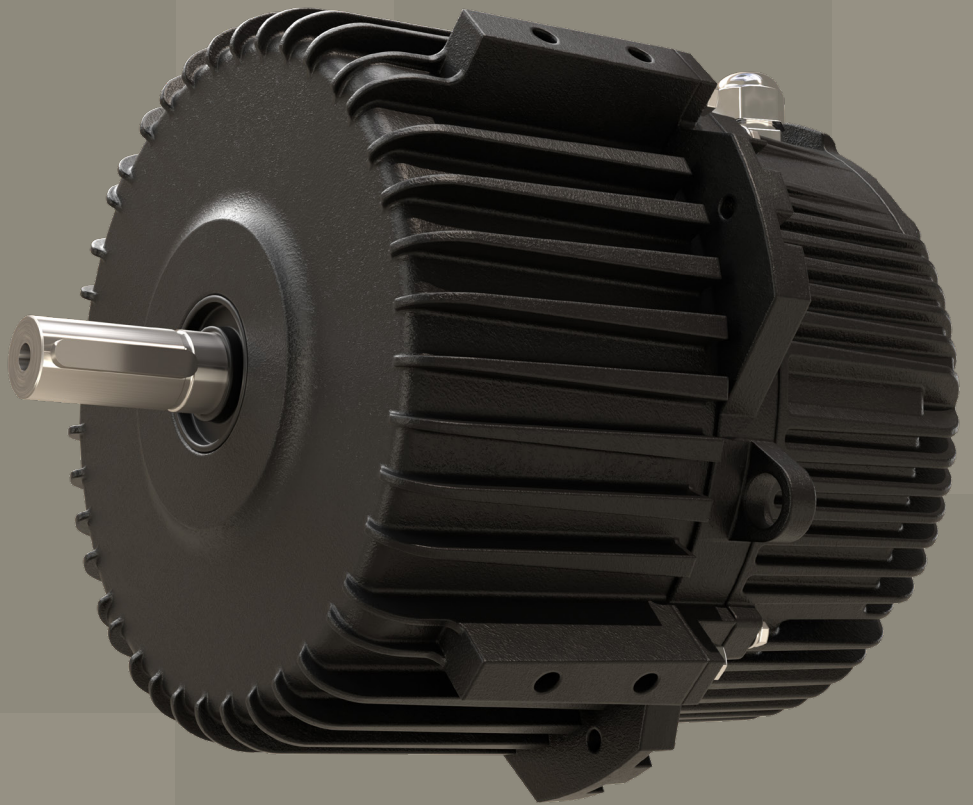


Technical Catalogue

# EC Motors



**Together**  
we outsmart  
the ordinary

**HOYER**





# Together we outsmart the ordinary

Hoyer is a global supplier of high-performance and energy-efficient electric motors and automation systems. Since 1974, we have helped our customers operate more economically and environmentally sustainable businesses by providing solutions that are fit for purpose and support that goes all the way.

Our approach to service, logistics, and customisation are what make us different. With headquarters in Denmark and China and supported by a global network of sales offices, we combine local presence and expertise with global reach.

When you work with us, you'll have access to engineers and configuration experts who help you balance the tradeoff between customisation and cost.

By maintaining high stock levels, we act as an extension of our customers' operations, ensuring motors are always available and ready for delivery when you need them.

We've built a reputation for being more than a supplier; we are a knowledge partner in your industry.



# General information

EC Motors refers to an electronically commutated motor, which is designed to run on an alternating current (AC) power supply, but in fact bears a closer resemblance to a direct current (DC) motor. It is essentially a permanent magnet, brushless DC motor that incorporates on-board electronics. The added electronics allow an EC motor to combine the best features from both AC and DC motors, and then improve on them. For this reason, an EC motor is in a category of its own. Hoyer currently developed EC motors in four series, category ranges from A to F with three kinds: single phase, three phase and the resin series.

Hoyer Motors are used across the world and have a proven quality, high reliability and performance.

