Oxygen compressors help in coronavirus treatment

RIX's high-pressure industrial oxygen compressors in high demand

By Molly Burgess

As the world contends with an ever-changing pandemic, essential businesses are feeling the strain more than ever, especially those immersed in the medical sector.

As part of the national defence chain, as well as a critical player in the international health industry through the manufacture of oxygen systems for hospitals, RIX Industries stands as one of those critical players responding to the coronavirus (Covid-19).

In order to continue serving its customers during social restrictions and rising cases/deaths, RIX has adapted to a new reality and implemented a full range of recommended precautionary safety measures in its facilities, which are fully aligned with the World Health Organization's (WHO) guidelines and the recommendations of national and local health officials.

© RIX | **2PS Series**

It is RIX's high-pressure industrial oxygen compressors that are in high demand during this pandemic, due to their suitability for medical use. The units are all oil-free by design and therefore allow the user to maintain the high purity oxygen levels required for hospital and clinic use.

"Many of our systems are deployed throughout the world and are currently being used to fill cylinders to help combat coronavirus," Bryan Reid, Chief Sales Officer at RIX Industries, told **gas**world in an exclusive interview.

"RIX is also working with our key original equipment manufacturers (OEMs) to increase production of these models to support additional oxygen needs during the global pandemic."

Reid explained that the company's facilities remain operational, and its production and deliveries continue with the resources available during this difficult time, but the health and safety of its colleagues, customers, partners and the communities remain the number one priority.

Meeting a critical need

RIX's oxygen compressor systems were introduced to the market in 1970, at the same time as its inert gas generators and high-pressure boosters. With all its oxygen products, RIX follows Compressed Gas Association (CGA) 4.1 and US MIL Spec oxygen-clean guidelines when manufacturing each part or system that will come into contact with oxygen.

All RIX standard model oxygen compressors are also CE marked to satisfy European Union market requirements. The company has the ability to develop custom solutions for the most challenging applications.

RIX's oxygen compressors are designed for a variety of other applications besides the medical market. From small to large flowrates, and low to high pressures, to meet a broad range of performance requirements.

"Within our product portfolio we have a line of standard compressor models designed specifically to fill cylinders," Reid continued.

"These units, specifically RIX's 2PS, 2V3 and 4V4, are our most popular models and have been providing end-users with the ability to safely and reliably fill high-pressure oxygen cylinders around the world for many years."

RIX's workhorse, the RIX model 2V3 compressor, is designed to provide a discharge pressure of 2500 PSIG/172 BARG and will fill up to 60 K Type

(~240 cubic feet) oxygen cylinders in a 24-hour time period. The optional 2V3-HP model provides 3000 PSIG/207 BARG final discharge pressure.

This unit is a three-stage compressor with oil-free cylinders on a "V" type crosshead designed crankcase. Heat exchangers, crankcase, and compression cylinders are all air cooled. A free-floating third stage piston allows for easy removal and replacement of both the piston and the rings.

RIX has sold thousands of its oxygen compressors to various customers globally, including major industrial gas suppliers, as well as smaller air separation companies, through both Vacuum Swing Adsorption (VSA) and Pressure Swing Absorption (PSA) systems.

Many of these compressors are used to fill high-pressure oxygen cylinders, which is a very demanding application. RIX has established itself as a market leader in this segment by providing reliable and efficient compressors that are easy to work on.

Reid said, "We have many unique applications including low or medium pressure oxygen compressor systems such as: steel mills, gold mines, paper plants, fish farm oxygenation, and water treatment plants, as well as high-pressure oxygen boosters for filling oxygen cylinders for various industrial and medical requirements."

All of the applications mentioned above require pressures well above what a typical oxygen generator can provide (typically 60 psig or less) and that is where RIX comes in. For instance, most steel mills inject medium pressure oxygen into a ladle of molten crude iron to pre-treat the metal before it is turned into steel. Note that this process requires the oxygen to travel at supersonic speeds which would not be achievable without the pressure boost that RIX provides.

"RIX can fulfil this need through use of one of its high pressure compressors, which allows the hospital to fill a bank of cylinders"

For medical applications, most hospitals have oxygen available in every patient room, but they run into issues when they want to transfer a patient who needs a constant supply of oxygen from their room to surgery. In this instance, the hospital uses small high-pressure cylinders of oxygen that can easily be transported with the patient and RIX provides the ability to fill those high-pressure cylinders (up to 3,000 psig).

It is also very important for hospitals (especially in more remote locations) to have a backup supply of oxygen in case of a power outage and/or generator failure. RIX can fulfil this need through use of one of its high pressure compressors, which allows the hospital to fill a bank of cylinders that can then be used to supply oxygen to the entire hospital in an emergency situation.

History

But it is not just oxygen compressors that the California-based company specializes in. RIX, which has been in business since 1878, also produces other high-pressure pneumatics and transfer solutions including reciprocating compressors, gas generators, and liquefiers for a wide variety of military and commercial applications.

As a specialist in applying oil-free technology to high-pressure solutions used in highly demanding environments, as well as the medical market, RIX has supported the US Armed Forces for over 120 years and stands as the established leader in American-made compressor engineering and manufacturing.

© RIX | **2V3 Series**

Just late last year, the US Navy christened its newest Gerald R. Ford-class aircraft carrier which featured RIX's nitrogen generator systems with a liquid oxygen plant aboard. 2019 also saw the company supply its 5R5-75 high-pressure compressors to the Virginia-class submarines, another collaboration with the US Navy.

In fact, RIX is currently one of 68 companies in California that provides $823.1m worth of parts for the US Navy's aircraft carrier program.

"Our solutions are used in a wide range of applications including pneumatic weapons ejection, missile seeker cooling, and fuel inerting on military aircraft liquid; liquid oxygen production on aircraft carriers; high pressure air on nuclear submarines; central tyre inflation systems for emergency ground vehicles; as well as well as compressors and gas generators for renewable energy systems," Reid said.

The company, however, does not want its product line to end there. Reid said RIX is constantly expanding its product and technology portfolio and is working on solutions for tomorrow's problems, including systems for renewable energy, unmanned aircraft, and the next generation of marine platforms. gw