Sustainability woven into the fabric

Australia's largest manufacturer of geosynthetic products, Geofrabrics recently installed a low-pressure Kaeser ESD 245 rotary screw compressor at its Albury manufacturing plant in regional New South Wales. Replacing an ageing compressor, the new machine is assisting Geofabrics in continuing to meet its sustainability goals.

Geofabrics Australasia is Australia's largest manufacturer and supplier of a range of highly engineered geosynthetics for the building and infrastructure sector. Its core capabilities are across the road, rail, waste, mining, coastal, water, recreation and slopes & wall segments. Geofabrics has a presence throughout Australia, New Zealand, PNG and the Pacific. A proud Australian manufacturer, Geofabrics has two manufacturing plants, one in Albury (NSW) and other in Ormeau (Queensland) and contributes to Australia's sovereign infrastructure construction capabilities.

On every project, Geofabrics has a singular focus: to provide smarter infrastructure solutions for its clients.

Manufacturing innovative geosynthetic solutions

As the Australasian leader in geotextiles and geosynthetics, Geofabrics delivers engineering support and technical leadership through a focus on innovation, research, industry education, design and independent testing services. Simply put, Geofabrics' products are a key component in building Australia's critical infrastructure: our roads, railways, landfills and resources (mining, oil & gas).

One example of the products manufactured by Geofabrics is its bidim Green geotextile, a variant to its existing world-leading 'Bidim' range, which contains Australian-sourced recycled plastics (think of recycled drink bottles) and is a green innovation that came amid increasing calls for greater sustainability in the construction and infrastructure industry.

Both effective and economical, bidim Green is a superior geosynthetic solution for a range of engineering problems including weak soil, rutted and cracked roads, as well as liquid and gas leaks from landfill sites. It can be used for example, in the construction of roads, railways and embankments where the ground is soft and unstable. Using a layer of geotextile to separate the soft ground from the fill material reduces the amount of fill required, increases the lifespan of the road or rail structure, and reduces long-term maintenance costs.

Sustainable practices save energy and money

Geofabrics is committed to contributing to a positive impact on the environment and to manufacture and supply products that reduce reliance on non-renewable resources and reduce waste to landfill. This includes making the company's use of resources more efficient through Lean manufacturing and a process of continuous improvement.

As a result, Geofabrics has won many awards over the years including the 2019 Australian Exporter of the Year, the 2017-2019 Victorian Exporter of the Year (Environmental Solutions), and the 2018 AusTrade Australian Export Award for Environmental

Solutions. These awards recognise outstanding international success in environmental solutions, clean energy innovation and energy efficiency. It is no surprise then that when Geofabrics process improvement engineer Ashish Swarup began the procurement process to replace an ageing compressor at the Albury manufacturing plant, selecting an energy-efficient solution was a key criterion.

Compressed air is an essential utility required to operate many functions at both of Geofabrics manufacturing plants. One crucial role is using compressed air in the filament-drawing process. Reliably delivering clean compressed air is critical in fulfilling this process.

Unfortunately, the ageing compressor at the Albury manufacturing plant was becoming less reliable. It was also one of the largest energy consumers in the business, accounting for around one third of all electrical consumption. Aside from finding a more reliable solution, finding an energy-efficient compressed air solution was therefore also very important.

The procurement process included evaluating a number of possible compressor options against five key criteria, including life cycle costing, reliability of asset and environmental impact, making the process very transparent. All options were then given a total rating. Thanks to a high overall rating backed up with technical advice and support, Geofabrics opted for a low-pressure Kaeser ESD 245 series rotary screw compressor to meet its requirements.

Energy efficiency as standard

The ESD 245 is a specially built, dedicated low-pressure oil-lubricated rotary screw compressor. Unique to Kaeser, it delivers flow rates up to 30.9 cubic metres per minute at pressures of 3.5 to 5 bar.

Geofabrics Australasia manufacturing plant in Albury, NSW.

Installed complete with a comprehensive air treatment package, this proved the ideal solution for Geofabrics. Not only would this solution reliably deliver large volumes of high-quality and clean compressed air, but as a highly efficient dedicated low-pressure compressor, the ESD 245 would also easily create energy savings in excess of 30% compared to a 'standard' pressure 7 bar screw compressor of a similar size.

Kaeser has pushed the boundaries of compressed air efficiency and availability with its latest generation of ESD series rotary screw compressors. Intelligent design solutions have not only led to enhanced ease of operation and serviceability, but also give this series of class-defining compressors their distinctive modern appearance.

Delivering improved specific power, the flow-optimised and further refined Sigma Profile rotors provide the foundation for exceptional energy efficiency. The use of high-performance IE4 drive motors maximise energy efficiency, while Kaeser's 1:1 drive design eliminates the transmission losses associated with gear or V-belt driven systems, as the motor directly drives the airend. Kaeser is currently the only compressed air systems provider to equip its compressors with super premium efficiency IE4 class motors.

Furthermore, the radial fan fulfils the efficiency requirements for fans as per EU directive 327/2011. The advanced Sigma Control 2 compressor controller achieves additional energy savings and minimises cost-intensive idling periods through the use of a variety of specially developed control options.


Compressed air is particlularly important in the filament spinning process at Geofabrics.

The new Kaeser compressor is assisting Geofabrics in continuing to meet its sustainability goals

Finally, an intelligent component layout ensures even greater energy efficiency: for example, all service and maintenance points are within easy reach and are directly accessible from the front of the unit. This not only saves time and money when performing service work, but also maximises compressed air system availability.

"Selecting energy efficient equipment is a large part of our sustainability practices and our commitment to keeping our carbon footprint to a minimum," says Ashish Swarup. "The Kaeser compressor was therefore the right choice for us. Up and running now for almost a year the compressor is reliably and efficiently meeting our compressed air requirements." AMT

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