



THOMASSEN GROUP OF COMPANIES

Thomassen Holding Limited was established in September 1998 to participate in the restructuring of Thomassen International Holdings BV, the Netherlands and in 1999 **Thomassen Services & Contracting Company LLC**, Muscat in the Sultanate of Oman was acquired.



In addition Thomassen Holding set up further operating companies specialized in gas turbine, generator and rotating equipment maintenance:

2000: **Thomassen Service Middle East LLC**, Dubai, United Arab Emirates

2012: **Thomassen Nigeria Limited**, Lagos, Nigeria

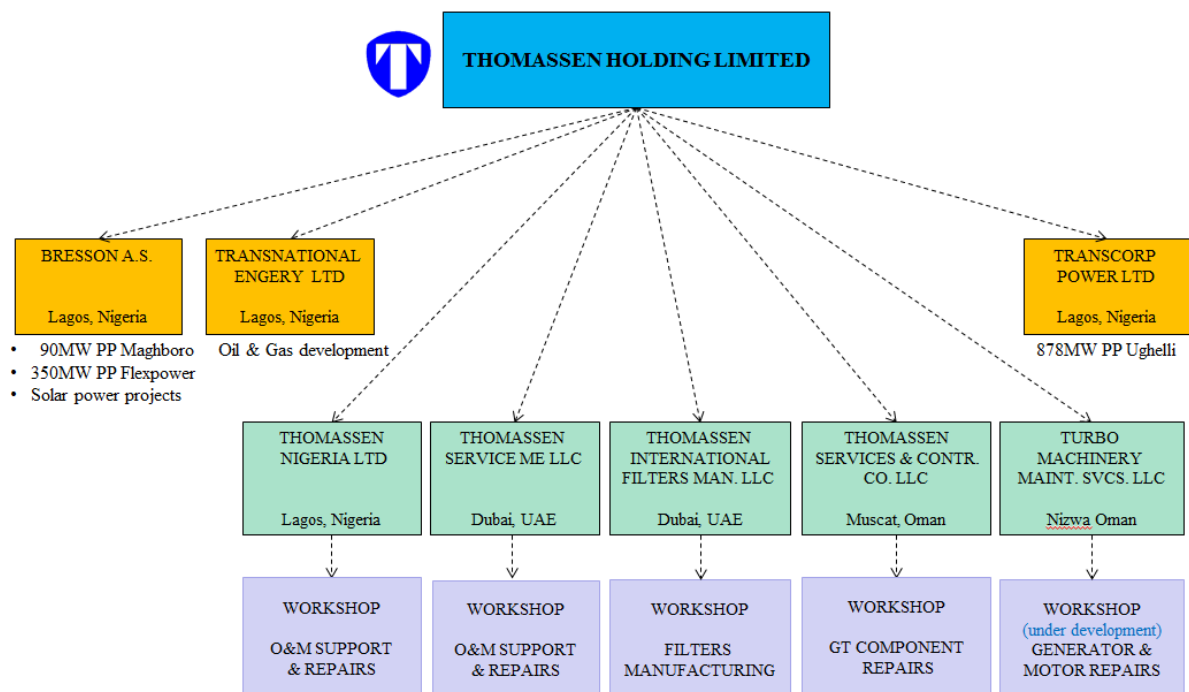
2014: **Turbo Machinery Maintenance Services LLC**, Nizwa, Sultanate of Oman

2015: **Thomassen International Filters Manufacturing LLC**, Dubai, United Arab Emirates

Thomassen Holding acts as technical partner and is a shareholder, member of the Board in the following Power Plants:

2012: **Transcorp Power Limited**, Nigeria for the 878MW Ughelli Power Plant, Delta state

2014: **Bresson AS Nigeria Limited**, Nigeria for the 440MW Magboro IPP projects, Lagos

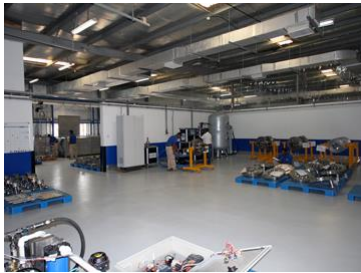




THOMASSEN GROUP OF COMPANIES

Thomassen Service Middle East LLC (TSME) is a specialized gas turbine maintenance company with a primary business objective to provide a complete package of after sales services on gas turbines in operation with Utilities and captive power producers.

In addition TSME also performs Fuel Nozzle and Actuator component manufacturing and repair as well as cost efficient O&M solutions for Thermal Power Plants in general. TSME Dubai provides all design and manufacturing technology, QA/QC and supply chain management support to all Thomassen Group companies.



Thomassen International Filters Manufacturing LLC (TINT) has a production facility for turbine & generator air inlet filter manufacturing.

TSME & TINT are made up of engineers and administrative staff with an extensive technical and logistics expertise required for the after sales services of gas turbines in power plants. We conduct our business in a way to maximize the satisfaction of our customers.

