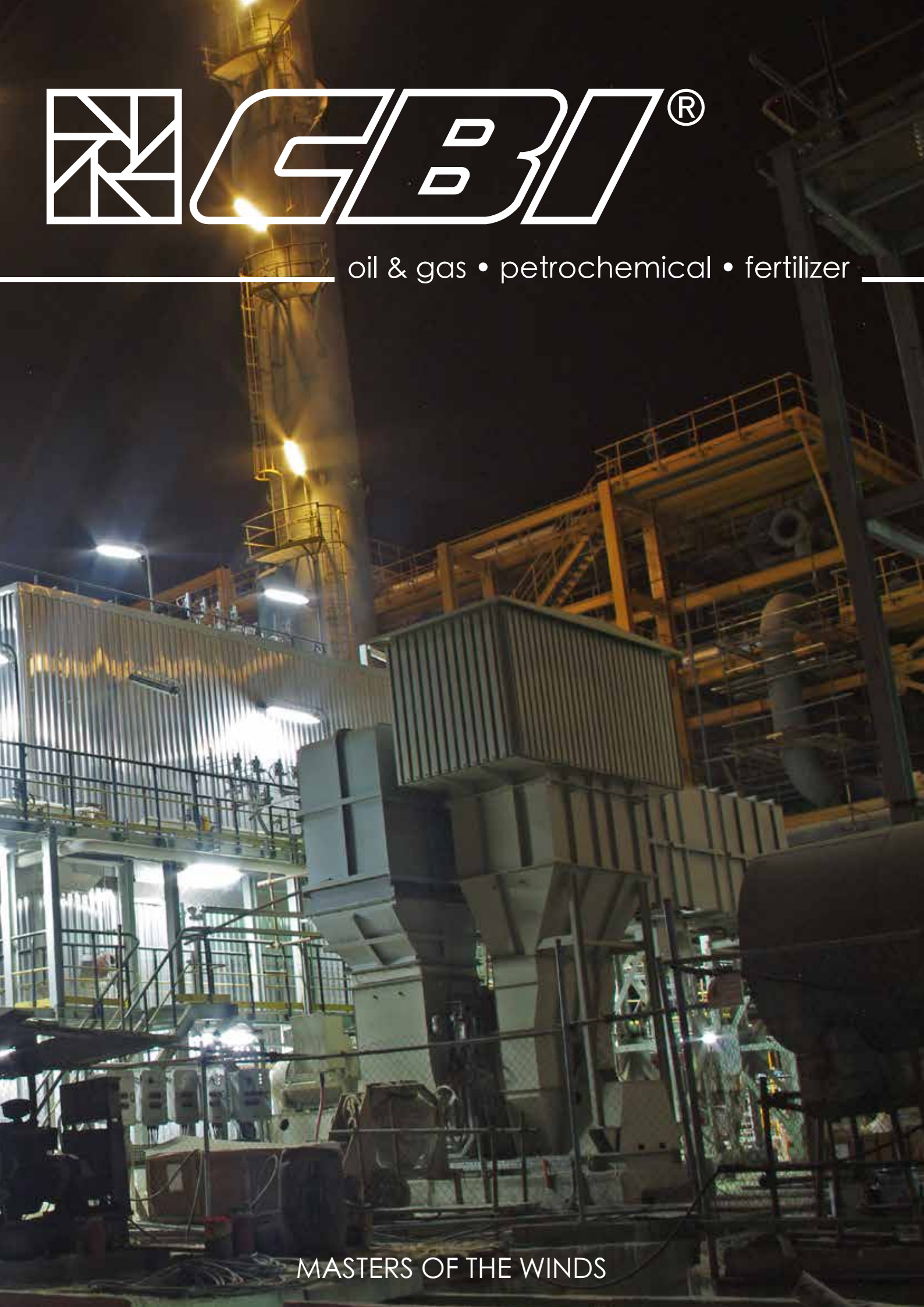




oil & gas • petrochemical • fertilizer



MASTERS OF THE WINDS

# OIL & GAS, PETROCHEMICAL, FERTILIZER.



We design and build complete fan systems in compliance with API 673 and API 560 regulations for Oil & Gas, chemical and petrochemical sector applications, supporting our clients in all phases of the project.

