

# GAS COMPRESSION

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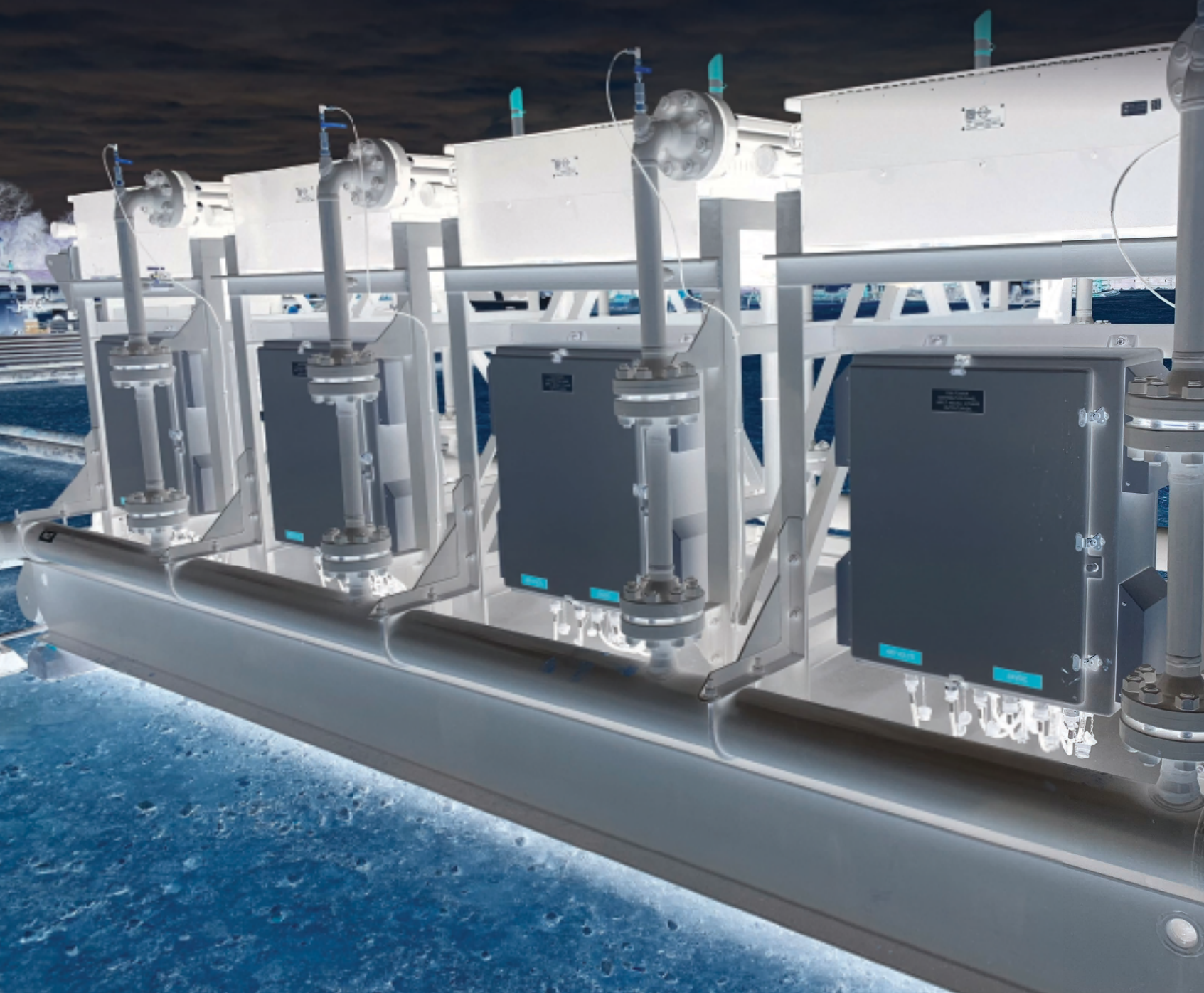
**AERIS HITS ITS MARK**

GENIS BRINGS  
NEW COOLING SYSTEM  
TO PRODUCTION



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BRINGS THE  
AERIS COOLING SYSTEM  
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BY BRENT HAIGHT

Commercial production has begun on Genis Holdings LLC's Aeris Cooling System (Aeris). Initially introduced as the coolers on the company's G225 LE Mako compressor package (see "Enter The Mako," April 2019 *Gas Compression Magazine*, p. 52), Aeris is a standalone unit that presents a different approach and method to cooling natural gas and liquids. Developed in partnership with Fresco Thermal, Aeris uses a patent-pending cooling design that allows up to four individual cells on a single skid to operate independently in either automatic or manual mode. According to Hayden Manias, marketing and sales support manager at Genis Holdings, these cells can cool gas in any combination of parallel, series, or separate process flows.

