

Application story



Attic Oil Transfer

Location	UAE (Installation: 2016)	Hydra-Cell model	G35XKGGHFEHB
Type of application	Attic Oil Transfer	Flow rate	800 to 7800 l/hr
Liquid	Seawater, Crude Oil and Emulsion	Pressure	12.86 to 18.28 bar

Application details

Attic oil is the name given to fluids trapped above the oil import/export lines in the Cormorant Alpha cells. Actual fluid properties are unknown. Solid content will vary from insignificant to high when pumping final volumes. Pump is situated in a rig leg, so the space is tight.

The liquid consisted of: sea water, crude oil and an emulsion at the interface solids expected to be small (<60micron). H2S and CO2 are also present.

An ATEX zone 1 (category 2) attic oil recovery system for a global operator's decommissioning project was required. The three-skid system consisted of a duplex filtration skid with differential pressure gauge, a pneumatically powered pump skid and a metering skid to which a multi-phase flow meter is fitted. Brimmond Group carried out extensive testing, including thermal imaging to provide its suitability for use within the hazardous environment, furthermore all wetted components had to be certified to NACE MR0175.

With a footprint of only 800mm x 1000mm for the Pump Skid and the requirement to safely lower the system 18 levels down the inside of a concrete production platform leg the system had to be designed within a compact certified lifting frame. All of the spool pieces were pre-designed using autodesk inventor allowing units to be assembled within a couple of days.

The extensive factory acceptance test included recording the pumps temperature increase on re circulation at full load, belt drive system temperature increases, maximum outlet flow and pressures at specific air supply volume and pressures.

- ATEX Zone 1 (Category 2)
- Maximum flow rate: 138 lpm
- Maximum pressure: 18 bar
- Pressure relief valve and back pressure regulator
- Pneumatically driven
- All wetted parts NACE MR0175 certified
- Inlet and outlet pulsation dampening
- Duplex filter skid
- Pneumatic pump lube oil high level and low level shut down
- All pipework pressure tested and radio-graphed

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Hydra-Cell G35 was chosen over the traditional metering pump & plunger pumps because of the following reasons:

- Multiple diaphragms in one pump head - Compact design saving installation and acquisition cost
- Seal-less packing free design – Minimal Op Ex cost. High reliability