Thomassen Services & Contracting Company LLC (TSCC) was established in 1998 in Muscat, Sultanate of Oman by Thomassen International BV, the Netherlands to undertake Lump sum thermal power plant construction contracts.

In 1999 Thomassen the Netherlands discontinued to build new gas turbines under license from General Electric and from that moment on the TSCC company ownership was restructured and the business targets were adapted to provide after sales services and local O&M / technical support to clients mainly in Oman. Since June 2000 TSCC has been providing specialized maintenance services on all gas turbines (total installed power is in excess of 1,560MW) within the 12 Petroleum Development Oman power stations in the interior of Oman.

TSCC has qualified Muscat and interior based management, which are complemented by Specialist Engineers as well as technicians bringing together an extensive technical knowledge and experience in the operation and maintenance of gas turbine generator units and its related BOP equipment.





THOMASSEN GROUP OF COMPANIES

Turbo Machinery Maintenance Services LLC (TMMS) was established in 2014 at Nizwa Industrial Estate to develop the workshop infrastructure. TMMS is in the process of setting up extensive and state of the art workshop facilities for the repair of Electric Motors and generators as well as the manufacturing of switchgears. This workshop will be operated with a technical collaboration with Brush UK.

Thomassen Nigeria Limited (TNIG) is a specialized gas turbine maintenance company based in Lagos and Ughelli, Nigeria.

The TNIG primary business focus is to provide state of the art Operations & Maintenance services to the Power Plants in Nigeria in which Thomassen Holding has invested as a shareholder. In order to achieve this TNIG employs experienced staff and has acquired significant professional tooling, laser alignment and vibration monitoring equipment as well as other important support tools and on site facilities to ensure that operations as well as preventative and scheduled maintenance can be performed properly and efficiently.



Thomassen has been involved in many projects for after sales services in the Middle East and Africa. The traditional scope for site works covers transactional services for parts supply or repairs or for the supervision of scheduled maintenance only.

Our current strategy is to provide a complete scope for maintenance and where required also operations support tailored to the end user needs.

Our service offering includes the following:

- Project management
- Shutdown planning
- Engineering
- Repair of hot gas path components
- Supply of spare parts and materials for gas turbines, generators and other related equipment
- Specialist services for scheduled & unscheduled maintenance and emergency call outs
- Manpower support to other power plant operators and maintenance companies





THOMASSEN GROUP OF COMPANIES

REPAIRS:

At Nizwa Industrial Estate TSCC has extensive and state of the art workshop facilities for the repair of gas turbine hot gas path components.



From 2009 Thomassen has been operating a workshop facility at Sohar for the repair of Hot Gas Path components for GE Frame5, Frame 6 and Frame 9 heavy duty gas turbines. Building on the extensive expertise derived from Thomassen International BV, The Netherlands and Thomassen Service Gulf LLC, Abu Dhabi all staff working in the facility have an extensive experience in the repair of turbine nozzles, combustion liners, transition pieces and fuel nozzles.

Since 2013 Thomassen has been working on optimization of repair procedures and technology and as a result more and more repair and design activities are now being done in-house.

All procedures and working methods are supported by dedicated blasting, welding, heat treatment and coating systems to create the ideal environment to achieve the required quality and efficiency targets. Moreover in order to guarantee a proper fit of the repaired components in the gas turbine once returned to site it is necessary to check important clearances using jigs which simulate actual turbine internal geometry.

The Quality Management Policy of Thomassen demands full commitment to implement work in maintenance of gas turbines and supply of spare parts to the required quality and full satisfaction of the customer.

All work performed by our specialized manpower will take due regard for the employee safety, environment and compliance to applicable statutory and regulatory requirements.

Thomassen strives to exceed the needs and expectations of the customer requirements by continually improving the effectiveness of the Quality Management System through compliance to the following quality objectives:

- To ensure availability of adequate resources.
- To ensure effective communication, including the availability of data, in order to attain realization of agreed requirements and customer satisfaction.
- To improve the delivery of products and services.
- To further the development of staff through internal and external training.
- To provide competent personnel to meet the contractual conditions within planned time scales.
- To ensure continuous improvement of key operational processes identified in the QMS.

Thomassen performance is measured, monitored and analyzed in accordance with the above Quality Management Policy. Corrective and preventive actions shall be implemented in order to ensure the effectiveness of the system. Many HSE-awards have been achieved with PDO Oman.



THOMASSEN GROUP OF COMPANIES

SPARE PARTS & OTHER SERVICES:



Based on our long standing presence in the General Electric type gas turbine O&M market Thomassen has over the past 45 years developed an excellent supply chain to offer competitive solutions for capital spares and consumable parts for the GE Frame 5P, 6B, 6FA and 9E gas turbines.

In the more recent past we have also improved our supply chain for GE LM2500 and LM6000 aero-derivative units as well as the Hitachi H25 gas turbines.

