

## CASE STUDY

### POWER



# Delivering maximum productivity for AES Cartegena

When the AES Corporation (AES) opened the doors to its new electricity-generating plant in 2006, its challenge was to guarantee a continuous power supply. The CompAir compressed air system plays a vital role in ensuring maximum productivity, every single day and offered significant advantages in its flexibility and economic performance.

## Overview

### Client

AES Energia Cartagena

### Location

Valle de Escombreras, Spain

### Application

Electricity generation

### Products

DH and Dryclon oil-free compressors, Reavell H5236 high-pressure compressors

### Customer Benefits

Guaranteed plan productivity/reduced cost of ownership

## Application Details

The new plant operates on a stretch of land in the Port of Escombreras and consists of three power generators with gas and steam turbines that provide a combined net power rating of 1,169.800 MW. After assessing several equipment suppliers, AES's appointed contractor, EPC decided that CompAir Iberia could deliver the best turnkey solution within a tight timeframe that would encompass a proven and robust range of compressors, with full engineering and service support.

The company placed an order for a compressed air system comprising Dryclon compressors for plant auxiliary services, two D37H units for instrument air and six Reavell H5236s for cleaning the turbines. The entire system is controlled by the Delcos 5,000 monitoring system and includes all necessary air dryers, filters and storage tanks.

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### Benefits at a glance

- ▶ Flexible system - rotates compressor usage to improve component life and performance
- ▶ Reduced cost of ownership - innovative design consumes less energy than other models
- ▶ Operates at variety of pressure - requires only one system to cope with changed in fuel supply
- ▶ Integrates with plant management system - central monitoring of performance helps to improve plant productivity
- ▶ Guaranteed oil-free air - no risk of contamination to meet stringent international quality standards
- ▶ Fully automated system - reduces operator intervention
- ▶ Low noise level - improving plant health and safety

### System Flexibility

CompAir Iberia engineered the system to balance air supply to meet fluctuations in plant demand, via the Delcos 5000 system. Delcos monitors the air station continuously and selects the best combination of compressors to provide the appropriate volume of air across the entire plant. Rotating compressor usage in this way minimises component wear, reduces maintenance concerns and extends equipment life to improve overall cost of ownership.

### Meeting Peak Demand

At certain times the turbines and pipes require a huge volume of compressed air. The system was specified to produce a maximum air capacity of 3400 Nm<sup>3</sup>/h using both Dryclon compressors and more recently, six high-pressure Reavell H5236s operating at 24 bar.

### Cutting Cost and Environmental Impact

International specification for electricity plants dictates that oil-free compressed air must be used, to avoid contamination. CompAir supplied a range of proven oil-free compressors that are inherently cost-effective, with fewer parts to purchase and maintain. In its single-stage, DH compressors for example, the traditional oil system has been replaced with simple water lubrication, meaning that there are no filters to be changed, no waste oil to dispose of and no condensate to treat,

bringing significant benefits to a plant where environmental performance is monitored closely.

### Reduced Energy Consumption

Studies have proved that the largest cost component of a compressor during its lifetime is the power required to run it. The CompAir DH design incorporates numerous energy-saving technologies and was proven to consume significantly less energy than the other manufacturers' models considered in the tender process. The instrumentation plant compressors are water lubricated which reduces air temperature for near isothermal compression and, the direct drive motor, with no gears or belts helps to optimise power transmission. This technology means that the installation can generate the compressed air it requires, at a significantly lower cost.

Joaquin Sanchez, Plant Maintenance Manager said, "We considered compressed air solutions from several suppliers, but found that the CompAir system offered the best overall solution, with economic air production, a guaranteed oil-free supply and compressor rotation to ensure equipment longevity – all backed by comprehensive engineering, installation and service support from the experts at CompAir Iberia. The equipment has now been operating reliably for 6 months and is helping us to ensure that the plant remains at peak productivity, every day of the year."

