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# Rasta EC Motor

PMSM Integrated With Electronic Controller



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## Application Scope

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### Axial Ventilator

Rasta's EC motor are developed with high efficiency and compact structure. It can more effectively improve the performance of Axial Ventilator. And the motor has high overload capacity, so it can provide stable speed to ensure the air volume of Ventilator under high negative pressure condition.

### Air Compressor

Rasta's EC motor adopts special control, it is suitable for Air Compressor application due to its structural features and high efficiency. It can reduce the energy consumption of Air Compressor.

### Pump

Rasta's EC motor has the characteristics of high starting torque, which provides stable power for Pump application.

# Rasta EC motor for HVAC application



## TECHNICAL DATA

Item	EC80 Platform	EC100 / EC112 Platform
Rated Voltage	1~110VAC±15% 50/60Hz 1~220VAC±15% 50/60Hz 3~220VAC±15% 50/60Hz 3~380VAC±15% 50/60Hz	3~380VAC±15% 50/60Hz
Rated Power	0.375~2.2kW	3~5.5kW
Rated Speed	500~3,000rpm	750~3,000rpm
Mounting Arrangement	Chute-mounted / Foot-mounted	
Protection Degree	IP55 / IP66	
Protection Function	Overload, locked rotor, overvoltage, undervoltage, overcurrent, overtemperature	

# Rasta EC Motor Platform Roadmap

**EC 80 Platform**  
(Domestic)



**EC 80 Platform**  
(External)



**EC 100 Platform**  
(TEAO)



**EC 100 Platform**  
(TEFC)



**EC 112 Platform**  
(TEFC)



# Rasta EC Motor Features

## High Efficiency

Save more than 25% energy than Induction Motor at same working condition

## Small Size

Compact structure design, with around 20% smaller size than competitor's

## Strong Overload Capacity

Provide stable running speed under high negative pressure condition of Ventilation system

## Intelligent Control

With multiple electronic protection functions, provides foundation for the system of intelligent centralized control



## Competitive Cost

Utilize simulation analysis to optimize product design to maximize the contribution of raw material

## Strong Protection Grade

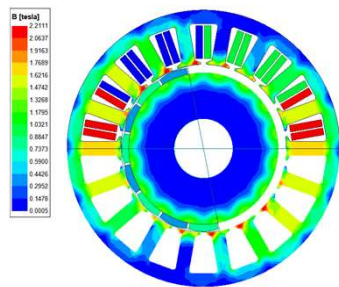
Totally enclosed design, integrated solution

## Light Weight

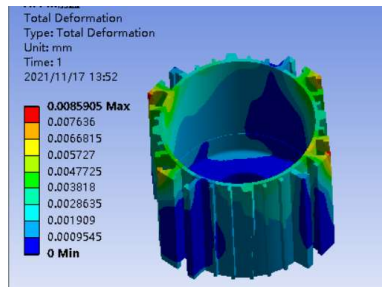
More than 30% lighter than Induction Motor



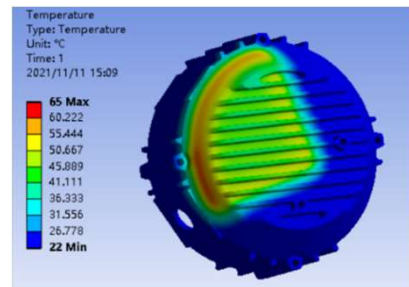
# Simulation Analysis For Rasta EC Motor