## Product advantages

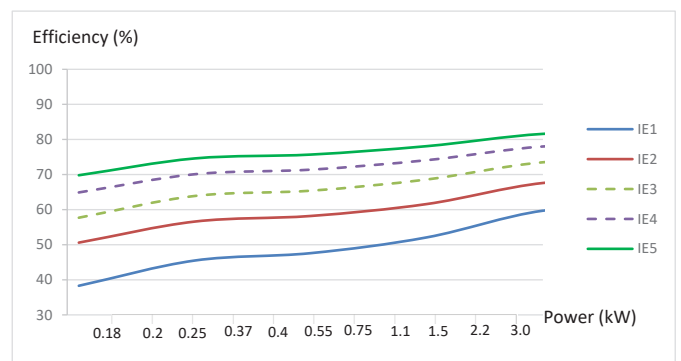
Efficiency:	≥ IE5
Anti-demagnetization:	Yes
Communication mode:	Various with PWM, 0-10V, RS485
IP Class:	Maximum to IP66
Stepless speed regulation:	Yes
Emi immunity:	EN61000-6-4, EN61000-6-2, EN61000-3-2/3, EN61800-5-1

# Energy efficiency and MEPS

Energy efficiency is a main focus area related to CO2 emissions and industrial pollution. Across borders legislation and Minimum Energy Performance Standards (MEPS) are put into force to improve the efficiency of electric motors. The European MEPS is defined in the Ecodesign directive and Hoyer EC fulfils these future regulations. In theory a higher motor efficiency will result in electrical energy savings.

In addition to lower emissions the financial return of investment is also considerable. With a service life of 10-15 years the energy consumption of an electric motor often accounts for more than 90% of the total cost of ownership. Therefore, the payback time for an IE5 motor compared to an IE4 is in many cases less than 2-3 years depending on motor size and operating hours.

Efficiency curves for IE5, IE4, IE3, IE2 and IE1 motors



# Applications

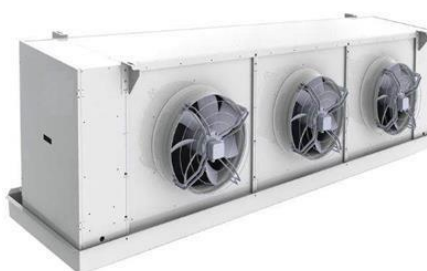
EC motors are prioritized to be applied in HVAC and fan system. Ventilation systems represent an excellent opportunity for two main reasons:

- **Ventilation fans commonly require fractional power, and they are often driven by inexpensive and very inefficient motors.**
- **Many fixed-speed ventilation fans employ intermittent operation, which represents a chance to use EC motors running at reduced speeds.**

EC fans are also a highly recommended upgrade for air handling units. They can achieve a more uniform temperature distribution with their speed control. In many cases, they can be continuously run at partial speed and still provide a decrease in utility bills.

Continuous circulation provides even distribution of fresh air and temperatures. Thus, fans with EC motors help to promote better circulation, comfortable and health.

Since EC motors are highly efficient, less energy is dissipated in the form of heat. This makes EC fans very appealing for cooling applications because it reduces a system's load. High efficiency also means that less energy is lost in the form of sound, allowing EC fans to operate quieter.



# Hoyer EC Series

## HMEC48 Series

Standards:	IEC 60034 series
Rated power:	0.19-0.75 kW
Input voltage:	Single phase at 115/230/460VAC, three phase at 380-480 VAC
Frequency:	50/60Hz
Power factor:	$\geq 0.7$
Ambient temperature:	-20 to 55°C. Others on request
Speed control mode:	COM, PWM, 0-10VDC
Mounting form:	B3, B30, hoop installation
IP Class:	IP20 to IP55. IP56 and IP66 on request
Coating:	C3H, C4H
Speed:	200-2000 rpm

## HMEC56 Series

Standards:	IEC 60034 series
Rated power:	1.1-2.2 kW
Input voltage:	Three phase at 380-480 VAC
Frequency:	50/60Hz
Power factor:	$\geq 0.9$
Ambient temperature:	-25 to 55°C. Others on request
Speed control mode:	PWM, 0-10VDC
Mounting form:	B3, B30, B14
IP Class:	IP55. IP56 and IP66 on request
Coating:	C3H, C4H
Speed:	200-1800 rpm

