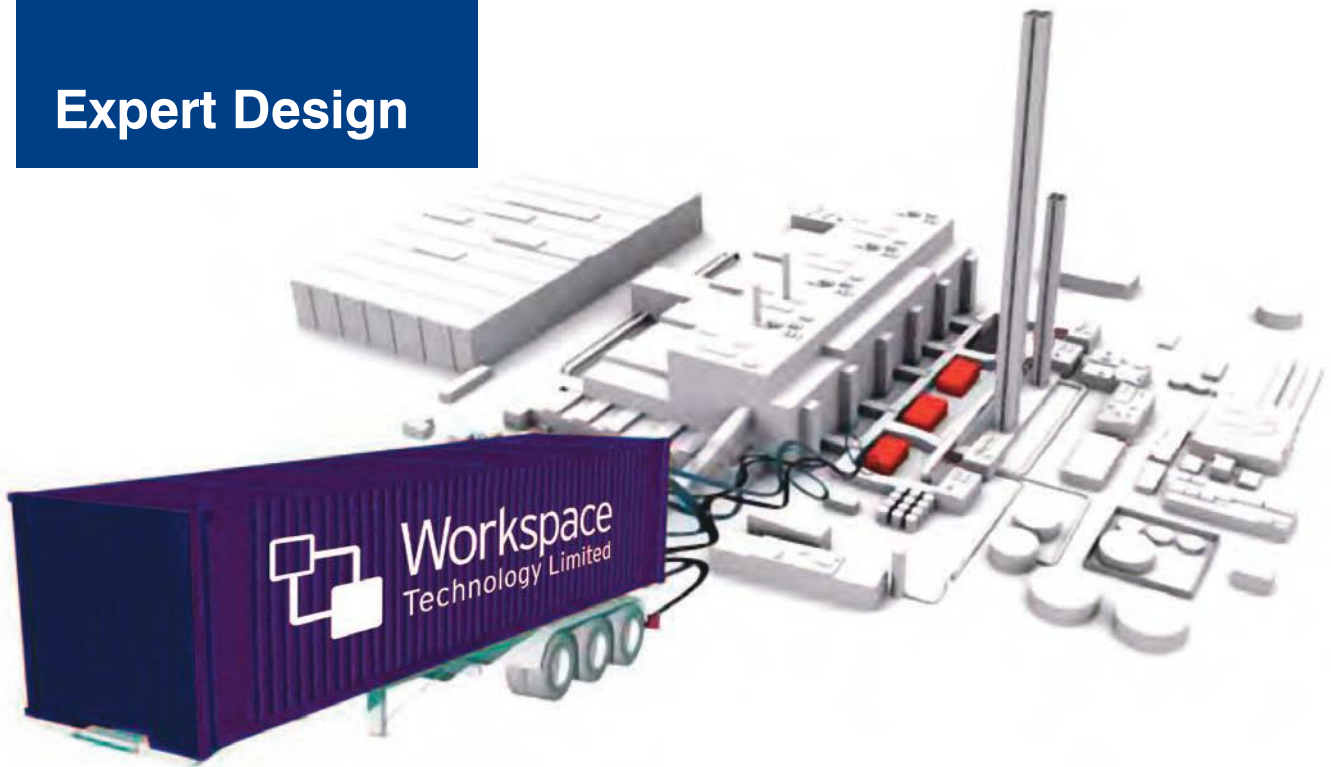




Power Generation

Expert Design



Expert Design The Power to Deliver

Workspace Technology's highly skilled in-house Power Generation team deliver enthusiastic professional expert advice to assist you with your power availability requirements. Our team build, install and commission a range of customised power generation solutions for clients across the UK.

Deploying the latest software, our expert Power Generation engineers produce client centric pre-validated solutions maximising on resources and reducing timelines.

Workspace Technology's Power Generation team deliver engineering excellence and technically advanced power generation solutions very often in challenging environments.



Mision Critical Expertise



Mission Critical Expertise 24/7 Power Availability

Mission critical environments within the Defence sector, blue light services, healthcare, online banking and data centre environments require continuous 24/7 power availability.

Workspace Technology's Power Generation Division provides comprehensive mission critical power services for clients across the UK. We specialise in the design of critical power solutions and provide a complete turnkey mission critical installation service including switchgear, power distribution, generator sets, UPS systems, management & monitoring and any associated construction works.



Mission Critical Power Design

Workspace Technology's Power Generation team are fully experienced at designing mission critical electrical infrastructure. Our engineers use AMTECH ProDesign the UK's leading electrical design packages ensuring accurate electrical discrimination and calculations in accordance with BS 7671 17th Edition.



Mission Critical Switchgear & Power Distribution Units

Workspace Technology's in-house engineers will design and install LV switchgear and associated power distribution systems to support availability and performance of the most demanding critical power environments. We offer a comprehensive range of LV Distribution, Generator Synchronisation Panels, UPS LV Panels, intelligent monitoring and energy metering technology.



Mission Critical UPS Systems

Workspace Technology Power Generation Division integrates UPS systems from industry leading manufacturers including Schneider Electric / APC and Riello. Our engineers will review and advise on the most effective UPS solution based on electrical design, battery autonomy requirements, floor space, resilience level, modularity and cost.



