

# ECM HC Energy Saving Motors

BROCHURE

**REGAL**®

# INTRODUCTION

## COMPANY

**ELCO®** is one of the few world-wide manufacturers with more than 50 years experience in the production of fans for refrigeration and air conditioning. Its acknowledged leadership is the result of a specific know-how both in the design and in the manufacturing of fractional horsepower motors allied to an excellent mastery of aerodynamic techniques, as well as a range of products that satisfy all the market requirements.

The recent international development of the ELCO Group, whose manufacturing plants are now located in three continents, represents the best preliminary condition to launch "ELCO solutions" onto an already "global" and not just "domestic/European" market, both as far as integrated solutions or single basic component are concerned.

## DESIGN

The multi decade experience in the design of these particular fans is stored in a huge and unique database that allow us to offer customers a wide range of technical solutions which optimize the selection of the most suitable fan for any single application.

The technical team is provided with CAD and software systems complete with 3D, an advanced laboratory for electric and aerodynamic tests, in compliance with AMCA 210-99 rules, a sound proof room for the noise power test as per UNI EN ISO 3741:2001, "cold" and "tropical" climatic chambers, suitable for the simulation of the real working environmental conditions of the fans.

The "Research and Development" department is engaged in a never ending quest for innovative solutions such as air volumes regulation, energy efficiency improvement and noise level reduction etc. solutions that are often ahead of market requirements.

## PRODUCTION

To satisfy the request from the market, ELCO heavily invested in the production systems that are designed and engineered applying "SIX SIGMA" and "LEAN PRODUCTION" methodologies. The automation of the systems, the handling of minimum lot, the control and training of the teams permits to reach the highest quality standard in the market and to maximize the capability and flexibility of the production.

ELCO's philosophy is to consider the production a continuous improvement process to grant our customers always a higher value product. All the procedures are submitted to real time checking allowing a constant control of the process, making them more efficient. This control enables an optimal employment of the available resources focusing on the reduction of all waste.

## PRODUCT

The compact axial fans type CFE (Electronic Compact Fan) are designed for the use in the industrial and commercial refrigeration and for the climate control.

These fans, controlled by permanent magnet motors, present a higher efficiency compared with the traditional motors granting an energy saving up to 50%. The special design of the fan blade associated to the motor type ECM, supply a global high efficiency in compliance with the new European directive EuP 125/2009.

The motor, with electronics on board, is closed into a die-cast aluminum body, specially suitable to work in the most severe environment. The protection IP55 grants a high insulation degree against the penetration of solid and liquid. The power and the signal cables, 0-10 Vdc, are connected to the electronic board with two soldered PG.

The fan blades in thermoplastic or steel, have been designed with the purpose to obtain a compact high efficiency fan with a reduced sound level. The fan, thanks to its electronics, can develop a variable speed through the signal 0-10 Vdc, allowing the energy savings as a function of the environmental conditions. The result is a variable speed fan very efficient able to operate in severe conditions optimizing its performances.

## FEATURES

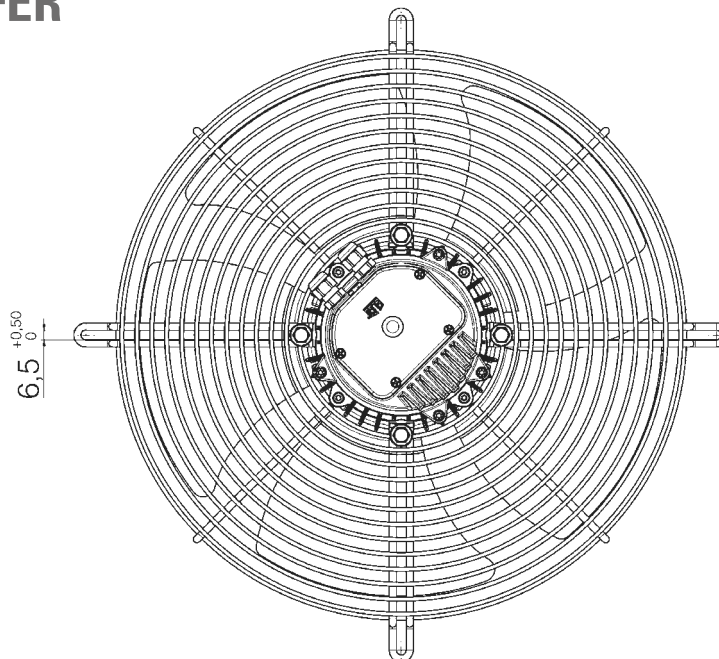
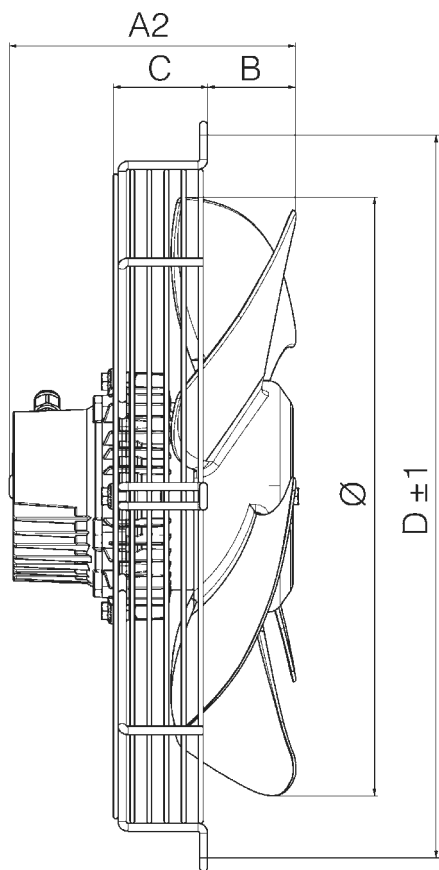
- Closed motor, protection degree IP55.
- Compact motor with die-cast aluminum, cover closure gaskets and connection box.
- Assembled control card protected against humidity.
- 230V - 50/60 Hz
- Starting up with
- Protection against over current, overvoltage and overheating.
- Variable speed through 0-10 Vdc.
- Working temperature -40°C +60°C.
- Insulation class B.
- Fan blades range from 300 mm to 400 mm diameter.

