

26MW Wartsila Vasa 18V32LN HFO Complete Power Plant

Plant Overview

The power plant has been designed for base load application, intended for parallel operation with public supply system.

The power generation part consists of four identical generating sets using WARTSILA VASA 18V32 LN diesel engines as prime movers driving generators type ABB HSG 900XS8 generating electrical power.

The station has been designed and built as an independent plant, including "Black Start", running on heavy fuel oil 180 CST. The power plant is designed with the option to be converted for operation on natural gas.

Four generating sets have been manufactured during 1997. The power plant was erected and was operational during 1998.

Four generating sets have been operated under full load for ab. 59,000 working hours.

Last periodical overhaul (Under OEM supervision) carried out during 2012 and ran since then ab. 4,000 working hours.

As an independent plant, the system includes, flew gas washing system, exhaust gas and oil fired boilers and 80m high stack.

The operation of the diesel generating sets is carried out from the central control room. The operation method is automatic / manual with automatic synchronizing, based on operator's push-button order.

Auxiliary equipment is controlled from local control panels mounted close to the equipment.

The equipment includes control equipment, meters and sensors needed for the operator to monitor the equipment and processes, to give alarm in case of abnormal conditions, to stop the diesel power plant operation in case of hazardous conditions occurs.

The power station is designed and equipped for "In house" maintenance including overhead 5T travelling crane, set of special tools, fully equipped workshop and original spare parts.

The main systems of the power plant are:

- Electric system.
- Fuel system.
- Lubricating oil system.
- Starting compressed air system.
- Control air system.
- Cooling water system (LT and HT).
- Charge air & exhaust gas system.
- Flue gas washing system.
- Steam system.
- Fire alarm and fire-fighting systems.

Main Plant Data

The total electric power output that generated by the four diesel generating sets of the type 4 X WARTSILA VASA 18V32 @ 750 rpm with the following electrical characteristics:

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|----------------------------|-----------------------------|
| - Station nominal output | 26 MWe |
| - Generator nominal output | 8,125 kVA |
| - Generator voltage | 11KV, adjustment rang +- 5% |
| - Frequency | 50 Hz |
| - Auxiliary voltage | 415 V AC, 110 V DC |
| - Fuel | HFO/Diesel |
| - COD | 1998 |
| - Operational hours | 59,000 hrs |

Electric system

Main switch gear

The main switchgear is of air insulated, metal enclosed type and provided with withdrawable circuit breakers.

Circuit breakers

The circuit breakers are equipped with auxiliary contacts, charging motors, closing and shunt tripping coils.

Current and voltage transformers

The transformers have a rated burden to suit with connected measuring and protection devices.

Accuracy class:

- Protection transformers 10P10
- Measuring transformers cl. 0.5

Rated values:

Station service system

The power plant is equipped with one three-phase oil-immersed outdoor type distribution transformer. The transformer is placed in steel sheet tank provided with cooling fins.

- Rated power 1,600 kV
11,000/400 V +-
- Rated voltage 2x2.5%
- Frequency 50 Hz
- Standard IEC 76
- Cooling ONAN

