



# DE CARDENAS



## DXH Series

### CATALOGUE

*A company of Boldrocchi Group*

# GENERAL INFORMATION

Designed for transversal ventilation systems, metro and rail project and industrial process, the DXH Axial fans provide high air volume and high pressure, suitable for normal operating life of ventilation system and in emergency conditions when, beyond performances, a high reliability must be ensured for the smoke control.

The complete range of DXH fans meets all designer's and final user needs, are available with impeller diameters from 1000 mm to 2500 mm and power up to 1 MW.

All sizes of the range could be delivered with unidirectional or reversible flow (reversibility > 95%). On demand, fans can be supplied with a built-in "smart system" for for real-time monitoring of fan life parameters, managed by the tunnel control system or by wireless device.

The fans of the DXH series can also be supplied with certification according to the EN 12101-3: 2015 standards, the fans can be divided into three resistance classes based on the temperature and the required operating time in temperature.

Class	Maximum Temperature [°C]	Operating Time [h]
F 200	200	2
F 300	300	1
F 400	400	2

# FAN CODIFICATION

**DXH 200 R 30 250 (R)**

**Position of the electric junction box**  
(L) = left/sinistra (R) = right

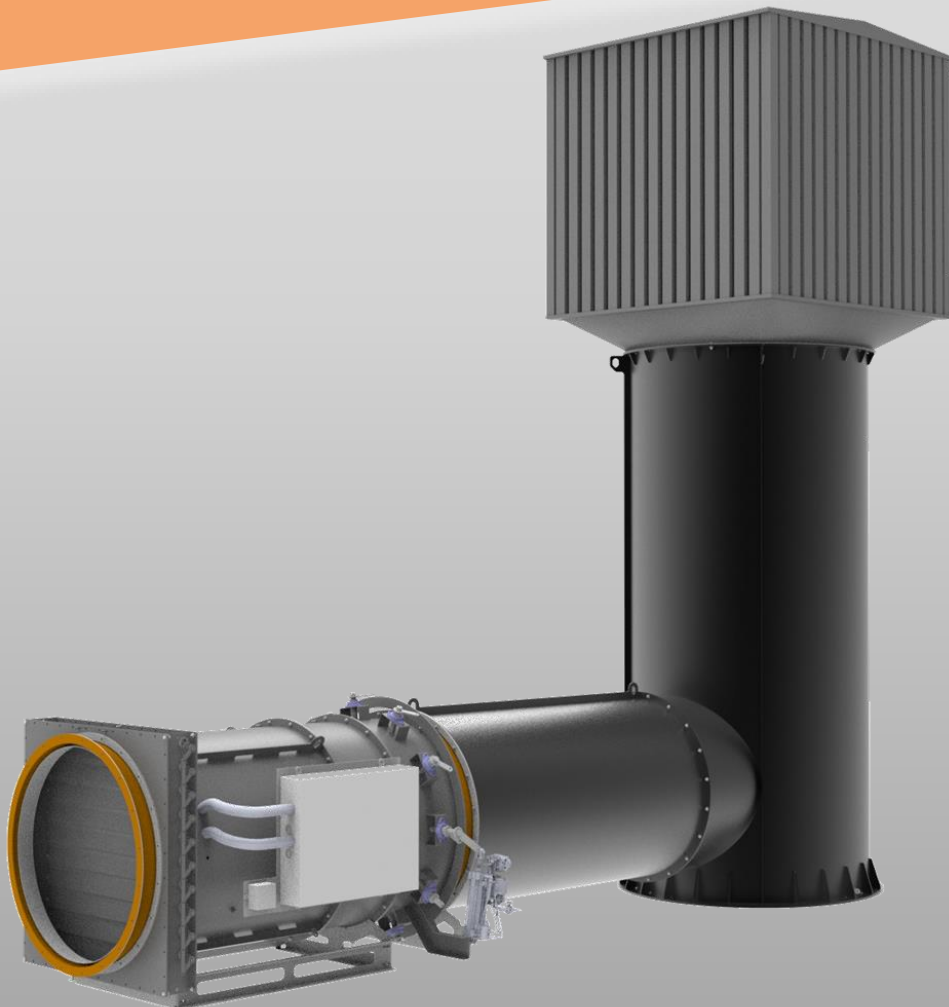
**Motor Power [kW]**

**Pitch Angle**

**Airflow direction:**

**R = Reversible U = Unidirectional**

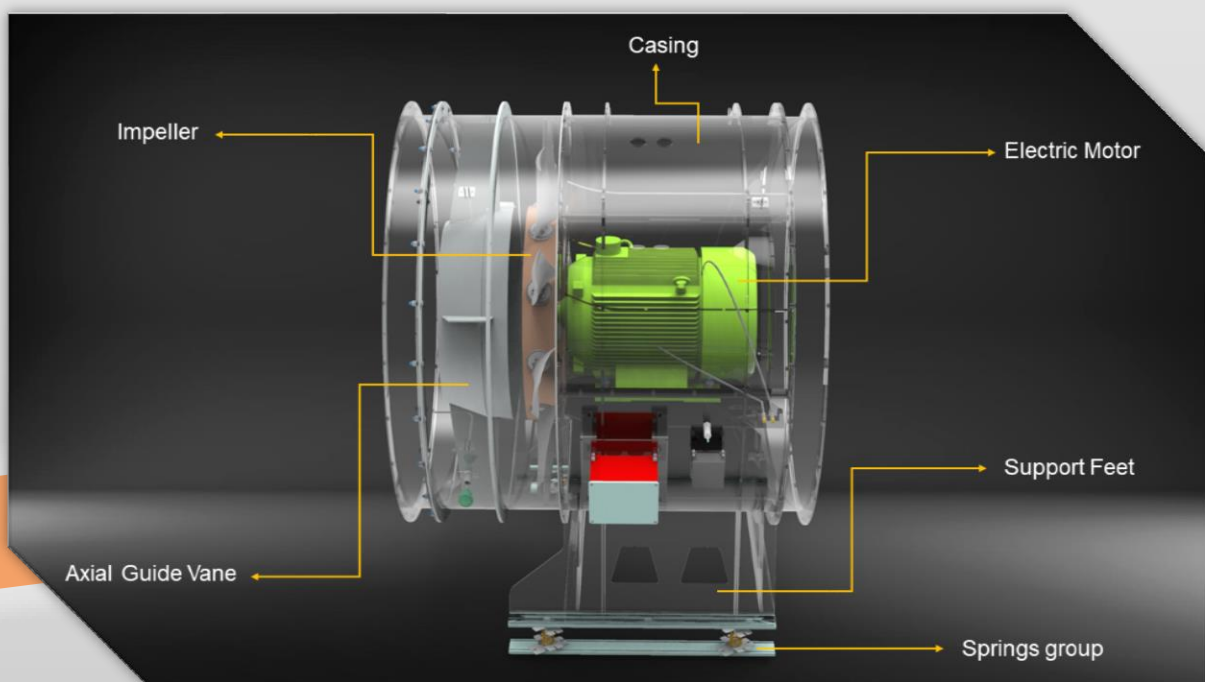