Heavy Duty fans have been engineered to operate in arduous conditions and offer benefits in the areas of:

- Energy consumption
- Resistance to build-up
- Resistance to high temperature
- Lifetime expectancy
- Erosion, corrosion and abrasion resistance
- Resistance to fatigue

Main characteristic:

- Flow rates up to 1.200.000[m<sup>3</sup>/h]
- Pressure up to 30.000 [Pa]
- Impellers with diameter up to 5 [m]
- Power installed up to 10 [MW].
- Engineered accessories and auxiliaries for a fully assembled fan skid



The high level of product customization and our long experience through several models installed in many plants, grant us to respect most of customers requirements and to share with them our knowledge in order to find out always the best available solution.

Industrie CBI Heavy Duty fans are expressly tailor made to satisfy even the strictest conditions, because each customer involved in such challenging projects deserves the best technology and a fully dedicated assistance from the bid inquiry stage to the final equipment installation and operating stage:

- Dedicated technical and sales team for each customers request for a quotation;
- Deep technical and commercial alignment to grant a quick job execution in case of order;
- Steady and direct communication with involved project management during equipment construction, in order to assist customer ongoing needs;
- Worldwide highly qualified assistance after delivery for any installation, commissioning, normal operations and maintenance issues.



## APPLICATION FIELDS



### OIL & GAS

- Hydrogen Reformer: forced draft fans; induced draft fans.
- Sulfur Recovery Units: main air blowers; incineration air blowers; recycle blowers.
- LNG: thermal oxidizer air blower.

### PETROCHEMICAL

- Ethylene Furnaces & Fire Heaters: forced draft fans; induced draft fans.
- Chlorination & Regeneration Plants: hot gas regeneration blowers; fines removal & elutriation blowers.
- Propylene Plants: forced draft fans; induced draft fans.

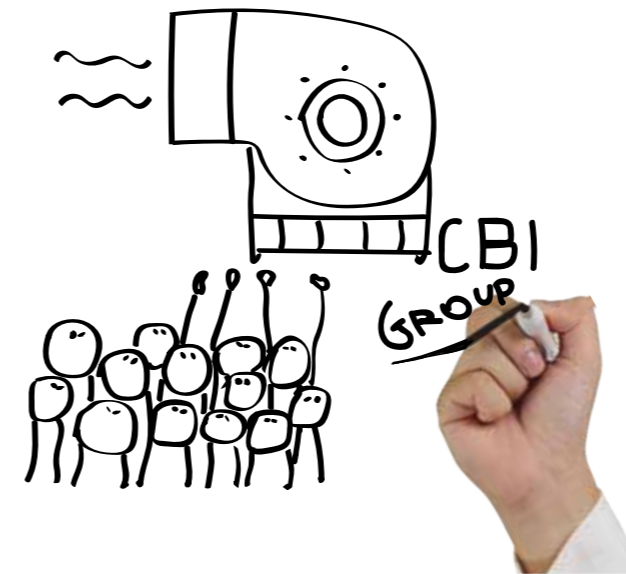
### FERTILIZER

- Urea Plant: granulator & cooler scrubber exhaust fans; granulator and fluid bed cooler fluidization air fans; atomization air blowers; dedusting & fumes extraction fans; CO2 blowers.
- Ammonia & Methanol Plant: forced and induced draft fans.
- Formaldehyde: pressurization air blowers; recirculation blowers.

# CBI GROUP

We are one of the main European manufacturers of industrial fans with: 5 production facilities, 6 branches throughout the world and over 23.000 fans produced annually.

Our values, which form the basis of our policy, are:



- competitiveness and a wide range of products;
- flexibility;
- dependability;
- company ethics.

All of which allow us to react quickly to market demands, always ready to gain a Clients trust while simultaneously consolidating relationships with our suppliers. Acquisition of important brands has contributed to the development and improvement of the Group, especially as regards technology, products and services. It is in this way that CBI Group becomes a constructive partner for our Clients.

