



Case Study #17 Liquid Oxygen System for Ventilator Supply

General Welding Supply



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Highlights:

- Fast turn-around time to put in place an emergency back-up system to store additional liquid oxygen (LOX) and vaporization capacity on site
- COVID-19 requires oxygen at higher than normal flow rates to support critically ill patients

Location—New York

"As we leaned on our gas industry partner, Chart Industries, to make our impossible request into a reality, the hospital facility turned a construction project into instant gas back-up as the enemy approached. As there was no room for failure, we turned to Chart to make it happen. Thanks to others that made the installation happen and risked their health in the exposure— Rick May and Nick Lanzano. And to Carmine Yevoli of Cardinal Medical Gas who facilitated the medical gas piping and certifications."

**Ralph Cohan, General Welding Supply
Vice President of Sales/Operations**

Application:

High flow medical oxygen requirement needed to support growing number of ventilators in a COVID-19 treatment facility.

Project Background:

A New York state university hospital was suddenly put on the front lines of the COVID-19 war and needed to ramp up their medical oxygen system ASAP. The concern was structured in the fact that the only medicine that can treat this coronavirus contagion is oxygen, and at high flow rates to support critically ill patients using ventilators. Their current system would not meet the flow demands.

By calculating the massive volumes of oxygen to be consumed per patient, (at levels never seen before) and multiplying these values by projected patient loads, the existing on-site medical oxygen storage and vaporization capacity was insufficient for the increasing demand. An emergency back-up LOX storage and vaporization system would need to be added quickly.

System Configuration:

From conception-to-first-fill occurred in under 10 days. The system consists of two x 5500 liter skid-mounted Perma-Cyl® MicroBulk storage tanks with vaporization capacity for 12,000 SCFH rates. The installed equipment is assisting the front line medical tacticians with another weapon to beat the COVID-19 virus.

Significant Accomplishments:

- With Chart's decades long experience in the supply of cryogenic equipment providing primary and reserve LOX storage at medical facilities around the globe, product specialists at Chart reached out for additional information to understand the actual flow rates and pressures needed at the patient point of use. Calculated values were then traced back through the gas supply lines to the sizing of the vaporizers to confirm the system would support patient needs.
- As a single-source OEM supplier for the all the major components, Chart guaranteed the system would deliver oxygen, as needed.
- In addition, during this project, the hospital requested re-evaluation of their Ambulatory Surgery Center to facilitate the conversion for extra beds for the anticipated battle with the virus. General Welding Supply, as the gas supplier, replaced the existing LOX storage and vaporization system with a larger system consisting of a 3000 gallon Chart bulk tank with 12,000 SCFH vaporization capacity and high flow gas controls to meet additional patient treatment requirements.