**Impeller diameter [cm]**



**DE CARDENAS**

## PRODUCT DESCRIPTION

The DXH is designed and built to operate in continuous service in the environmental conditions present at the installation site and withstand the mechanical, corrosive, thermal and humidity actions to which it will be exposed during operation. In case of emergency is able to resist to the high temperatures.



### MATERIAL FOR PRODUCTION

Casing and Supports can be manufactured with the following materials:

- carbon-steel plate, galvanized by immersion after working
- steel plate galvanized and painted with epoxy resin
- stainless steel plate AISI 304L
- stainless steel plate AISI 316L

# IMPELLER

The impeller of the fan is made of a fan wheel impeller, and blades with symmetrical wing contour (if reversible) attached to the fan wheel so to allow adjustment (could be increase or decrease the angle with a minimum of 3°) of the fitting angle on a stopped condition.

The blades are made of Silumin (Al Si 10 Mg) aluminium alloy, according to EN 1706 AB 43100 standard. The hub made of alloyed steel, is fitted or by not less than four bolts per blade. The hub is made of alloyed steel with anticorrosive finishing and is fitted with a steel insert, which allows direct coupling to the driving shaft (according to the standards UNI 6604 - 69) able to reduce the angular inertia and maintain a high structure resistance to mechanical and temperature load (emergency operating conditions). The rotating parts are checked in terms of casting integrity and uniformity check through X-ray examination according to the ASTM standards - E155 to check possible existence of air occlusions inside the casting.

