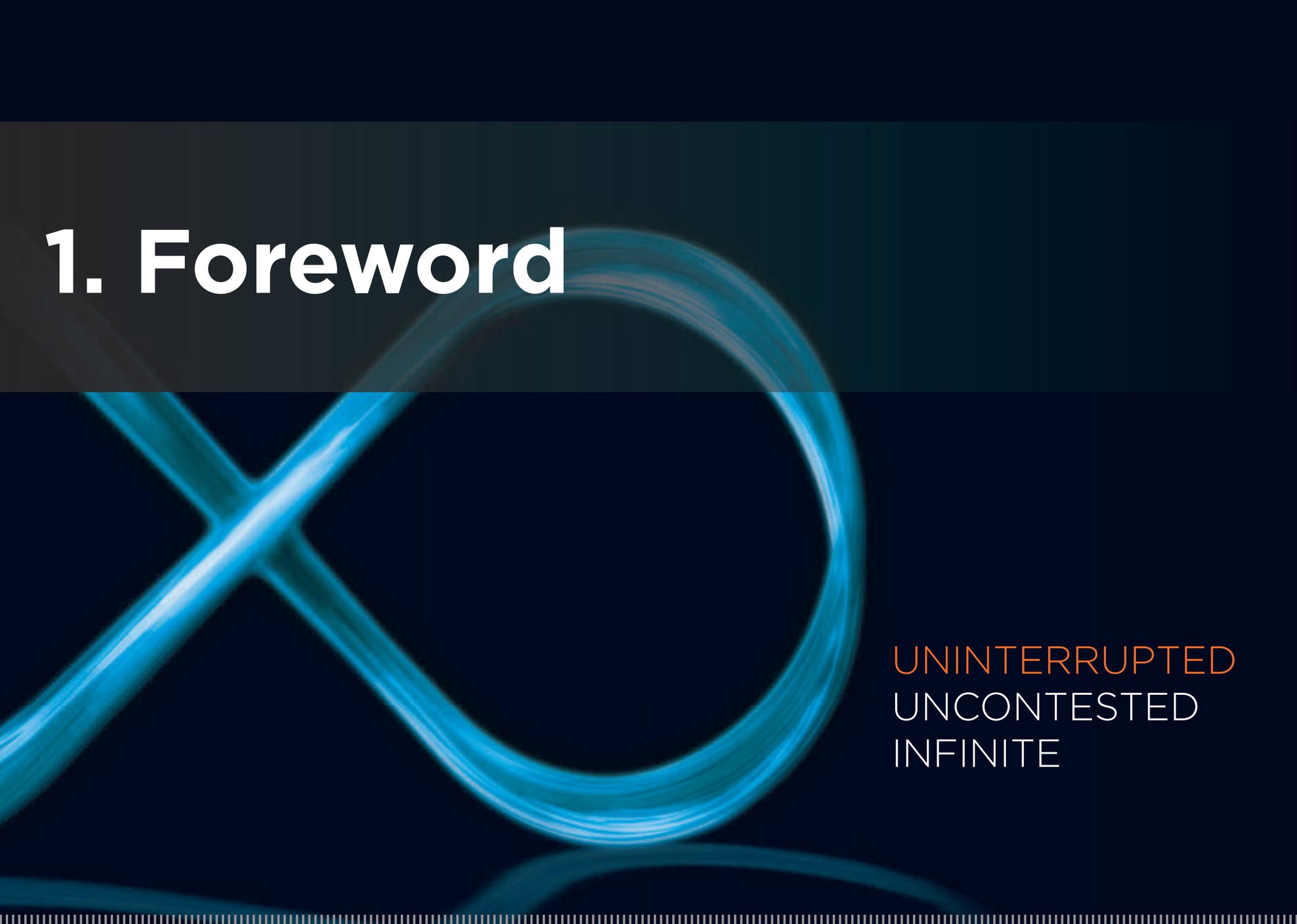


THE LEADING-EDGE
DIESEL ROTARY
UNINTERRUPTIBLE
POWER SUPPLY SYSTEM



EURO-DIESEL
WE SECURE YOUR POWER

1. Foreword



UNINTERRUPTED
UNCONTESTED
INFINITE



WELCOME TO THE WORLD OF EURO-DIESEL

From the innovation of electricity to today's tremendous use of energy, is a span of time where power protection developed into a full-scale industry. Any hospital, data centre or institution where electrical performance is critical would testify that a malfunction of the power supply could translate into a substantial and unrecoverable financial loss, or worse.

It is the company's mission to be the trusted UPS partner whose secure power systems are engineered compact, energy efficient, cost effective and environment friendly, all at once.

As you read on, we hope that you will enjoy the discovery of EURO-DIESEL® and the leading-edge NO-BREAK KS® system.

Nothing more justifies our reason for being hard at work every day, if it is not to ensure power supply security for major businesses and industries worldwide. Building and configuring a Diesel Rotary UPS (DRUPS) system not only requires technical expertise in the power industry but also passion and the highest sense of responsibility to ensure uninterrupted power in each of our clients' facilities.

Feel free to visit our website at www.euro-diesel.com or contact us for more information.

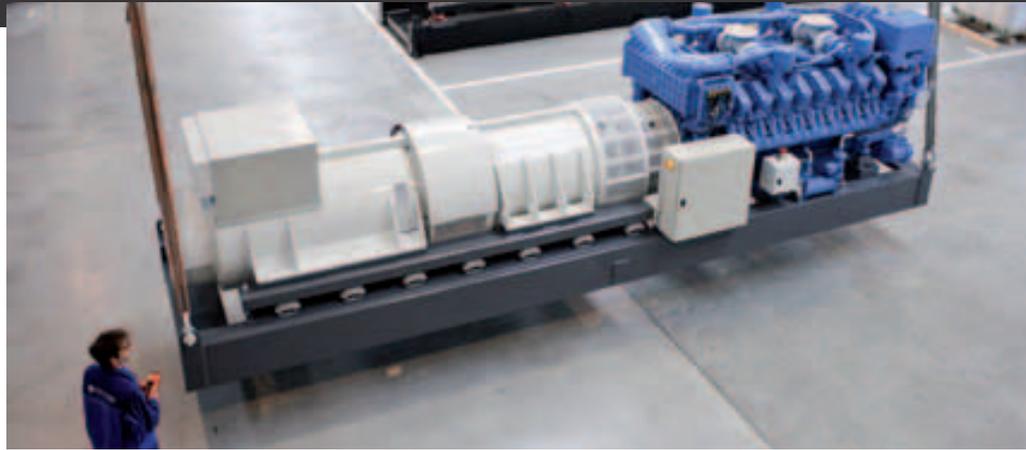
Philippe Gillain
Managing Director

1. *EURO-DIESEL®, your trusted Uninterruptible Power Supply partner for your business needs.*

2. *Board of Management of EURO-DIESEL (Left to right): Giacomo ANGELINI (Finance and Administration Manager), Manuel SANTIAGO (Industrial Manager), Moreno FURLAN (Production Manager), Jack KASPERS (Business Development Manager), Philippe GILLAIN (Managing Director of EURO-DIESEL Group), Wout VANGOITSENHOVEN (Sales Support and Project Management Manager), Brigitte MESTREZ (Human Resources Manager), Dr. Patrick SCARPA (Technical Manager), Paul SOJIC (Manager) and Stijn BRIERS (After Sales Service Manager).*

2. The company





WHAT IT'S ALL ABOUT

EURO-DIESEL is a private company established in 1989 from the province of Liège, Belgium, by a team of innovators who specialised in critical power systems.

Today, we are a provider of turnkey secure power systems whose services include designing, manufacturing, installation, commissioning as well as 24/7 servicing and maintenance programs to the global market.

For years, we have been perfecting our trademark Diesel Rotary Uninterruptible Power Supply (DRUPS) system; the unique and advanced NO-BREAK KS®. More than this, using the NO-BREAK KS® means using a sustainable UPS system of high efficiency that does not need bulky lead-acid battery banks.

