

## CASE STUDY

### QUARRYING & AGGREGATES



# Longcliffe Quarries saves over £4,000 per annum with intelligent CompAir compressor system

## Overview

- ▶ **Client**  
Longcliffe Quarries Ltd
- ▶ **Location**  
Brassington Moor Quarry, Derbyshire, UK
- ▶ **Application**  
Production air to feed pneumatic circuits
- ▶ **Products**  
CompAir L37RS speed-regulated and CompAir L37 fixed-speed compressors
- ▶ **Customer Benefits**  
Minimum annual energy savings of over £4,000 with ECA savings and servicing/maintenance cost reduction on old compressor plant, equates to a rapid projected 12-month payback period.

## Application Details

Longcliffe Quarries is in the process of implementing a programme to reduce its carbon and other greenhouse gas emissions and as part of this, continually analyses the energy performance of all its plant and equipment. Its existing compressors had been running continually, five days per week for the past six years, providing air to feed the pneumatic

circuits throughout the quarry. With in excess of 45,000 running hours on each machine, performance and reliability were becoming problematic, impacting on both energy and maintenance costs.

In addition, the machines had been installed without any compressed air control, meaning that the two, 45 kW units were both running simultaneously and therefore, inefficiently

## CASE STUDY

### QUARRYING & AGGREGATES



### Benefits at a glance

- ▶ **High-efficiency system with regulated-speed technology - matches air output to plant demand**
- ▶ **Heat recovery - recirculates hot air to heat the compressor house**
- ▶ **Intelligent controller - reduces energy by selecting the optimum combination of compressors**
- ▶ **Improved reliability and reduced service costs - ensures maximum uptime and availability**

in order to produce the target air pressure Longcliffe Quarries decided to explore alternative options as Mark Whittaker, Works Engineer explains: "Our compressors are a vital component in our plant operations and, if a machine fails it could result in costly downtime. We also have a round-the-clock demand for air, meaning that we need to consider carefully the machines' energy performance and reliability.

Having worked with Aircare previously, we commissioned the company to conduct a comprehensive audit of our actual site air demands to ascertain whether it would be more cost effective to refurbish our existing machines or replace them with a new compressed air system. The results confirmed that smaller, high- efficiency compressors from CompAir would offer the low cost of ownership that we required, with payback in as little as 12 months."

Steve Flint, Account Manager at Aircare explains how the new compressed air system is set to achieve significant energy savings. "Using the CompAir airINSITE air auditing system, we monitored the air demand over a typical production period to identify system inefficiencies. Results from the audit indicated that the site's air demand could be met with two, smaller 37 kW units. The majority of the time, the minimum air demand from generation fluctuates from 150 cfm to 210 cfm. This typically requires only one compressor, a CompAir L37RS speed-regulated unit to deliver the required air output to meet the peaks and troughs in air demand.

However, during busy periods, demand can peak at 410 CFM. Using a bespoke- designed, base load selector control system, the fixed-speed, L37 compressor is automatically brought on

line to cope with the increased air requirement until demand decreases." Heat recovery has since been proposed as the next energy saving project. Up to 80% of the energy used to power a compressor is converted to heat, so Longcliffe Quarries can reclaim and reuse as much of this otherwise wasted energy as possible.

Using an automatic volume control damper (VCD), hot air radiated from the compressors is recirculated back in to the compressor house during the winter months, helping to save on heating costs. This process is thermostatically controlled, so that during higher ambient temperatures, when heating is not required, the VCD valve will stop the ducting of hot air.

Aircare Compressor Services Limited will also provide full preventative maintenance, with monthly service checks and 24-hour support as part of a comprehensive six-year maintenance package. The CompAir Assure warranty scheme is also provided free of charge. Unlike industry-standard, yearly-based warranty, Assure is based on the number of compressor operating hours and will provide Longcliffe Quarries with up to 44,000 hours of cover.

“The results confirmed that smaller high-efficiency compressors from CompAir would offer the low cost of ownership that we required, with payback in a little as 12 months”

**Mark Whittaker, Works Engineer**