Magnetic Flux Density Analysis



Structural Strength Analysis



Thermodynamic Analysis

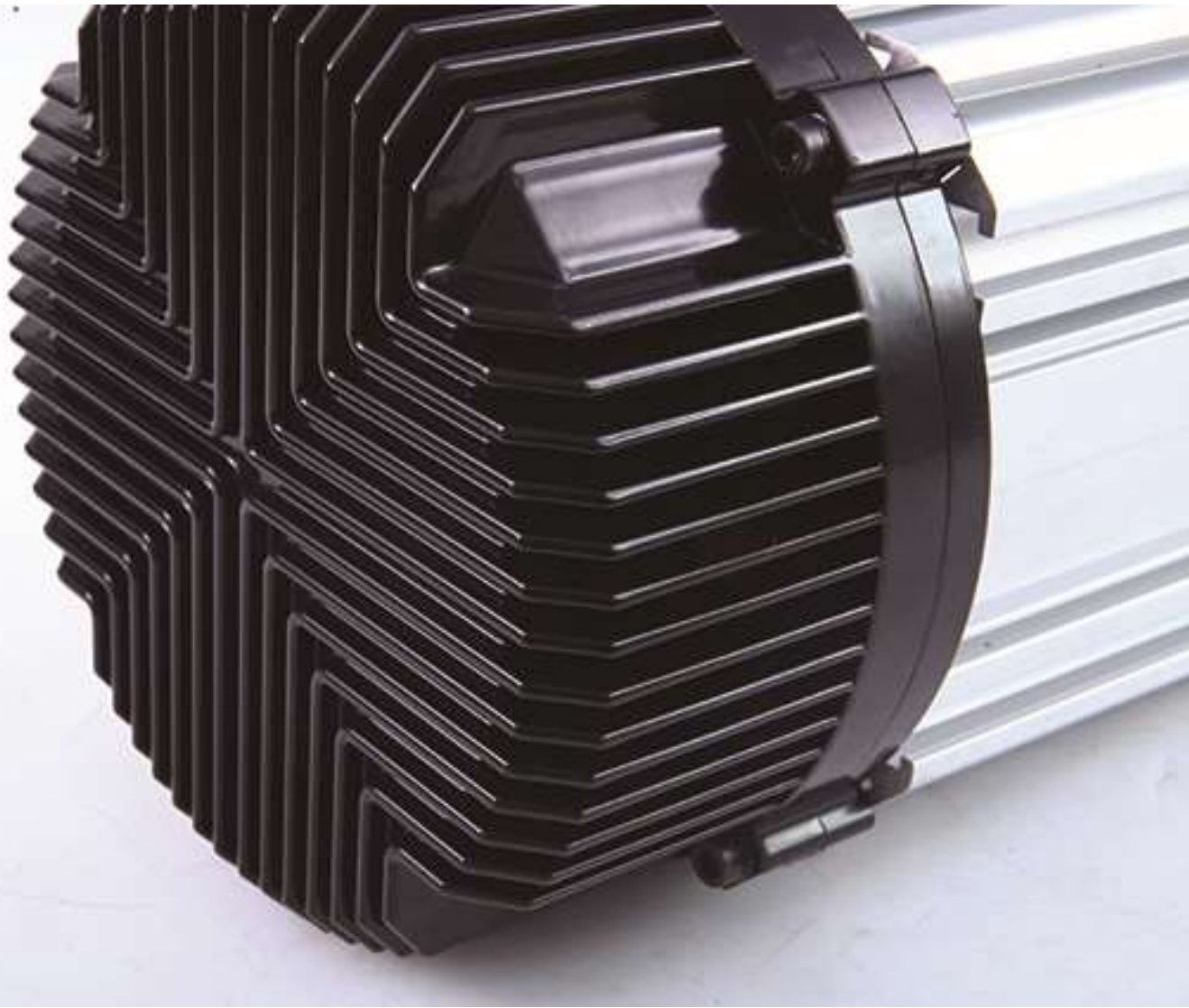
## Advantage of Simulation Analysis

- Enhance product competitiveness through optimization of design based on simulation analysis (Green Development)
- Shorten timing of produce development (Time To Market)
- Provide foundation for robust process and stable quality (Design For Six Sigma)

## Intellectual Property for Innovative Design

- Stator Lamination Design for PM Motor
- Rotor Lamination Design for PM Motor
- Structural Design of "Sandwich" Cover
- Structural Design of Seal Component





## Rasta EC Motor Overview

Rated Voltage	1~110VAC 50/60Hz	Insulation Class	F
	1~220VAC 50/60Hz	Control Mode	Sensor-less Vector Control
	3~220VAC 50/60Hz	Communication Function	RS485
	3~380VAC 50/60Hz	Control Signal	0~10VDC / RS485 Command
Platform Name	EC80 / EC100 / EC112	Speed Error	≤0.5%
Rated Power Range	0.375 ~ 5.5 kW	Speed Regulation Mode	VSP control (0~10V) / RS485
Rated Speed Range	500~3,000rpm	Protection Function	Over Current / Over Voltage / Under Voltage / Over Thermal / Locked Rotor / Open-phase / etc.
Energy Efficiency Grade	IE5	Mounting Arrangement	B30 / B3 / B5 / B14 / B34 / B35
Protection Grade	IP55 / IP66	Cooling Mode	TEAO / TEFC



Rasta EC Motor

# EC 80

## Rasta EC Motor

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# Rasta EC Motor Presentation / EC80 Platform

## EC80 Platform

Domestic Trade



## EC80 Platform

External Trade



## Rasta EC Motor Overview / EC80 Platform

ITEM	DESCRIPTION
Motor Start Method	Electronic Reversing Start
Rated Power Supply	1~110VAC, 1~220VAC, 3~220VAC, 3~380VAC 50/60Hz
Rated Power	0.375 / 0.55 / 0.75 / 1.1 / 1.5 / 1.8 / 2.2kW
Rated Speed	500 / 750 / 1,000 / 1,500 / 3,000rpm
Ambient Temp.	-20°C ~ +40°C
Energy Efficiency	IE5
Protection Grade	IP55 / IP66
Insulation Class	Class F
Over Load Capacity	1.25* Rated Torque (Long Term) 1.5* Rated Torque (Short Term)
Starting Torque Capacity	2.0* Rated Torque
Outline Dimension	176mm X 176mm X 280mm (Longest)
Mounting Arrangement	B30 / B3 / B14 / B34
Cooling Mode	TEAO
Weight	<13.6 kg
Application	<ul style="list-style-type: none"> <li>- HVAC, Pump, Compressor</li> <li>- Adjustable Working Speed</li> <li>- High Requirement For Environmental Control, Energy Efficiency</li> <li>- Intelligent Control Motor On Or Off</li> </ul>

# EC80 Platform

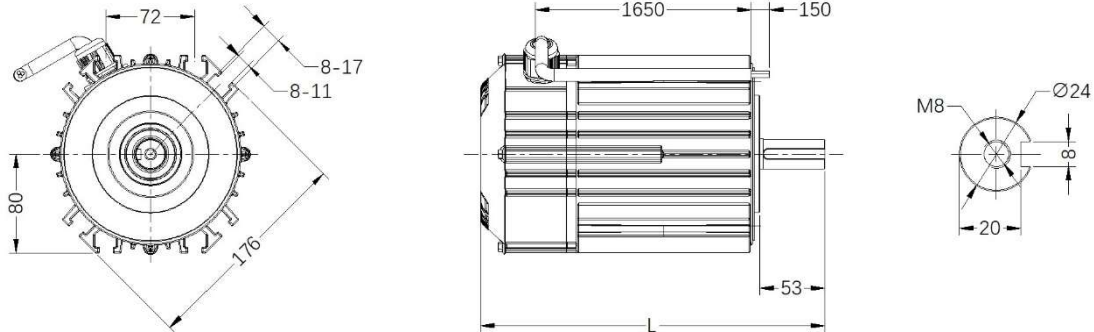
## Electrical Performance Data (@3~380VAC 50Hz of Domestic Version)