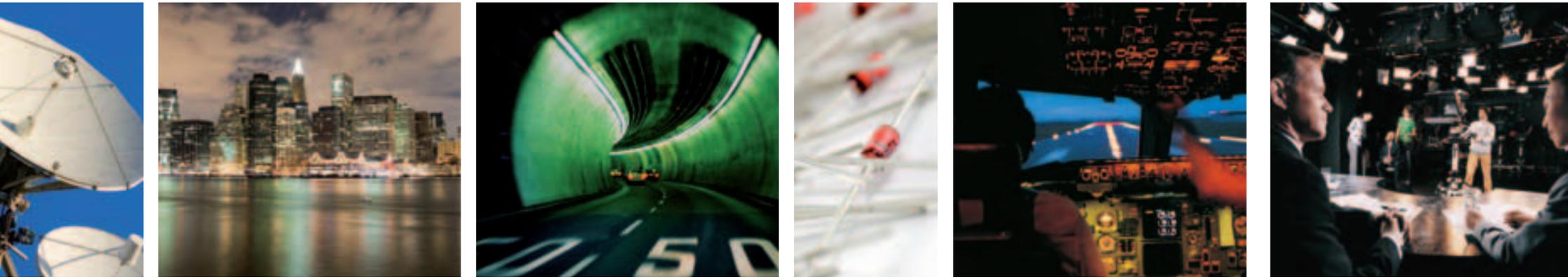
All these have resulted in the rapid growth of EURO-DIESEL's activities across the globe.

Another division of the business covers the classical standby generator-sets.

Our subsidiaries and distributors worldwide are located strategically so that we are within reach of our clients.

Ultimately, the essence of our success lies in the loyalty, the years of experiences and the dedication of our engineers and staff, all with the common goal to secure your power supply faultlessly.

3. Applications



NO-BREAK KS[®] systems have been applied in a wide spectrum of industries, businesses and professions.

This chapter will give a brief insight on how the NO-BREAK KS[®] systems are utilised in our economy today.



3.1 INTERNET AND DATA CENTRES

Imagine an hour without internet. Our society today is so dependent on it that time literally stops if internet providers' servers break down for a moment. Internet hotels and data centres keep our 24/7 economy and day-to-day online activities alive: e-shopping, social networking, online researches, e-mailings, file sharing, e-reservations, credit card payments and more. It is essential that internet providers and data centres have zero downtime and an optimised efficiency of their facility.

EURO-DIESEL's NO-BREAK KS® system is designed to operate effectively and efficiently, aiming for a Power Usage Effectiveness* (PUE) factor of your facility close to 1. EURO-DIESEL offers a high variety of system configurations including Tier I to Tier IV configurations as defined by the Uptime Institute, to ensure resilience and robustness of your power supply in your critical facility.

The NO-BREAK KS®-SB Dual Output system is an ideal solution for data and IP centres: during power perturbations, the critical loads or the "White space" are powered to remain uninterrupted, whereas the non-critical loads such as the HVAC will experience a few seconds of break before being operative again.

**PUE: A measurement of the computer data centre's power usage efficiency (how much power is actually used by the computing equipment) and can be derived from the formula, $PUE = \text{Total power supplied to a data centre} / \text{Total power used for IT equipment}$.*

3.2 CORPORATE IT INFRASTRUCTURE

Private or public companies, non-profit organisations and other entities today run their operation predominantly with the help of information systems. Business or operation continuity is therefore a crucial aspect that depends heavily on the reliability of their IT infrastructure such as system security, HVAC, fibre optic cables and power protection systems.

The use of the NO-BREAK KS® system ensures business or operation continuity 24/7 and for as long as needed in terms of power supply.

EURO-DIESEL has supplied to companies and organisations such as utility companies, insurance companies, employment agencies, universities, casinos, post offices, weather forecasting centres, scientific research centres and more.



3.3 BANKING SECTOR AND FINANCIAL INSTITUTIONS

With today's technology, the banking sector operates 24/7 online around the world and depends heavily on the internet and other digital information technology. Data processes for activities such as e-shopping, credit card, online trading and other banking transactions need to remain in constant operation to record day-to-day (or second-to-second) critical data.

The NO-BREAK KS® is designed to provide zero downtime due to power failures or glitches which could otherwise prove disastrous for the operation and reputation of the company.

3.4 TV, RADIO AND TELE- COMMUNICATION

TV stations use the NO-BREAK KS® to protect their live production and transmissions. With competitive ratings at stake, these broadcasting stations cannot afford to have power interruptions, especially during major sporting events such as the Olympic Games and the World Cup Finals.

The media of our generation diffuses contents through cable, internet, smart phones and other latest electronic devices through telecommunication companies. Installing the NO-BREAK KS® systems in the telecommunication sector not only ensures constant power supply for business operations such as Pay TV and phone connectivity but also guarantees the quality and the availability of the broadcasted signals.



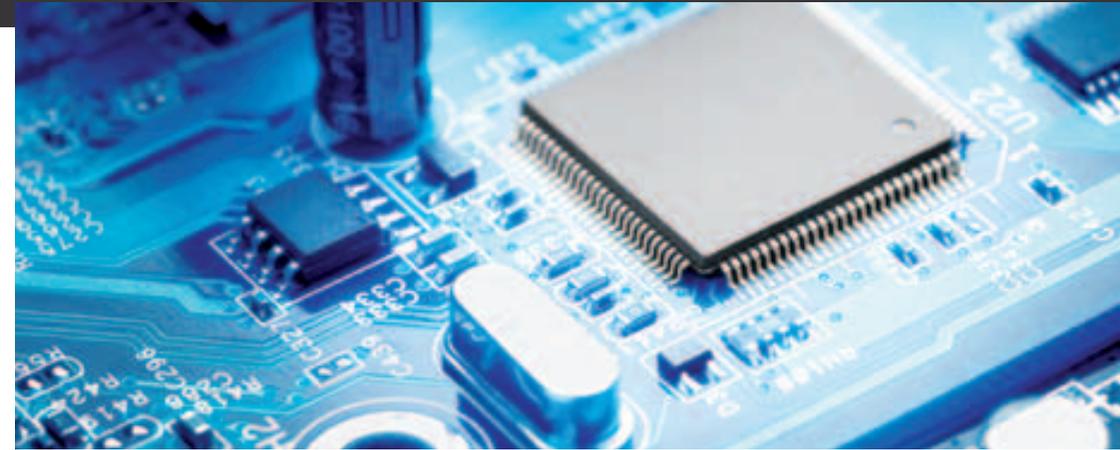
3.5 PHARMACEUTICAL AND CHEMICAL INDUSTRIES

In pharmaceutical and chemical facilities, the quality of the power supply can be critical when it comes to sensitive equipment, robot or automatic machinery, and controlled 'clean room' environments designed for such manufacturing.

Short power glitches, voltage drops or even a few seconds of power outage could seem harmless and negligible but they are enough to cause malfunctions of hi-tech electronic equipment or a shutdown of the environmental conditioning system.

When this happens, the production line might be forced to a standstill, the output lot could be rejected and unmarketable, restarting the production line could take hours or even days.

Ensuring the power supply and its quality with a NO-BREAK KS® is considered as a necessity for most EURO-DIESEL's clients in the pharmaceutical or chemical industry. They are paramount for the operations and the safety measures of the people as well as the facility.



3.6 SEMICONDUCTOR AND OTHER MANUFACTURING INDUSTRIES

The process to fabricate integrated circuits (silicon chips) for our everyday electrical and electronic devices is very sophisticated and complex. The semiconductor process is set up in pressurized and filtered clean rooms in order to remove the tiniest unwanted particles. In automotive industry high technology robotics and machinery are often very sensitive to the power supply quality.

A minimal loss of power will immediately result in a contamination, spoiled assembly, misalignment or simply a production halt. Unfortunately, the resulting rejection in the whole production line and/or an unscheduled downtime due to the slow start-up of the electrical equipment could result in the manufacturer incurring a significant cost in lost production and waste material.

