GENSETS

MUCH MORE THAN YOU EXPECT

TAKING PARTNERSHIP TO NEW LEVELS: COMPLETE POWER SYSTEM SOLUTIONS
POWER GENERATION
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Rolls-Royce provides world-class power solutions and complete life-cycle support under our product and solution brand MTU. Through digitalization and electrification, we strive to develop drive and power generation solutions that are even cleaner and smarter and thus provide answers to the challenges posed by the rapidly growing societal demands for energy and mobility. We deliver and service comprehensive, powerful and reliable systems, based on both gas and diesel engines, as well as electrified hybrid systems. These clean and technologically-advanced solutions serve our customers in the marine and infrastructure sectors worldwide.

A solution provider
MTU Systems power the largest yachts, the strongest tugboats and the biggest land vehicles and provide energy for the world’s most important mission-critical applications. Through advanced solutions, such as microgrids, we integrate renewable energies and manage the power needs of our customers.

Our customized service offerings help you maximize uptime and performance and are supported by our digital solutions, which enable remote monitoring, predictive maintenance and a range of other benefits that keep your systems running at their best.

For over 110 years, we have provided innovative power solutions for our customers – meeting even the most demanding drive requirements. Our products and services span a wide range of applications and power needs, with both standard and customized options.

An expert in technology
As part of Rolls-Royce, we have long been known for cutting-edge innovation and technological leadership in product development. That same spirit of innovation inspires our sustainability efforts. Our focus is on developing and implementing system solutions that both maximize efficiency and reduce emissions – which in turn work to reduce our impact on the environment.

A passionate and reliable partner
We at Rolls-Royce spend every day working together with our customers, to deliver engines, systems and complete life-cycle solutions that best fit your needs. We understand that each application is different and has its own specific demands. Our engineers embrace the challenge of finding the perfect solution for your unique power requirements. Every step of the way – from project planning, through design, delivery and commissioning; to the lifetime care of your equipment – we are dedicated to helping you get the most from your MTU investment.
We rigorously analyze the demands of your business and staff, as well as the applicable standards, guidelines, deadlines, and local conditions. That allows us to design the optimal solution and prevent future problems.

We offer all the expertise, equipment and services needed to integrate complete power solutions – from fuel supply to electrical design. Our customer-tailored generator sets come with convenient single-source service arrangements. We also offer long-term solutions that cover the entire service life of your system.

MORE THAN POWER

Installation
- Optimum operation is ensured by expert installation of our generators, including integration with the local power grid and control network, software implementation, emergency simulation, test runs and training.

Development
- Our wide-ranging experience helps us guarantee on-time development and delivery of your power solution. Network communication and power distribution are enabled by our flexible decentralized control strategies.

Maintenance
- System monitoring and comprehensive on-site service for all components is available around the clock and conducted by experienced technicians with expert knowledge of regional standards and how to apply them.
STANDBY POWER SOLUTIONS

EVERYTHING UNDER CONTROL
Standardized backup
MTU diesel generator sets function as safeguards to ensure uninterrupted electricity supplies to residential and public buildings, industrial facilities or entire city districts. Standardized backup provides reliability when grid power fails. Whether a drop in voltage or a blackout, it’s vital to have reliable standby diesel systems that ramp up within seconds to restore electricity independently of the grid. MTU gensets are engineered for maximum reliability, high load capability and quick response in order to safeguard operations at low investment cost.

We provide reliable natural gas and liquid-propane-fueled gensets for standby power applications. Backed by decades of experience and total system expertise, MTU gas gensets are effective, dependable and configured to meet your exact requirements.

Mission critical
Mission critical standby power is essential when lives or huge economic losses are at risk. That makes it a must in hospitals, health care facilities, governmental and public buildings and for infrastructure systems. Data centers, of course, provide indispensable services for all of the institutions above. We focus on the highest reliability and availability of power.
Telecommunication

Never "temporarily not available"

In the hotly contested Turkish telecommunications market, Türk Telekom cannot afford to interrupt service for its customers. Its central facility channels 33% of Turkey’s internet volume. That’s why, in 2011, Türk Telekom chose MTU to make sure it is well prepared to meet future demand.

