

Wendt SIT GmbH & Co. KG

Contact Udo Leist
Address Beindersheimer Strasse 79
67227 Frankenthal, Germany
Phone +49 6233/7704-0
Email uleist@wendt-sit.de
Website www.wendt-sit.de



WENDT
SIT

WENDT SIT - Experts for Sound Proofing and Insulation

Starting with rubber products in 1874 WENDT has developed to one of the leading suppliers of noise hoods, sound and thermal insulation and high temperature insulation products.

WENDT delivers its noise protection hoods to a lot of branches. First of all is the energy sector with power plants and oil and gas. But also in mining and the chemical industries WENDT is a great supplier of noise protection equipment. We have a lot of pleased customers such as ALSTOM, SIEMENS, BASF, Vattenfall, KBA, Bertsch Boilers, Wingas, Linde, MAN, RWE, Kawasaki, MTU, Daimler and many others.

Up to now WENDT has installed successfully more than 500 noise enclosures. We are the leading supplier of noise enclosures for gas and steam turbines for such companies as ALSTOM, SIEMENS and Kawasaki. Chemical companies like BASF we supply with thermal insulation and sound protection for compressors or other processes. To mining industries WENDT delivers noise protection systems for huge excavators and conveyors for such customers like Vattenfall and RWE.

Noise Protection and Ventilation for Turbines

WENDT belongs to the leading manufacturers of sound enclosures for turbines all over the world. This is an effect of our high standard of quality and our very close co-operation with our customers. Consultation with and feedback of our customers are very important to meet the ideas and needs to the full satisfaction of our customers.

These are the main advantages of our noise hoods:

- Patented modular design of panels and

accessories for quick assembly and disassembly without use of bolts

- A quick maintenance disassembly also of single elements is possible
- Sound enclosures are provided in any required dimension, suitable for in- and outdoor location
- Surface of the panels is galvanized, Aluzink® or coated
- Our gas tight sound enclosures are suitable for the installation of fire fighting equipment.
- Delivery of our products in time and safe to every place in the world
- The assembly of the sound enclosures are easily done because of our detailed erection manual
- If requested we execute the professional assembly of the sound enclosures

Engineering

WENDT offers a lot of Engineering Services such as:

- Acoustic design
- Static and seismic calculations
- Design of ventilation systems
- CAD 3D and PDMS
- Circuit diagrams
- PLC programming
- Technical documentation

Components of Noise Hoods

Additional to our main products we deliver many accessories like:

- Structural Steelwork, Platforms, Ladders and Stairs
- Ventilation Systems, Flaps and Fans
- Silencers
- Electrical installation, Cabinets, PLC's and Instrumentation
- Static Filter Systems for Combustion Air

Short Description

Noise Enclosure Project - Sengkang Power Plant

The outdoor noise enclosure is part of a power station located in Southern Sulawesi, Indonesia. Wendt SIT GmbH & Co. KG delivered two noise enclosures with a completely new design, which is expected to become the execution standard for future projects.

The enclosure is designed for an outdoor arrangement with the purpose to replace the turbine building of the power plant. This way of working leads to an enormous cost reduction and was one of the important arguments for the positive decision of the customer for this kind of execution.

The static system of the enclosure in transverse direction consists of frameworks. In longitudinal direction it is stabilized by bracings. The static analysis is calculated using a 3D model to optimize the weight of the structural steel.

Project Information

Owner: PT Energi Sengkang
Architect: Siemens AG Power Generation
General Contractor: Siemens AG Power Generation
Engineering Office: Wendt SIT GmbH & Co. KG

Construction Start: 01/08/2007
Construction End: middle of 2008
Location: Sengkang, Indonesia



The outdoor noise enclosure is a part of the power plant PT Energi Sengkang power plant located in Southern Sulawesi, Indonesia. The owner is Energy World Corp. Ltd.

Wendt SIT GmbH & Co KG delivered two noise enclosures to cover Siemens gas turbines. The two units are designed equal. WENDT was ordered to deliver these noise enclosures with a completely new design which is expected to become an execution standard for future projects.

The noise enclosures are designed for an outdoor arrangement with the purpose to replace the turbine building of the power plant. This manner leads to an enormous cost reduction and was one of the important arguments for the positive decision of the customer to this kind of execution.

The shown noise enclosure has the function to reduce noise emissions caused by a gas turbine and its connected generator. The enclosure is divided into 4 different compartments, one for the gas turbine, one for the auxiliary, one for the Lube oil and one for the generator. Special operation conditions have to be considered during design period to meet the technical requirements of the project.

The enclosed machinery has a big heat loss, so the noise enclosure has to be equipped with a ventilation system to fulfil maximum interior temperatures

lower than 60°C. Higher temperature inside would be harmful for the electrical equipment and would also not allow access of maintenance personnel during operation. Special attention was paid to the hazardous area inside the gas turbine compartment which is possible to occur by a leakage in the turbo machinery system.

The noise panels of the enclosure have the advantage to be removable without losing any connection elements. The wall and roof elements are executed weather- and gas tight as well.

Above of the generator building is a filter house. The loads resulting from this filter house are derived by its own steel structure.

During the design period a lot of interfaces of components had to be considered. Several penetrations caused by the generator bus duct, turbine diffuser, ventilation ductwork and piping had to be integrated into the design of the noise enclosure. Static System:

The static system of the noise enclosure in the transverse direction consists of frameworks. In longitudinal direction the building is stabilized by roof and vertical bracings.

The static analysis according EC3 is calculated using a 3D-model to optimize the weight of the structural steel.

The columns of the steel structure are aligned in a way that the front flanges of the column sections have the same outline dimensions to allow easy assembly of the sound damping panels. Therefore additional eccentricities had to be considered. The steel structure is designed for an easy disassembly to allow fast access to the machinery for maintenance and repair purposes.

The following components are a part of the delivery of **Wendt SIT GmbH & Co. KG**:

Engineering

- Acoustic design of the enclosure elements including splitter silencers of the ventilation system.
- Complete design, layout -, outline-, detail- and erection drawings.
- Static analysis of the steel structure and structural parts of the enclosure including the consideration of seismic and wind loads.
- Design of the ventilation system, fans and filters.
- Design of the electrical equipment and lighting.

Hardware

- Structural steel structure
- Platforms, stairs and ladders
- Wall and roof panels
- Ventilation systems and filters
- Fans
- Lighting
- Seaworthy Packing

Technical Data of the enclosure

- GT-Compartment
Length 10,6 m
Width 8,4 m
Height 6,7 m
- GENO-Compartment
Length 12,2 m
Width 8,4 m
Height 6,7 m
- AUX-Compartment
Length 10,8 m
Width 5,0 m
Height 3,05 m

- Lube-Oil-Compartment
Length 9,15 m
Width 4,3 m
Height 4,8 m

Weight of the steel structure: ~ 27 tons per unit
Area of wall and roof elements: 1700 m²

Program description

The following software was used for the calculation: ESA-Prima Win 3.100 (now named Scia Engineer).

Advantages of the software

During the design phase it was necessary to check a lot of different versions to find an optimized solution. Thanks to ESA-Prima Win these different checks could be realised very easily. The load cases were easily generated with the graphic load generator. The stress calculations and design of frame corners were executed with ESA-Prima Win as well.

Special requirements

The calculation considered the local seismic and wind loads.

