



Saving water, electricity, and costs with Energy Hunter

Chemgas S.R.L.
Brindisi, Italy

With demand for bottled Oxygen increasing rapidly in hospitals and care centers over the Covid pandemic, bottled industrial producers like Chemgas S.R.L. had to find a way to meet their new capacity requirements. Their existing solution, while sufficient for pre-pandemic demand rates, was not the most energy efficient option, as it consumes a huge amount of potted water to cool the compressed air that is used in production. But, with the support of Alfa Laval Italy's Energy Hunter, Franco Tavani, they could reach their goal with Alfa Laval gasketed plate heat exchangers, saving water, electricity, and costs at the same time.



To create a more energy efficient process the biggest challenge for Chemgas S.R.L. is the cooling process, where the air needs to be cooled in two stages without losing pressure drop. They have Atlas Copco air compressors that are used to increase air pressure to 6 bar, reaching temperatures of over 120°C. This then needs to be cooled down using cooling tower water, followed by chilled water to remove water from the humid air intake.

The solution

As the electricity consumed in compressing the air is so expensive, making sure that no air pressure is lost is essential. So, with the support of Alfa Laval’s expert engineers, Chemgas S.R.L. found a solution that would save costs and minimise pressure drop. They installed WideGap 350S gasketed plate heat exchangers at each stage of the cooling process, each of which works with only 2 kPa pressure drop on the air side.

Plant manager and CEO Marco Serafin comments:

“The Covid period was challenging for Chemgas, as the increasing demands for Oxygen meant we had to be more efficient and increase capacity. Not only sourcing an additional air compressor from China with long delivery times, but the technology transformation, helped Chemgas save ample amounts of potted water. The system works perfectly, removing the water from the air after each stage of cooling, helping us reach our sustainability targets by saving natural resources, reducing electricity consumption, and protecting the environment”.

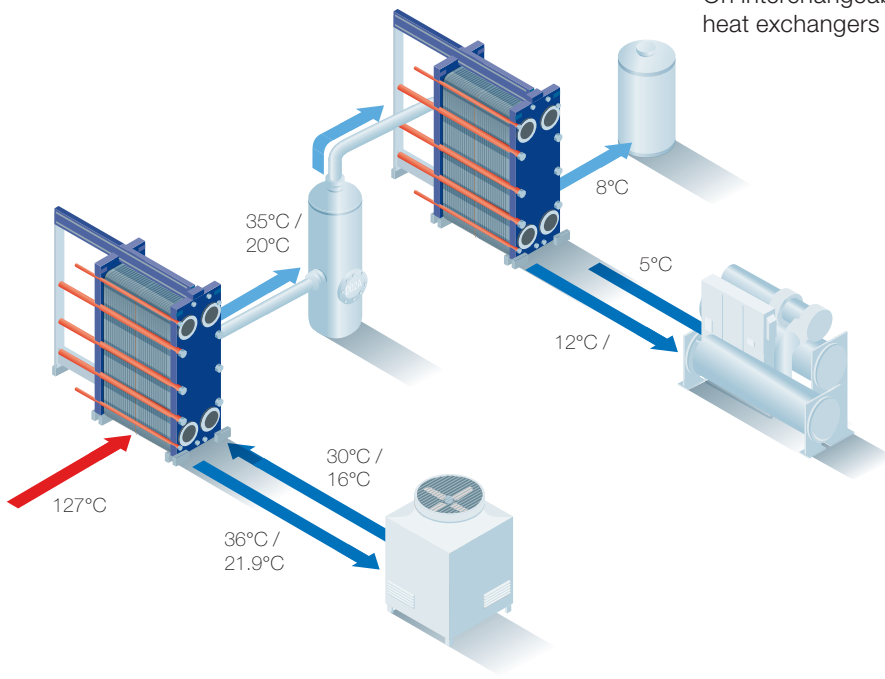
The compressed ambient humid air emitted by the Atlas Copco compressors at 6 bar is cooled from 127°C to 45°C in the first WideGap heat exchanger using cooling tower water. With the drop in temperature, the water in the air condenses and is removed with a cyclone separator. Then during the next stage of cooling another WideGap heat exchanger is used to cool the air with chilled water.

Alfa Laval recently visited the site to follow up and check on unit performance. Each unit was operating as per the design at a maximum of 2 kPa pressure drop with great flow distribution. This is a huge success for Chemgas S.R.L. considering the cost it takes to generate that pressure and the electricity they save from the compressor motors.

Sustainability savings

By shifting to Alfa Laval gasketed plate heat exchanger technology Chemgas S.R.L. saved:

- Potable water.
- Electricity thanks to efficient heat transfer.
- Maintenance costs due to fast and easy access to all heat transfer surfaces.
- Chiller running costs by using the cooling tower water for their primary cooling source.
- Investment costs thanks to efficient air-cooling as low as 8°C with chilled water at 5°C.
- Ultra dry air with two separator points after each gasketed plate heat exchanger.
- On interchangeable parts, as both gasketed plate heat exchangers are the same model and type.



How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

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