The rotor is statically and dynamically balanced through electronic equipment according to the standards ISO 1940,  $G = 6.3$ , the vibration level is compliant with ISO 14694.

## CASING AND SUPPORTS

The casing cylindrical structure is apt for hard work conditions with drilled stiffening flanges both on the suction side and on the pushing side, built according to the ISO 6580 standard.

The case is built in such a way to avoid being excited at its own operating frequencies and furthermore it is set up to allow installation of the vibration sensor to ensure continuous monitoring of the fan vibrating status.

Fan casing is made from welded steel material.

The casing is built for and with lifting hooks to allow easy transportation during construction. Hangers will be provided to help move fan and part of it.



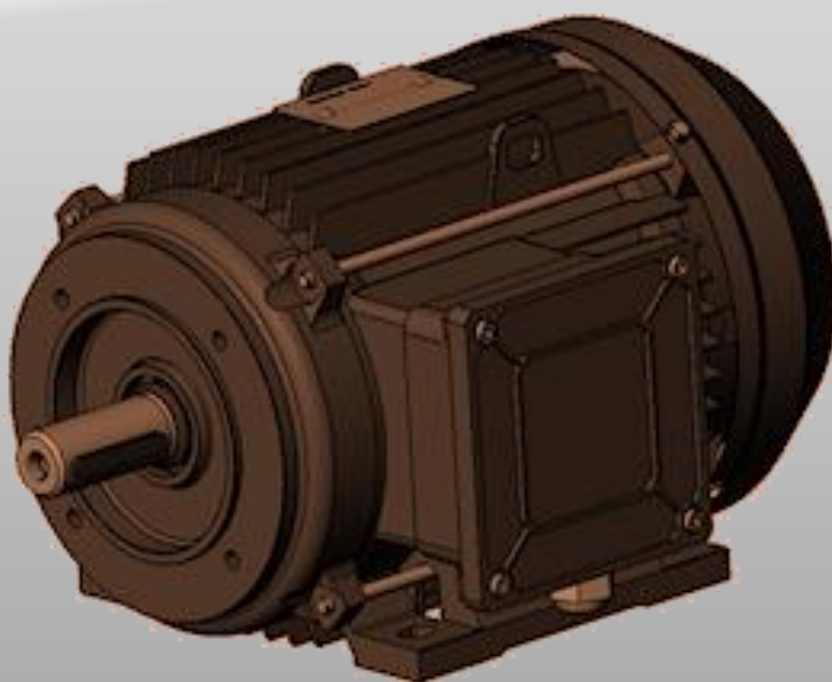
# ELECTRIC MOTOR

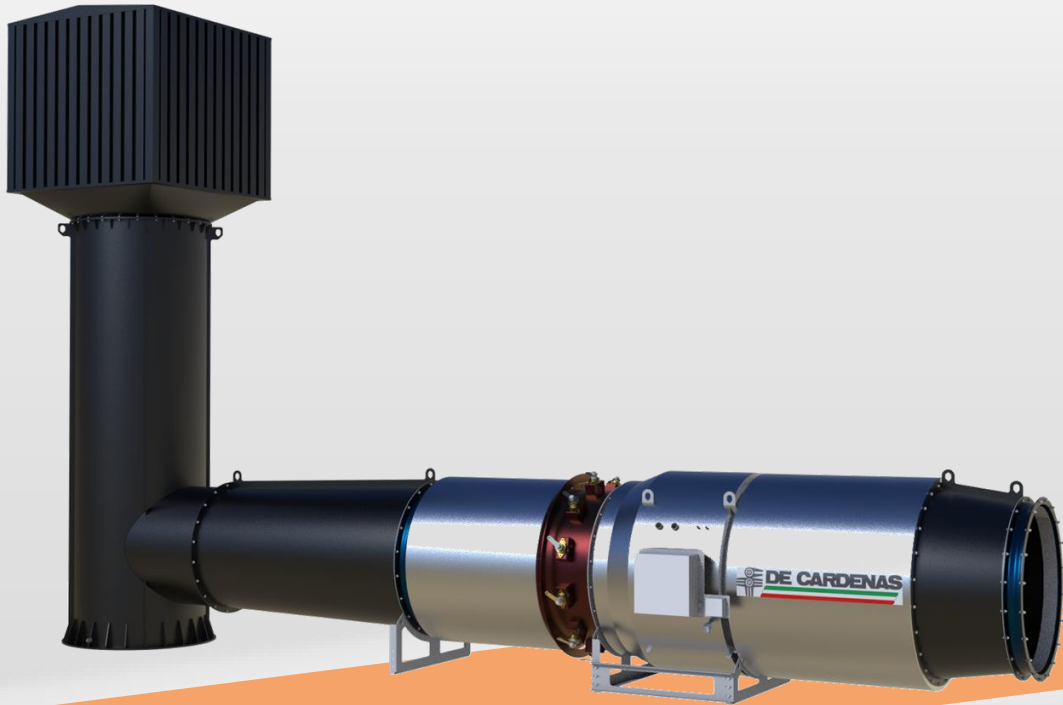
The electric motor is alternating current, asynchronous induction, three-phase with squirrel cage rotor and cooling according to IEC 34-6 standards. The motor complies with IEC Standards 34-1 and 34-5 and is suitable for direct starting and via soft-starter with continuous operation in multi-voltage 400 V / 690 V.

