

# CO<sub>2</sub> recovery – food-grade compressor

## Air Liquide, Australia

Origin Energy operates an onshore natural gas processing plant, taking gas from the offshore Bass gas fields. The gas contains significant CO<sub>2</sub>, which is separated, and this “waste gas” from the gas plant is then further processed by Air Liquide to produce food-grade CO<sub>2</sub> for the eastern Australian market. The CO<sub>2</sub> compressor delivers dehumidified raw incoming feed gas to the plant.

- 3571 Am<sup>3</sup>/hr of saturated CO<sub>2</sub> from 7kPaG inlet pressure to 2050kPaG supply pressure
- Two-stage screw compressor, Mycom 3225MSC
- Air-cooled fin-fan aftercooler & oil cooler

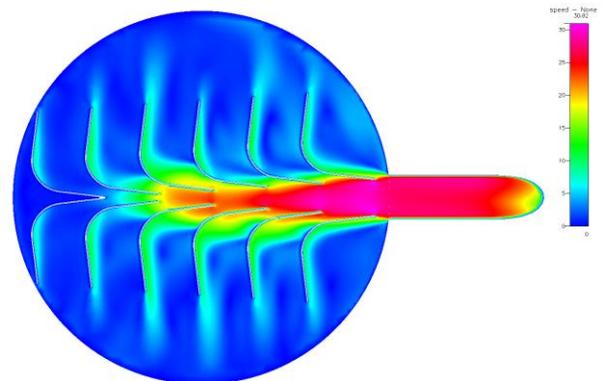
The compressed CO<sub>2</sub> is liquefied and used for carbonated beverages. The compressor, including all its lubricants, must also therefore meet food-grade requirements. A special oil was used, with oil carryover from the compressor system guaranteed at <1ppm resulting from RE’s in-house separator R&D project.

The unit is installed outdoors in a remote location. However, due to the quiet rural environment and nearby farms, sound level requirement is less than 72 dB(A). To achieve this stringent sound level, RE designed and supplied acoustic attenuation, not only to the pipework but also a ventilated enclosure containing the compressor and 650kW induction motor. The noise control techniques have proven extremely effective whilst still enabling good access for maintenance.

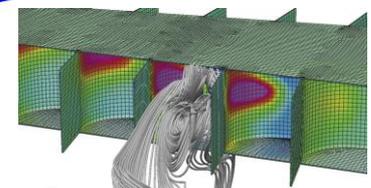
The system operates at under wide load variations all year round, from 100% to 0% capacity. The air-cooler fans are controlled by VSD providing close control, reduced noise and valuable energy savings at low loads.

Success was borne from close collaboration with the client at the plant concept stage for the integration into the overall plant design.

Ongoing after-sales client support is being provided through training, maintenance, spares and technical support.



Results from RE’s R&D project



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