

## STAR'S TOTAL SOLUTION FOR HUNTSMAN PETROCHEMICALS

Huntsman European Petrochemicals is a major manufacturer of bulk commodity chemicals and produce around three million tonnes of petrochemicals a year from their well-established manufacturing plants based on Teesside in the North East of England.

Huntsman had a requirement to increase their ethylene liquefaction throughput to meet market demands and so had a need for increased refrigeration capacity. They wanted a customised refrigeration plant to serve an Ethylene heat exchanger and using Propylene (R1270) as the refrigerant.

Star Refrigeration designed the plant to cool high pressure Ethylene before shipment. The Ethylene is cooled using Propylene Refrigerant on the shell side of the HP Ethylene Heat Exchanger. The Propylene Refrigeration System was rated to provide approximately 2000Kw of capacity when working with a design ambient wet bulb of +19C.

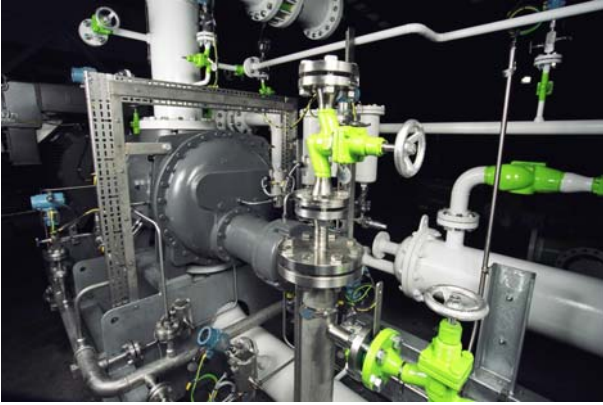
The refrigeration system included an API 619 compliant screw compressor package with lube system and 3.3Kv high voltage EEx"N" drive motor, Evaporative Condensers, Propylene Liquid Receiver and a Refrigerant Economiser connected to the HP Ethylene Chiller heat exchanger and Ethylene Knock-Out Vessel.



Interconnecting Site Pipe work was provided and the refrigeration plant controlled from a remote mounted Allen Bradley PLC. The complete system is suitable for operation outdoors within a Hazardous Zone 2 IIB T3 Area environment.

Star Refrigeration worked closely with the Huntsman and FWEL Project team to produce a "Project Specific" refrigeration plant designed for continuous operation and reliability. There were certain Specific Project Requirements required by the team including:

- Plant Operational Reliability (24/7)
- Designed to PED requirements
- All Vessels/Pipe work in LT50 Carbon Steel
- Compressor secondary "Dry Gas Seal" for added protection and notification of shaft seal wear.
- Automatic Oil Recovery
- Vibration Monitoring System
- Use site specified instrumentation
- Project specific documentation



To provide a degree of in-built equipment reliability, the compressor package was designed with dual oil pumps and dual oil filters thereby ensuring that filters could be changed while the compressor was operating.



Star Refrigeration is the UK's largest independent industrial refrigeration engineering company. Star focuses on the design, manufacture, installation, commissioning and maintenance of industrial refrigeration systems. The company offers a turnkey package to all users of refrigeration plant.

Star's technical advisory arm, Star Technical

Solutions (STS), operates as an independent consultancy providing advice on refrigeration engineering issues. Star also owns food freezing and chilling equipment specialist Starfrost, as well as mechanical and electrical contractors Penec.

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