

LAT sends another ARES AMB unit to Bakken Shale



Original unit debuted in July 2018 for midstream

LAT recently shipped an ARES AMB turboexpander-compressor to a natural gas processing plant located in the Bakken Shale Play of North Dakota. The L3000 turboexpander is designed for a 200 mmscf/d flow rate and represents the third train within the facility.

Designed, engineered and built by L.A. Turbine in the USA, the ARES AMB features the industry's first-skid mounted AMB controller and PLC design. Operators benefit from the ease of machine installation and commissioning and see savings due to less ongoing labor and maintenance of the equipment.

LAT's FX-TURBO field service team is busy

commissioning both oil and active magnetic bearing turboexpander-compressor machines across the United States. Several oil-bearing machines have been commissioned or will come on line during third quarter at gas plants in North Dakota and Texas and a LAT ARES AMB machine began operation in New Mexico.

L.A. Turbine debuted the ARES turboexpander-compressor in July 2018 as part of a plan to make AMB-equipped turboexpanders popular and less costly for gas processing midstream applications. To bring the costs down, the company eliminated the cables and wires and, because magnetic bearings don't need a lubrication system, reduced the footprint of the skid by one-third of its oil-based counterparts (see **COMPRESSORTECH**², August-September 2018, p. 29).

Strategic acquisition

L.A. Turbine's expertise in turboexpanders was one of the factors that made it attractive to Chart Industries, which bought the company for \$80 million in cash (subject to customary closing adjustments) earlier this summer.

The acquisition of L.A. Turbine offers Chart customers a "one-stop shop" for a variety of applications including hydrogen and helium liquefaction, carbon capture and energy storage, industrial gas, natural gas processing, small-scale LNG plants, propane dehydrogenation (PDH) plants, heavy hydrocarbon removal process for LNG plants and petrochemical processes, Chart CEO and President Jill Evanko said.

L.A. Turbine (LAT) designs, engineers, manufacturers and tests turboexpanders for new and aftermarket equipment. Chart said it purchased LAT because it has the capability to manufacture a unique expander required for hydrogen and helium liquefaction which is difficult to obtain in the market due to a limited number of companies that are capable of designing and producing it, Evanko said.

For example, Evanko noted that LAT has the capacity to produce oil-free machines and experience with foil bearing design and magnetic bearings. "These very specialized expanders are difficult to design and produce as they require very high efficiency, in some cases oil-free machines, foil bearings for plants producing 10 tons per day and smaller, and magnetic bearings for larger helium and hydrogen liquefaction plants," Evanko said.

Chart said that within the last three

L.A. Turbine ships turboexpander to Nigeria

L.A. Turbine (LAT), a Chart Industries Company, continues its global reach with the shipment of a uniquely designed turboexpander-compressor to Nigeria for use within a large petrochemical facility. The L4000 oil bearing turboexpander is used to separate natural gas components for use as feedstock in the production of plastics and fertilizer.

The LAT API-compliant turboexpander design includes two MCS configurations, one for a pre-boost process and another for a post-boost process (see the table below), supported by one common auxiliary system. The expander-compressor meets API 617 requirements and the lube oil system is designed per API 614.

| | PRE-BOOST | PRE-BOOST | POST-BOOST | POST-BOOST |
|-------------------------------|-----------|-----------|------------|------------|
| | Exp | Comp | Exp | Comp |
| INLET PRESSURE (BARA) | 63 | 47 | 64 | 16 |
| OUTLET PRESSURE (BARA) | 21 | 65 | 18 | 28 |



L.A. Turbine L4000 Expander-Compressor for NGL Processing (Nigeria Petrochemical Plant.)

to two years depending on the configuration. LAT has these capabilities in-house and our ownership of these capabilities will help Chart win liquefaction projects and deliver them in significantly shorter timeframes, a further differentiator in the expanding liquefaction market.

"It is an exciting time for Chart and L.A. Turbine as we now work together to bring our customers expanded solutions across multiple molecules, including nearly all types of energy sources and multiple industrial gas applications," Evanko said.

"L.A. Turbine is one of the only turboexpander engineering and manufacturing companies that can design and produce very specialized expanders; one of the longest lead time items in the hydrogen and helium liquefaction supply

chain. With this capability in house, we are further differentiated in liquefaction – not just from decades of experience but also from world class efficiency and now, significantly shorter and guaranteed delivery times."

LAT to complement Chart

Chart said that LAT is complementary to its own businesses and the two companies have worked together for numerous years. "We expect to have immediate and significant synergies including expanded field service and repair capabilities," Chart said.

"Since our company's inception, L.A. Turbine's focus is to be the go-to turboexpander solution provider, as an OEM of highly-engineered rotating equipment designs and process solutions for engineering, procurement and construction clients and end-user operators as well as aftermarket, service and repair," said Danny Mascari, president of LAT.

CT2

years, the other qualified suppliers have been acquired by companies that only use their hydrogen and helium turboexpanders for in-house dedicated purposes. In August 2018, Air Products bought Rotoflow. A year later, Linde acquired Sulzer and in January, Air Liquide acquired ACD.

Evanko added that this part of the liquefier is one of the longest lead-time items at one

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