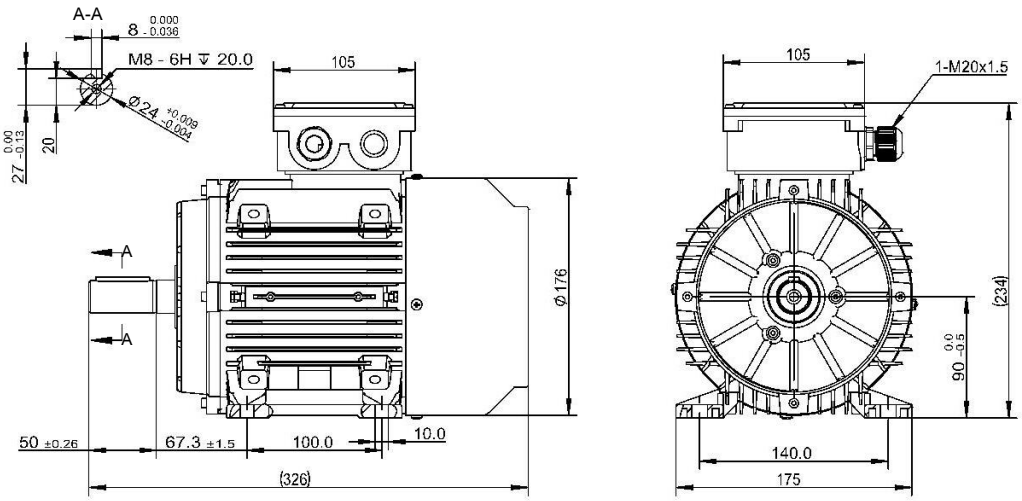


Axial fan load cooling

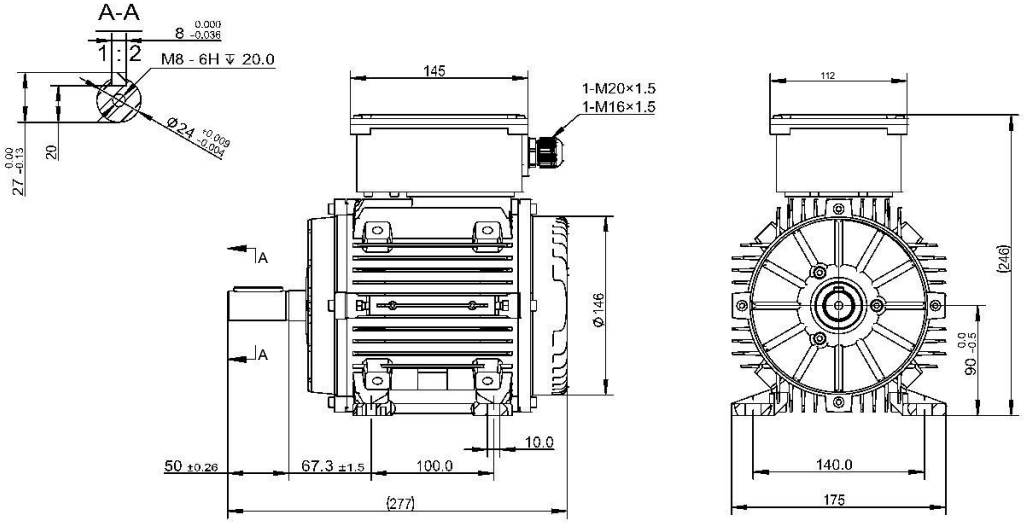
T71ECI motor with integrated drive (B3)



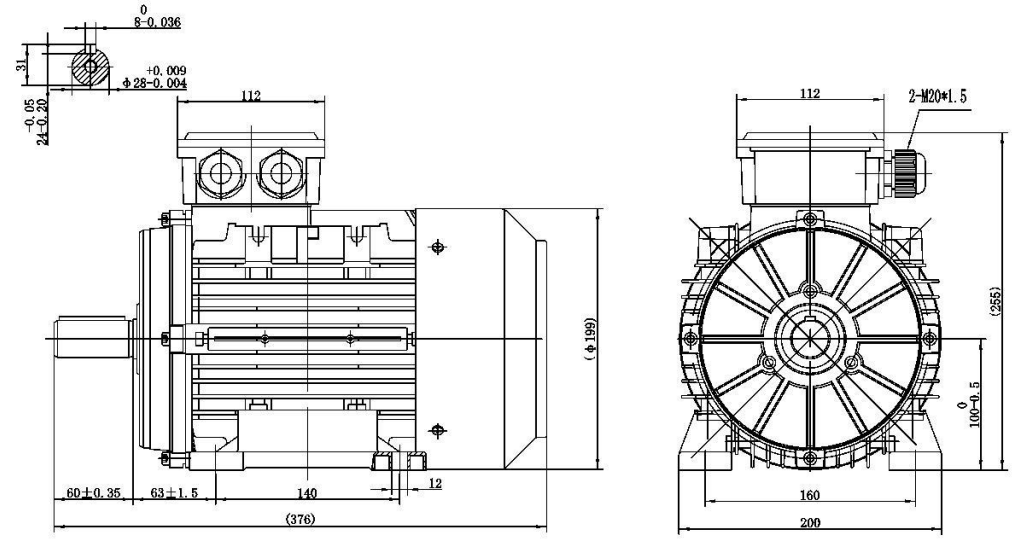
T90EC motor with fan cooling (B3, IC411)



T90ECI motor with integrated drive (B3)



T100EC motor with fan cooling (B3, IC411)



T132EC motor without fan cooling (B3)