With a NO-BREAK KS® system installed, the facility's power supply is protected and thus, significant loss of time, money and resources can safely be avoided. Up to date, EURO-DIESEL has protected semiconductor industries, pharmaceutical industries, diamond refineries, food & beverage industries, oil & gas industries, car manufacturers, computer and electronic equipment and appliance manufacturers and more.



3.7 ROAD AND RAILWAY TUNNELS

Often, road and railway tunnels are equipped with a DRUPS system to secure the power supply to the tunnel's control room, lighting, ventilation, fire alarm or other operation and safety devices that are required in a tunnel infrastructure.

The HVAC loads generate high inrush currents that can be safely provided by a NO-BREAK KS® system.

Due to its resilient design and specifically rated stato-alternator, the NO-BREAK KS® can supply up to 20 times the nominal current to start these motor loads.



3.8 HOSPITALS AND HEALTHCARE CENTRES

With today's technology, hospitals, healthcare centres and laboratories are able to process, store and access data in a split second, allowing efficiency in their management and allowing them to diagnose problems in a shorter time.

When it comes to a human's life and death situation, time is a very critical factor. Securing such facilities with a NO-BREAK KS® system will ensure a continuous power supply at all times.

Applications in this sector comprise of securing the operations of monitoring systems, surgery rooms, intensive care units, emergency units, scanners, permanent research units, robots, and more.



3.9 AIRPORTS AND AIR TRAFFIC CONTROL

The NO-BREAK KS® systems are used in airports, airbases and air traffic control towers to ensure the operation of the runway system, radars and/or radio communication at all times, regardless of severe weather conditions such as fog, rain and thunderstorms or even during the night. The vast movement area extending from the runway, along the taxiways and onto the apron is essential in every airport.

The unique features of the NO-BREAK KS® allow the airport to meet the CAT II and CAT III standards as defined by the International Civil Aviation Organisation (ICAO).



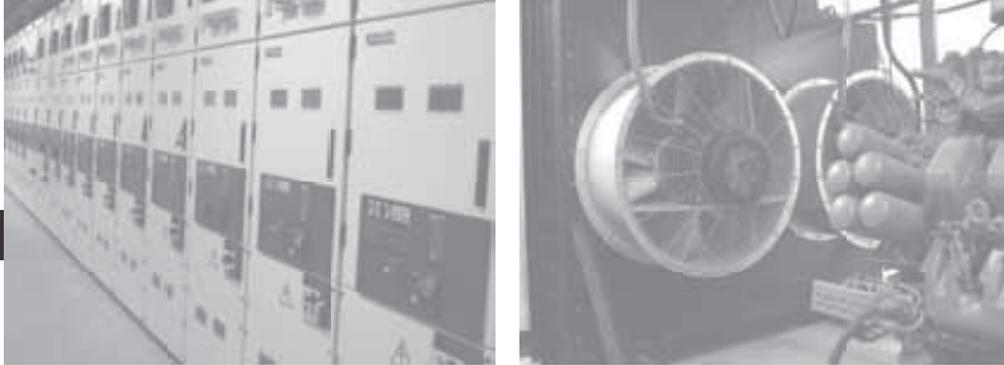
3.10 GOVERNMENT SECTOR

Power protection in the government, the military and the police sectors is usually required for their dedicated data centres, radio communications, surveillance systems and other daily operations. Due to its strictly confidential nature, stringent security in all areas of communication, projects, operations and activities is not an option. Therefore, a shutdown in their system due to power failure could render this sector a handicap.

The NO-BREAK KS® system ensures the constant availability of high quality power, with the longest lifespan and the best maintenance cycle.

4. NO-BREAK KS[®] Systems





The Uninterruptible Power Supply system (UPS) is a necessity for companies, organisations, institutions or the government agencies requiring critical power protection for their daily operations.

EURO-DIESEL's high performing NO-BREAK KS® is a Diesel Rotary UPS system that uses a kinetic energy accumulator as an energy storage device, instead of traditional large lead-acid battery cells.

Placed between the mains and the load, the NO-BREAK KS® systems act as a filtering and conditioning mechanism, ensuring high quality power to the load and continuing the supply for an unlimited period of time in case of an outage.

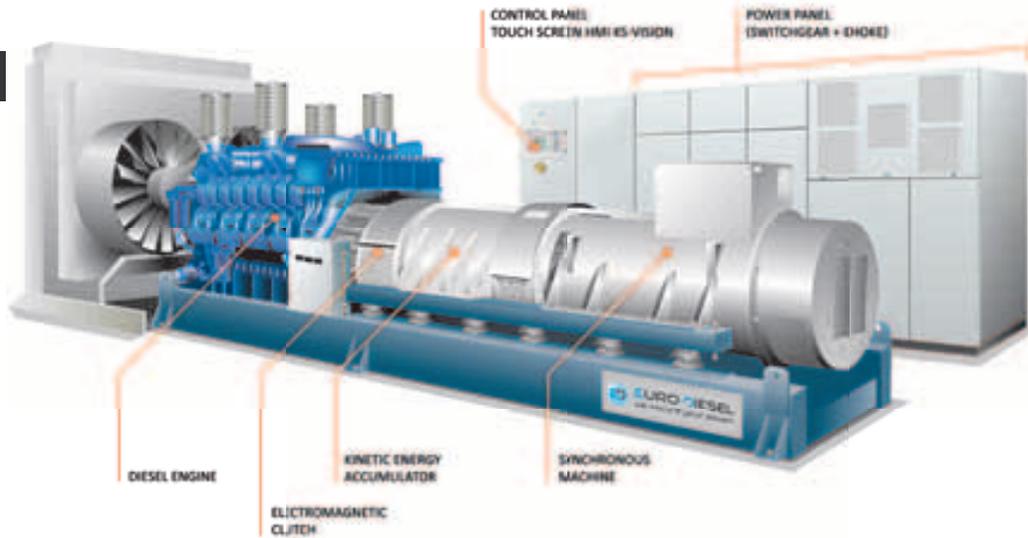
They range in small power steps from 100 kVA up to 2500 kVA per unit for 50 Hz and up to 3000 kVA for 60 Hz. For projects requiring large critical loads, the NO-BREAK KS® can be paralleled and designed in Low Voltage or in Medium Voltage configurations up to 24 kV.

Built with the latest technology, the NO-BREAK KS® system has been referenced by companies worldwide since its conception more than 20 years ago.

It is engineered to meet the most stringent level of reliability, highest efficiency, long lifespan and consequently, lowest economical and operational cost.

◀ *p12 : NO-BREAK KS® power module*

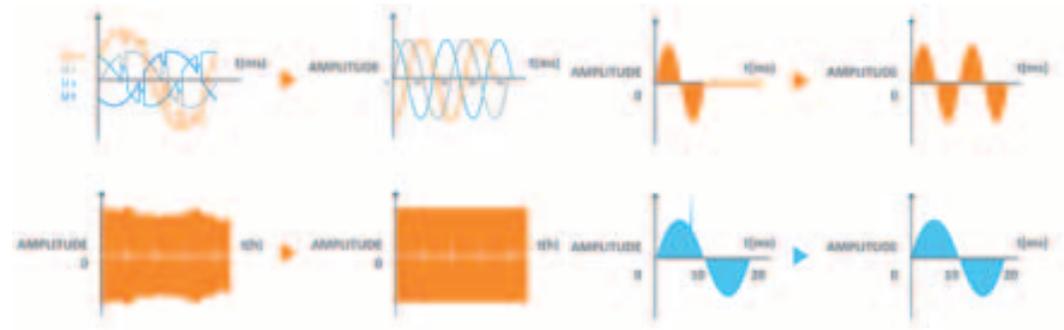
◀ *Turnkey power security solution—design, supply, testing, commissioning and installation—for Texas Instruments (The Philippines) | 30 MVA | 12 x NO-BREAK KS®5-SB Dual Output, Medium Voltage*



THE MAKE UP OF A NO-BREAK KS® SYSTEM

The NO-BREAK KS® is a simple piece of equipment that one might think of it as a conventional generator-set. It is made up of a *Diesel Engine* (MTU, Cummins, Mitsubishi, Deutz...), that is coupled to a *Stato-Alternator*, via an *Electromagnetic Clutch*. The *Stato-Alternator* is the combination of a *Kinetic Energy Accumulator* and a *Synchronous Machine*.

