



**GENESAL
ENERGY**
Pure Energy

Protecting what matters most with reliable energy

Tailored energy solutions for
critical infrastructure

GENERATOR SETS FOR THE HEALTHCARE SECTOR

WHAT IS GENESAL ENERGY?

Who We Are: Engineering with a Global Vision

Genesal Energy **designs and manufactures advanced, bespoke energy solutions** engineered to ensure continuity in the most demanding environments. With **more than 30 years** of experience, we have made reliability, customisation, innovation and sustainability the cornerstones of our strategy.

With a presence in more than **40 countries**, we act as a comprehensive partner, delivering turnkey projects from the initial design and engineering phase through to commissioning and after-sales support.



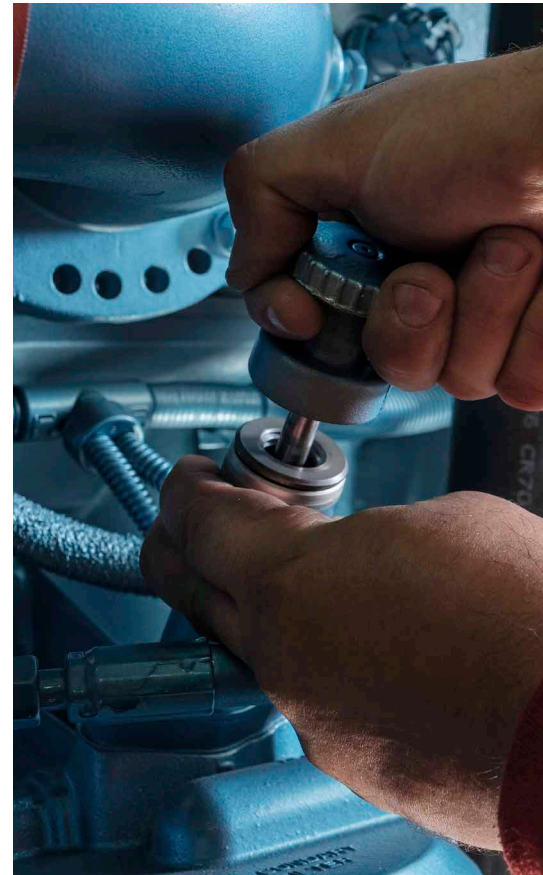
More than 20 electrical and mechanical engineers designing innovative energy solutions



Over 70% of our turnover comes from bespoke, special-engineered projects.



Three decades of earning and maintaining our customers' trust.



We have our own industrial and technological centre, Generlab.

This facility is at the heart of our innovation: a laboratory where we develop new technologies and drive progress towards a more sustainable energy model.

Essential reliability

In critical healthcare infrastructure, a power failure can put patients' lives at risk. Operating rooms, intensive care units, diagnostic equipment, HVAC systems and laboratories all **depend on a continuous and stable power supply.**

In an environment where **every second counts**, backup power is not an additional safeguard — it is a critical infrastructure asset that **must respond immediately and without fail.**



**This is the energy that
powers the healthcare sector
with confidence.**

A Reliable Energy Response

We design and manufacture generator sets specifically engineered for healthcare facilities, ensuring continuity of power supply across every area of the installation and delivering a fully bespoke solution tailored to the unique technical and operational requirements of each project.

Bespoke Engineering

We analyse the electrical loads and energy requirements of each healthcare facility to develop a solution tailored to its specific electrical configuration and operational needs.

Automatic start-up

Mains failure detection and automatic start-up systems enable the generator set to take over critical loads in less than 10 seconds, without the need for manual intervention.





Acoustic Enclosures

Acoustically insulated enclosures designed to minimise noise impact, helping to protect patient wellbeing and maintain a comfortable working environment for healthcare professionals.

Redundancy and Reliability

Multiple generator sets operating in parallel to ensure 24/7 availability, maintaining continuity of supply even during scheduled maintenance or in the event of a partial system failure.

Integration with Control and Monitoring Systems

Communication via Modbus RTU/TCP-IP protocols and seamless integration with control, supervision and centralised monitoring platforms, enabling real-time oversight of equipment status and performance.