# Hoyer EC Series

## HMEC112 Series

Standards:	IEC 60034 series
Rated power:	1.1-1.8 kW
Input voltage:	Three phase at 380-480 VAC
Frequency:	50/60Hz
Power factor:	$\geq 0.9$
Ambient temperature:	-25 to 55°C. Others on request
Speed control mode:	PWM, 0-10VDC
Mounting form:	B30
IP Class:	IP55. IP56 and IP66 on request
Coating:	C3H, C4H
Speed:	200-1800 rpm

## HMEC132 Series

Standards:	IEC 60034 series
Rated power:	1.5-3 kW
Input voltage:	Three phase at 380-480 VAC
Frequency:	50/60Hz
Power factor:	$\geq 0.9$
Ambient temperature:	-25 to 55°C. Others on request
Speed control mode:	PWM, 0-10VDC
Mounting form:	B30
IP Class:	IP55. IP56 and IP66 on request
Coating:	C3H, C4H
Speed:	200-1800 rpm

## HMEC Resin Series

Standards:	IEC 60034 series
Rated power:	1.5-3 kW
Input voltage:	On request
Frequency:	60Hz
Speed control mode:	PWM, COM
Speed:	200-1300 rpm. Others on request

# Hoyer EC Category

## Category A

### 5-Speed motor with pug-in terminals

Control variable:	Constant speed
Speed control voltage:	24 VAC
Discrete speed:	5 in maximum
Speed range:	200-2000 rpm
Phase:	Single, three
Supply voltage:	VAC
Frequency:	50, 60 Hz
IP class:	IP20-IP22
Application:	Indoor

## Category B

### 5-Speed motor without pug-in terminals

Control variable:	Constant speed
Speed control voltage:	24 VAC
Discrete speed:	5 in maximum
Speed range:	200-2000 rpm
Phase:	Single, three
Supply voltage:	VAC
Frequency:	50, 60 Hz
IP class:	IP20-IP44
Application:	Indoor, outdoor

## Category C

### Serial and PWM

Control variable:	Constant torque, constant speed modes
Speed control voltage:	PWM with serial communication
Rotation direction:	Adjustable
Speed range:	200-2000 rpm
Phase:	Single, three
Supply voltage:	VAC
Frequency:	50, 60 Hz
IP class:	IP20-IP55
Application:	Indoor, outdoor



# Hoyer EC Category

## Category D

### Speed control voltage (0-10V) motor

Control variable:	Constant speed
Speed control voltage:	0-10 VDC with high-linearity
Speed range:	200-2000 rpm
Phase:	Single, three
Supply voltage:	VAC
Frequency:	50, 60 Hz
Mounting form:	Customized
IP class:	IP44-IP55
Application:	Indoor, outdoor

## Category E

### Separable control motor

Control variable:	Constant torque, constant speed modes
Control mode:	COM, PWM, 0-10V, 5 discrete speeds
Rotation direction:	Adjustable
Speed range:	200-2000 rpm
Phase:	Single, three
Supply voltage:	VAC
Frequency:	50, 60 Hz
IP class:	IP42-IP55
Application:	Indoor, outdoor

## Category F

### Dual shaft motor

Control variable:	Constant torque, constant speed modes
Control mode:	COM, PWM, 0-10V, 5 discrete speeds
Rotation direction:	Adjustable
Speed range:	200-2000 rpm
Phase:	Single, three
Supply voltage:	VAC
Frequency:	50, 60 Hz
IP class:	IP20-IP44
Application:	Indoor

# Hoyer EC Electrical

Motor type	Phase	Voltage (AC)	Frequency (Hz)	Power (kW)	Rated speed (rpm)	Speed range (rpm)	Rated current (A)	Efficiency (%)
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## HMEC48