Thanks to our know-how, technical competence and flexibility, CBI Group is one of the most important European companies in the sector, offering a wide range of solutions, from small, low kW fans to major installations with several MW of power.

## INDUSTRIE CBI

Industrie CBI was born in 1963 in Milan (Italy) and specialized its activity in the production of industrial fans. Currently Industrie CBI has three facilities in Italy, where equipment production is divided in accordance to their main features and in order to grant always the best job performances and delivery dates in accordance to market requirements:

- Gissi plant is the manufacturing point of excellence for the heavy duty fans, especially for the Oil & Gas sectors, thanks to a lean production philosophy fully integrated in the plant in order to satisfy the always challenging market and customers requirements of “engineer to order” products. Moreover the best technological features are applied in the plant test room to check each product compliance to project specifications and to allow customer witnessed tests.



## CBI SERVICE

It was founded with the aim of offering Aftersales Services during and after the warranty period for CBI fans and also for products of any other brand.

Main activities:

- Assistance during erection on site
- Assistance at start-up & commissioning
- Overhauling / revamping

## OIL & GAS



COMBUSTION AIR - ITALY



FLUE GAS FAN - TURKMENISTAN

## PETROCHEMICAL



FRESH AIR FAN - KUWAIT



FORCED DRAFT FAN - KUWAIT



PURGE AIR FAN - OMAN



AIR FAN - IRAN



FORCED DRAFT FAN - RUSSIA

## FERTILIZER



GRANULATOR AIR FAN - AZERBAIJAN



INDUCED GAS FAN - SINGAPORE

## ACCESSORIES



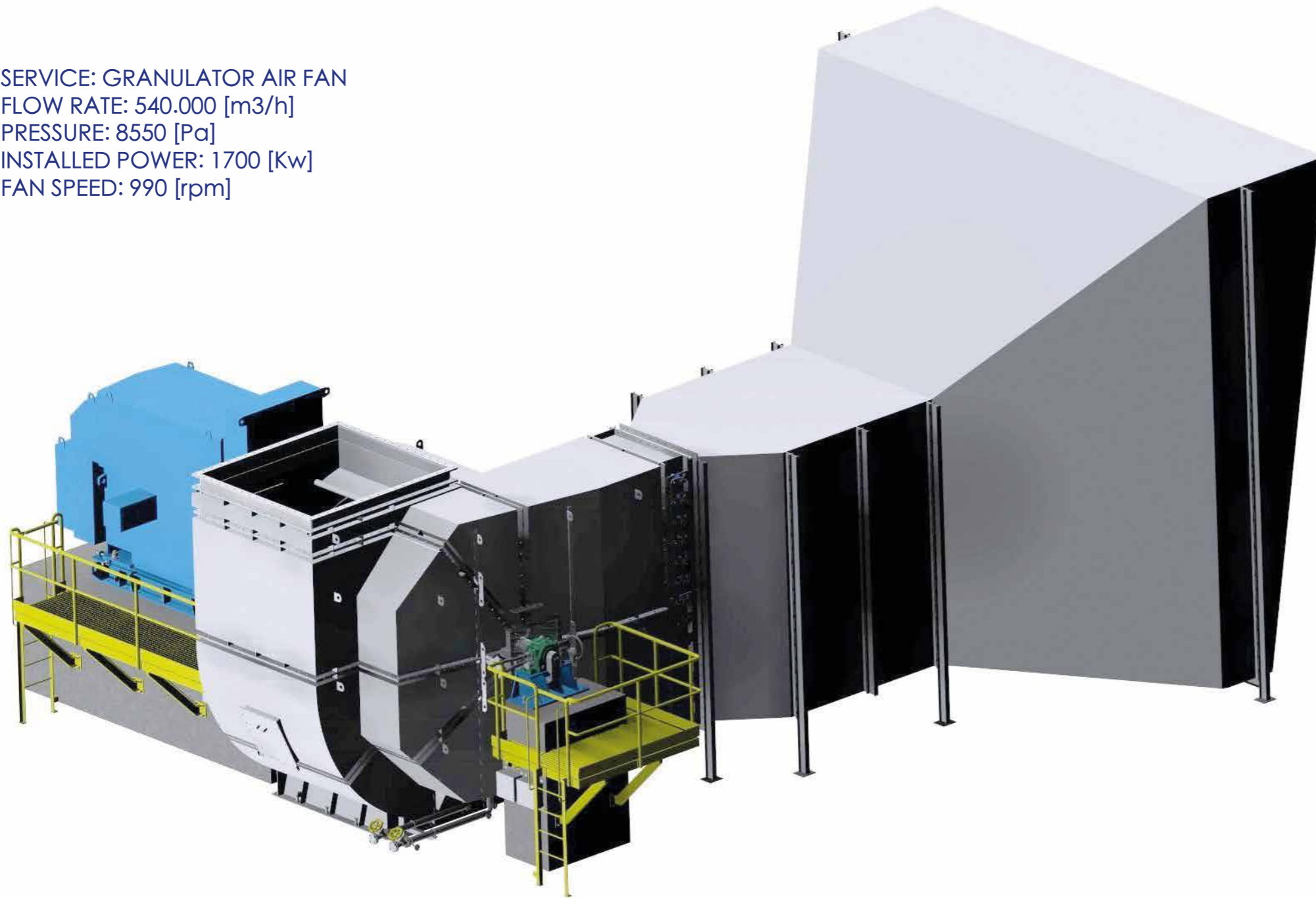
REGULATION DAMPER



INLET VANE CONTROL

# RESEARCH AND DEVELOPMENT

SERVICE: GRANULATOR AIR FAN  
FLOW RATE: 540.000 [m3/h]  
PRESSURE: 8550 [Pa]  
INSTALLED POWER: 1700 [Kw]  
FAN SPEED: 990 [rpm]