From Theory to Practice: Our Technical Capability

Genesal Energy knows that the difference between a conventional **solution** and a **truly trusted solution for the healthcare sector** lies in the **technical details**.

That is why we transform our experience into measurable and verifiable results, combining innovation, precision engineering and validation protocols that go beyond standard industry requirements.

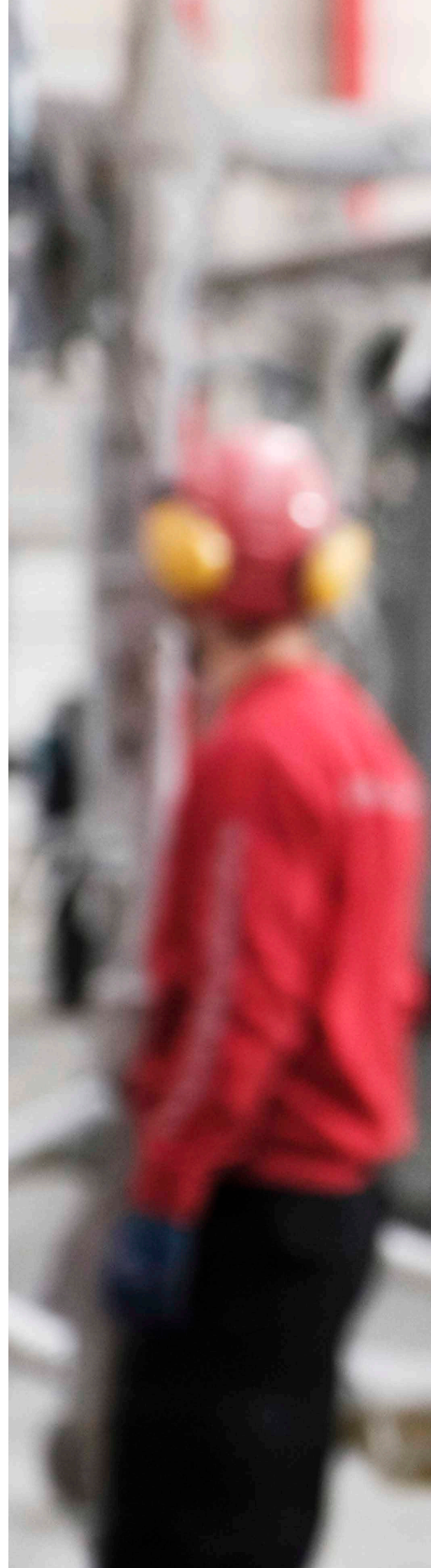
The following capabilities demonstrate why our generator sets provide the ideal backup power solution for critical healthcare infrastructure.



Reliability and Technical Differentiation

Reliability is not determined solely by installed power capacity, but by the quality and engineering behind every detail. Genesal Energy **incorporates advanced backup systems that ensure energy continuity** even in the most demanding scenarios:

- **Redundant starting systems**, including starter motors, batteries and controllers.
- **Start-up in less than 10 seconds**, supported by engine pre-heating systems.
- **Installation of large generator sets** in multi-storey structures, adapting to complex building configurations.
- **Bespoke cooling and ventilation solutions** designed to operate efficiently in confined spaces and extreme conditions.
- **Airflow and ventilation studies** for facilities with a high concentration of generator sets within limited spaces.
- Alternators equipped with **PMG** (Permanent Magnet Generator) technology, minimising the impact of non-linear loads and reducing harmonic distortion.
- Advanced control panels with **PLCs and customised HMI interfaces**, providing operators with intuitive, application-specific control and monitoring capabilities.



Reliable Energy for a Sustainable Future





After-Sales Service and Global Support

A healthcare infrastructure project does not end once the equipment has been delivered:

- **24/7 multi-brand service support:** a specialised technical service available anytime and anywhere, with qualified engineers and international coverage.
- **Preventive and corrective maintenance:** programmes specifically designed for healthcare environments, helping to anticipate failures and minimise downtime.
- **Remote monitoring and management:** advanced tools that ensure continuous supervision of critical operating parameters and enable proactive intervention before an incident occurs.
- **Comprehensive support:** expert guidance from the tendering and design stage, on-site assistance during installation, supervision throughout commissioning, and rapid access to genuine spare parts.