HMEC4810B14	1	115, 230	50, 60	0.19	720, 960, 1000, 1050, 1200	200~1200	3.1, 1.8	81%
HMEC4810B12	1	115, 230	50, 60	0.25	720, 960, 1000, 1050, 1200	200~1200	3.6, 2.4	82%
HMEC4810B12	1	115, 230	50, 60	0.37	720, 960, 1000, 1050, 1200	200~1200	5.9, 3.3	82%
HMEC4810A34	1	115, 230	50, 60	0.56	720, 960, 1000, 1050, 1200	200~1200	8, 4.68	83%
HMEC4810A11	1	115, 230	50, 60	0.75	960, 1000, 1050, 1200	200~1200	9.5, 5.8	84%
HMEC4810D14	1	115, 230	50, 60	0.19	1350, 1500, 1800	200~1800	3.7, 1.7	82%
HMEC4810D12	1	115, 230	50, 60	0.25	1350, 1500, 1800	200~1800	4, 2.2	83%
HMEC4810D12	1	115, 230	50, 60	0.37	1350, 1500, 1800	200~1800	5.9, 3.2	83%
HMEC4810C34	1	115, 230	50, 60	0.56	1350, 1500, 1800	200~1800	8.4, 4.5	85%
HMEC4810C11	1	115, 230	50, 60	0.75	1350, 1500, 1800	200~1800	10.7, 5.9	86%
HMEC4810E14	1	460, 480	50, 60	0.19	1000, 1050, 1200, 1500, 1800	120~1800	0.85	83%
HMEC4810E12	1	460~480	50, 60	0.25	1000, 1050, 1200, 1500, 1800	120~1800	1.6	86%
HMEC4810E12	1	460~480	50, 60	0.37	1000, 1050, 1200, 1500, 1800	120~1800	1.6	86%
HMEC4810E34	1	460~480	50, 60	0.56	1000, 1050, 1200, 1500, 1800	120~1800	2.25	87%
HMEC4810E11	1	460~480	50, 60	0.75	1000, 1050, 1200, 1500, 1800	120~1800	3	88%
HMEC4810F14	3	380~480	50, 60	0.19	1000, 1050, 1200, 1500, 1800	120~1800	0.52~0.45	84%
HMEC4810F12	3	380~480	50, 60	0.25	1000, 1050, 1200, 1500, 1800	120~1800	0.95~0.84	87%
HMEC4810F12	3	380~480	50, 60	0.19	1000, 1050, 1200, 1500, 1800	120~1800	0.95~0.84	87%
HMEC4810F34	3	380~480	50, 60	0.56	1000, 1050, 1200, 1500, 1800	120~1800	1.33~1.16	88%
HMEC4810F11	3	380~480	50, 60	0.75	1000, 1050, 1200, 1500, 1800	120~1800	1.77~1.52	89%

Motor type	Phase	Voltage (AC)	Frequency (Hz)	Power (kW)	Rated speed (rpm)	Speed range (rpm)	Rated current (A)	Efficiency (%)
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## HMEC56

HMEC5610A32	3	380~480	50, 60	1.1	720, 960, 1000, 1050, 1200	200~1200	2.4	86%
HMEC5610A21	3	380~480	50, 60	1.5	720, 960, 1000, 1050, 1200	200~1200	3.2	87%
HMEC5610A31	3	380~480	50, 60	2.2	960, 1000, 1050, 1200	200~1200	4.5	88%
HMEC5610B32	3	380~480	50, 60	1.1	1350, 1500, 1800, 2200	200~2200	2.4	88%
HMEC5610B21	3	380~480	50, 60	1.5	1350, 1500, 1800, 2200	200~2200	3.2	89%
HMEC5610B31	3	380~480	50, 60	2.2	1350, 1500, 1800, 2200	200~2200	4.5	90%

# Hoyer EC Electrical

Motor type	Phase	Voltage (AC)	Frequency (Hz)	Power (kW)	Rated speed (rpm)	Speed range (rpm)	Rated current (A)	Efficiency (%)
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## HMEC112

