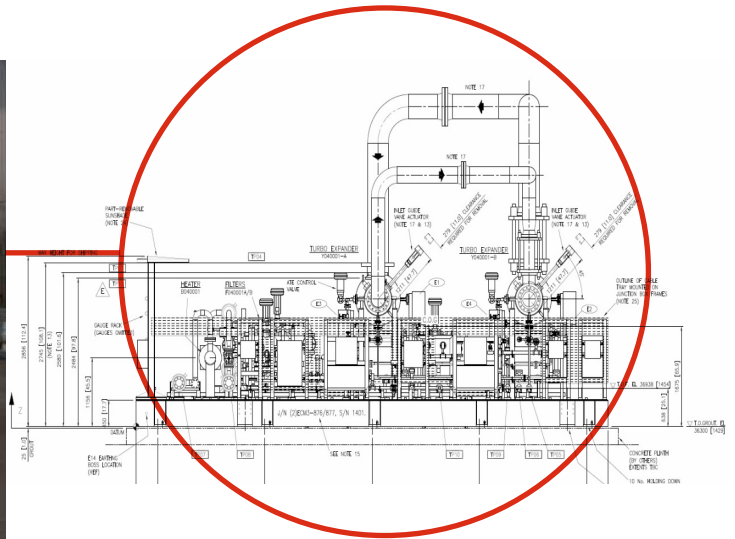


# C215 | Reliance Industries | J3 Complex

## Turbo Expander Package



Project: J3 Complex Contractor: Atlas Copco Mafi-Trench End User: Reliance Industries  
 Product: Turbo Expander Package Location: India Year: 2013

### Application

The application of this project was to provide four off turbo-expander skid packages for Reliance Jamnagar Refinery, India. The packages were designed and built in partnership with Atlas-Copco in the USA. Once completed the skids were shipped to California to have the turbo-expanders fitted and then the overall package shipped to India.

Three skids were designed to house two ECM3 turbo-expanders with interconnecting pipework. The fourth skid was designed for an ECM5 single turbo-expander.

### Description

The skid packages comprised of the following:

- Rigid frame and stand for all of the turbo-expanders.
- Three skids housed two ECM3 turbo-expanders each weighing 3,600 kg with a total skid weight of 28,000 kg.
- The fourth skid housed a single ECM5 turbo-expander weighed 16,300kg, with a total skid weight of 24,000 kg.
- Seal gas system comprising electric heater, temperature control, ESD valve and outlet pressure control. The seal gas system was manufactured in stainless steel and was suitable for cryogenic operation up to the ESD valve.
- Gauge board for all skid mounted instruments at the end of each skid.
- 10" and 16" bore interconnecting pipework, with expansion bellows.
- Valves and instruments were supplied from Customer approved suppliers.
- All skids and pipework were fabricated by OGS in our UK workshop.

### Challenges

There were several key challenges that we had to overcome to complete the project. The main ones are defined below:

- The difference in time zones liaising with Atlas Copco in California and Technip / Reliance in India proved to be a key issue for our engineering team.
- Stress analysis of interconnecting pipework and design of pipe supports to tie in with customer frame.
- Late specification changes received from the main contractor

