

# DNV SPM SINGLE TRIPLEX PUMP SKID (10,000 PSI)

## DESCRIPTION

The DNV SPM Single Triplex Pump Skid (10,000 PSI) is a robust, high-pressure pumping unit designed for the transfer of acid, cement slurry, and various other liquids in demanding oilfield operations. Capable of handling pressures up to 10,000 PSI, it is ideally suited for both onshore and offshore oil wells.

This unit is DNV certified and designed in compliance with ADNOC standards, ensuring safe and reliable performance in critical environments. The skid is built with a custom heavy-duty crash frame, featuring forklift pockets, certified pad eyes, and lifting slings for easy and secure transportation.

For safe operation in hazardous areas, the unit is equipped with an ATEX-approved spark arrestor and a Chalwyn valve, making it suitable for use in Zone 2-rated areas. A platform-mounted control panel enables efficient operation, monitoring, and maintenance, while the epoxy-coated structure ensures durability and corrosion resistance in harsh conditions.

## DNV SPM SINGLE TRIPLEX PUMP SPECIFICATION

### General

#### Engines

Type Detroit Diesel Series 60 ( 14.1 Ltr)

Capability 630 bhp [474 kW] at 2,300 rpm, dry manifold

Safety Attachments One Chalwyn Valve, One Spark Arrestor – ATEX approved

Engine Emissions Compliance EPA Tier III Approved. • EURO Stage III Approved.

Transmission Allison Transmission 4700 OFS Series

#### Triplex Pump

Type SPM® TWS 600S Heavy Duty (HD)PUMP

Pressure rating 10,000 PSI

Maximum brake horsepower input 600 BHP

Maximum rod load capacity 106,029 LBf

Plunger size 3.5 Inch

Displace Per Rev 0.75 Gal/Rev

#### Drive Mechanism

Power take-offs Parker Chelsea 267

Hydraulic pumps One Veljan Denison hydraulic vane pump

Centrifugal pumps One 6 x 5 x 14 Forum pump or equivalent

Hydraulic pumps One Veljan Denison hydraulic motor

Hose Parker

Control Panel Gauges	<ul style="list-style-type: none"> <li>✓ Engine RPM</li> <li>✓ MD Totco Pressure gauges 0-15k PSI with over pressure protection</li> <li>✓ Beka Digital flow rate and totalizer display</li> <li>✓ Engine Oil</li> <li>✓ Transmission oil Pressure</li> <li>✓ Transmission lock-up pressure</li> <li>✓ Triplex Oil Pressure</li> <li>✓ Engineer Coolenet Temperature</li> <li>✓ Transmission Oil Temperature</li> <li>✓ Triplex Oil Temperature</li> <li>✓ Air Pressure</li> <li>✓ C-Pump Hydraulic Pressure</li> </ul>
Safety	
Emergency Kill switch	1 Qty
Spark arrestor	Atex Chawlyn SS spark arrestor x 1
Over-pressure Shutdown	MD Tocto Pressure gauges 0-15k PSI with over-pressure protection
Air cut off	Atex Chawlyn Overspeed air cut-off valve
Battery cutoff switch/plug	1 Qty
<b>Certification</b>	
Crush Frame	DNV 2.7-1 Certified
Quality Management	ISO 9001 Certified
Certificate of Conformity [COC]	<ul style="list-style-type: none"> <li>✓ Complete unit</li> <li>✓ Diesel Engine</li> <li>✓ Transmission</li> <li>✓ Centrifugal Pump</li> <li>✓ PTO</li> <li>✓ Slings</li> </ul>
<b>Third-party Inspection</b>	
Zone II	<ul style="list-style-type: none"> <li>✓ Diesel Engine</li> <li>✓ Explosion-proof lights</li> </ul>
MPI	<ul style="list-style-type: none"> <li>✓ Complete weld joints</li> <li>✓ Lifting Pad eyes</li> </ul>
UT	<ul style="list-style-type: none"> <li>✓ Diesel Tank</li> <li>✓ Hydraulic Tank</li> <li>✓ Air Tank</li> <li>✓ Lub Tank</li> <li>✓ Triplex pump oil Tank</li> </ul>
Pressure Test	<ul style="list-style-type: none"> <li>✓ Hose</li> <li>✓ Triplex</li> </ul>
<b>Dimensions</b>	
Length	8.58 m [28 ft 1.8 in]
Width	2.78 m [9 ft 1.44 in]
Height	

Operational (railing up)	4.42 m [14 ft 6 in]
Transportation (railing down)	3.92 m [12 ft 10.3 in]
Weight (dry)	14,000 kg [30,864 lb]
Ambient rating	-5 to 60 degC [23 to 140 degF]

### Painting

Sandblasting	Off-white metal standard SA 2 ½ or equivalent
Painting Exterior	
Base coat	Epoxy primer – 1 Coat
Intermediate Coat	As per client RAL – 1 Coat
Top Coat	As per client RAL – 2 Coat
Painting Interior	Epoxy Primer – 1 Coat
Components & Parts	As per client RAL

### Skid Label

Nameplate	Unit Name plate [ 20cm x 20cm]
Company Logo	As per client requirements
Weight	Marked on two place lifting frame in English and metric
Dimension	Marked on two place side frames in English and metric
Unit number	Welded to the base of the structure

## APPLICATION

### 1. Cement Pumping Applications

Triplex pumps are essential in **primary and remedial cementing operations**. Their role includes:

- ✓ **Primary Cementing:** Pumping cement slurry into the annular space between the well casing and borehole to:
  - Secure the casing
  - Provide zonal isolation
  - Protect against the formation of fluid migration
- ✓ **Squeeze Cementing:** Used in **remedial operations** to seal off zones or repair casing leaks.

### Why Triplex Pumps?

- ✓ High-pressure capability (up to 10,000+ PSI) to ensure slurry reaches target depth
- ✓ Precise flow control to match displacement schedules
- ✓ Reliability under continuous and high-load operation

## 2. Acid Pumping Applications

In **well stimulation**, especially in carbonate formations, **acid pumping** is performed to improve reservoir permeability by dissolving formation damage.

**Triplex pumps are used for:**

- ✓ **Matrix acidizing:** Injecting acid at pressures below fracture pressure
- ✓ **Acid fracturing:** Pumping acid above fracture pressure to etch flow paths in the rock

**Why Triplex Pumps?**

- ✓ Chemical-resistant design for handling corrosive acids (HCl, HF)
- ✓ Controlled flow rate to ensure safe and effective stimulation
- ✓ High pressure to penetrate deep into the formation

### **ADVANTAGES**

- ✓ **Durability:** Handles abrasive slurries and corrosive fluids
- ✓ **Precision:** Flow rate control ensures treatment effectiveness
- ✓ **Safety:** Designed with pressure relief and lubrication systems
- ✓ **Modularity:** Can be skid-mounted with control systems for remote or mobile operations