HMEC11210A32	3	380~480	50, 60	1.1	720, 960, 1000, 1200	200~1200	2.1~1.8	87%
HMEC11210A21	3	380~480	50, 60	1.5	960, 1000, 1200	200~1200	3.0~2.4	88%
HMEC11210B32	3	380~480	50, 60	1.1	1300, 1450, 1500, 1800, 2200	200~2200	2.1~1.8	88%
HMEC11210B21	3	380~480	50, 60	1.5	1300, 1450, 1500, 1800, 2200	200~2200	3.0~2.4	90%
HMEC11210B21	3	380~480	50, 60	1.8	1300, 1450, 1500, 1800, 2200	200~2200	3.5~2.8	91%

Motor type	Phase	Voltage (AC)	Frequency (Hz)	Power (kW)	Rated speed (rpm)	Speed range (rpm)	Rated current (A)	Efficiency (%)
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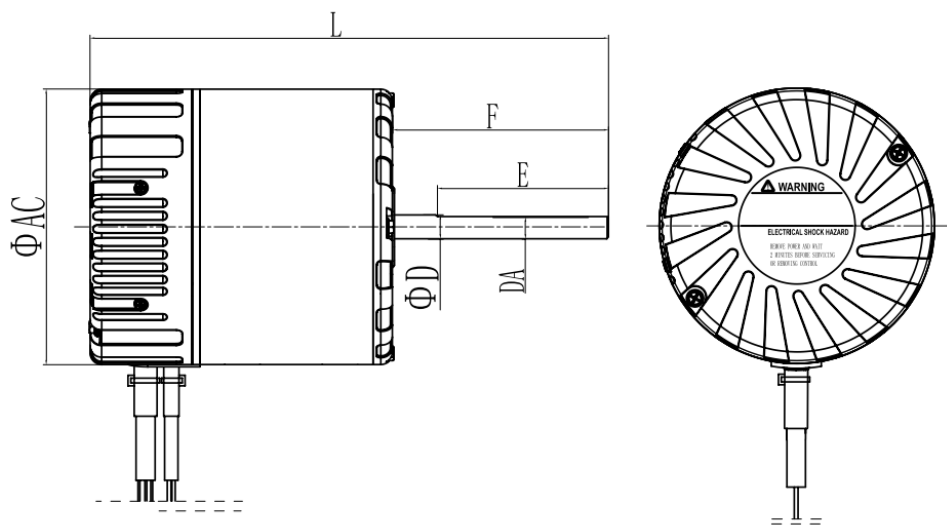
## HMEC132

HMEC13210A31	3	380~480	50, 60	1.5	720, 960, 1000, 1200	200~1200	3.0~2.4	89%
HMEC13210A31	3	380~480	50, 60	1.8	720, 960, 1000, 1200	200~1200	3.5~2.9	89%
HMEC13210A31	3	380~480	50, 60	2.2	720, 960, 1000, 1200	200~1200	4.3~3.5	90%
HMEC13210A72	3	380~480	50, 60	2.6	960, 1000, 1200	200~1200	5.0~4.0	90%
HMEC13210A41	3	380~480	50, 60	3.0	960, 1000, 1200	200~1200	5.8~4.5	90%
HMEC13210B31	3	380~480	50, 60	1.5	1300, 1450, 1500, 1800	200~1800	3.0~2.4	90%
HMEC13210B31	3	380~480	50, 60	1.8	1300, 1450, 1500, 1800	200~1800	3.5~2.9	90%
HMEC13210B31	3	380~480	50, 60	2.2	1300, 1450, 1500, 1800	200~1800	4.3~3.5	91%
HMEC13210B72	3	380~480	50, 60	2.6	1300, 1450, 1500, 1800	200~1800	5.0~4.0	91%
HMEC13210B41	3	380~480	50, 60	3.0	1300, 1450, 1500, 1800	200~1800	5.8~4.5	91%