COMMITMENT TO SUSTAINABILITY

Sustainability and ecodesign in the healthcare sector

Essential for Sustainability and Efficiency.

Healthcare facilities face increasingly demanding environmental requirements. Our generator sets are designed in accordance with certified ecodesign principles to reduce environmental impact without compromising reliability.



Regulatory Compliance

- **ISO 9001:2015** – Quality Management Systems.
- **ISO 45001:2018** – Occupational Health and Safety Management Systems.
- **ISO 14001:2015** – Environmental Management Systems.
- **ISO 56001:2024** – Innovation Management System Certification.
- **ISO 14006:2020** – Ecodesign Management Systems.
- **MITECO Carbon Footprint Register** – Certified Carbon Footprint Registration.

Ecodesign

We are proud to be the **first company in the energy sector to achieve ISO 14006 Ecodesign certification** and to successfully integrate its principles into our manufacturing processes.

This achievement enables us to optimise multiple aspects of our generator sets to reduce their environmental impact:

- **Life Cycle Assessment (LCA):** evaluation of environmental impacts throughout the product lifecycle, from raw material extraction to end-of-life management.
- **Sustainable material selection:** prioritising recycled and recyclable materials while reducing the use of high-impact plastics and metals.
- **Optimised logistics and local sourcing:** reducing emissions through efficient supply chains and the use of local suppliers wherever possible.
- **Additive manufacturing (3D printing):** improving design efficiency while minimising material waste.
- **Use of sustainable fuels (HVO) during testing:** helping to reduce customers' Scope 3 carbon emissions and supporting their decarbonisation objectives.



Decarbonisation and Alternative Fuels

- HVO-ready generator sets, supported by internal compatibility testing covering engines, fuel injection systems and filters, together with fuel verification carried out by an independent external laboratory.
*Technical note: HVO compliance is certified by the fuel supplier and engine suitability by the engine manufacturer. Our testing process provides an additional layer of verification.
- R&D&I projects focused on hydrogen and alternative fuels, exploring new technologies that support the energy transition and long-term decarbonisation objectives.

Emissions Reduction and Efficiency

- **Passive filtration systems (Diesel Particulate Filters – DPF):** designed to effectively capture and reduce particulate matter (PM) emissions from diesel engines, improving air quality and supporting compliance with environmental regulations in urban and highly sensitive environments.
- **Selective Catalytic Reduction systems (SCR with urea injection):** advanced technology that significantly reduces nitrogen oxide (NOx) emissions. The system adapts to varying load conditions, maintaining performance and efficiency without compromising power output.
- **Hybrid diesel-renewable systems:** integration of generator sets with renewable energy sources, such as solar power, battery energy storage systems and other clean technologies, reducing fossil fuel consumption and CO₂ emissions during periods of low demand.





Projects and Presence in the Healthcare Sector

In healthcare, there is no room for interruption.

Hospitals, clinics and medical facilities require power systems capable of ensuring the continuity of patient care, even in the most critical situations.

Genesal Energy has delivered projects for healthcare infrastructures across different countries, **developing bespoke solutions tailored to the technical, operational and acoustic requirements of each facility.** Systems engineered to respond reliably when energy ceases to be a resource and becomes a vital necessity.

Our experience in hospital environments reflects a way of **working built on bespoke engineering, rigorous validation and an unwavering commitment to the continuity** of essential services.

Backup power does not protect buildings. It protects lives.

4xGEN1650HA + GEN880PC

CONTAINERISED GENERATOR FOR THE “12 DE OCTUBRE HOSPITAL” IN MADRID.



Location

Spain



Power range

4xGEN1650HA + GEN880PC



Client's need

Backup power in the event of mains failure in a critical facility.



The project we undertook for this state-of-the-art hospital complex consisted of providing first-class backup power to ensure absolutely normal operation in the event of a mains failure.