"The whole idea with the Mako was to create something, prove all the main components work, and then scale up. This is our philosophy with all of our products," said Manias. "With the success of the Mako and the coolers that are a part of that compressor package, we wanted to show the cooling system was scalable as well. We started with a beta unit that, for about six months, ran on a unit during the summer near San Antonio, Texas, USA. The success of that field test proved the Aeris was ready for commercial production."

During this trial period, Genis discovered that its technology could not only cool gas to desired temperatures, but could also provide a means to increase the liquids production. "We nearly doubled the company's liquids production on that site from the additional cooling provided by the Aeris," said Manias. "These coolers are intended for natural gas cooling applications, cooling on the backside of amine plants, and other hot gas processing equipment. These are the main applications that we have seen, although the possibilities are vast. Also, Genis has begun looking into the Aeris as a means to cool liquids — from a combination of full well stream fluids to individual separate streams of oil, gas, and produced water."

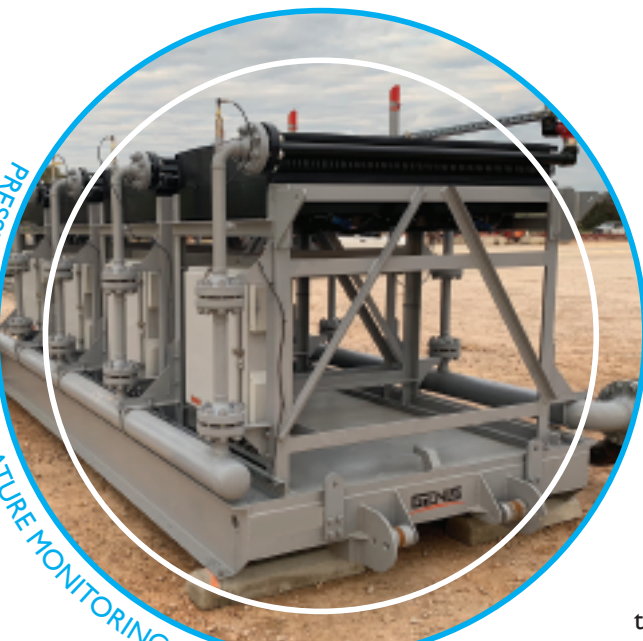
The Aeris currently has a maximum allowable pressure of

*Continued on page 54*

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PRESSURE AND TEMPERATURE MONITORING ON EACH CELL



ON DEMAND COOLING



MODULAR DESIGN

1440 psi (99 bar) and is offered with three sizes of coolers: 4x24, 3x18, and 2x12 (number of cells x volume). Each cell and rack is rated for a volume of 6 MMscfd ( $169 \times 10^3 \text{ m}^3/\text{d}$ ) and can be added to, or subtracted from, the cooling package based on customer need.

“If the customer requires more volume at a site, they can add on a cell through a dealer to fit their application,” said Manias. “Each of the cells is identical, which increases the modularity of the unit.”

The 4x24 can handle 24 MMscfd ( $679 \times 10^3 \text{ m}^3/\text{d}$ ), the 3x18 handles 18 MMscfd ( $509 \times 10^3 \text{ m}^3/\text{d}$ ), and the 2x12 will handle 12 MMscfd ( $339 \times 10^3 \text{ m}^3/\text{d}$ ). Also, the unit runs off 480-volt 3-phase power. “If the customer has a location that does not have on-site power, then Genis will advise on the correct model generator and where the customer may rent one if need be,” said Manias.