Platform Name	Rated Power (kW)	Rated Torque (Nm)	Rated Speed (rpm)	Eff. (%)	Power Factor	Full Load Current In(A)	Weight (kg)
EC80	0.75	9.6	750	83.0	0.71	<1.9	7.9
EC80	1.1	14.0	750	85.1	0.71	<2.8	8.7
EC80	1.5	19.1	750	86.5	0.71	<3.7	10.1
EC80	1.8	22.9	750	87.5	0.71	<4.4	10.8
EC80	2.2	28.0	750	88.2	0.71	<5.4	12.1
EC80	0.55	5.3	1,000	85.3	0.71	<1.5	7.4
EC80	0.75	7.2	1,000	86.6	0.71	<2.1	8.5
EC80	1.1	10.5	1,000	88.4	0.71	<2.9	8.4
EC80	1.5	14.3	1,000	88.9	0.72	<3.9	9.1
EC80	1.8	17.2	1,000	90.1	0.72	<4.7	9.8
EC80	2.2	21.0	1,000	90.5	0.72	<5.7	11.0
EC80	0.55	3.5	1,500	87.1	0.73	<1.4	6.6
EC80	0.75	4.8	1,500	88.9	0.73	<1.9	7.2
EC80	1.1	7.0	1,500	90.5	0.73	<2.5	7.6
EC80	1.5	9.6	1,500	90.8	0.73	<3.4	8.5
EC80	1.8	11.5	1,500	91.7	0.73	<4.1	9.2
EC80	2.2	14.0	1,500	92.4	0.73	<4.9	10.4

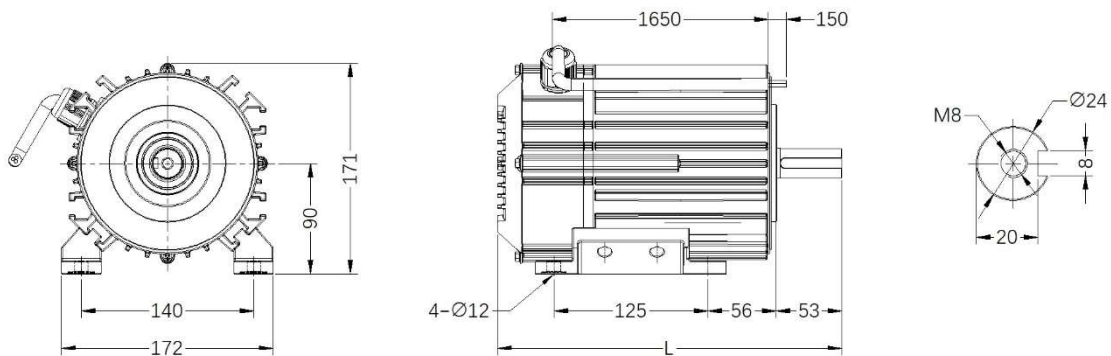
# EC80 Platform

## Mechanical Data For Domestic Trade(TEAO)

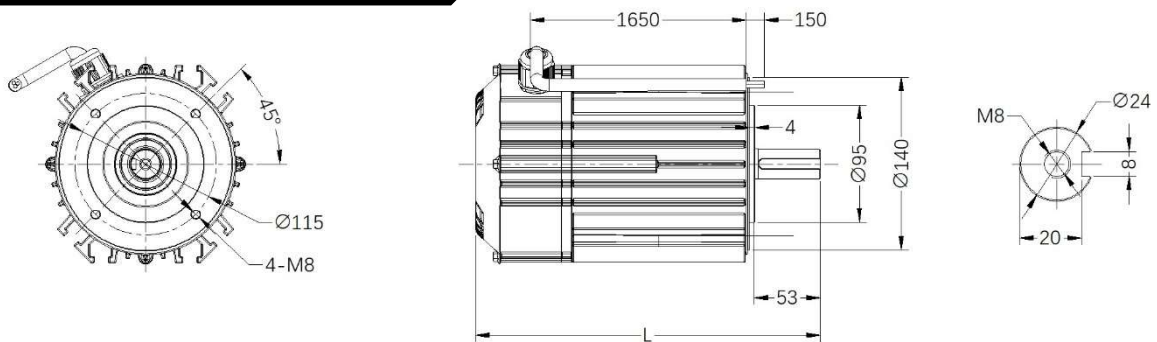
### EC80\_Chute-mounted



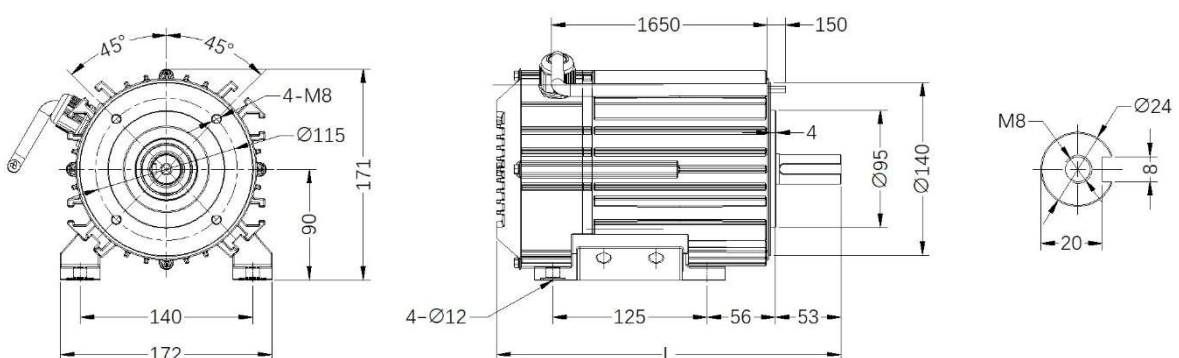
### EC80\_Foot-mounted(B3)