The designed solution consisted of one 800/880 kVA soundproofed containerised generator set in a 20-foot container with automatic start-up in the event of a mains power failure and four 1,500/1,650 kVA open type generator sets for parallel operation.

Genesal Energy has extensive expertise in tailor-made projects for hospital premises where the number of services and equipment requiring 24 hour power supply is very high. In addition to issues such as noise level – soundproofing is fundamental – our generator sets for hospitals must be exceptionally powerful and fitted with special starting systems to respond in record time.

Technical data 4xGEN1650HA

Supply: Soundproofed

Prime Power: 4x1,500 kVA

Standby Power: 4x1,650 kVA

Voltage: 400/230 V

Frequency: 50 Hz

RPM: 1,500

Engine: Mitsubishi

Alternator: Stamford

Technical data GEN880PC

Supply: Soundproofed

Prime Power: 800 kVA

Standby Power: 880 kVA

Voltage: 400/230 V

Frequency: 50 Hz

RPM: 1,500

Engine: Perkins

Alternator: Stamford

2xGEN1900YA + GEN1400YA

GENESAL ENERGY EQUIPMENT TO GUARANTEE VITAL ENERGY AT THE MONTECELO HOSPITAL IN NORTHERN SPAIN

Technical data

Prime Power: 2x1,730 kVA + 1x1,250 kVA

Standby Power: 2x1,900 kVA + 1x1,400 kVA

Voltage: 400/230 V

Frequency: 50 Hz

Engine: Baudouin

Alternator: Mecc Alte



Three completely bespoke generator sets have been carefully designed to ensure that they can power the essential loads that depend on them. The tank capacity, set at 1,000 L, was defined according to engine consumption and the required operating time. This capacity has been defined in accordance with engine consumption and required operating time, ensuring an adequate supply of fuel during critical situations.

The custom-designed base frame is also adapted to the dimensions of the resulting monoblock, radiator and power unit. In addition, the maximum suitable dimensions have been considered to facilitate transport and installation on site.



Location
Spain



Power range
2xGEN1900YA +
GEN1400YA



Client's need
Generator set adapted to the needs of the installation, implementation plans and customised solutions for the soundproofing of the air inlets/outlets and the integration of the equipment in the corresponding rooms.

Features

- Custom-made base frame.
- Parallel operation control panels.
- 1,000 L double-walled fuel tank: steel-polyethylene.
- ...

GEN550YI

BACKUP POWER IN CRITICAL HEALTHCARE ENVIRONMENTS: WE DESIGNED A TAILORED EMERGENCY SOLUTION FOR A PROTON THERAPY CENTRE

Technical data

Supply: 4,500 mm soundproofed canopy

Prime Power: 500 kVA

Standby Power: 550 kVA

Voltage: 400/230 V

Frequency: 50 Hz

RPM: 1,500

Engine: Baudouin

Alternator: Leroy Somer



Genesal Energy designed and manufactured a soundproofed generator set specifically adapted for a proton therapy centre located in Santiago de Compostela (Spain).

This emergency power solution delivers 550 kVA to ensure the uninterrupted operation of high-precision medical equipment in the event of a grid failure.

These types of centres, dedicated to oncology treatments using protons, require a continuous power supply, as any interruption can not only compromise the effectiveness of the treatment but also put patient safety at risk. In addition, international regulations on advanced radiotherapy impose the mandatory requirement of having backup energy systems in place.



Location
Spain



Power Range
GEN550YI



Client's need

To guarantee an uninterrupted power supply to support the operation of high-precision medical equipment in the event of a grid failure, in full compliance with safety regulations for advanced radiotherapy facilities.

Features

- Flexible coupling between engine and alternator.
- 800 L integrated base frame tank + 2,000 L external double-walled tank.
- Automatic fuel transfer system with pumps and level sensors.
- Oversized silencer model (-30 dB).

