

CASE STUDY

POWER GENERATION



Ground-breaking oil-free Ultima chosen for Saudi Arabia's first independent water and power plant

Shuaibah Water & Electricity Company (SWEC) has selected Gardner Denver's revolutionary new CompAir Ultima compressors to supply oil-free compressed air to Saudi Arabia's first independent water and power plant.

Application details

Generating 1,200 MW of electricity and 800,000 m³/d of water every day, the facility is one of the largest independent water and power plants in the world, supplying to cities including Makkah, Jeddah, Taif and Al-Baha.

The Gardner Denver team found SWEC's previous system was not producing the quality or volume of compressed air required, particularly when additional demands such as the plant's ash handling system was factored in too. Furthermore, with traditional oil-free compressors typically over-heating due to the high ambient temperatures in these environments, Gardner Denver recommended its new Ultima technology to help overcome this challenge.

As a result, four 160 kW Ultima compressors were specified for the plant, to be used for the site's steam turbine generator, three boilers, auxiliary equipment, flue gas desulphurisation unit and electrostatic precipitators.

Overview

- ▶ **Customer**
Shuaibah Water & Electricity Company
- ▶ **Location**
Saudi Arabia
- ▶ **Application**
Independent water and power plant
- ▶ **Product**
4 x Oil-Free Ultima compressors - iConn connected
- ▶ **Customer Benefit**
Revolutionary new oil-free, water-cooled compressor, ideally suited to meet the demands of Saudi Arabia's first independent water and power plant

“The Ultima compressor offers a high quality, high performance solution that is ideally suited to meet the needs of our plant.”

Mohsen Hamed Al Salmi
Technical Director at SWEC

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A ground-breaking new compressor

Launched by Gardner Denver as part of its CompAir brand, Ultima is a revolutionary new, water-cooled oil-free compressor. It offers up to 12 per cent improved energy efficiency compared to a conventional two-stage machine, with a 37 per cent smaller footprint. Available in models from 75 kW to 160 kW, the technology is ideal for applications that demand the highest levels of air quality and purity.

Ultima is engineered to ensure that no warm air is vented in to the compressor room. Instead, this warm air is processed within the machine enclosure and, using a heat exchanger, the air is cooled and then recirculated via the base frame around the compressor. As a result, no heat is wasted, no dust or particulate matter enters the compressor, and the inlet air stays cool. The compressors are also all offered with iConn, a cloud-based, air management platform that helps operators manage, optimise and improve compressed air services.

High performance solution

Mohsen Hamed Al Salmi, Technical Director at SWEC, said: "The Ultima compressor offers a high quality, high performance solution that is ideally suited to meet the needs of our plant."

The speed with which Gardner Denver was able to deliver its Ultima compressors was also hugely beneficial. With Hajj fast approaching last year, the fact that the company was able to supply the new compressor solutions just one month after the order was agreed was hugely helpful, ensuring we could meet the increased water and electricity demands that Hajj brings."

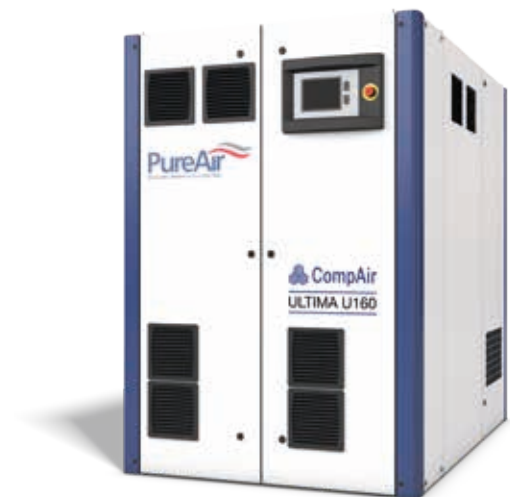
Amr Ismail, Oil-Free & Nitrogen Sales Manager at Gardner Denver FZE, said: "We are thrilled to be working on such a high-profile project with SWEC, delivering the highest purity compressed air to the first independent water and power plant in Saudi Arabia. We are currently

Benefits at a glance

- ▶ **Oil-free and water-cooled technology, delivering the highest levels of air quality and purity**
- ▶ **Ultima offers 12 per cent improved energy efficiency compared to a conventional two-stage machine**
- ▶ **iConn helps operators manage, optimise and improve compressed air services**

discussing the opportunity for one of our PureCARE warranty and service programmes with SWEC, providing a maintenance package tailored to the organisation's needs and requirements.

As Industry 4.0 drives manufacturers to share and analyse asset data, organisations are demanding more intelligent insights into their compressed air performance that can help remove risks, improve productivity and reduce energy consumption. iConn offers this capability to SWEC by delivering historic, real-time, predictive and cognitive analytics, which can help users address any potential issues before they become a problem. Available as standard on all new CompAir machines, iConn can be retrofitted to existing compressor installations too."



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Amr Ismail
Oil-Free & Nitrogen Sales Manager,
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