The control card has been designed and realized so that it can work also in the most severe environmental conditions. It is equipped with systems of control and protection that preserve the correct operation of the fan also with voltage peak, electromagnet troubles, bursts and overheating with a system that can reduce the motor power in case of high temperature on the control card.

All ELCO products are designed to give high level quality and long lasting performance. Applying this philosophy to our EC motors we can achieve a life expectancy of more than 60.000 hours in continuous working.

All ELCO motors are designed and manufactured in compliance with the low tension directive 2006/95/EC and electromagnetic compatibility 2004/108/EC with reference to EN 55014-1, EN 61000-3-2, EN 61000-3-3 and as per Machinery Directive 2006/42/EC and application of the Standard CENELEC EN 60335-1, EN 60335-2-24, EN 60335-2-80, EN 60335-2-89, EN 60529, EN 60034-1.

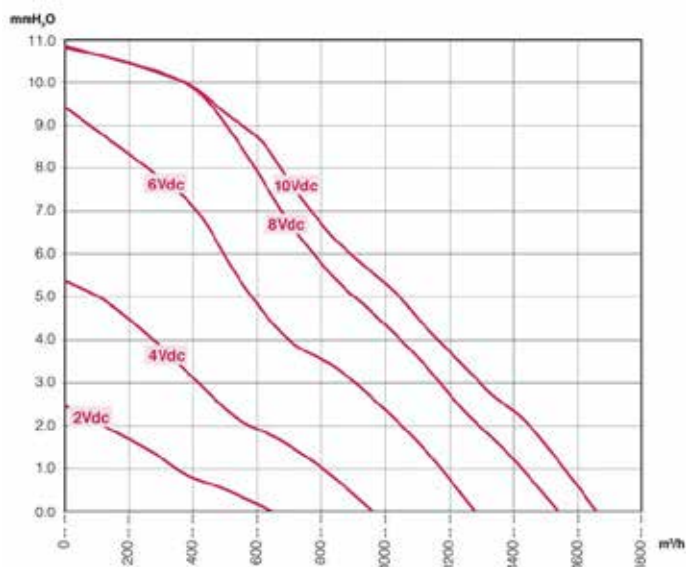
# ELECTRONIC AXIAL FANS CFER



**CFER Fan Motor Dimensions**

Ø	Description	A2	B	C	D
300 PL/Fe	CFER 60-20-300	167	26	75	Ø360
315 PL/Fe	CFER 60-20-315	167	26	75	Ø375
350 PL/Fe	CFER 100-40-350	167	26	75	Ø435
400 Fe	CFER 120-40-400	167	26	75	Ø500