The motor can be started by a 400V inverter, if is required even at a voltage of 690V, a special impregnation of the windings will be carried out and it will be equipped with special DE-NDE bearings suitable for the purpose.

The construction is in B3 form (code I IMB3) in order to ensure maximum fan efficiency, improving the quality of the air flow that hits the impeller. The motor is of the totally closed type without cooling fan: TEAO (Totally Enclosed Air Over) cooled in the air flow of the fan. The motor also ensures rapid starting of the fan, even with a voltage reduced by 15%.

The mechanical protection of the motor and terminal box is IP55 and the motor insulation class is H. The bearings are of the pre-lubricated type sized according to ISO 281 - L 10 for a life of 20,000 hours, with an average life of the bearing of 100,000 hours.





## ACCESSORIES

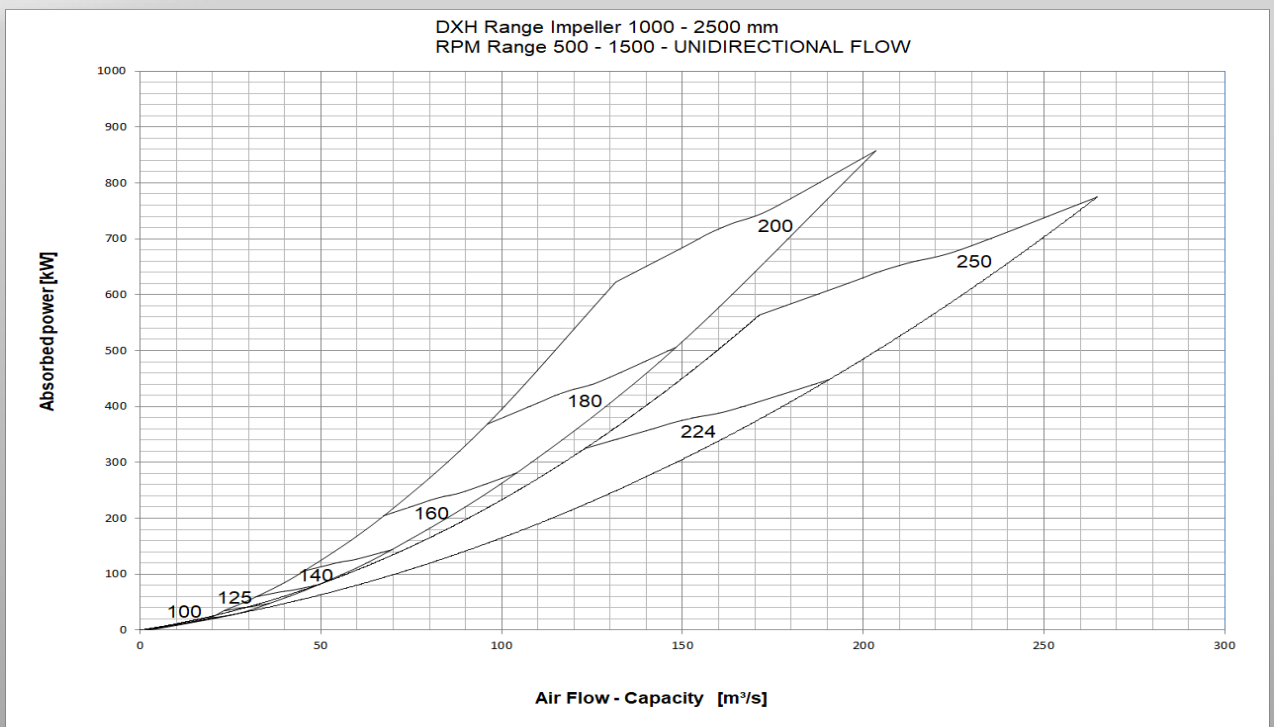
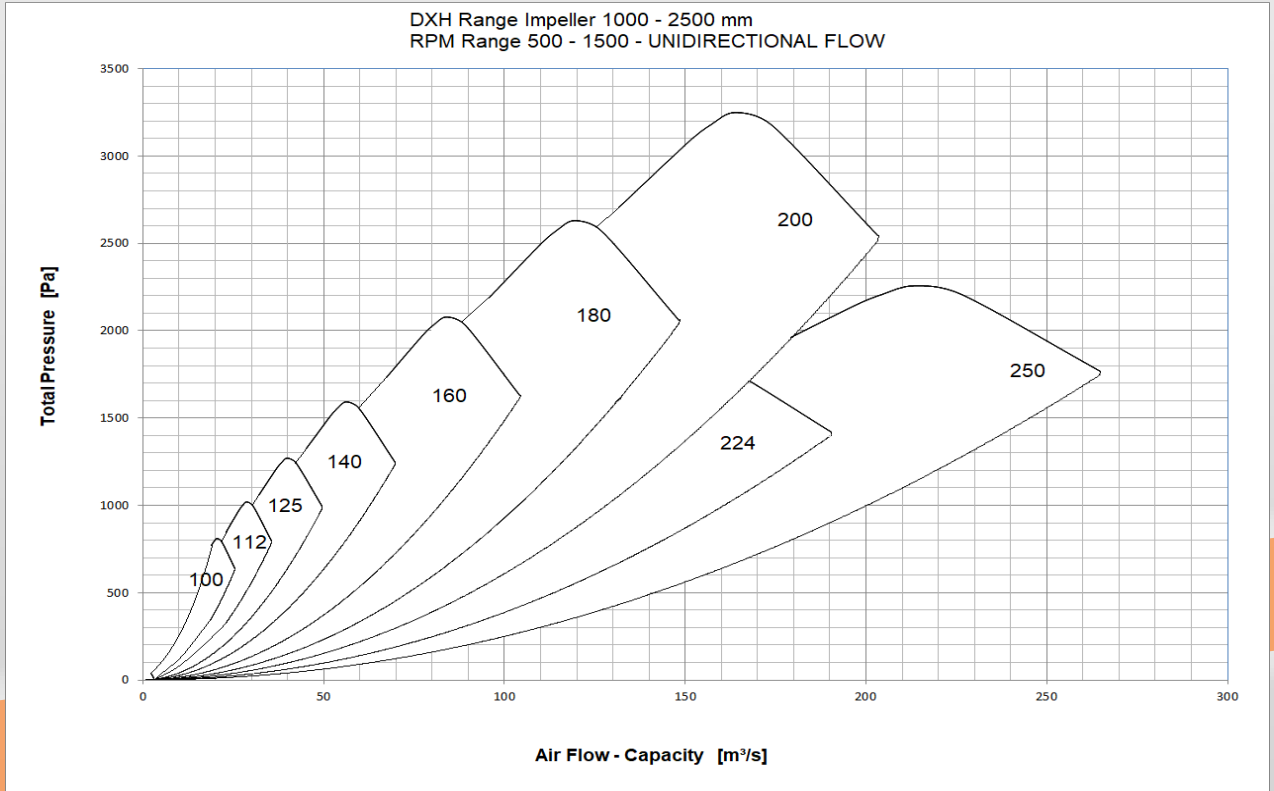
The fan can be supplied with the following accessories:

- **Smart System (1)**
- **Rubber insulators or anti-vibration springs**
- **Multi-points Vibration detection system (additional vibration transmitter on motor or fan casing)**
- **Anti-condensation heater**
- **Temperature detection system (PTC or PT100 on windings / Bearings)**
- **Inlet / outlet joints**
- **Cylindrical silencers**
- **Protection grids**
- **Baseframe (standard or inertial with CLS).**

(1) “Smart system” for real-time monitoring of fan life parameters, managed by the tunnel control system or by wireless device. For more information, please contact De Cardenas technical office.



## TECHNICAL DATA UNIDIRECTIONAL FLOW

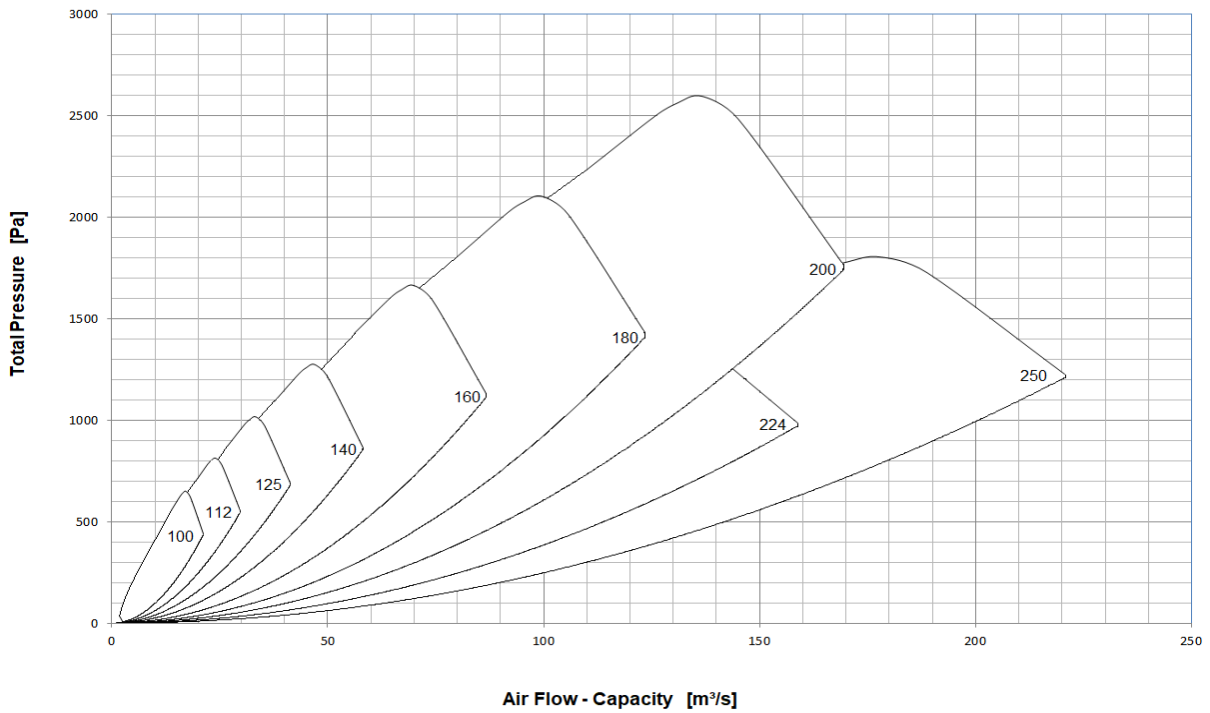




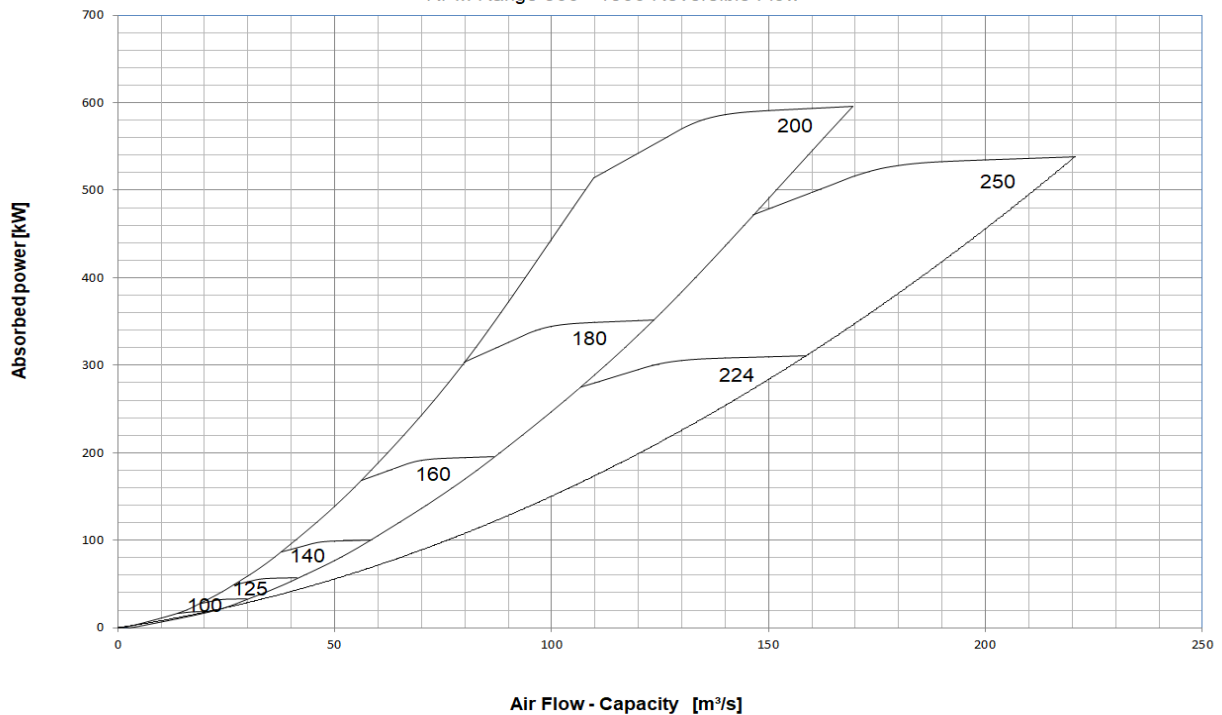
# TECHNICAL DATA

## REVERSIBLE FLOW

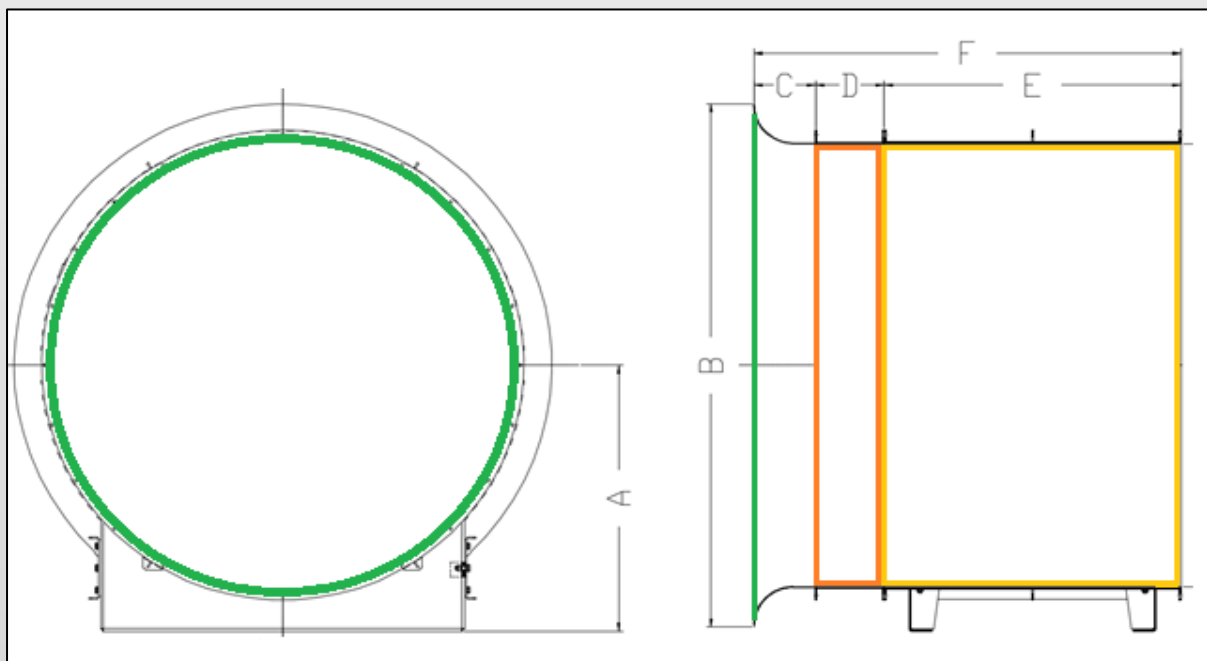
DXH RANGE IMPELLER 1000 - 2500 mm  
RPM Range 500 - 1500 Reversible Flow