### EC80\_Small Flange-mounted(B14)



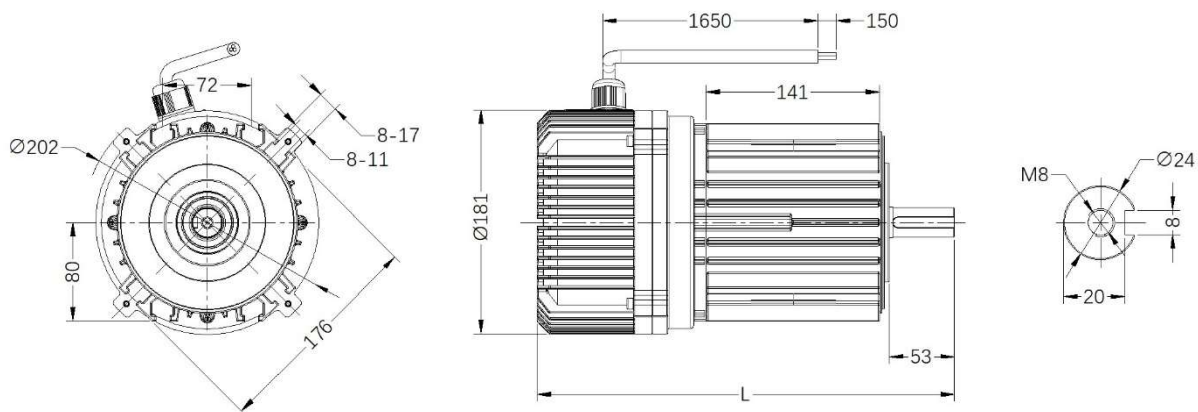
### EC80\_Foot Small Flange-mounted(B34)



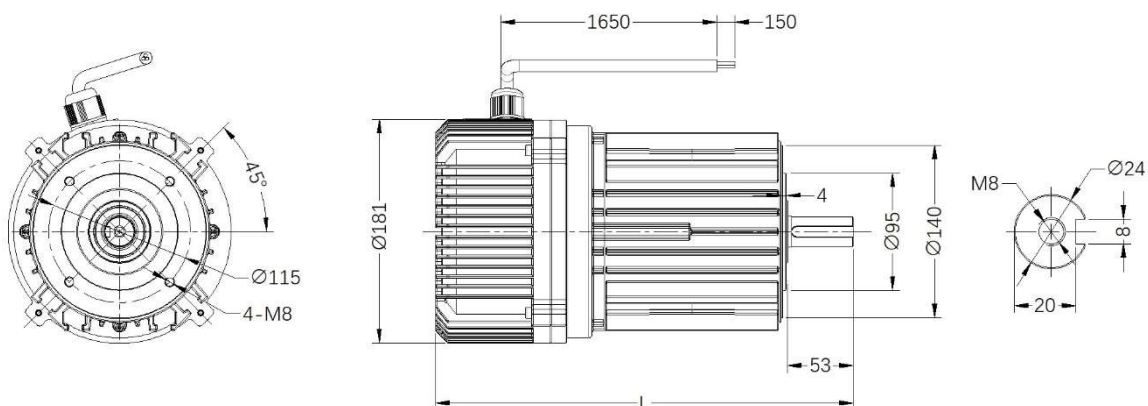
# EC80 Platform

## Mechanical Data For External Trade(TEAO)

### EC80\_Chute-mounted



### EC80\_Small Flange-mounted(B14)



Platform Version	Rated Power (kW)	Total Length_(L) (mm)
Domestic	0.55~0.75	230.0
Domestic	1.1~2.2	280.0
External	0.55~0.75	290.0
External	1.1~2.2	340.0



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# EC 100

## Rasta EC Motor

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# Rasta EC Motor Presentation / EC100 Platform

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## 1 TEAO Version



## 2 TEFC Version



# Rasta EC Motor Overview / EC100 Platform

ITEM	DESCRIPTION
Motor Start Method	Electronic Reversing Start
Rated Power Supply	3~380VAC 50/60Hz
Rated Power	3 / 4kW
Rated Speed	750 / 1,000 / 1,500 / 3,000rpm
Ambient Temp.	-30°C ~ +40°C
Energy Efficiency	IE5
Protection Grade	IP55 / IP66
Insulation Class	Class F
Over Load Capacity	1.25* Rated Torque (Long Term) 1.5* Rated Torque (Short Term)
Starting Torque Capacity	2.0* Rated Torque
Outline Dimension	200mm X 200mm X 379mm
Mounting Arrangement	B30 / B3 / B5 / B14 / B34 / B35
Cooling Mode	TEFC / TEAO
Weight	<22.5 kg
Application	<ul style="list-style-type: none"> <li>- HVAC, Pump, Conveyors</li> <li>- Adjustable Working Speed</li> <li>- High Requirement For Environmental Control, Energy Efficiency</li> <li>- Intelligent Control Motor On Or Off</li> </ul>

## EC100 Platform Electrical Performance Data

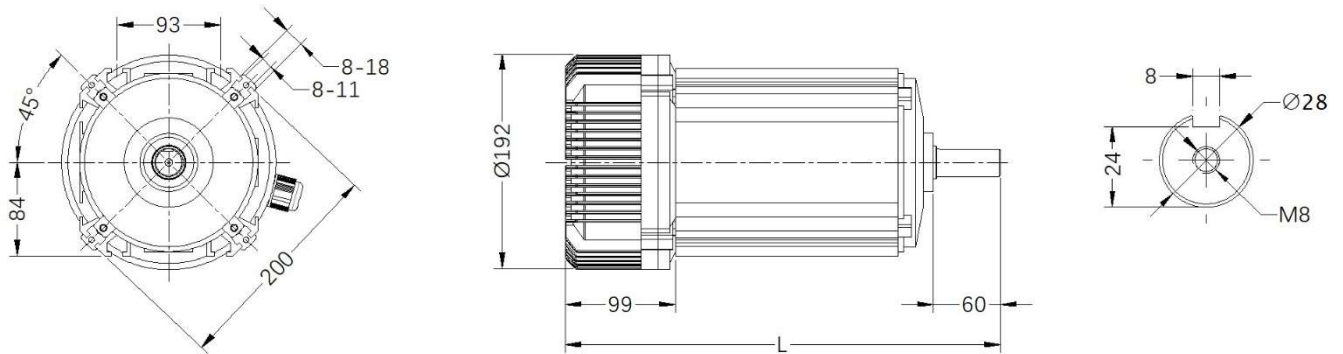
(@3~380V 50Hz)