The research and development division is comprised of a team of engineers that work with the best design software, prototype laboratories and test facilities. Analytical results on new projects are compared with experimental tests to confirm the applied theories in order to offer the most effective solutions designated for the specific demands of the market. We also work with external experts, consultants and universities to support project research and development.

## FEM analysis

Analysis of finished components provides data on structural behavior which, through differential equations, are used to calculate:

- Fatigue, stress
- Deformation
- Safety margins
- Modal analysis
- Rotodynamics

## CFD simulation

Through fluid dynamic modelling (Computational Fluid Dynamic - CFD) accurate calculation models can be created, allowing for complete behavioral simulation of the equipment being studied.

Through these calculation models, virtual prototypes can be generated that allow engineers to study various designs and projects, reducing the time needed to evaluate the performance aspects.

The effectiveness of the methodology allows for a quick definition of the geometries by limiting the number of physical prototypes that are then tested in the laboratory to determine the final design.

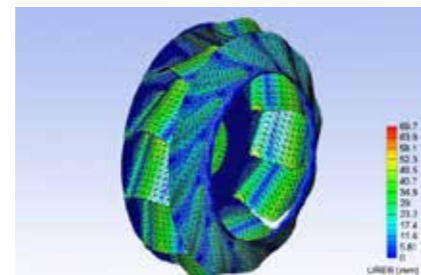
CFD is also used to analyze and design fans dealing with erosive flows, to find the best compromise between performance and durability.

CFD numerical simulations also enable the study of components of the system in which the fans will operate thus supporting the clients in their detailed design toward optimal integration of the equipment.

## THE BEST RESEARCH AND DESIGN AT YOUR SERVICE



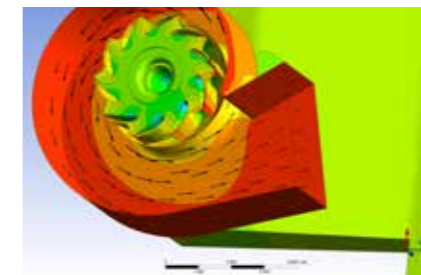
RESEARCH



FEM ANALYSIS



MANUFACTURING



CFD SOFTWARE



TESTING



802829-O&G



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