We used our experience as a systems provider to completely equip the facility, supplying everything from generator sets through switch cabinets to electrical plant. The systems run in parallel and each can serve as a backup for the other. Their high torque gives the MTU engines rapid ramp-up and high load capabilities, enabling them to reach full operating output, with stable voltage and frequency, within just nine seconds, keeping the data flowing.

Who:
Telecommunications company Türk Telekom

What:
Emergency power supply based on 16-cylinder Series 4000 diesel gensets (MTU 16V4000 DS) for the Istanbul center of telecommunications provider Türk Telekom

Where:
Istanbul, Turkey

STANDARDIZED BACKUP

Hospital
Ready to save lives without interruption

The Charité University Hospital treats about half a million patients a year and is Berlin’s third largest electricity consumer. We supplied the hospital with a turnkey system including two diesel gensets, cooling, fuel and exhaust systems, air supply and extraction system and control system.

We were responsible for planning the project including construction and control systems and incorporating strict noise abatement regulations and exhaust emission limits. The backup systems now ensure the electricity supply for the main diagnostic suite and the nuclear medicine, dermatology, psychiatry, neurology and pathological diagnostics departments. Emergency startup only requires one starter system, the other acts as redundant backup for additional safety.

Who:
Charité University Hospital

What:
Emergency power supply for the north section of the hospital site Campus Charité Mitte provided by two diesel gensets (MTU 12V4000 DS) including peripherals

Where:
Berlin, Germany

MISSION CRITICAL
Airport
Standby for Takeoff
A major ice storm left Tulsa airport without power for more than eight hours and stranded thousands of passengers. We were chosen to supply a new standby power system incorporating two gensets with a unique, low-cost generator paralleling solution.

The generators are able to synchronize without expensive paralleling switchgear using their standard DGC2020 onboard generator controllers. This has raised flexibility and created opportunities to reduce energy consumption, lower operating costs and reduce the use of natural resources. The innovative design helped keep project costs low without affecting system reliability or efficiency.

Who:
Tulsa International Airport
What:
MTU system backs up 4 MW load with two generator sets paralleled without traditional switchgear
Where:
Tulsa, Oklahoma, USA

Data center
Ensuring 100% uptime
Industry leader Infomart set high standards for its new Portland data center power system: low fuel consumption, low subtransient reactance, 85 percent load factor, and flexibility for future growth.

The MTU Series 4000 generator sets used are designed for optimal fuel consumption, exceptional reliability and high-power density. The data center is Uptime Tier 3 compliant and provides 99 percent efficiency of uninterrupted power supply. It is expected to save over 48 million kilowatt hours and reduce carbon emission by 43 million pounds over the next decade by sourcing hydroelectricity from the federal Bonneville Power Administration (BPA).

Who:
Infomart Data Centers
What:
Fourteen 2,000 and 2,250 kW MTU Series 4000 DS diesel generator sets with customized enclosures
Where:
Hillsboro, Oregon, USA
CONTINUOUS POWER SOLUTIONS

24/7 IN MOTION
Continuous + CHP
Continuous power gensets are designed for long term use with constant or varying loads. They are primarily used for the base load generation of electricity, in remote locations with limited access to the public grid. They can operate as island, island-parallel or grid-parallel applications. They can also be used for combined heat and power (CHP) generation.

Prime
Prime power applies to installations where utility power is unavailable or unreliable. At varying load, the number of genset operating hours is unlimited.

Peak
Peak power is focused on providing additional short-term power to the grid (peak shaving). This application becomes relevant whenever renewable power sources like solar or wind are used that might not always be able to provide the full power demand, for example during peak load times.
Industry
Turning heat into ice cream
Langnese makes millions of liters of ice cream for the whole of Europe at its Heppenheim plant, and—perhaps surprisingly—heat plays a major part in this. The company has been using an MTU heat-controlled combined heat and power (CHP) plant since 2009 to meet part of this demand for both heat and electricity.

The site requirements are complex, but the MTU 16-cylinder Series 4000 natural gas engine achieves an efficiency factor of 87.1% by optimizing the utilization of heat. The combined heat and power plant allows Langnese to adapt heat generation flexibly to satisfy peak production demands in its factory.