Platform Name	Rated Power (kW)	Rated Torque (Nm)	Rated Speed (rpm)	Eff. (%)	Power Factor	Full Load Current In(A)	Weight (kg)
EC100	3	38.2	750	88.8	0.75	< 7.5	12.7
EC100	3	28.7	1,000	91.1	0.76	< 7.2	15.1
EC100	4	38.2	1,000	91.7	0.76	<9.6	15.0
EC100	3	19.1	1,500	92.5	0.77	<7.1	18.5
EC100	4	25.5	1,500	93.2	0.77	<9.4	16.4
EC100	3	9.6	3,000	91.6	0.79	<7.1	13.0
EC100	4	12.7	3,000	92.3	0.79	<9.2	13.9

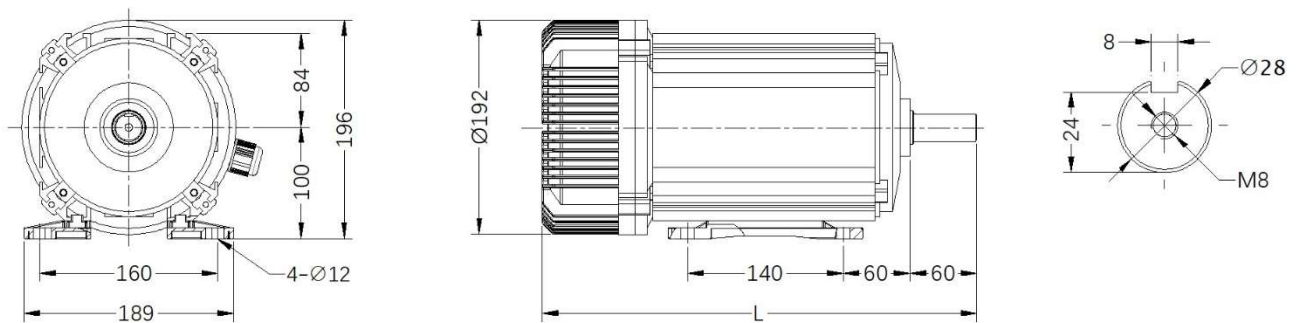
# EC100 Platform

## Mechanical Data (TEAO)

### EC100\_Chute-mounted



### EC100\_Foot-mounted(B3)



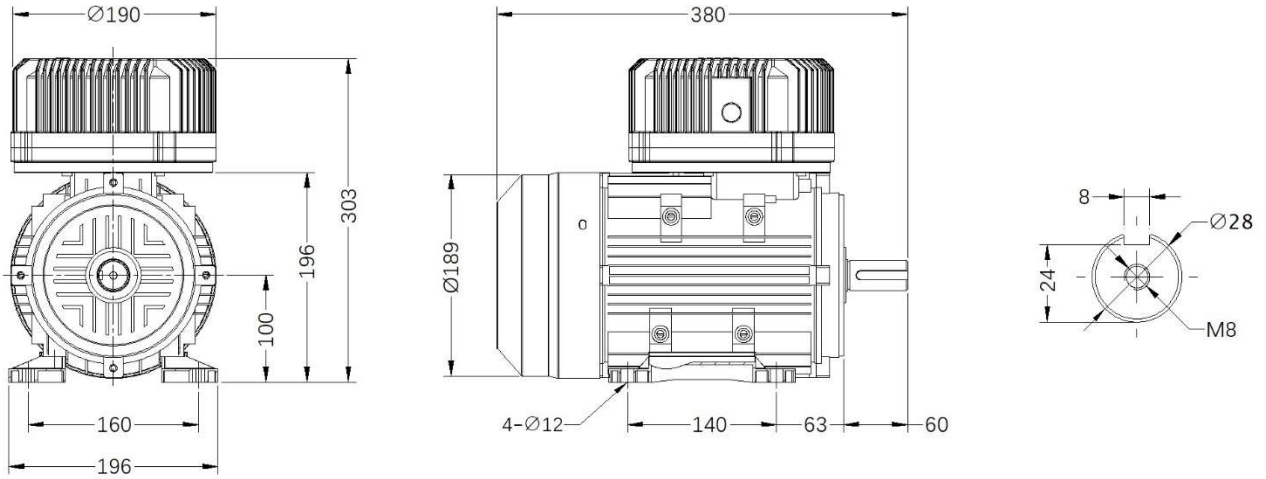
Motor Version	Rated Power (kW)	Total Length_(L) (mm)
EC 100	3	380.0
EC 100	4~4.5	410.0



