

# Reavell

# Gardner Denver

**HIGH PRESSURE SOLUTIONS**

## Gardner Denver High Pressure Solutions helps take the pressure for National Grid

As one of largest gas and electricity companies in the world, National Grid plays a vital role in providing energy to millions of customers across Great Britain.

Critical to this delivery is the efficient operation of the electricity transmission system, via a network of substations used to switch circuits or transform voltage.

We have been working with the National Grid for more than 30 years, providing high-pressure air systems for operating circuit breakers for routine maintenance, or under fault conditions.



### Benefits at a glance

- Proven equipment reliability - for more than 30 years
- Installation expertise – reducing downtime during compressor replacement
- Full parts and technical support
- On-site maintenance service available across the UK
- Complex installation with no downtime

### Application Details

It is not uncommon for the compressors sited in each substation to have been in operation for more than forty years. National Grid therefore, has an ongoing programme of works to replace the oldest compressors in its estate with newer machines as Graeme Edwards, operational support engineer for National Grid explains:

“There are almost 200 substations across the network ranging from 66kV to 400 kV, with compressed air systems installed. We typically upgrade between 5 and 10 of these each year. Each substation will house between two and four high-pressure compressors,

plus ancillary equipment including an airboard and compressor controls.

These compressors are used to power the air circuit breakers; critical components in our network that cut the power immediately in any fault conditions, such as a lightning strike or damage to an underground cable. This minimises any damage to the circuit and connected equipment.

We are also continually taking sections of the network out of service for routine maintenance or equipment replacements, so it’s essential that power to the circuit breakers is available, around the clock.”

### Applications at a glance

- High pressured arc blowing
- Air blasting
- Pneumatic circuit breakers

**Customer**

National Grid

**Location**

England and Wales

**Application**

Operation of air blast and pneumatic circuit breakers

High-pressure compressors ranging from 40 barg to 207 barg

**Customer Benefit**

High reliability for a critical application and no downtime during installation



### Related Applications

- Blowing across contacts - extinguishing any arcing and preventing risk of fire
- Insulating open switches - preventing further arcing

### Related Target Markets

- Power generation and distribution
- Local operators of electrical substations
- Engineering offices

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Graeme Edwards, Operational Support Engineer, National Grid

### Selecting the **compressors**

With hundreds of compressors installed across the country, National Grid has to carefully plan and budget for their replacement. Each machine installed must therefore provide the reliability and longevity necessary for many years of continuous operation.

Graeme Edwards continues, “As well as providing a durable, quality product, we also need our compressed air supplier to be able to provide ongoing maintenance, spare parts and technical support, long into the future.

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time, the compressors have delivered high-reliability. This, backed by the company’s technical expertise, has helped us to ensure the reliability of electricity supply.”

### Installing the **compressors**

As part of the ongoing contract work, Gardner Denver High Pressure Solutions install two types of high-pressure system, comprising a range of multi-stage, piston machines with either air or water-cooling. The first is for the smaller substations, typically up to 275kV where a 40 barg compressed air system is installed. The second is for the larger stations up to 400 kV, where a 207 barg compressed air system is installed.

A key part of this process is to manage the switch over from the existing compressors to the new units. Graeme Edwards explains, “Although we have some surplus capacity built in to each compressor installation and can run for a limited time on reduced equipment availability, we must ensure that the new compressors are installed and commissioned on time and to schedule.

There is a lot of skill involved in the planning and delivery of these installations and Gardner Denver High Pressure Solutions has proved over the years that it has the capability and engineering expertise to manage this process for us.”