# Hoyer EC Mechanical

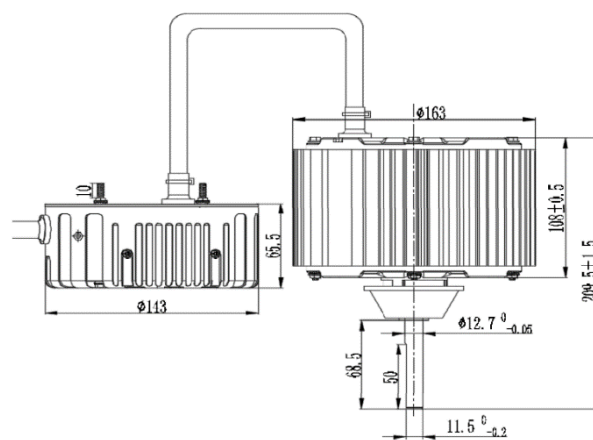
Dimensions (mm)

HMEC48 Category A to D					
D	E	F	L	AC	DA
Customized	Customized	Customized	Customized	143	Customized



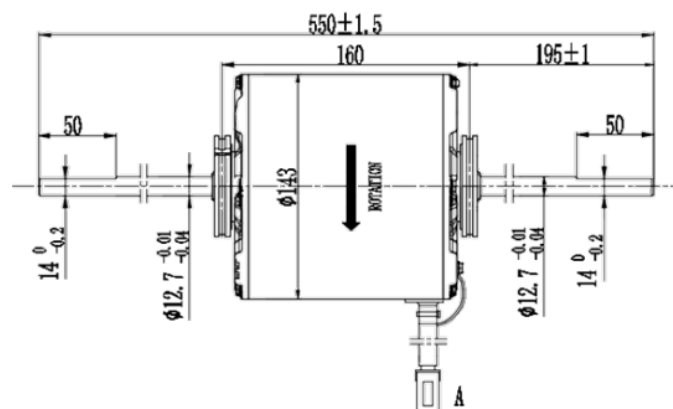
## Dimensions (mm)

HMEC48 Category E



## Dimensions (mm)

HMEC48 Category F

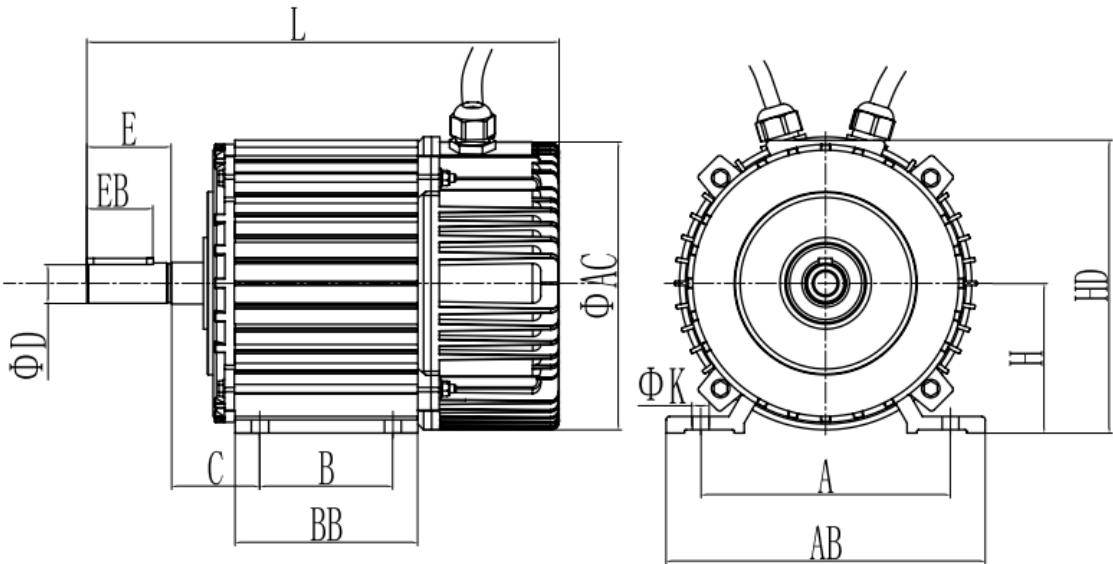




# Hoyer EC Mechanical

Dimensions (mm)