Who: Ice cream manufacturer Langnese
What: Heat-controlled cogeneration plant featuring an MTU 16V4000 GS gas system
Where: Heppenheim, Germany

Farming
Turning waste into energy
The Norm-E-Lane dairy farm has almost 5,000 head of cattle, which produce a lot of manure. But it isn’t wasted. The farmers use an anaerobic digester to generate methane biogas from the cow manure. The biogas is then used to generate electricity and heat with a Series 4000 MTU biogas combined heat and power (CHP) system.

The new CHP system went into service in 2015, and the high-efficiency upgrade is already generating additional savings. The farm doesn’t use any of the electrical output. Instead, all the “cow power” is sold to the grid. However, the heat generated is used to heat the anaerobic digester, helping boost sustainability and improve the bottom line.

Who: Norm-E-Lane Farm
What: MTU 8V4000 GS Biogas CHP system
Where: Chili, Wisconsin, USA
Biogas
Saving money and the environment

General Starch Limited (GSL) is one of Thailand’s biggest producers of starch, which it extracts from the roots of the cassava plant. In 2016 it installed two combined heat and power (CHP) gensets to power the energy-intensive production process.

The two MTU units run on biogas generated by waste water from the production process. They also use the exhaust heat to run the absorption chiller that produces cold water used in the starch production process. This leads to a total energy efficiency of more than 80% and contributes to GSL’s goal of reducing emissions.

Who:
General Starch Limited (GSL)

What:
MTU 20V4000 GS Biogas CHP system

Where:
Khon Buri, Nakhon Ratchasima Province (Thai: Korat Province), North Eastern Thailand

Biogas
From pig farmer to energy producer

Pietro Bertesago rears pigs for the production of Parma ham. In 2008, he was the first farmer in the northern Italian province of Cremona to install a biogas plant and two years later, he introduced a second one. Both plants are based on combined heat and power (CHP) MTU modules.

Bertesago has developed the biogas plant as a second source of income because pig farming alone was no longer a high earner. He earns money by feeding the electricity into the public grid and in winter, he uses the heat from the engine to heat his pigsties.

Who:
Pietro Bertesago and Giovanni Bertoni

What:
MTU 12V400 GS Biogas CHP system

Where:
Moscazzano and Sospiro, two villages in the northern Italian province of Cremona (near Parma, Italy)
ALL DIESEL GENSETS AT A GLANCE.

- **0080**
  - 50 Hz: 30 - 730 kVA
  - 60 Hz: 27 - 600 kWe

- **2000**
  - 50 Hz: 750 - 1,400 kVA
  - 60 Hz: 615 - 1,250 kWe

- **4000**
  - 50 Hz: 1,550 - 4,000 kVA
  - 60 Hz: 1,125 - 3,250 kWe

ALL GAS GENSETS AT A GLANCE.

- **0063-0185**
  - 60 Hz: 40 – 400 kWe
  - Only for standby / prime applications

- **400**
  - 50 Hz: 120 - 420 kWe
  - 60 Hz: 130 - 360 kWe
  - For natural, biogas and other gases

- **4000**
  - 50 Hz: 776 - 2,530 kWe
  - 60 Hz: 760 - 2,130 kWe
  - For natural, biogas and other gases

POWER MODULES

- Diesel Power Containers 20’ and 40’
  - For 50 Hz and 60 Hz

- Gas Power Containers 40’
  - For 50 Hz and 60 Hz

Taking Partnership to new levels: complete power system solutions.
SERVICE SOLUTIONS & PROTECTING YOUR INVESTMENT
SERVICE SOLUTIONS DESIGNED AROUND YOUR BUSINESS.

With us you get the power, performance and peace of mind to focus on what matters most—your business. Our digitally connected power systems, wrapped in MTU ValueCare Agreements, make it easy to keep your equipment operating reliably and reduce total cost of ownership (TCO) through proactive monitoring and preventive maintenance. So go ahead, focus on what matters most to you—and leave the rest to us.

We are your partners in productivity.