The NO-BREAK KS® system also includes chokes in a power panel as well as a control panel with an integrated touch-screen Human-Machine Interface (HMI) called KS-VISION®.

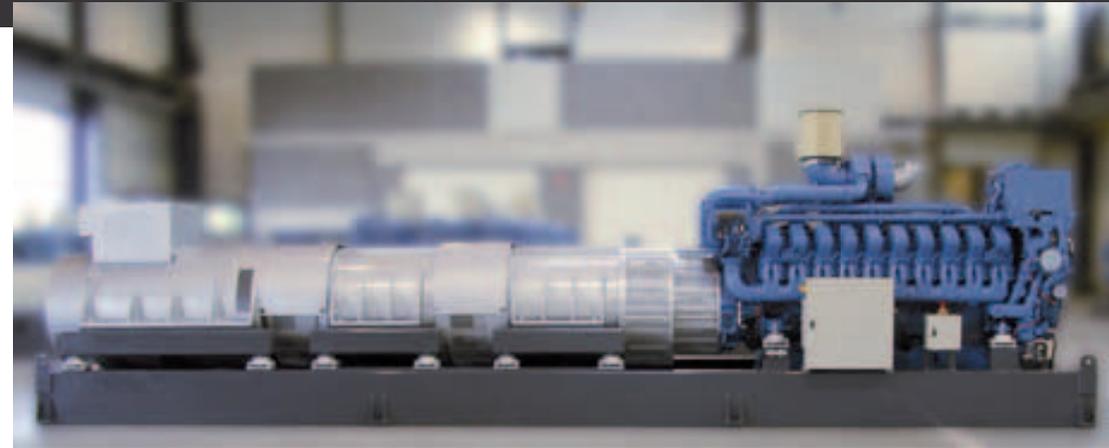


SIMPLE AND SMART DESIGN

The NO-BREAK KS® is a pure dynamic system, which means that the UPS power is supplied by a synchronous machine and the system operates without the use of bulky and heavy batteries or large power electronic components.

In **Conditioning mode**, when the mains supply is within tolerance, the synchronous machine—combined with the choke coil—acts as a conditioner to filter spikes or transient interferences and to regulate the loads' voltage within tolerance. The system also eliminates micro-cuts, reduces harmonics distortion, improves power factor and allows clearing of short-circuits on downstream feeders. As a result, the system delivers a perfect sine wave to the load at all times.

In **Independent mode**, when a voltage perturbation or power failure has occurred, the NO-BREAK KS® disconnects the mains supply and takes over the load for as long as needed or until the mains returns.

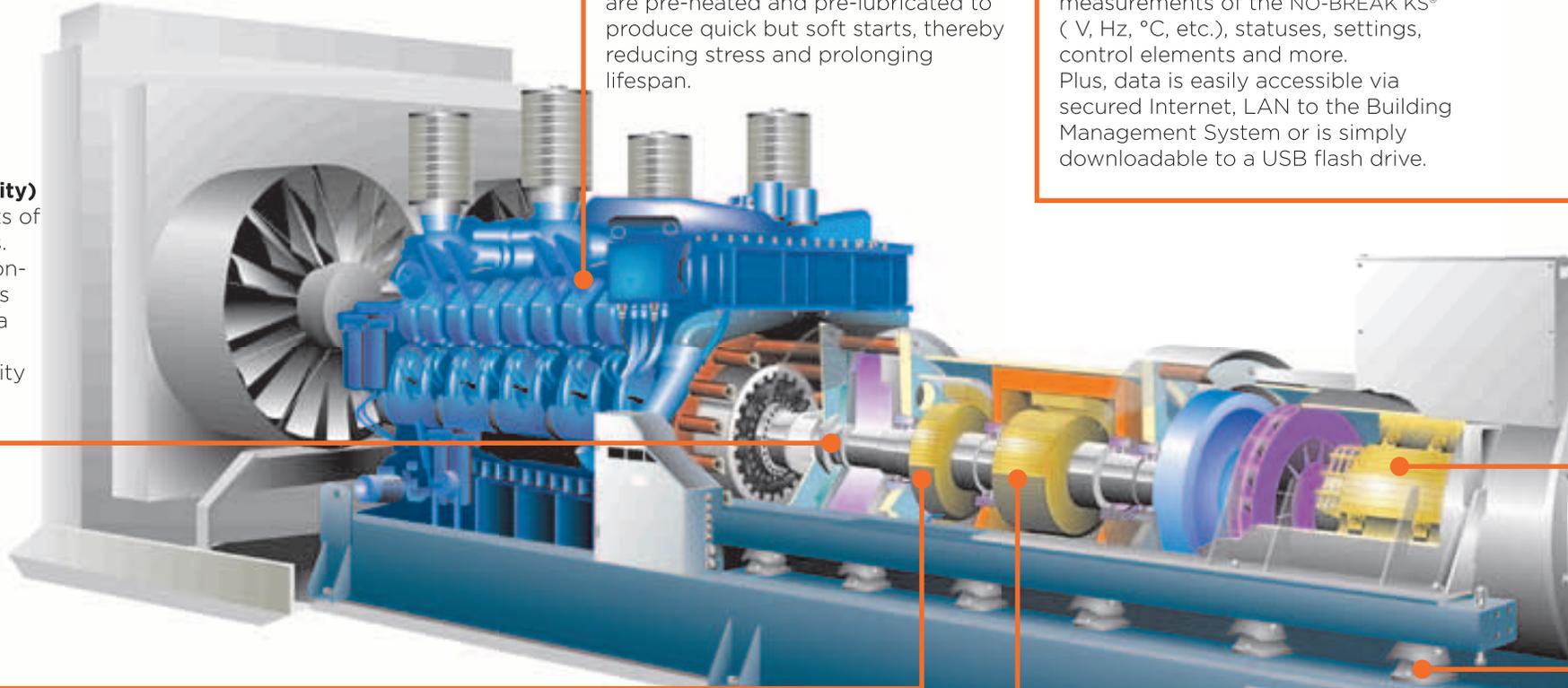


PRODUCT RANGE

Power Modules (rating per unit)	50 Hz 400/415 V	60 Hz 380/480 V	Description
NO-BREAK KS*4	100-200 kVA	120-200 kVA	Compact UPS systems for small power rating per unit.
NO-BREAK KS*5	200-2500 kVA	200-3000 kVA	UPS systems for critical loads from small to large power rating per unit.
NO-BREAK KS*5-SB	200-2500 kVA	200-3000 kVA	UPS systems from small to large rating with dual output: load is divided into critical and non-critical parts. The critical loads will be secured at all times while the non-critical loads will experience a short break of only a few seconds during an outage. This eliminates the need for generator-sets.
SYNCHROSTA*JS	300-1500 kVA	360-1500 kVA	Power conditioning devices with short duration UPS power from small to large ratings per unit.
Standby generator-sets	30-3000 kVA	30-3000 kVA	Standby generator-sets from small to large ratings.

1. Instituto Venezolano de Investigaciones Científicas (Venezuela) | 1 x NO-BREAK KS*4 200 kVA (Single Output, Containerised) This unit has a footprint of only 14.6 m²

2. NO-BREAK KS* power module of 3000 kVA (60 Hz) with a footprint of 18.3 m²



Electromagnetical Clutch (also provides redundant start capacity)

The prime starter system consists of standard engine starting devices. This brushless clutch is lubrication-free and maintenance-free, and is the additional feature to ensure a redundant start. This system also has the possibility of performing a black start.