2xGEN1770HC

GENESAL ENERGY, PART OF MANCHESTER ROYAL INFIRMARY'S REFURBISHMENT

Technical data

Prime Power: 2x1,650 kVA

Standby Power: 2x1,770 kVA

Voltage: 400/230 V

Frequency: 50 Hz

Engine: Mitsubishi

Alternator: Stamford



Ensuring the lowest possible noise levels was paramount, so a 40-foot HC container with double rock wool acoustic insulation (100 mm) and an acoustic membrane on walls and ceiling was designed. It is also fire resistant for 60 minutes (RF-60 Panel).

For further noise reduction, large air inlet and outlet baffles have been installed, as well as an external reinforcement silencer on the air outlet. The – 30 dB stainless steel exhaust silencer has been incorporated to prevent corrosion.

To ensure total soundproofing while the unit is switched off, motorised air inlet and outlet louvres are fitted, which close automatically. The power connection of the generator is made by means of a Modular Busbar System, which has required the design of an external Link Box that allows a flexible and safe connection.



Location

United Kingdom



Power Range

2xGEN1770HC



Client's need

Several generator sets to guarantee power supply in the event of a power failure.

Features

- Motorised air inlet and outlet grilles.
- Double starting system with 2 electric starter motors and double set of AGM batteries.
- Battery protection box.
- Stainless steel exhaust silencer located in the upper external part of the container.

2xGEN550FA

TECHNOLOGY AND COMMITMENT, GENESAL ENERGY'S ANSWER TO HEALTHCARE CHALLENGES

Technical data

Prime Power: 500 kVA

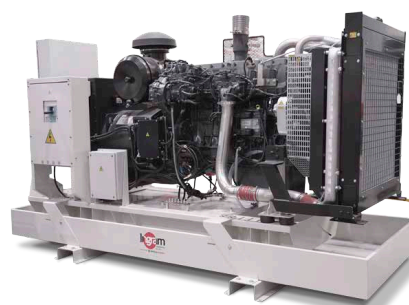
Standby Power: 550 kVA

Voltage: 400/230 V

Frequency: 50 Hz

Engine: FPT

Alternator: Stamford



Our engineering department developed two 550 kVA open gensets, with the engine-alternator monoblock assembly on a 2800 mm long steel base, with a 350 L capacity tank and a liquid collection tray designed to hold any fluids that may leak or spill (oil, coolant, diesel...) with a capacity of 110% of the fuel tank. The engine radiator protrudes outside the bed, so the tray was designed to be large enough to accommodate this section. The fluid collection tray is supported on two omegas which serve as legs, protecting the tray from any contact against the ground that could damage it and facilitating the transport of the unit. By means of 'zeta' angles, they are joined to the main bedplate forming a single unit, with the base frame supports resting on the omegas and supporting the weight of the unit.



Location

United Kingdom



Power range

2xGEN550FA



Client's need

Equipment capable of sustaining the electrical current of certain machines or parts of the hospital in the event of any type of mains failure.

Features

- Double set of batteries with protection box.
- Bunded tank on base frame with a capacity of 350 L.
- Victron system and positive disconnect for manual battery changeover.
- Deep Sea DSE7410 MKII control panel.

3xGEN450FC

EMERGENCY POWER PROVIDED TO MONTERO HOSPITAL IN BOLIVIA

Technical data

Prime Power: 3x410 kVA

Standby Power: 3x450 kVA

Voltage: 400/230 V

Frequency: 50 Hz

RPM: 1,500

Engine: FPT

Alternator: Leroy Somer



In this case, at Genesal Energy we supplied a complete, turnkey service. We manufactured three 410/450 kVA soundproof units for the hospital complex, one of them automatic, and the other two operating in parallel, with an air outlet at the top of the units to adapt to the installation's requirements. They are special units, manufactured after studying the building's characteristics in detail. Because at Genesal Energy, we know that 21st-century medicine requires the best power.



Location

Bolivia



Power range

3xGEN450FC



Client's need

Provide power to the Montero Hospital.

Features

- 410/450 kVA units, soundproofed.
- 800 L fuel tank integrated in the baseframe.
- Air outlet at the top, following the building's requirements.
- 2 of the gensets will operate in parallel, the other will be automatic.
- Automatic fuel transfer system.
- ...

