CompAir

# CASE STUDY

**PHARMACEUTICAL/ CHEMICAL INDUSTRY**

# New compressed air station from CompAir exceeds quality and efficiency targets

**ACU Pharma und Chemie GmbH (ACU) specialises in the precision milling and micronising of high-quality powders, fine powders and compound mixtures. Special air jet mills, which require very pure and dry compressed air for optimal micronisation, are used in production.**

## Overview

### Client
ACU Pharma und Chemie GmbH

### Location
Apolda, Germany

### Application
Powder milling and micronisation

### Products
Four oil-free DH compressors, refrigerant dyer, desiccant dyer

### Customer Benefits
High efficiency combined with a high level of production reliability

## Application Details

As an extension of the compressed air station was required, ACU made a decision to fundamentally restructure it. The main aim was to generate oil-free and dry compressed air in an economical and flexible manner with a high level of production reliability. Following thorough examination, four oil-free DH compressors from CompAir, including compressed air treatment, were selected.

The mill systems used by ACU operate according to the principle of air jet milling. The compressed air helps to accelerate the milling material with such force that the particles smash into each other at high speed and are thereby broken down without using a milling tool. The advantage of this is that the process is contamination-free.

The air jet mills therefore require compressed air of the highest quality since the air comes into direct contact with the milling material. ACU also requires compressed air with the

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## Benefits at a glance

- Oil-free and dry compressed air for a high level of production reliability
- High efficient compressed air station including air treatment
- High degree of output flexibility thanks to speed-regulated drive

same exacting quality requirements for other systems. This applies, for example, to purge air on bearing seals, for the control air of pneumatic valves and for laboratory equipment, which is used, for instance, to measure particle size (such as particle analysis with laser diffraction).

ACU therefore takes great care to generate clean and dry compressed air. The company originally used three oil-lubricated screw compressors with complex centralised and decentralised treatment, including an activated carbon adsorber for separating the oil vapour. As an extension of the compressed air station was required, ACU management made a decision to fundamentally restructure it with the aim of generating efficient, flexible, oil-free and dry compressed air with a high degree of production reliability.

The company was impressed with the DH technology from CompAir due to its innovative compression principle. The compressor block is lubricated, sealed and cooled as required by water, which is injected into the compression element. In addition to a clean, oil-free compression process, this ensures highly efficient generation of compressed air. This is because the excellent cooling properties of water allow the compression temperatures to remain very low, at a maximum of 60°C.

This means that the compression process is practically isothermal and the energy consumption is correspondingly low, especially as the speed-regulated drives enable efficient provision of the required compressed air volume. Three DH compressors with a motor power of 75 kW and a smaller 37 kW machine were used. Andreas Scholz, Technical Manager at ACU Pharma und Chemie GmbH explains: "This configuration enables us to generate any volume of compressed air efficiently and still have enough scope to expand operation." A higher-level controller switches the compressor on and off as required.

## New concept also applies to air treatment

In order to ensure that air treatment is carried out as efficiently as the generation, ACU opted for a special solution. A refrigerant dryer is connected upstream of the desiccant dryer, which prepares compressed air with a dew point of -40°C.

This reduces costs as it means a second desiccant dryer is not required. It also reduces the wear and energy consumption of the desiccant dryer, which treats pre-dried compressed air. Each of the two dryers is equipped with a bypass function so that maintenance can be undertaken without stopping production.

## GMP (Good Manufacturing Practice) compliant compressed air generation

With the CompAir compressed air station, ACU is ideally equipped. The compressors work efficiently and economically. They meet all the requirements for compressed air quality and availability. And the oil-free generation prevents contamination from entering the milling process and thereby the product.

> "This configuration enables us to generate any volume of compressed air efficiently and still have enough scope to expand operation"

**Andreas Scholz**
**Technical Manager, ACU Pharma und Chemie GmbH**

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