State-of-the-art Diesel Engines

These are no ordinary engines. They comply with the latest emission standards from EPA or TA LUFT and are pre-heated and pre-lubricated to produce quick but soft starts, thereby reducing stress and prolonging lifespan.

KS-VISION® (user-friendly touch-screen HMI)

Enjoy easy access to the electrical, mechanical and environmental measurements of the NO-BREAK KS® (V, Hz, °C, etc.), statuses, settings, control elements and more. Plus, data is easily accessible via secured Internet, LAN to the Building Management System or is simply downloadable to a USB flash drive.

Brushless Exciter

20 years of proven technology with high reliability and zero maintenance needed.

Kinetic Energy Accumulator

The outer rotor runs at 3000 rpm or less: low-speed energy accumulator for optimal storing and recovery of kinetic energy. Bearings are unstressed which reduces maintenance and extends lifespan.

Monobloc (rigid assembly)

The system is delivered completely assembled and ready to connect with no possible misalignment on site. All sections are directly coupled, which makes the NO-BREAK KS® extremely robust and easy to handle, install and maintain.



**Power Panels
(switchgears and chokes)**

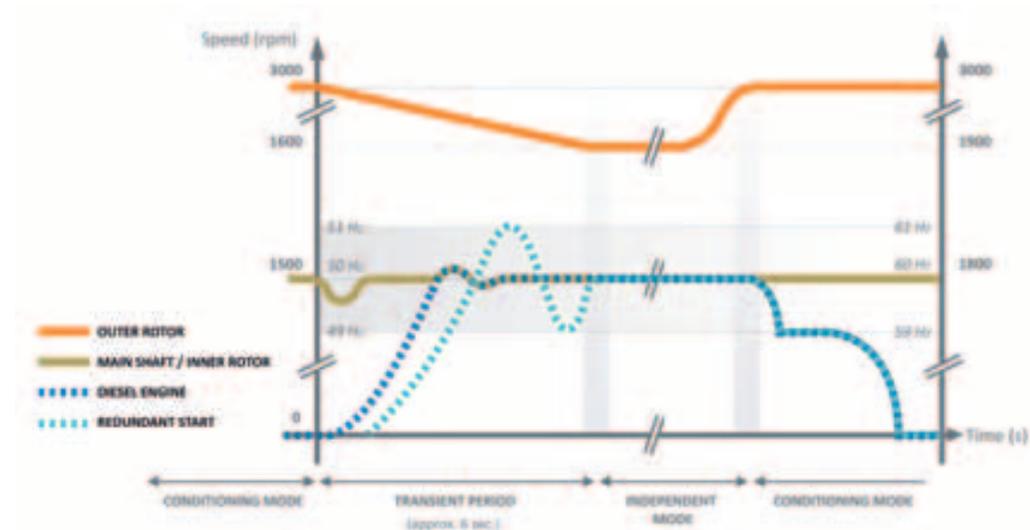
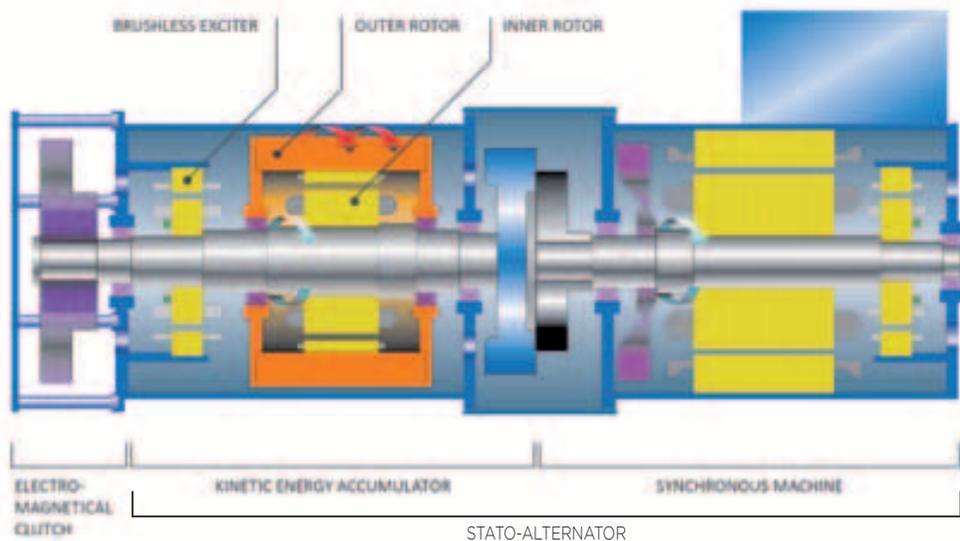
Chokes, together with the synchronous machines, are designed to perform voltage regulation at the downstream busbar and, in addition, filter out harmonics, safely attenuate voltage spikes, decrease voltage harmonics transfer from the mains and also prevent load current harmonics from returning to the mains.

Built-in Vibration Dampers

Eliminates vibrations and allows direct installation on the floor.

4-Pole Synchronous Machine

This oversized, brushless and ringless alternator generates a high quality sine wave. Thanks to its very low internal impedance, it is able to accept very high short circuit currents (up to $20 \times I_n$), allow sudden current peaks and load steps, feed unbalanced loads and provide excellent voltage regulation, harmonics filtering and power factor correction without electronics.



HOW IT WORKS

In case of a power outage, the kinetic energy accumulated in the outer rotor (or accu-rotor) supplies the load until the diesel engine is running at its rated speed. Within seconds, the diesel engine becomes the source of power and this is how your critical loads are always fully secured.

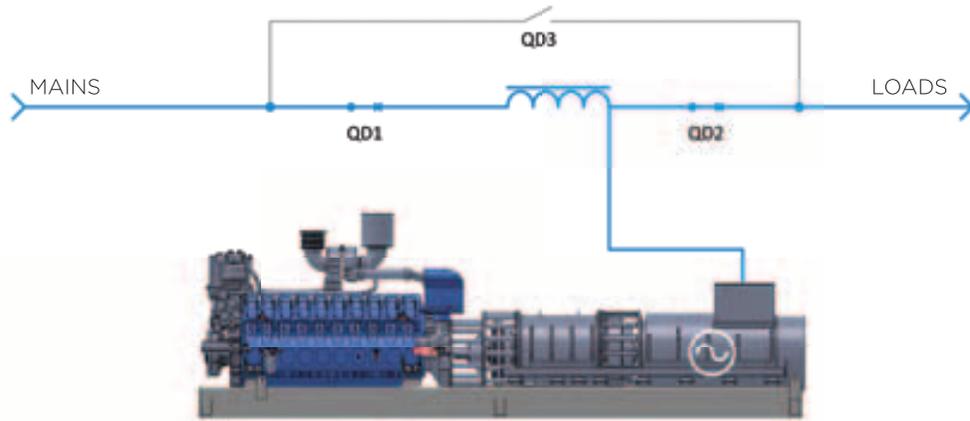
All this happens, without the slightest interruption or aberration to the load.

The Kinetic Energy Accumulator

At the heart of the NO-BREAK KS® is its kinetic energy accumulator; a clever but simple system to store and retrieve kinetic energy. It consists of two rotating parts: the outer rotor runs mechanically-free around the inner rotor.

The inner rotor, driven by the main shaft, rotates at 1500 rpm (50 Hz) or 1800 rpm (60 Hz). It contains two sets of windings; a three-phase AC winding and a DC winding.

Conditioning mode



Conditioning mode | Energy storage

In Conditioning mode, the AC winding of the inner rotor is energised to generate a rotating magnetic field to turn the outer rotor to the maximum speed of 3000 rpm. However, the relative speed between inner and outer rings of the bearings is only 1500 rpm (50 Hz), since the shaft itself is already rotating at 1500 rpm (50 Hz). The outer rotor stores kinetic energy advantageously—the amount of kinetic energy increases quadratically with every increment of the distance from the centre of rotation.