2xGEN1500TC

SILENT AND RESILIENT GENERATOR SETS DESIGNED FOR HURRICANE-PRONE ENVIRONMENTS IN TRINIDAD AND TOBAGO

Technical data

Prime Power: 2x1,365 kVA

Standby Power: 2x1,500 kVA

Voltage: 480/277 V

Frequency: 60 Hz

Engine: MTU

Alternator: Stamford



Trinidad and Tobago represented an additional challenge for our engineering department, as it is located in a hurricane-prone Caribbean region where power cuts are common due to weather conditions.

Our proposal was to provide our customer with two 1,500 kVA generator sets. Powerful and sturdy machinery adapted to withstand severe adverse weather conditions.

Furthermore, the generator sets were fitted with -40 dB acoustic baffles to ensure low noise levels and container-integrated fuel tanks for maritime transport to destination.



Location

Trinidad and Tobago



Power range

2xGEN1500TC



Client's need

Two 1,500 kVA gensets with a low noise level to be installed in a hospital complex.

Features

- 40 ft HC Container.
- 1,500 L integrated fuel tank.

GEN2046YC

WE TAKE OUR ENERGY TO A 3,640 M HIGH BOLIVIAN HOSPITAL

Technical data

Prime Power: 1,860 kVA

Standby Power: 2,046 kVA

Voltage: 400/230 V

Frequency: 50 Hz

Engine: Baudouin

Alternator: Mecc Alte



The Gastroenterology Hospital of La Paz, in Bolivia, will be the first 'Level 4' Hospital in the country and is set to be a benchmark in all of South America.

Still under construction, the building is located at an altitude of 3,640 metres above sea level and will provide the most advanced comprehensive care for gastric disorders thanks to 14 sub-specialties and a staff of more than 600 people.

To ensure the safety of the health complex, its management commissioned us to design a hospital emergency generator set tailored to their needs. La Paz being the highest major city in the world – 3,640 metres above sea level – the generators had to be designed considering such extreme conditions.



Location

Bolivia



Power range

GEN2046YC



Client's need

High autonomy, given the location of the hospital complex. The customer has an existing tank for refilling the daily tank of the generator set.

Features

- 3,200 A - 66 kA, 500 V circuit breaker with LSIG protection.
- Personalised customer signals via power-free contacts for the hospital BMS.

GEN275FC

INFALLIBLE POWER FOR EXTREME SECURITY AT A HOSPITAL IN GERMANY

Technical data

Prime Power: 250 kVA

Standby Power: 275 kVA

Voltage: 400/230 V

Frequency: 50 Hz

Engine: FPT

Alternator: Stamford



The generator set designed for the Neuss hospital has a latest-generation Stage V engine with DPF & SCR and urea system to comply with the demanding German emissions regulations. The machine must also be fitted with trays to collect any type of polluting liquid such as fuel, oil, coolants, etc.

In addition, it is equipped with leak detection systems to prevent spillage and motorised louvres and interior heating to ensure start-up in adverse weather conditions.



Location

Germany



Power range

GEN275FC



Client's need

A special emergency unit compliant with local emissions regulations for combustion engines and water protection requirements, prepared for operation at low temperatures.

Features

- Power panel integrated in the container.
- WHG compliant.
- Leak detector in the container rooms and in the double-walled tank.
- Motorised air inlet and outlet louvres.
- ...

WHY GENESAL?

What makes us different in critical power

Behind every energy solution for critical healthcare infrastructure, there is far more than technology. **There are people committed to a responsibility that goes beyond engineering:** helping to ensure that patient care never stops.

The knowledge, experience and dedication of our team make it possible for every project to meet the specific requirements of each healthcare facility, ensuring the continuity of systems and services where every second matters.

Because **when energy is essential to protecting lives, reliability is not an option.** It is the result of more than three decades of expertise, delivered by professionals who design solutions ready to respond when it matters most.

Genesal Energy's energy is not simply designed and manufactured — it is built every day through a commitment to excellence.





Customer Service Phone:
+34 981 674 158

Customer Service Email:
consultas@genesal.com

genesalenergy.com