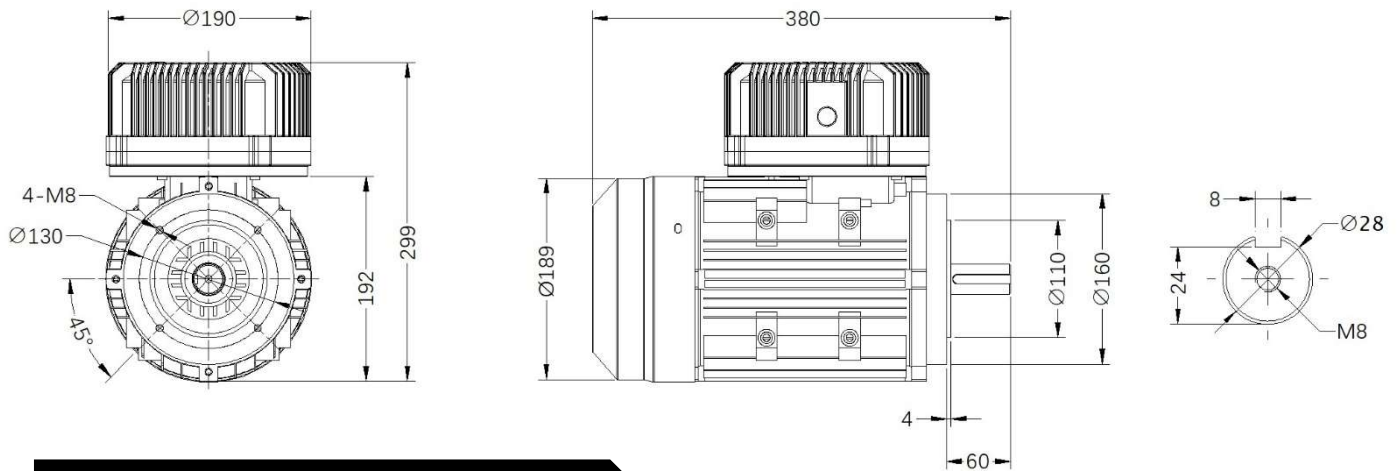
# EC100 Platform

## Mechanical Data (TEFC)

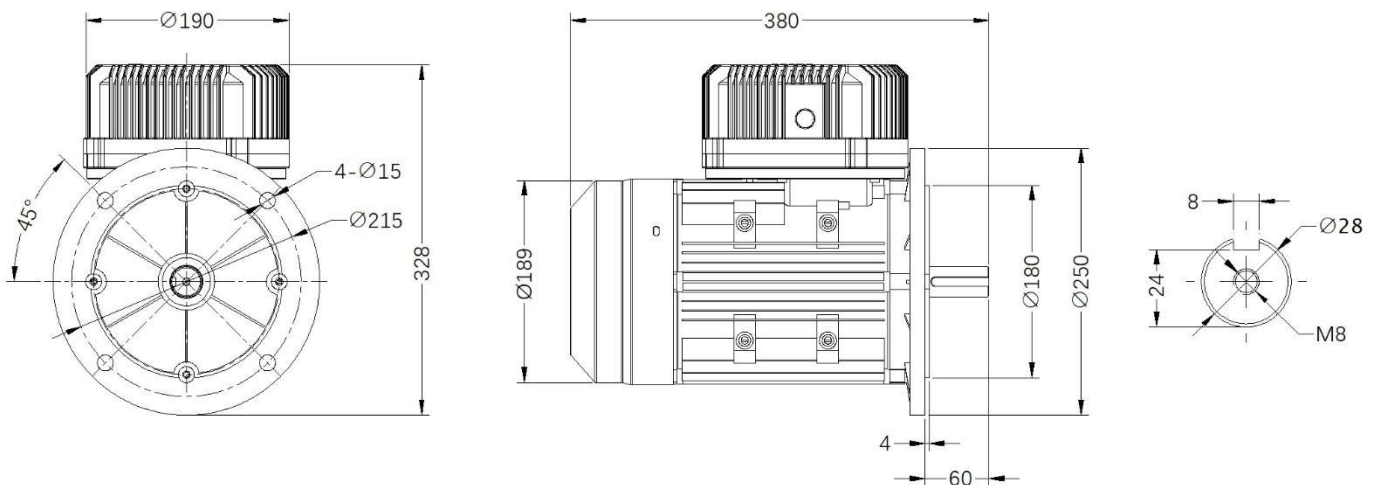
### EC100\_Foot-mounted(B3)