Therefore, when the mains is within tolerance, the synchronous machine acts as a motor and drives the main shaft, which also drives the outer rotor.

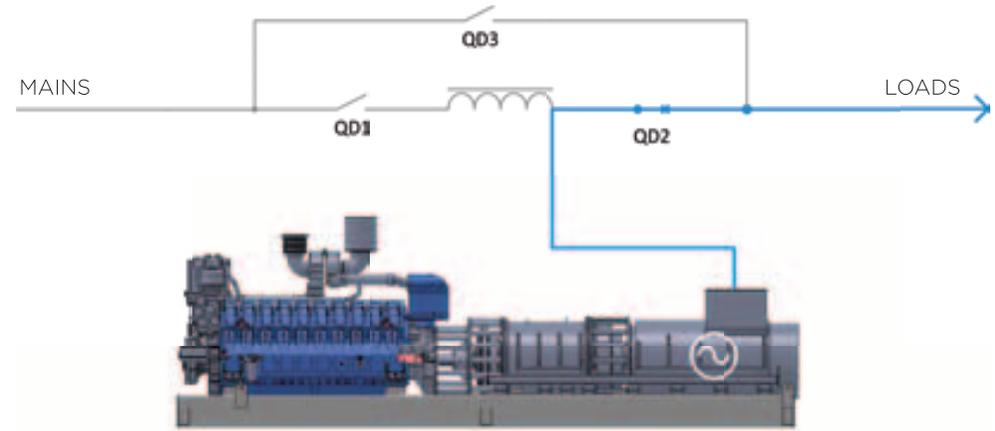
99% of the time or more, the NO-BREAK KS® operates in Conditioning mode and guarantees the supply of clean electrical power to your critical load.

Transient Period | Energy retrieval

When the mains failure is detected, QD1 is immediately opened, the DC winding of the inner rotor is energised and the outer rotor is magnetically coupled to the inner rotor. Its kinetic energy is transferred in a controlled manner to the inner rotor, thus it drives the main shaft and maintains the frequency within narrow tolerance.

This energy transfer is regulated by controlling the current injected into the DC winding accurately. In the same instance, the synchronous machine acts as a generator and the diesel engine receives a command to start running.

Independent mode



Independent mode | Energy re-storing

When the diesel engine is at the rated speed, it is then coupled to the stato-alternator via the electromagnetic clutch and provides power to the load. The outer rotor speeds up to 3000 rpm again and stores the kinetic energy to its full capacity. The whole stato-alternator is a totally brushless and ringless system.

Conditioning mode | Mains return

Upon the return of the mains, the NO-BREAK KS® synchronises with the mains. Once the synchronisation is achieved, QD1 is closed, the mains powers the load, the electromagnetic clutch opens and the diesel engine runs at idle speed for cooling until it stops.



BY ITS CLEVER DESIGN, THE NO-BREAK KS® AND KS-VISION® BRING NUMEROUS ADVANTAGES

Sustainable UPS system

Originally designed as a system of high efficiency, this quality is further increased thanks to its energy saving features; less power is used to run the NO-BREAK KS® system and therefore, less energy is subsequently consumed from the grid, making it a greener solution.



Without the use of heavy, lead-acid batteries, where tonnes of chemical waste are generated regularly, EURO-DIESEL's solution comprises of a kinetic energy system that has neither harmful nor significant waste.

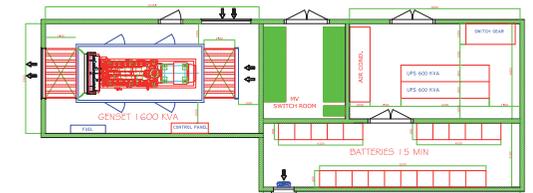
High Overall Efficiency = Low Cost of Ownership

Consuming less energy means spending less money on electricity. That is why using the best overall efficiency is important because it helps to cut utility cost.

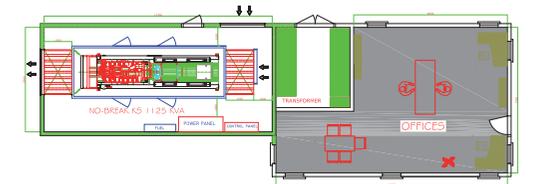
NO-BREAK KS® gives the best power efficiency in comparison to alternative UPS systems. Without the use of electronic power components and eliminating the need for a special HVAC system or an air-conditioned room to house battery cells, you can further reduce your electricity bills in the long run.

Small Footprint

The NO-BREAK KS® has the smallest footprint in the market, an incontestable aspect of the product. Thanks to its lowest component count and a monobloc structure, the NO-BREAK KS® has the most compact design which can be translated into lower real estate costs in capital investment.



Static UPS system of 1200 kVA



NO-BREAK KS® 1125 kVA (space saving of 80 m²)



Easy and Standard Integration

Installation is as simple as installing a standard diesel engine generator-set.

As a monobloc design, there is no need for complex alignment during installation.

User-friendly Control Panel

KS-VISION® is a human machine interface that facilitates the monitoring of the NO-BREAK KS® system. By a few clicks, you can collect a wide array of data and control your DRUPS system.

You can also clearly monitor an overview of the performance of your critical power network with ease from the control room, your office or anywhere else with internet connection.

See page 22 for more information on KS-VISION®

Best Overall Performance

Benefit from the best voltage regulation and filtration of harmonics, the highest peak current acceptance (up to 20 x In), reduced voltage distortion in case of upstream or downstream short circuits and power factor improvement at no extra costs.

Entirely brushless and ringless, the kinetic energy accumulator is a low speed energy device with bearings rotating at maximum 1500 rpm (50 Hz). Lower bearing speed gives lesser stress and longer lifespan to the bearings. In the end, the number of maintenances required in a life cycle is significantly reduced.

Unbeatable Resilience

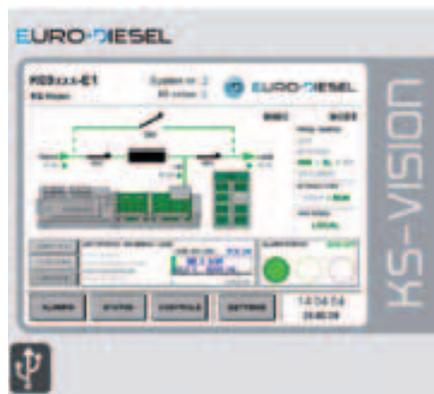
The start of the engine is guaranteed. It does not matter if the conventional starting system is out of service because the smart electromagnetic clutch system will start the engine nevertheless.

A minimised downtime is achieved by having regular maintenance programs and proper servicing. Another intelligent feature of the KS-VISION® generates instant servicing and maintenance alerts, as well as prompt warnings when the need to troubleshoot arises.

It is a proven advantage that the NO-BREAK KS® helps to achieve close to zero downtime of the load.

The robustness of the NO-BREAK KS® only requires an overhaul interval of 2 to 3 times longer than that of an alternative UPS system.

