

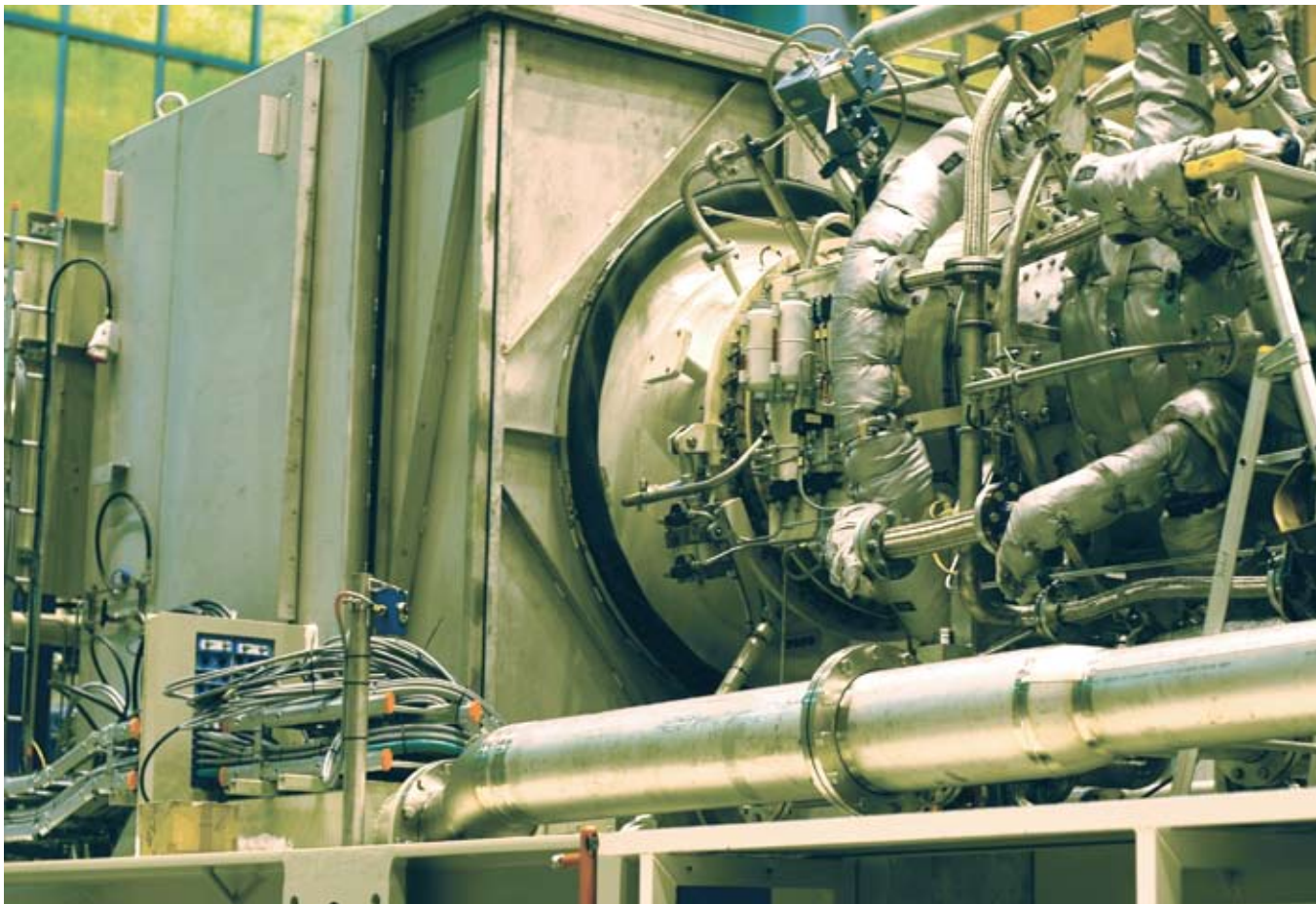


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REPORT

Turbine-generator
packages



Manufacturers like Siemens, ABB, Alstom and others are developing one-stop solutions for power generators and

attached control systems, such as skid-mounted turbine-generators. On several occasions Roxtec has been able to add sig-

nificant technical value and cost-benefits to these projects through our long expertise in sealing solutions for cables and pipes.

Roxtec team reports on site
From the production of skid-mounted turbine-generators

We Seal Your World

Roxtec helps standardise skid-mounted turbine-generators

Manufacturers of turbine-generator packages face two types of critical challenges. One is to select components that can be used in tough environments. The other is to achieve uniform specifications in the manufacturing process for the projects. The strength of the Roxtec solution is that it can help to solve both problems.