### EC100\_Small Flange-mounted(B14)

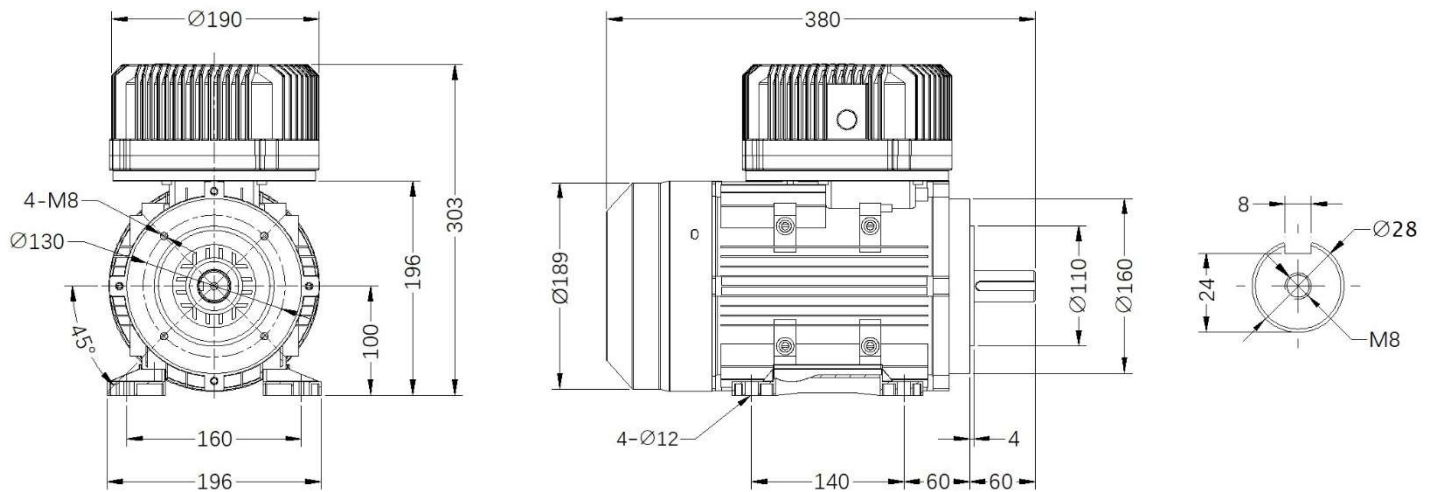


### EC100\_Scale Flange-mounted(B5)

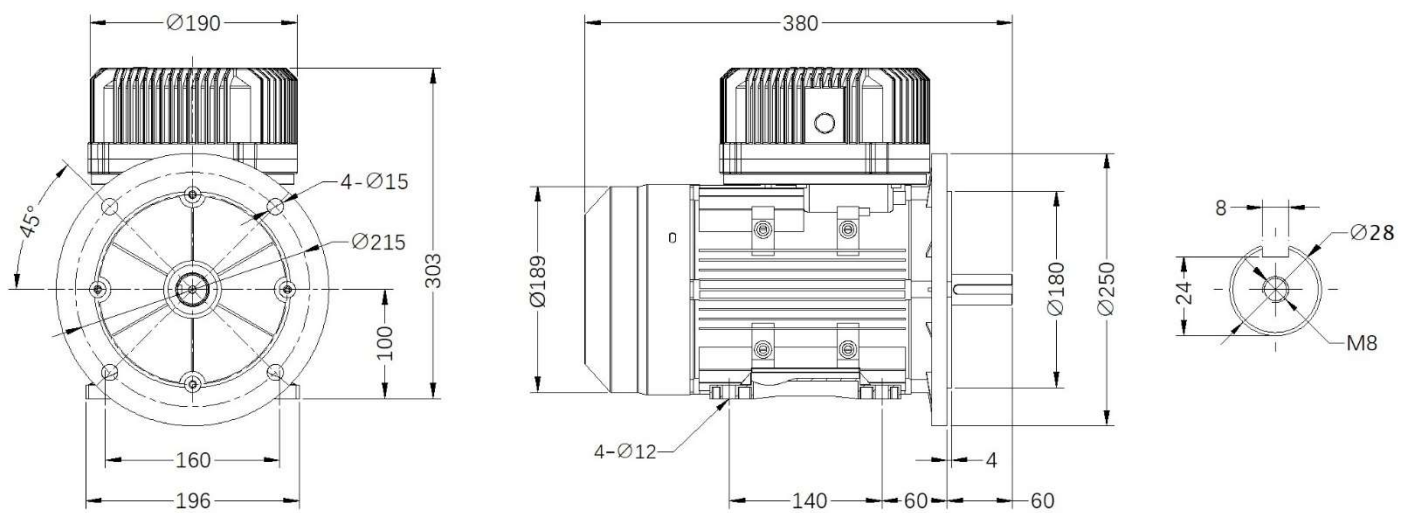


# EC100 Platform Mechanical Data (TEFC)

## EC100\_Foot & Small Flange-mounted(B34)



## EC100\_Foot & Scale Flange-mounted(B35)





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# EC 112

## Rasta EC Motor

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# Rasta EC Motor Presentation / EC112 Platform

## EC 112 Platform

TEFC Version



## Rasta EC Motor Overview / EC112 Platform

ITEM	DESCRIPTION
Motor Start Method	Electronic Reversing Start
Rated Power Supply	3~380VAC 50/60Hz
Rated Power	5.5kW
Rated Speed	1,000 / 1,500 / 3,000rpm
Ambient Temp.	-30°C ~ +40°C
Energy Efficiency	IE5
Protection Grade	IP55 / IP66
Insulation Class	Class F
Over Load Capacity	1.25* Rated Torque (Long Term) 1.5* Rated Torque (Short Term)
Starting Torque Capacity	2.0* Rated Torque
Outline Dimension	216mm X 323mm X 410mm
Mounting Arrangement	B3 / B5 / B14 / B34 / B35
Cooling Mode	TEFC
Weight	<32.5 kg
Application	<ul style="list-style-type: none"><li>- Compressor, Pump, Conveyors</li><li>- Adjustable Working Speed</li><li>- High Requirement For Environmental Control, Energy Efficiency</li></ul>

# EC112 Platform

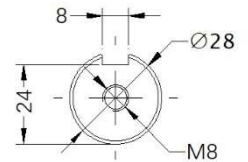
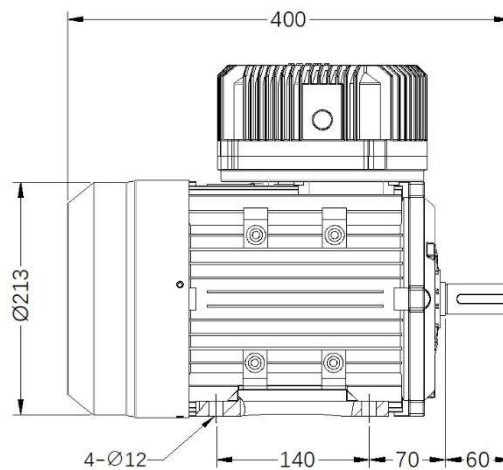
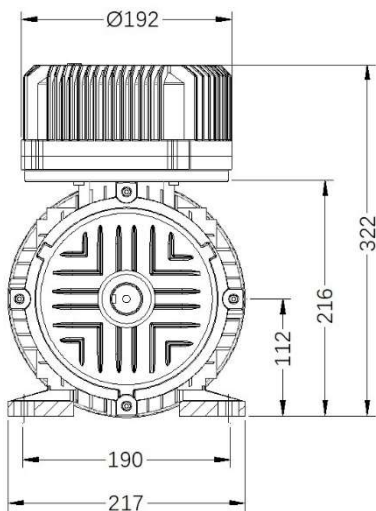
## Electrical Performance Data (@3~380VAC 50Hz)

Platform Name	Rated Power (kW)	Rated Torque (Nm)	Rated Speed (rpm)	Eff. (%)	Power Factor	Full Load Current In(A)	Weight (kg)
EC112	4	50.9	750	89.7	0.75	< 9.9	23.2
EC112	5.5	52.5	1,000	92.1	0.78	<11.6	18.5
EC112	5.5	35.0	1,500	93.8	0.79	<12.7	16.6
EC112	5.5	17.5	3,000	92.9	0.79	<12.7	17.5