5. KS-VISION®



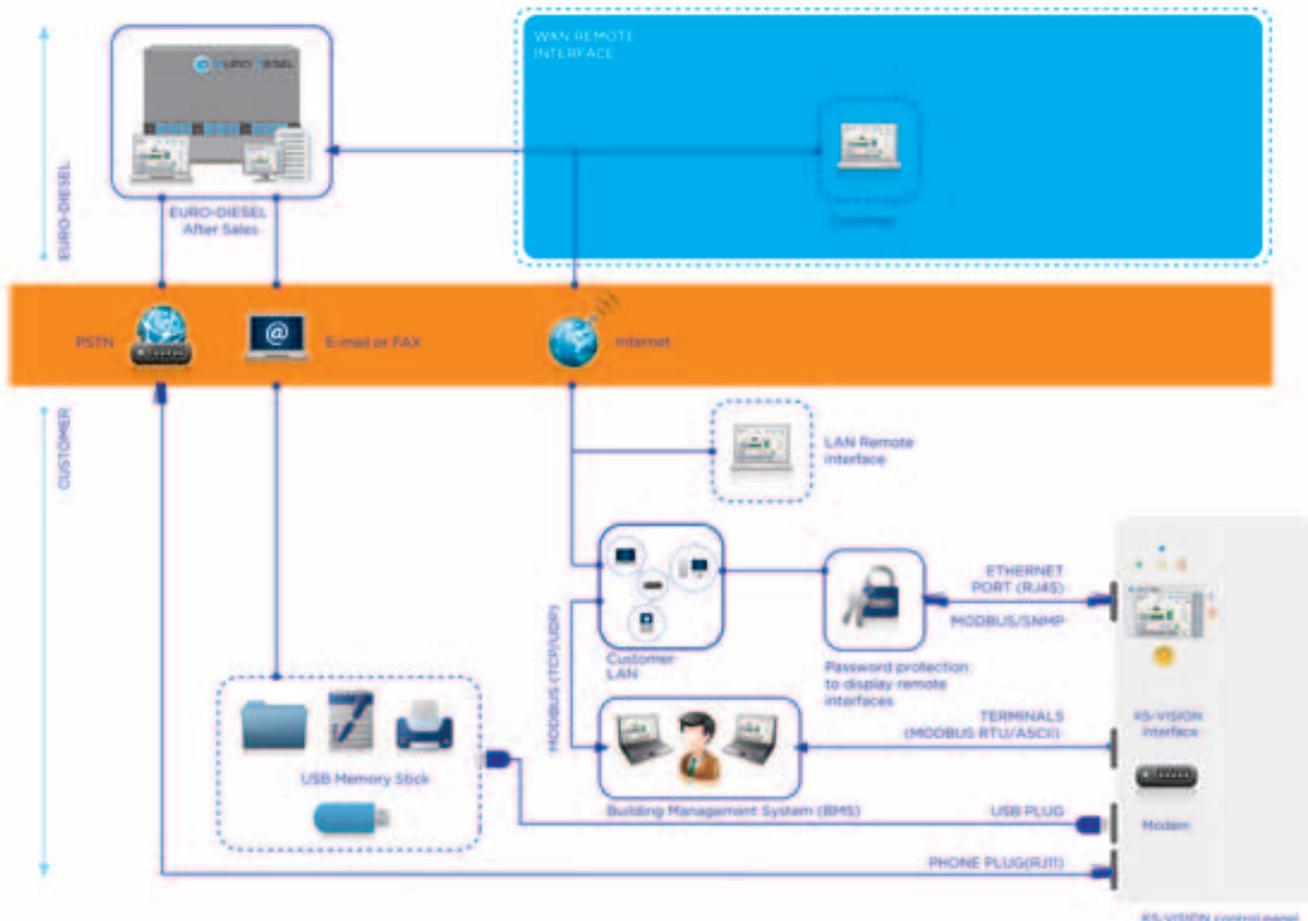
This user-friendly Human-Machine Interface (HMI) touch-screen panel has many value-added features and enables easy access to the electrical and mechanical measurements of the NO-BREAK KS®, the statuses, the settings as well as the control elements.

Each control panel of the NO-BREAK KS®5 series is equipped with KS-VISION® as a standard component. Besides the local HMI, KS-VISION® can also be accessed via modem, Modbus/Profibus protocol, Local Area Network or World Wide Web.

There are multiple enhancements associated with the KS-VISION® one can find today, notably in terms of reliability and maintainability of the NO-BREAK KS®. For example, you can save on downtime thanks to the braking mechanism on the accu-rotor (outer rotor) that helps with a reduced servicing time, a reduced number of engine starts and more.

FEATURES AND FUNCTIONS

- 12" Colour Touch-Screen
- Web-based and enhanced distance monitoring
- Dynamic or static IP address for external communication via Ethernet
- Automatic recognition of single or parallel system configuration
- Intelligent features:
 - i. Diesel start reduction,
 - ii. Peak-shaving, and
 - iii. Energy saving feature in Conditioning mode
- Data display:
 - i. Input and output voltage,
 - ii. Frequencies,
 - iii. Temperature,
 - iv. Power demand,
 - v. Currents, and
 - vi. Power factor
- System mode information with regards to Conditioning mode, Independent mode and Bypass mode
- Detailed management of alarms
- Information on statuses such as breaker positions
- Controlling and scheduling of maintenance and system tests: Engine start-up, energy storage/recovery, etc.
- Personalised settings for language, time, communication protocols, etc.
- Other communication protocols: Modbus and USB as standard interfaces
- Other options: Profibus, SNMP, OPC, etc.



6. Turnkey

USV A1 USV A2 USV A3 USV B3 USV B2 USV B1

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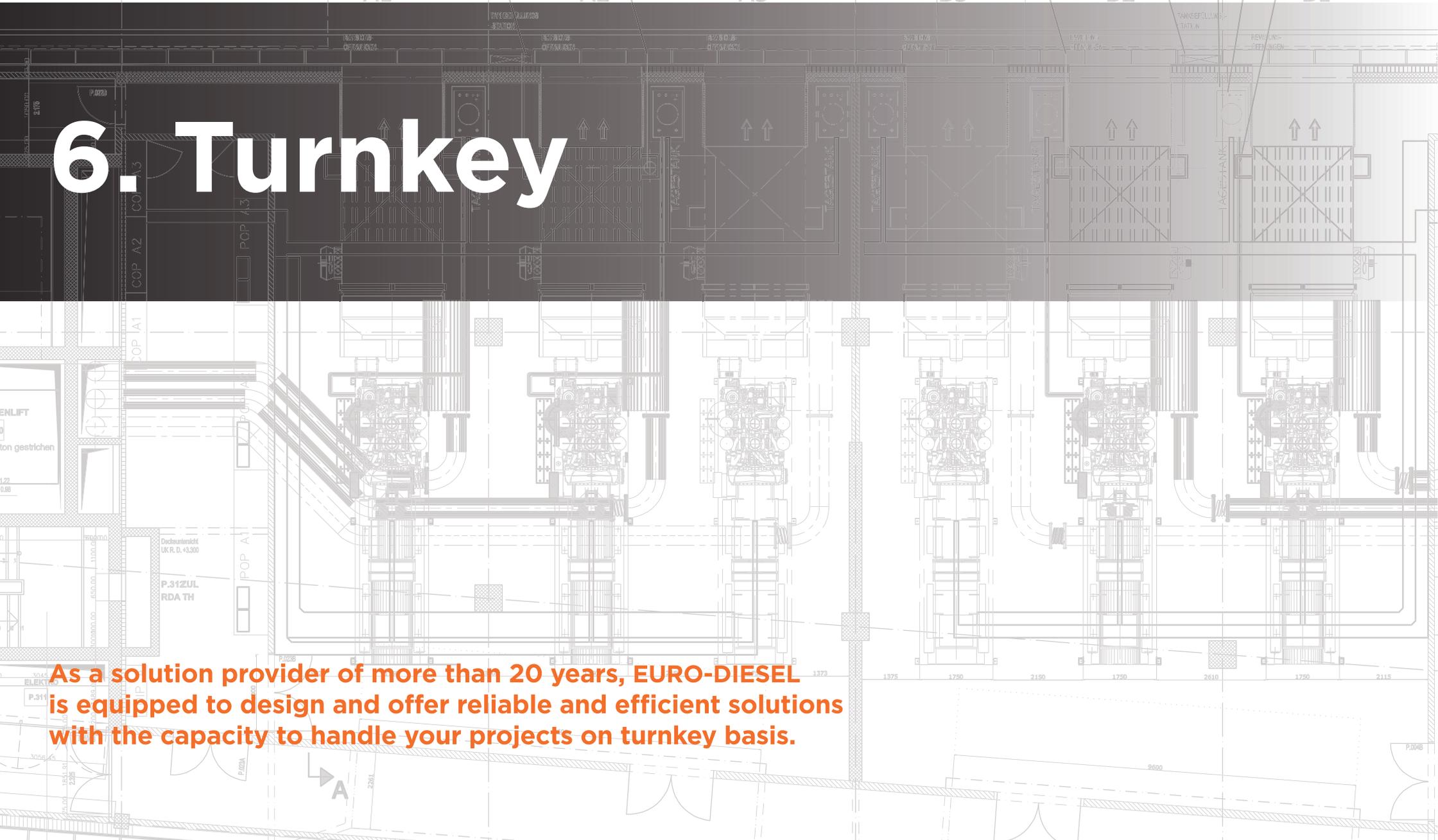
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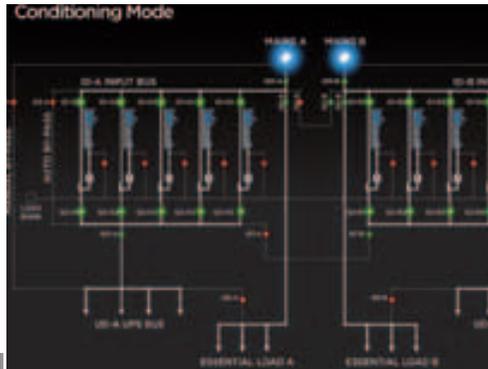
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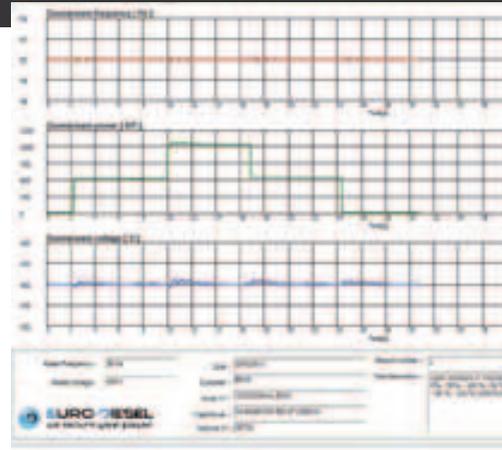
As a solution provider of more than 20 years, EURO-DIESEL is equipped to design and offer reliable and efficient solutions with the capacity to handle your projects on turnkey basis.