Tough products

Roxtec's sealings are well qualified. They originate from tough environments such as the offshore industry in the North Sea, onboard seagoing vessels and military and defence applications. It means that Roxtec can provide protection against intrusion of fire, fluids, dust and electromagnetic fields. Regardless if installed in control cabinets, in start motors or for cable and pipe transits, Roxtec is a reliable one-stop-solution for cable and pipe routing throughout the entire skid unit.

Supports flexible manufacturing

With a unique product technology called Multidiameter™ the Roxtec products have an outstanding capacity to adapt to a wide range of manufacturing requirements during the build of a turbine generator package. A Roxtec seal can be installed either prior to, or after, the routing of cables or pipes. Likewise, a late change of dimensions for the cables or pipes does not constitute a problem. All taken together this means a sealing solution highly flexible to the reality of the manufacturing process.

A reliable standard from a reliable supplier

For the manufacturer, Roxtec means a multipurpose product that can be used for a variety of applications and requirements. Not only in terms of technical capacity, but most of all through its practicality and well thought out logistical properties. Add to that the availability through a worldwide network and you end up with a partner for a reliable manufacturing standard.



Turbine-Generators

A typical view from the manufacturing of GT10, GT35 and GTX100 turbo-generators at the Siemens' factory in Finspång, Sweden.

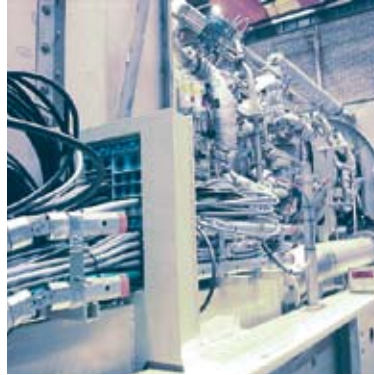
Skid-mounted turbine-generators are complete units for industrial power generation. Each unit consists of several equipment modules: air inlet, compressor, start motor, turbine, generator, combustion chamber, exhaust and control cabinets.

The Siemens turbine-generators provide high efficiency, more than 90 per cent, when in combined heat and power applications. The power capacity reach is as high as 45MW for some units.



Skid foundation

The skid is the “socket” underneath all the equipment. A number of Roxtec S frames are welded in during the early build of the skid.



Around the turbine

On both sides and parallel to the turbine are clusters of cables and pipes. Here handled by Roxtec S 4+4x2.



Control cabinets

Roxtec CF 32 PE for potential equalisation is used in the control cabinets for generator and turbine-cubicle marshalling.



Mixed environment

Roxtec transits are well suited to securing and isolating cables and pipes mechanically and safely. Requirements range from rigidity to gas tightness and potential equalisation.

Summary of challenges for the industry:

■ The turbines are often used in tough environments and any equipment and sub systems have to be suitable for the exposure to dust, gas, water or electromagnetic fields. It is important to choose the correct components.

■ The manufacturers face challenges in achieving a simple and repeatable manufacturing process for volume production. The solution is to standardise a uniform specification based on practical, flexible products and sub systems.

Facts

Customer application

Equipment type:	Skid-mounted Turbine-Generator Packages.
Safety requirements:	Gas tight divisions between onboard system units, optionally in combination with EMC.
Customer challenges:	Standardized routing and sealing components for easy build and reliable function.

Roxtec solution

Specification:	Roxtec transits for fire proof, gas tight, watertight EMC compatible cable and pipe installations, including vibration dampening.
Arguments:	Spare capacity, installation flexibility, area efficiency. Easy service/maintenance/upgrades. Roxtec's EMC/PE solution much faster to install than EMC glands.
Solution type:	Prefabricated modular sealing system.
Products:	Roxtec S 1x1, S 2x2, S 4x1, S 6x2, S 6x3 and CF 32.
Basic features:	Multidiameter™ Technology with adaptable sealing modules: -enables exact fit to cable and pipe -built in spare capacity for future need -available in standardised kits
Additional features:	Mechanical solution enabling repeated closing and opening.
Optional features:	EMC against RFI and for potential equalisation.
Capacity:	Fire proof 1-2 hours, Pressure tight 2-4 bar, IP class. Standard products handle cable/pipe diameter 3-100 mm. Products available in different sizes and materials. Available for EMC and PE.
Availability:	Global network of distributors in 70 markets.



Power Industry References

ABB Power Technologies
ABB Industry Oy, Finland
ABB Oy Synchronous Machines, Finland
Alstom Power, Sweden
GE Nuovo Pignone S.p.A., Italy
Siemens Demag Delaval, Sweden
GE, France



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