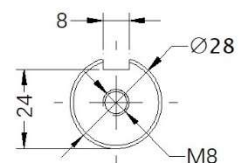
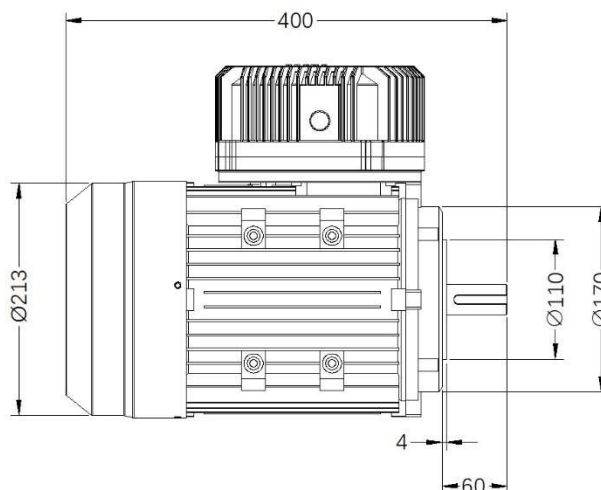
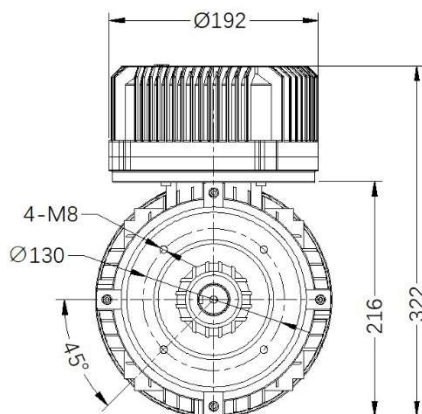
# EC112 Platform

## Mechanical Data (TEFC)

### EC112\_Foot-mounted(B3)



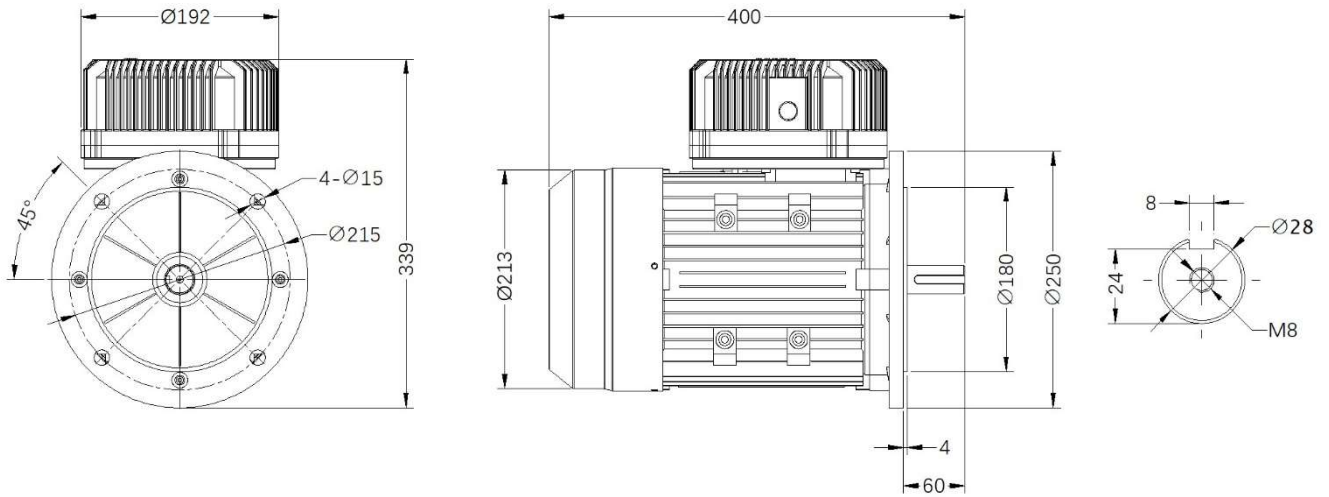
### EC112\_Small Flange-mounted(B14)



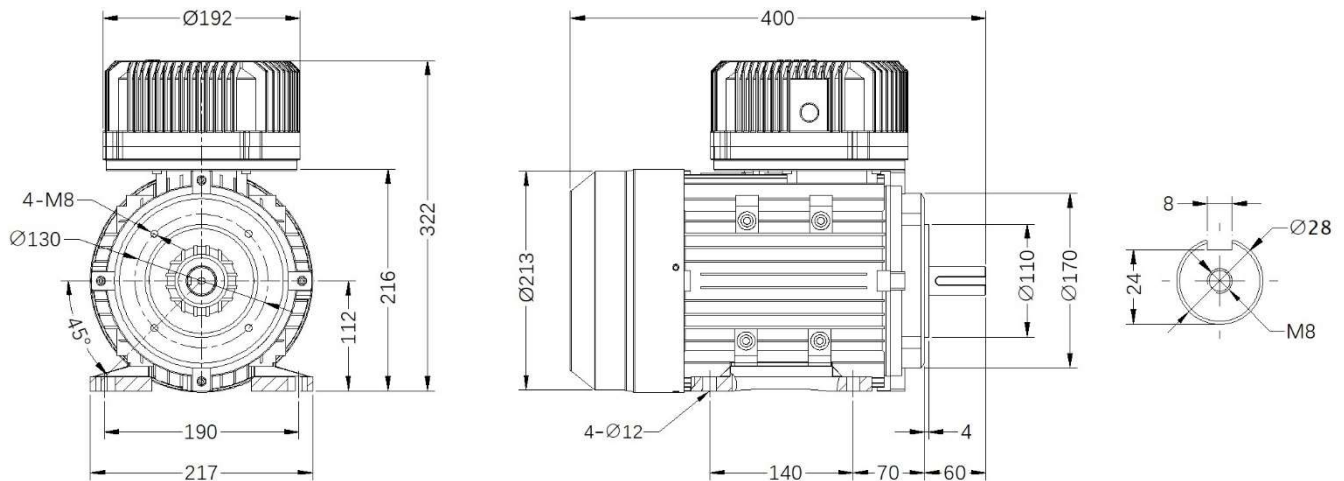
# EC112 Platform

## Mechanical Data (TEFC)

### EC112\_Scale Flange-mounted(B5)



### EC112\_Foot & Small Flange-mounted(B34)



### EC112\_Foot & Scale Flange-mounted(B35)