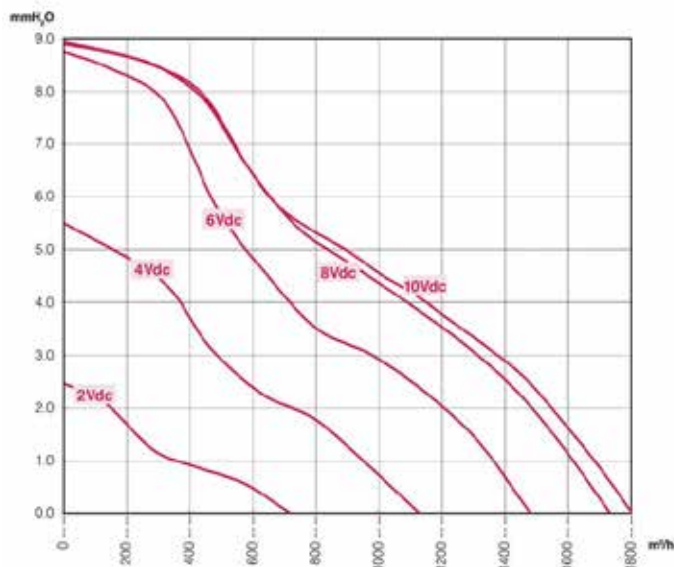
**Fan blade air performance curves Ø 300x28°**



Test	PEe-0009
Vdc	W in (*)
10	70
8	60
6	45
4	30
2	25

(\*) @ 0 mmH<sub>2</sub>O

**Fan blade air performance curves Ø 315x28°**

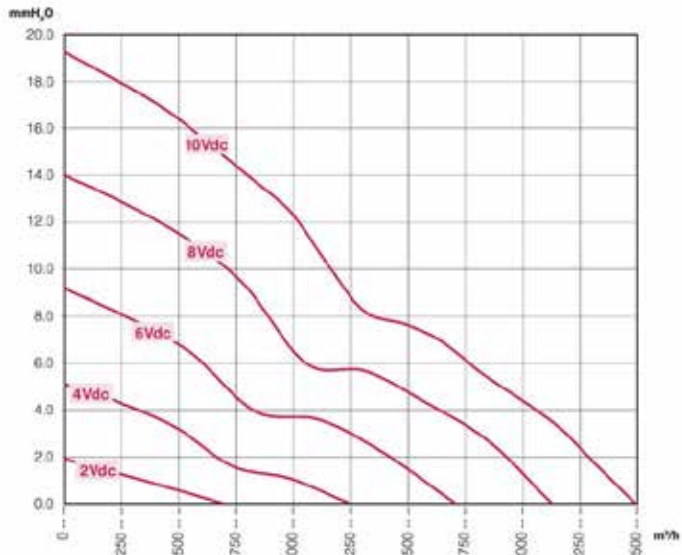


Test	PEe-0010
Vdc	W in (*)
10	80
8	75
6	55
4	35
2	25

(\*) @ 0 mmH<sub>2</sub>O



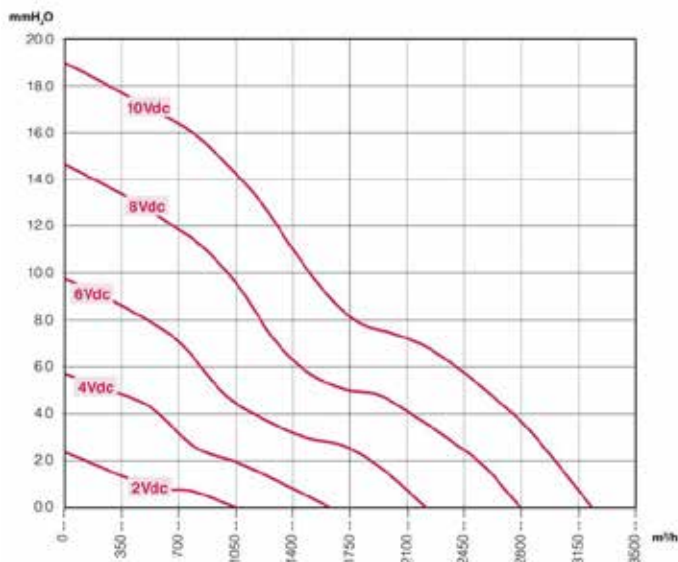
## Fan blade air performance curves Ø 350x25°



Test	PEe-0007
Vdc	W in (*)
10	100
8	80
6	50
4	35
2	25

(\*) @ 0 mmH<sub>2</sub>O

## Fan blade air performance curves Ø 400x22°



Test	PEe-0008
Vdc	W in (*)
10	140
8	100
6	60
4	40
2	25

(\*) @ 0 mmH<sub>2</sub>O



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### APPLICATION CONSIDERATIONS

The proper selection and application air system products and components, including the related area of product safety, is the responsibility of the customer. Operating and performance requirements and potential associated issues will vary appreciably depending upon the use and application of such products and components. The scope of the technical and application information included in this publication is necessarily limited. Unusual operating environments and conditions, lubrication requirements, loading supports, and other factors can materially affect the application and operating results of the products and components and the customer should carefully review its requirements. Any technical advice or review furnished by Regal Beloit Australia Pty Ltd and its affiliates with respect to the use of products and components is given in good faith and without charge, and Regal assumes no obligation or liability for the advice given, or results obtained, all such advice and review being given and accepted at customer's risk.

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