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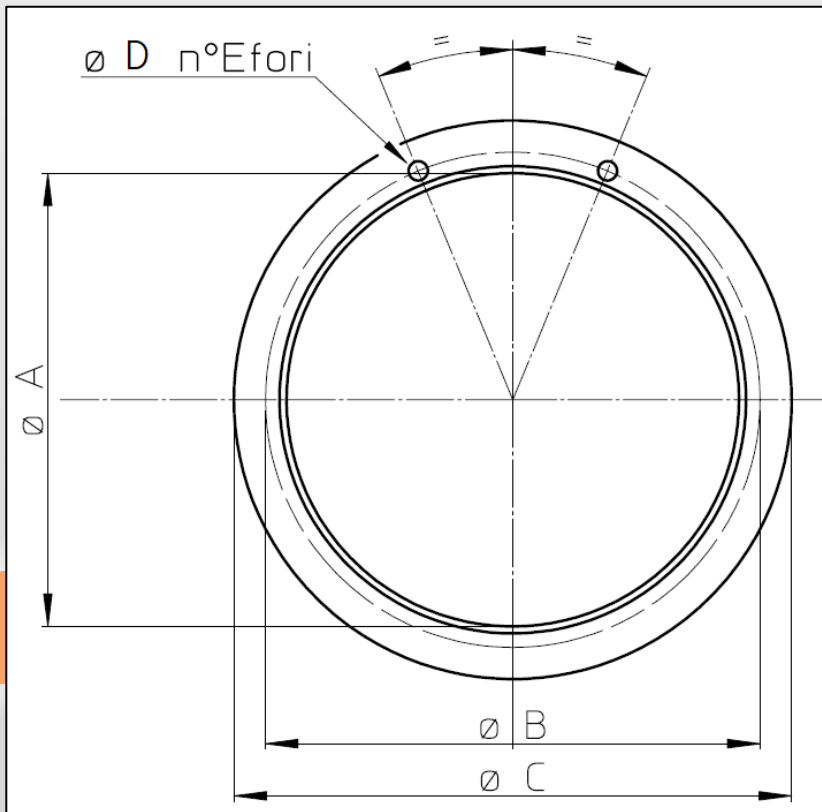
## MAIN DIMENSIONS



DXH SIZE	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
100	700	1220	200	200	600	1000
112	800	1380	200	200	600	1000
125	850	1500	200	230	700	1130
140	950	1700	200	250	780	1230
160	1050	1900	200	300	900	1400
180	1170	2140	240	300	1000	1540
200	1270	2340	270	300	1300	1870
224	1400	2580	300	300	1400	2000
250	1650	3000	350	300	1700	2350

(\* ) De Cardenas reserves the right to make technical changes

# FLANGES



DXH SIZE	A [mm]	B [mm]	C [mm]	D [mm]	E
100	1000	1070	1100	15	16
112	1120	1190	1240	15	20
125	1250	1320	1370	15	20
140	1400	1470	1520	15	20
160	1600	1680	1720	19	24
180	1800	1880	1920	19	24
200	2000	2080	2120	19	24
224	2240	2320	2360	19	24
250	2500	2580	2620	19	24

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**De Cardenas Fans & Service srl**  
**Via Lega Lombarda, 127 – Arcore (MB)**  
**Tel. +39 039 2282011**  
**[www.decardenas.it](http://www.decardenas.it)**