Each cell contains eight, 24-volt, DC fans that operate in unison per cell. The Aeris Cooling System can operate with automatic or manual temperature set points that control the fans. In the automatic setting, the fans will only use power based on what is needed to reach the temperature determined by the end user. The end user can adjust either the manual or automatic setpoints via a password-protected panel. In automatic mode, the operator will input a temperature setpoint for each cell. In manual mode, the fans operate off a set percentage for each cell.

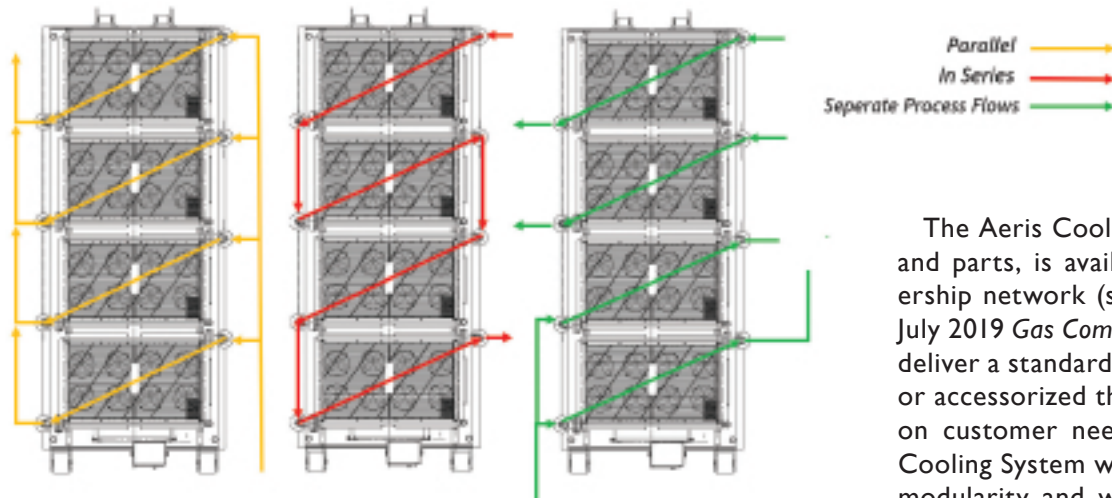
“The fans will automatically shut off or run at a low percentage when the set temperature is reached,” said Manias. “For example, we have often seen them shut off at night due to the ambient air being sufficient to make the temperature spec. And, if a fan should go down for some reason while in automatic mode, the others would speed up to compensate for this,

meaning no loss in productivity. Designed as a plug-and-play system, production doesn’t have to shut down to replace a fan. The operator simply unplugs and unbolts the fan, leaving the others in operation. There is little to no downtime, even in a scenario like this.

With a traditional large fan, such as a box-header cooler, that is not the case. If a blade becomes damaged, for example, the entire unit has to be brought offline so it can be replaced. Our fans have an advantage, again on the maintenance side, simply because they do not spin constantly and will often be off, depending on the application.”

The standard Aeris 4x24 weighs around 11,750 lbs. (5329 kg) and measures 7 feet (2.1 m) tall, 20 feet (6.09 m) long, and 8





Aeris uses a patent-pending cooling design that allows up to four individual cells on a single skid to be operated independently in either automatic or manual mode.

feet (2.4 m) wide. “We wanted to keep it simple,” said Manias. “The Aeris uses the same skid that we use on the Mako. It does not require special permitting to transport and can be moved using a rolling tailboard, standard roll-off truck, or most other forms of transport. The idea was to be as light and small as possible to save time and money for all parties involved.”

The Aeris Cooling System, as well as support and parts, is available through the Genis dealership network (see “A New Path To Market,” July 2019 *Gas Compression Magazine*, p. 20). “We deliver a standard product that can be upgraded or accessorized through different dealers based on customer needs,” said Manias. “The Aeris Cooling System was designed to have maximum modularity and will fit most natural gas cooling applications. We set out to create the most versatile cooling package we could. We want to change the way people think about natural gas cooling and expand on the possibilities that arise from technology like this.” <sup>GCM</sup>

Each cell and rack is rated for a volume of 6 MMscfd and can be added to, or subtracted from, the cooling package based on need.

