



NEW SERIES  
HIGH EFFICIENCY MOTORS

**ECM HBR**

**IP66 / IP67**


**ELCO®**

*state of art technology for state of art performance*

DROP-IN  
REPLACEMENT

ECM HBR motors are high efficiency drop-in replacements of the traditional shaded-pole ones. Can use all the same accessories such as brackets, fans, rings and guards, with no-extra work and cost to the full benefit of fast and convenience.





ENERGY SAVING  
MOTORS  
AND FAN FOR  
REFRIGERATION

Elco developed and realised a high efficiency motor where its prerequisite was to save most of energy compared to shaded-pole motor.

ECM HBR motors presents efficiency rates up to 72%. When used to move cold air at evaporators, ECM HBR motor is able to reduce the load of the compressor and thus its operating time, allowing further energy savings.

The sensible energy saving widely compensates the greater cost of ECM HBR motors, with pay-back in just few months.

*The advantages respect to shaded-pole solution are:*

- High efficiency, up to 72%*
- IP66 / IP67 protection versions*
- Reduced depth compared to shaded-pole motors*
- Drop-in replacement with the Elco N series*
- Possibility to use the Standard accessories.*



GENERAL  
SPECIFICATIONS

HBR motors can be universally applied, but are particularly suited to the refrigeration and ventilation industry, especially refrigerated display cases, freezers, drink dispensers and small condensers.

The motor is available in two sizes in relation to the power request and the fans mounted, from 154 mm to 254 mm, in Aluminium or plastic, with different pitches.

Motor	230 V - 50/60 Hz - IP66/67
Connection	by two-lead cable
Rotation	Counter clock wise looking the shaft
Mounting position	any
Ball bearings	
Operating temperature	-30°C + 60°C
Speed	1400 rpm
Approvals	CE, CCC, EAC, ATEX, RoHS
Standards	EN 60335-1 EN 61000-3-2 + A1/A2 EN 55014-1

COMPATIBILITY  
TABLE WITH  
ELCO BLADES

P  
i  
t  
c  
h

Diameter (mm)

1	1	2	2	2
5	7	0	3	5
4	2	0	0	4

1  
9  
°

2  
2  
°

2  
5  
°

2  
8  
°

3  
1  
°

HBR 12-10

HBR 20-25

3



## DIMENSIONS

HBR 12-  
10

HBR 20-  
25

A [mm]

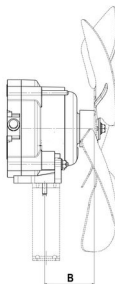
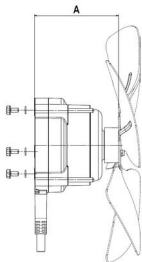
81

96

B [mm]

46

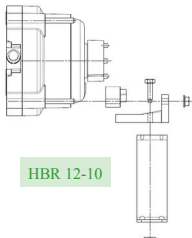
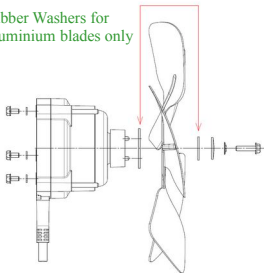
46



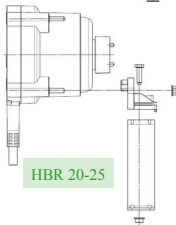
MOUNTING  
INSTRUCTIONS

Following mounting instruction to safely install the motor  
and prevent undesired vibrations

Rubber Washers for  
Aluminium blades only



HBR 12-10



HBR 20-25

## OPERATING INSTRUCTIONS

Adhering to the operating instructions is a prerequisite for faultfree operating and fulfillment if any right to claim under warranty.

Read the operating instructions before you start working with the unit. No paying attention to these warnings and instructions may lead to malfunctions and failures or may seriously endanger human life.

You must comply with the information contained in these operating instructions to ensure safe operating of the electric motors and to achieve the specified product characteristics and performance features. Regal Beloit Italy does not assume liability for injury or damage to equipment or property resulting from nonobservance of these operating instructions. In such case, any liability for defects is excluded.

