

Technical Specification & Performance Data

Diesel - Power Station

consisting of:

14 Caterpillar Diesel Generator Sets

Type 16 CM32

as V-type engine

with a mechanical power output of

7520 kW per engine

and an electric power output of

9127 kVA per generator set

[0.8 cos phi)

(7302 kW electric output)

TS1: Mechanical Specification

TS 1.1: Caterpillar Diesel Engine 16 CM32

Design:

16 cylinders 750 rpm

Direct injection compressed air starting

Rotation counter-clockwise acc. to ISO 1204

With exhaust gas turbocharging and charge air cooling

Suitable for operation on heavy fuel, max. viscosity 700 cSt/50°C

The diesel power station with accessories is equipped for operation on fuel with a viscosity of 180 cSt/50°C, quality requirements according to CIMAC F 25

1 set of safety devices to avoid overpressure in the crankcase, arranged on every second cylinder

Continuous power output at site:

7520 kW at the following ambient conditions:

36 °C max. ambient air temperature

80 % relative humidity at max. ambient air temperature

150 m altitude of site

Overload capacity of the engine: 10 % for max. 1 hour during a period of 12 hours according to ISO 3046/1

Fuel consumption according to DIN/ISO 304 6/1:

177 g/kWh at 100 % mechanical engine output

177 g/kWh at 85 % mechanical engine output

191 g/kWh at 50 % mechanical engine output

Tolerance: 5 %

Net calorific value of the fuel: 42700 kJ/kg

Without engine-driven pumps

Ambient conditions according to ISO 304 6/1

1 bar (100 kPa) atmospheric pressure

25 °C intake air temperature

25 °C charge air coolant temperature

Additional fuel consumption per engine-

Driven pump: 1 %

Fuel consumption at site the generator terminals:

194.2 g/kWh at 100 % electric output
194.2 g/kWh at 85 % electric output
209.5 g/kWh at 50 % electric output

Without tolerance

With 1 engine-driven pump(s)

Net calorific value of the fuel: 42700 kJ/kg

Efficiency of the generator 97.1 %

Ambient conditions:

36 °C air temperature

150 m altitude of site

80 % relative humidity

Measured fuel consumption values are converted to the these ambient conditions according to DIN/ISO 3046/1

Load application and speed regulation:

The load application on warmed-up engine and the recovery of engine speed after sudden load increase is according to ISO 8528-5

The engine allows for start and stop on heavy fuel if warmed up

Values for permissible vibrations

Permissible vibrations for CM engines are in accordance with ISO 8528 Part 9

Lube oil consumption:

4.6 kg/h at any load tolerance: $\pm 50 \%$

Factory test:

Standard acceptance test run on the CIPS test bed using diesel oil

The engine is run on the test bed with an output of 110% of the continuous rated output at site (max. 30 minutes), fuel rack position is blocked at 110 %

Test certificates:

Test certificates of the engine and the main accessories submitted by CIPS

Painting and coloration:

Engine/genset painted acc. to CAT-YELLOW

Preservation:

Standard preservation up to 6 months

Lettering and plates:

Lettering and plates in English

TS 1.2: Additional Engine Components

- 14 electric turning gear(s), separate, including contactor-type reverser and pushbutton, with cable, with starting interlock if turning gear is engaged
- 14 gauge panel(s), fitted on engine, each with 1 set of pressure indicator (s) for fuel, lube oil, cooling water and charge air
- 1 set of exhaust valve rotators per engine
- 14 governor(s) on the engine for electronic speed control, consisting of:
 - electronic speed control unit, type Woodward
 - actuator (without mechanical back-up) and speed pick-up
- 14 electric emergency shutdown device(s), 24 V DC, fitted on engine, with pushbutton for manual emergency stop
- 14 service platform(s) and ladder(s) incl. fastening on the engine (if applicable)

TS 1.3: Coupling and Mounting of Diesel Engine

- 14 protection metal cover sheet for flywheel and coupling
- 14 elastic coupling(s) between engine and generator
- 14 set(s) of rubber elements for direct elastic mounting of the engine on concrete foundation block including bolts and grouting material
- 14 set(s) of elastic pipe connections

TS 1.4: Engine Control

- 14 manual control(s) on engine, consisting of:
 - control panel with start/stop key and speed setting device
 - mechanical shut-down device

Performance Data

Note: Plant is running on Heavy Fuel Oil with a viscosity of 180cSt at 50°C Plant

Alternators

AVK - DIG 17/m/8 Synchronous Generator 9215kVA 11000V 484 A 0 0.8

50Hz **Main Transformers**

2 x Crompton Greaves 70MVA ONAF 50Hz 11kV/132kV

Step-down Transformers

2 x BEZ Transformatory TOHn 458/10 11kV/400V 4000kVA 50Hz