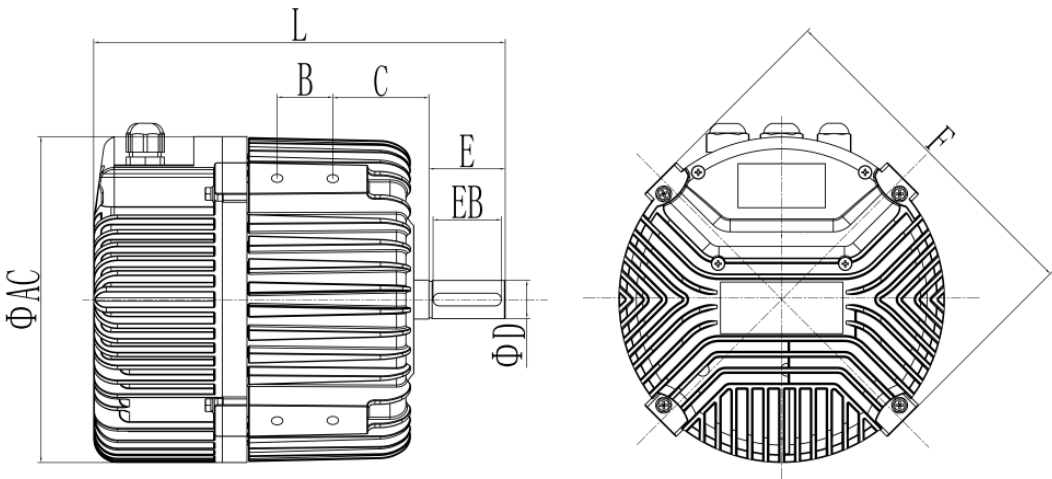
HMEC56												
A	B	C	D	E	H	K	L	AB	AC	BB	EB	HD
140	100	/	20, 24	/	90/100	11	/	180	138.5	130	/	141



# Hoyer EC Mechanical

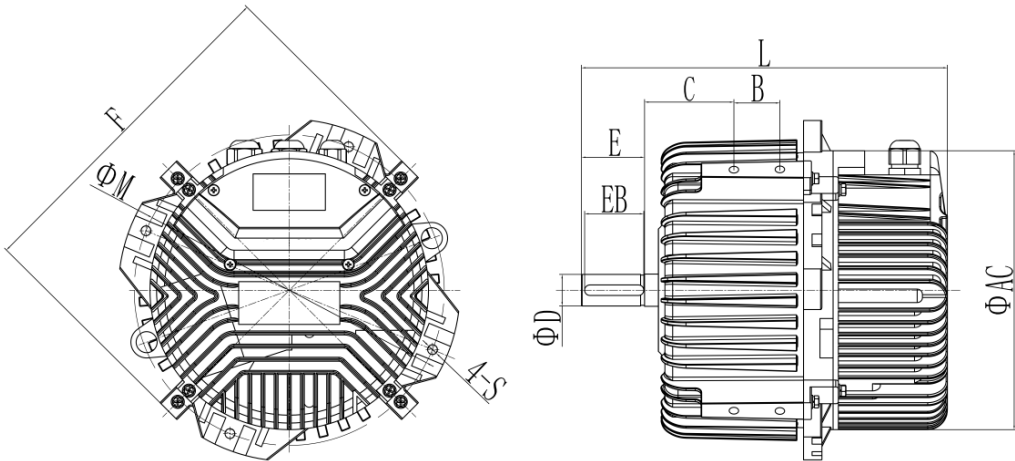
Dimensions (mm)

HMEC112							
B	C	D	E	F	L	AC	EB
35	60.5	24	/	216	259	205	/



Dimensions (mm)

HMEC132							
B	C	D	E	F	L	AC	EB
35	68	24, 28	/	260	278.5	212	/



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Scan for more  
information on  
Hoyer EC motors

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