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ECM different type ventilators are not ready-to-use products, but designed as components for refrigerators, air supply and air extraction. The fans may only be operated when they are installed as intended, and when safety is ensured by safety equipment according to EN 60335-1 for by other protection measures

### SAFETY INFORMATION



This unit should only be installed or opened by a qualified technician!

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

This unit is solely intended as a built-in component as per EN 60335-1, EN 60730 and should not be operated otherwise. Sufficient protection against accidental contact according to machinery directive MSR has to be safeguarded, especially for the rotating parts. Should there be a malfunction, it still has to be safeguarded that the parts breaking off or flying away cannot cause serious damage or bodily harm.

The fans are only intended for the transfer of air or airlike mixtures.





## OPERATING INSTRUCTIONS

The fans are only to be operated within the ranges specified on the motor name-plate or in the technical specification released by Technical Dept.

Do not make any modification, additions or conversation to the device without the approval from Regal Beloit Italy.

The unit complies with the applicable standard and regulation and meets the requirements of the Low Voltage Directive 2014/35/EU and EMC guideline 2014/30/EU.

The unit meets the following standards:

enclose (IP code)	EN 60529	Degree of Protection provided by
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Compatibility	EN 55014-1&2 + EN 61000	Electromagnetic
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	Safety of household and similar	appliances (see the Declaration of conformity)
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Stand on a rubber mat if you are working on an electrically charged device

Wait one minute after disconnecting the voltage before opening the device

Do not touch the fan blade once it is installed

When motor is powered on, it has to run after few. If not, switch off and switch on again to re-start. Always waiting few seconds to verify the functionality. In case the motor doesn't move, replace it.

Secure the device against accidental contact and make sure, when device stop, to wait until fan blade is completely stopped before working on the machine

Check fan blade fixing screw, it must not be loose.

Appliance must be use in permitted ambient temperature, see technical data



## OPERATING INSTRUCTIONS



### Connection and Start up

Check the device for transport damage, the motor must not be installed if any damage is evidenced. Install the fan motor in accordance to your application

Use only cables that meet the specific installation requirements for voltage, current, insulation material, load, etc.

Before connecting the device, ensure that the power supply voltage matches the operating voltage of the device. When fan motor is powered up, verify the correct direction of the fan blade and make sure it cannot touch any fixed part.

When working on the fan, the operator must switch off the machine in which the fan is installed and secure it from being switch on again. Because of the embedded EMC filter used for compliance with EMC limits, idle current in the main cable can be measured even when the motor is at a standstill and the main voltage is switched on.

Checking the connection. Make sure the power is off, check the correct fit of the cables, switch on the motor fan and verify neither cable nor the fan blade touch fixing parts. Check the appropriate fan blade to match the motors looking at the fan motor table. The correct matching depends of the motor size, fan blade diameter/pitch and fan motor speed, to avoid inappropriate combination.



## OPERATING INSTRUCTIONS

### TECHNICAL DATA

Power voltage: 230 V - single phase

Frequency: 50/60 Hz

No load current: 0,025 A

Speed: single

Operating temperature:  $-30^{\circ}\text{C} + 60^{\circ}\text{C}$

Application: CR ( Commercial Refrigeration )

Insulation class: B

Protection degree: IP66 / IP67

Operating mode: S1, intermittent is permitted

EMC immunity & emission: EN 55014-1/2

EMC harmonics: EN 61000 -3-2/3

Direction of rotation: Counter-Clockwise shaft end

Locked rotor protection: via hardware & software

Overload protection: fuse, hardware & software

Bearings: ball bearings

Motor enclosure : PA plastic

Fan blade material: plastic or Alu

Connection cable: two cord cable

Product conforming to Standard: EN60335-1

Max. permissible ambient motor temperature( transp./storage):  $+80^{\circ}\text{C}$

Min. permissible ambient motor temperature( transp./storage):  $-20^{\circ}\text{C}$



Made in China by  
Regal Beloit Italy

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