



JT Dew Point Control Process Package with Gas/Gas Heat Exchanger and Low Temperature Separator

Compass Model No: RC-15

Application: Raw natural gas dew point control

Location: Queensland, Australia

Customer Objective: The equipment controls the water and hydrocarbon dew point of field gas coming into the plant site, so it may be shipped via the Queensland Gas Pipeline for further processing.

Major Equipment Specifications

Exchangers:

- Gas/Gas Exchanger – 16" OD x 33 ft. NTL, TEMA style NEN, two barrels
- HCL Heater Exchanger – 3" OD x 7 ft. S/S

Glycol System:

- Particle and carbon filters
- 150,000 BTU/hr reboiler/accumulator

Vessels:

- LTS – 36" OD x 120" S/S
- HCL Flash – 14" OD x 52" S/S
- Glycol Flash – 18" OD x 60" S/S

Pumps:

2 x 100% 2 HP Bear MX-3H

Control Panel:

Profire 2100 Burner Management System



Design Challenges: The expansion of the plant requires equipment to control the dew point of the existing and new gas planned from the customer's interests in the area. Compressors on the site capable of much higher flow and discharge pressure for the volumes contemplated could be used if advantageous. Hydrate suppression is also an issue, as is the desire to use this suppression system only when necessary to save operating costs. Further design challenges include minimizing site construction, and compliance with Australian electrical codes.

Shipment required using modular 'sea cans' so the entire plant, which would typically be mounted on an 18 ft. wide x 45 ft. skid, had to fit into two sea cans less than 8 ft. wide, 40 ft. long, and 8 ft. high.

Compass Solution Compass devised a Joule Thomson (JT) or 'choke' plant that uses the power already available at the site. Evaluation of the existing compression was part of the cost effective solution offered by Compass. Compass devised a system whereby the hydrate suppression (glycol) system can be shut down to save energy and the plant will control itself to prevent overcooling and subsequent freezing. Only power and instrument air are required to run the control system which includes a natural-gas-fired regeneration system for the glycol. This system must be 'Type B' compliant, so Compass worked with professionals in Australia and Canada to certify burner equipment manufactured in North America. This was in addition to ensuring certification of electrical and instrumentation to IECEx/AS 3000 standards for operation in Australia.

To fit the shipping window, the Compass design team set up the equipment so it can be accessed from the perimeter, and bolts together easily once on site. Vessels and skid layouts were designed to minimize ship-loose spools, saving time on re-assembly in the field.