

# Nitrogen converter

## 180 K, 10,000 psi – Zone II



- ✓ **Maximum working pressure:** 10,000 psi / 690 bar
- ✓ **Maximum flow rate:** 180,000 scf/hr / 4,700 Nm<sup>3</sup>/hr
- ✓ **Hydrostatic test pressure:** 15,000 psig / 1,035 bar
- ✓ **Design maximum flow rate temperature:** 20°C / 70°F
- ✓ **Maximum simultaneous flow and pressure:**  
180.000 scf/hr / 4,700 Nm<sup>3</sup>/hr @ 10,000 psi / 690 bar
- ✓ **Standard design ambient temperature:** +50°C
- ✓ **Tare weight:** 9.5 tons



- ✓ **Dimensions:** length 4,570 mm / 180", weight 2,438 mm / 96", height 2,590 mm / 102"
- ✓ **Fuel capacity:** 375 litres / 100 US gallons

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## Standard features

- Outer 4-point lifting frame designed in accordance with DNV 2.7-1/BS EN 120079
- Forklift pockets for yard handling
- Unit fully tested prior to shipping
- Safety non-slip material on all rungs and harness point at top of each ladder
- Caterpillar 3406C DITA petroleum application diesel engine rated to produce intermittent "D" rating of 490 BHP @ 2,100 rpm
- Hazardous area engine protection package including: exhaust gas manifold cooler, air inlet flame trap, shut-down valve and exhaust spark arrestor
- Hydraulic heat load system
- NP200 power end
- 1.625" 10,000 psi cold ends (DNV-approved)
- 1.5" x 2.5" x 6" centrifugal boost pump

## Equipment specifications

- Certified by DNV
- Skid-mounted nitrogen converter system
- Designed and constructed for operation both onshore and offshore
- Engine designed to meet current requirements for engines for use in a Zone II area
- Power pack has a Caterpillar 3406C DITA 490 BHP diesel engine
- Engine loading is achieved using Denison hydraulic vane pump, the applied load being controlled by remote activation of the sequence valve. The Triplex power end is a model number NP200 complete with reduction drive and hydraulic drive motor. The drive obtained using a Denison P14 variable flow, high pressure piston hydraulic pump.
- 1 5/8" cold end pumps DNV-approved: 10,000 psi working pressure, 180,000 scf/hr flow, 1.5" x 2.5" x 6" centrifugal charge pump and DNV-approved high pressure vaporiser used to convert waste heat obtained from the power pack and hydraulic circuits to useful heat for liquid nitrogen conversion.
- Stainless steel exhaust system, with the exception of the manifold cooler, manifolds and turbocharger



## Special features

- All cryogenic piping to be stainless steel type 316 or 304
- Stainless steel floor in all areas exposed to possible cryogenic spillage
- Cryogenic long stem ball valves for liquid nitrogen circuit
- Tempering line around nitrogen vaporiser to control the gaseous nitrogen discharge temperature
- Discharge relief valve set at 11,000 psi and a gas check valve for unit
- Engine to be equipped with an air start system
- Cryogenic suction and return fittings to be 1.5" CGA
- Manually operated discharge valve to be 2 x 1 valve

## Safety shutdown

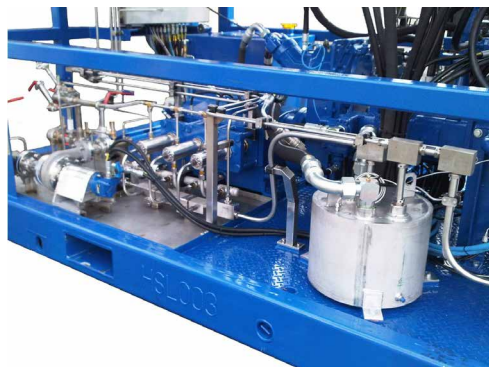
Fuel / air shutdown valves close automatically on:

- Engine overspeed
- Emergency stop
- High coolant temperature
- Low oil Pressure

## Instrumentation & controls

For ease of operation, local panel contains all instrumentation and controls, including:

- Engine controls
- Start / stop
- Emergency stop
- Engine RPM
- Oil pressure
- Air pressure
- Water temperature
- Engine speed control
- Hour meter
- Nitrogen HP pump and discharge system
- Hydraulic charge pressure
- Digital rate display
- Nitrogen discharge temperature
- Discharge control valve
- Pump speed control
- Lubricating oil pressure and temperature
- Hydraulic oil temperature
- Vaporiser circuit temperature



## Contacts

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