CONCEPTION AND DESIGN

We design power security systems layout in a room or fitted within acoustic enclosures with the integration of the NO-BREAK KS® systems including the LV or MV switchgear, control and power cabling, exhaust and noise attenuation systems, cooling system, room ventilation including air inlet and outlet, fuel system for the diesel engine consisting of fuel tanks, pumps and so on.

- ◀ *An international IT network company in the USA | 21 MVA | 8 x NO-BREAK KS®5-SB (Dual Output), using Medium Voltage configuration.*



MANUFACTURING AND ASSEMBLING

We manufacture and acquire the necessary components for your secure power system, using high quality materials.

All NO-BREAK KS® systems including power and control panels are assembled in our facility in Belgium by skilled staffs using high technology equipment.

FACTORY TESTING

Each and every NO-BREAK KS® system has to pass a series of stringent tests and checks before being shipped out of the factory. Tests are conducted with regards to functionality, robustness and performance within user's specifications.

A customised Factory Acceptance Test can also be performed upon special request.



1

DELIVERY AND INSTALLATION

Collaborating with our professional freight service partners, we package the equipment and handle the transportation with great care.

Every NO-BREAK KS® system and its associated auxiliaries are delivered to site and installed accordingly.

COMMISSIONING

Upon completion of the NO-BREAK KS® system installation, a commissioning engineer will be on site to perform a comprehensive series of tests to ensure that the NO-BREAK KS® and all the auxiliaries conform to the required specifications as well as the electrical and mechanical norms in practise.

Once the system is commissioned, Maintenance and Operation manuals will be provided together with the as-built drawings to the end-user.

7. Options





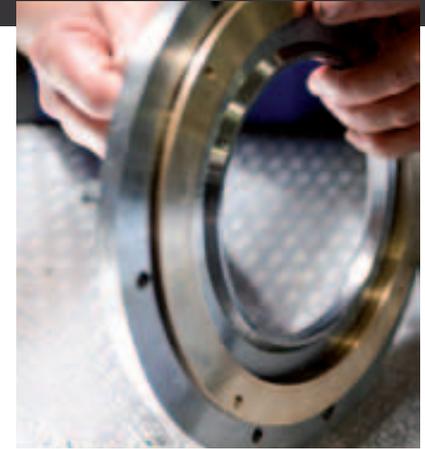
◀ p.28: A customised installation (enclosure) at a highly specialised division of the US Government. 4 MVA / 2 x NO-BREAK KS*5

1. Pharmaceutical Manufacturer (Germany)
12 250 kVA / 7 x NO-BREAK KS*5 (Single Output, Medium Voltage)

- **Synoptic Panel** to obtain total system overview, especially for multiple-unit configuration
- **Medium Voltage Synchronous Machine**
- **Manual By-pass**
- **Drop-over Canopy** to reduce indoor noise
- **Modular Enclosure** (Containerisation)
- **Remote Radiators** or **Heat Exchangers**
- **Automatic greasing** of bearings
- **Continuous system vibration monitoring**
- **Automatic lubricant refill** for the diesel engines
- **Remote monitoring** from our Service Centre
- **Extended warranty**
- **Automatic Alert** - a self-call action to EURO-DIESEL's After-Sales Service Department in case of alarm
- **Communication Protocol** - an industrial communication protocol (Modbus RTU or TCP/IP in standard, others on request) allowing a Building Management System to communicate with the KS-VISION® and gather all system data and current statuses
- **Training** on site or at EURO-DIESEL facility (Belgium)
- **Special extended factory witness testing**
- **Colours** of the units
- Others

8. Maintenance & Servicing





The service department of EURO-DIESEL including its subsidiaries and distributors are available around the clock, 365 days a year, to help our customers solve any unforeseen difficulty. Our service engineers are placed on stand-by for any intervention around the world.

Maintenance

We actively monitor the maintenance reports of every system in operation and ensure that all units are strictly maintained according to our specifications. We offer standard or full maintenance programs, including tailor-made programs according to your specific requirements.

Guarantee / Warranty

EURO-DIESEL offers a comprehensive warranty program for defects in material and workmanship. Extended guarantees are also available upon request.

Training

EURO-DIESEL organises training for operators at EURO-DIESEL's headquarters or at the clients' site. Enhanced training programs for system updates or technological advancement are given on a regular basis.

Surveillance

Monitoring the installed systems remotely by EURO-DIESEL's service department is an option that can be incorporated into the service agreement contract.

Spare parts

A comprehensive range and depth of spare parts are made available in all of EURO-DIESEL's offices around the world and its distributors.

9. Rental





Although facility engineers always take the extra attention to ensure the protection of their critical loads, unforeseen events may still occur. This will require the use of a temporary back-up unit to support the total power protection or even a permanent replacement.

- Major maintenance work (e.g. Replacement of batteries of static UPS systems)
- Major modifications to the power distribution
- Temporary increased load demands
- Unforeseen corrective maintenance
- Emergency situations
- Capacity extensions
- Temporary systems may also be required for short-term uses such as sport events, carnivals, concerts, etc.

EURO-DIESEL is able to offer a wide ranging fleet of containerised, trailer-mounted NO-BREAK KS® systems, that are available for short- or long-term rental. The table below highlights a sample of the range we are able to offer.

Output Rating	Length	Width	Height	Weight
150 kVA	4600 mm	1100 mm	1750 mm	5.1 T
250 kVA	6060 mm	2438 mm	2600 mm	14 T
300 kVA	6060 mm	2438 mm	2600 mm	14 T
1000 kVA*	13700 mm	2438 mm	4000 mm	30 T

* Possible to be configured in a parallel system for a total output power of 2000 kVA.

10. Contacts



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Consult our nearest representative for complete information about [securing your power supply](#)

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