

## AERZEN USA: IMPROVING RELIABILITY IN THE OPERATION OF AN AIR SEPARATION PLANT CASE STUDY

### Background

Aerzen USA's customer (plant operator) has a contract to operate an air separation plant supplying oxygen to a glass furnace at a lighting products company. The glass furnace's oxygen-enhanced combustion technology improves furnace performance by displacing combustion air with oxygen. By reducing or eliminating the introduction of inert nitrogen into the furnace, the oxygen enhanced combustion technology increases production, decreases fuel consumption, and reduce emissions, while maintaining or even increasing product quality.

Large positive displacement blowers are used in the air separation plant. There is a feed (pressure) blower and a vacuum blower used in a process known as Vacuum Swing Adsorption (VSA). This process that induces rapid pressure swings on the blower as the process cycles from high pressure to low pressure. These pressure swings create very demanding operating conditions on the blowers.

Aerzen USA's customer was experiencing significant reliability problems and excessive maintenance costs keeping the existing supplier's feed and vacuum blowers operational. The current supplier's blowers were failing in as little as a few days or weeks in operation. To counter this, the plant operator was stocking replacement blower stages for all the existing blowers.

Process	Air separation plant supplying oxygen to a glass furnace at a lighting products company
Problem	Experiencing significant reliability problems and excessive maintenance costs keeping the existing supplier's feed and vacuum blowers operational.
Solution	Installed an Aerzen model GLa19.19Az 2 lobe blower in the most problematic application in the plant – the feed (pressure) blower
Results	Blower completed 28 months of operation, without any downtime.

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#### Requirement

The contract for the operation of the air separation plant requires the plant be on-line and operational 24/7 with less than a week of downtime per year for maintenance. If the plant goes off-line and is not able to produce oxygen, then liquid oxygen needs to be trucked in to the plant to provide the oxygen for the glass furnace.

It is very expensive to supply the liquid oxygen and provides a logistical challenge to maintain an uninterrupted supply of liquid oxygen. The contract includes penalties, which could be assessed against the plant operator, for excessive downtime and for the interruption in the oxygen supply.

#### Solution

Aerzen proposed to their customer install an Aerzen model GLa19.19Az 2 lobe blower in the most problematic application in the plant – the feed (pressure) blower.

This blower would typically be operating at 8 psi pressure differential and the inlet volume flow is 18,683 ICFM. The customer purchased a blower and it was installed and operational in July 2015.



#### Result

Blower completed 28 months of operation, without any downtime. The installation of this blower:

- Improved the operational reliability of the plant.
- Reduced maintenance costs.
- Eliminated the need to buy a spare stage.
- Ensured the glass furnace was supplied with a continuous flow of oxygen.



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