



NITROGEN PUMP

Dimensions

Length(mm).....: 4878 Width(mm).....: 2438 Height(mm).....: 2768
 Weight (kg).....: 11500
 Lifting/ Transportation.....: Frame with forklift channels and lifting slings. DNV 2.7-1. BS EN 12079

Area of use / certification

Onshore/offshore.....: Onshore
 Standard.....: CE marked, built to PED and ATEX directive

Flow / Pressure / Volume

Q max (SCF/H).....: 180000
 P-max (bar).....: 690

Pump / Engine

Triplex pump.....: Hydrarig NP200
 Boost pump.....: 1.5" x 2.5" x 6" centrifugal boost pump
 Cold-ends.....: 1.625" 10,000psi cold ends (D.V. approved)
 Vaporizer.....: 10,000 psi rated vaporizer pot, (D.V. approved)
 Motor.....: 500 BHP Zone 2 diesel engine: Detroit Diesel Series 60
 Filter LIN suction side.....: Washable strainer
 Signal to platform at.....: Fire alarm, gas alarm, fault on gas/fire detectors
 Air/Diesel shut down at.....: - Engine Over Speed
 - Emergency Stop
 - High Coolant Temperature
 - Low Oil Pressure
 - High Exhaust Temperature

Power supply

Fuse (qty).....: 1 Fuse (A).....: 16
 El.Power1.....: 230 V 1 phase (Hz).....: 50/60 (kW).....: (A).....:

Flow / Pressure / Volume

Diesel Tank Volume (ltr).....: 375
 Diesel consumption (ltr/hr).....: 100

Additional information

Equipment / Functions.....: - 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
- Cooling system rated to +50 degC, 100% humidity

Special Features:

- All cryogenic piping to be Stainless Steel type 316 or 304
- Fuel and hydraulic tanks to be Stainless Steel
- Stainless Steel floor in all areas exposed to possible cryogenic spillage
- Cryogenic long stem ball valves for liquid nitrogen circuit
- Tempering line around nitrogen vaporizer 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, boost pump bypass and return fittings to be 1.5" CGA
- Hydraulically operated discharge valve to be 2 x 1 valve with Danfoss actuator
- Stainless Steel engine air inlet, engine exhaust pipe work and silencer
- Solder dipped radiator suitable for onshore use up to 50 degC
- Boost pump bypass line

Equipment Specifications:

- Certified by D.V.
- Skid mounted liquid nitrogen pumping and vaporizing system
- Designed and constructed for operation both onshore and offshore
- Engine designed to meet current requirements for engines for use in a Zone 2 area
- Power pack has a Detroit Diesel Series 60 (500 BHP) 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; 10,000psi working pressure, 180,000 scf/hr flow, 1.5" x 2.5" x 6" centrifugal charge pump and D.V. approved high pressure vaporizer used to convert the 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

Instrumentation and Controls:

This unit has a local panel containing all instrumentation and controls for ease of operation. The panel contains the following gauges:

- 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 Pressure
- Hydraulic Charge Pressure
- Digital Rate Display
- Nitrogen Discharge Temperature
- Discharge Control Valve
- Pump Speed Control
- Lubricating Oil Pressure and Temperature
- Hydraulic Oil Temperature
- Vaporizer Circuit Temperature