In addition we keep a strategic inventory of refurbished Hot Gas Path components for Frame 6 and Frame 9 gas turbines in order to provide our clients with quick delivery solutions from stock in case of an emergency.

Furthermore Thomassen is able to supply spares for various Generator Control- and Protection panels.

Our Engineering Department has developed the sourcing and in-house capability to produce certain critical repair parts for our Fuel Nozzle, Actuator and HGP component repair facilities in Dubai and Nizwa. This approach allows us to offer tailored solutions to improve lifetime and reduce repair cost by adding improvements to existing components to extend the remaining live of components and to deal with the specific operational and/ or fuel characteristics at various sites of our clients.

With our recently acquired Air Intake filter production facilities we aim to serve clients that have specific problems with achieving acceptable filter life. We tailor the filter selection & design for specific site conditions.



THOMASSEN GROUP OF COMPANIES

SITE SERVICES:



Within the Group Companies Thomassen employs in excess of 200 skilled and professional staff, many of which are site based to perform routine preventative and scheduled maintenance on gas turbines, generators and its associated systems as well as Balance of Plant equipment.

This includes the provision of:

- Shutdown planning.
- Specialist services for scheduled & unscheduled maintenance and emergency call outs for heavy duty gas turbines.
- Manpower support to other power plant operators and maintenance companies.

Thomassen maintains extremely high technical and safety standards and continuously works to improve and maximize the satisfaction of its customers. Thomassen invests in on the job and other specialized training and improvement programs.

Some typical examples of on-site transactional maintenance activities are:

Rusail Power Company, Oman

- Provision of manpower support team to carry out Hot Gas Path and Major Overhauls on Frame 9E-DLN gas turbine at Rusail power station.

Barka IPP, Oman

- Provision of complete team to carry out a Major Overhaul on V94.2 gas turbine at Barka power station.

ORPIC, Oman

Provision of complete team to carry out Hot Gas Path and Major Overhauls on Hitachi H25 gas turbines installed at the ORPIC refinery at Sohar.

CGE, Gabon

Provision of complete team to carry out a Major Overhaul on one Frame 5 gas turbine at SEEG Port Gentil power station.

- Supply of new bearings and other emergency spare parts and materials.
- Repair of Load Gear Box and turbine bearings.

Sharjah Electricity & Water Authority, United Arab Emirates

- Provision of supervisor to carry out Major Overhaul on Frame 6 and Frame 5 gas turbines at Kalba power station.
- Supply of spare parts.
- Installation and commissioning of 3 Franke Filter oil filtration systems at Kalba and Khor Fakkan power stations.



THOMASSEN GROUP OF COMPANIES

O&M CONTRACT REFERENCES:

A. Example O&M Contracts which are ongoing as of November 2017:

Petroleum Development Oman, Sultanate of Oman

Since July 2000 Thomassen has operated and maintained the PDO power stations with total installed capacity of **1,560MW** (14 Frame 6B, 3 Frame 6FA, 5 Frame 5P and 7 Frame 9E Gas Turbine Generator packages).

In addition to all preventative and corrective maintenance of the power generation equipment we carry out all scheduled maintenance and adhoc services such as refurbishment of the Power Generation Equipment spares of various makes and provide specialized personnel for Root Cause Analysis (RCA) and breakdowns.

Oman Cement Power Plant, Rusail, Oman

Since May 2012 Thomassen has Operated and Maintained the OCC **35MW** Captive Power Plant using a GE Frame 6B gas turbine.

- Provide complete operations team, including plant manager and shift crews
- Development of operations and maintenance strategies and training of operations staff to maximize reliability and availability of the power station to provide continuous power to the distribution network.

Ughelli Power Plant, Warri, Nigeria

Since November 2013 Thomassen provides a Technical Advisory Team for a **878MW** simple cycle power plant, using 6 GE Frame 9E and 12 Hitachi H25 gas turbines to:

- Perform a recovery program whereby backlog in maintenance is addressed to make more units available for operations.
- Development of operations and maintenance strategies and training of operations staff to maximize reliability and availability of the power station to provide continuous power to the distribution network.

B. Examples of other completed O&M contracts:

ME&W, Sohar, Sultanate of Oman

Provision of Management, Operation & Maintenance Services for the Wadi Al-Jizzi 200 MW Thermal Power Plant consisting of GE/Thomassen Frame 5P and Frame 6B gas turbines. This contract was executed in collaboration with Oman Mining Company.

TEMA Power Plant, Accra, Ghana

Since March 2013 Thomassen provides Specialist O&M Advisory services for a 120MW simple cycle Frame 9E power plant.

- Development of operations and maintenance strategies and training of operations staff to maximize reliability and availability of the power station to provide continuous power to the distribution network.

Arbeel Power Plant, Kurdistan, Iraq

Provision of Operations Management Team for a simple cycle power plant, using 4 Frame 9E gas turbines which required us to

- establish the required operations organization and to interview and select candidates for the various positions.
- Select and train the technical staff for the various Departments.



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