Mission Critical Generators for Extended Power Availability

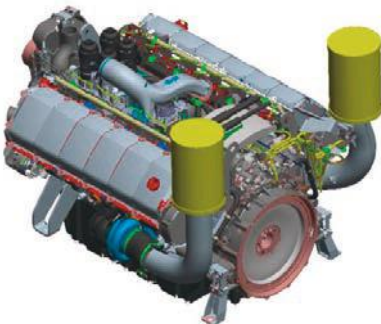
UPS systems will only protect services against short term power failure. When extended power availability is required a Generator system must be installed. Workspace Technology's expert Power Generation team will ensure selection of generator sets to ensure full compatibility with the supported critical infrastructure,

Workspace Technology's generator engineers will carefully select generator systems to ensure reliable operation. Issues that are considered by our design team include:

- Mechanical Systems Start Up Currents
- UPS Recharge Currents
- Total Supported Load
- Prime Rating / Standby Rating of Generator Engine / Alternator

Workspace Technology Power Generation engineers will specify a high quality electronic governor that allows the generator to operate within tight frequency tolerances.

We will design soft start schemes by recommending the implementation of time delay circuits on mechanical systems and walk in / inhibit functions that are typically available on UPS systems.



Manufacturing Partner



Manufacturing Partner Technical Excellence

Our Power Generation systems are supplied by Himoinsa one of the world's leading manufacturers deploying the latest technologies, design software, structural calculations, specialised robotics and fully automated production systems delivering the highest standards of quality and technical excellence.

We offer a range of diesel engines from industry leading manufactures including MTU, Volvo, and Iveco FTP. The use of modular architecture for our engines ensures maximum efficiency and reliability for our clients.

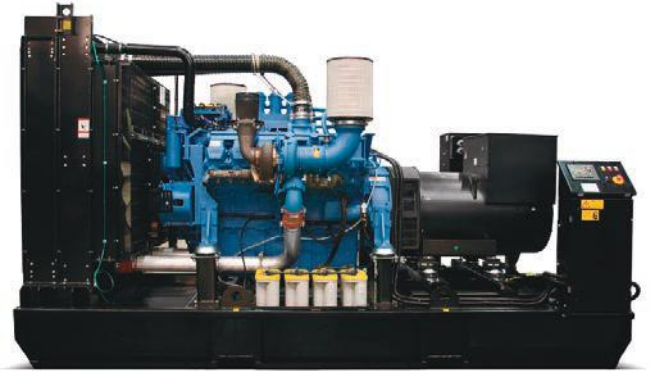
Product Features

- Robust design for a long lifetime
- High stiffness (low powertrain bending)
- Best in class NVH behaviour (noise, vibrations, harshness)
- Variable fan position
- Thermodynamics and turbo-charging is optimized for generator applications
- Options on alternators to suit every application
- Options on radiators to suit the environment in which the generator will be located

Low Emissions

Our engines are fully Stage 3 A & B compliant to the latest emission meeting both EU- and US-regulatory requirements.

Applications



Applications Flexible Power Solutions

Our comprehensive range of diesel generator sets deliver power solutions for data centre, commercial and industrial applications. Our Power Generation solutions are engineered by our team to interface with your on-site systems, control mechanisms, critical power loads, availability and redundancy requirements.

Power Generation solutions include open and closed units supporting both Standby and Prime power applications. Our Power Generation engineers will be pleased to assist with the selection of power units to suit your site specific applications.

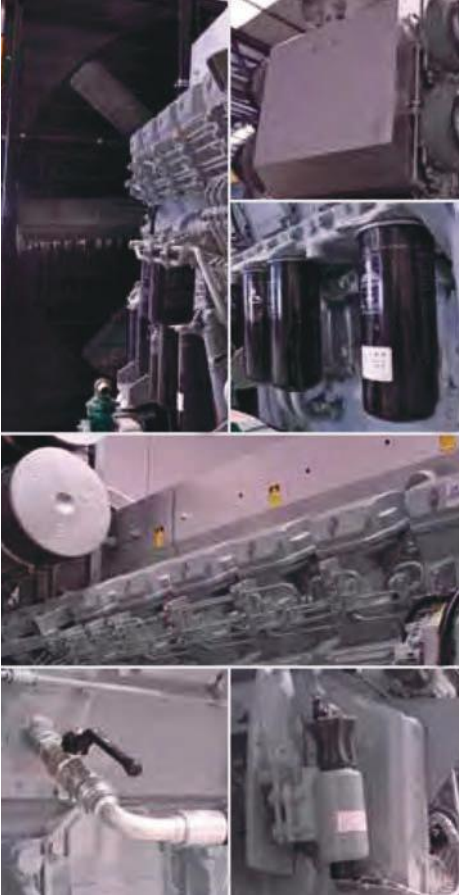
Generator Format Options Include:

- Open Skid
- Canopy
- Containerised
- Modular Power Pod Units

Generator Set Enclosures and Containers

Workspace Technology offers Power Generation enclosures to suit your site specific applications ranging through from small, standard ISO and oversized containers. Built to last, our containers maximise space efficiency and minimise the on-site installation time and resource.

System Options



System Options Power Customisation

Designed specifically to work with our generator sets, our ancillary equipment ranges from specialised fuel, sound attenuation, silencer and starter systems to mobile generator set trailer solutions.

Generator Noise Control

Workspace Technology's range of enclosures and containerised units are suitable for all market sectors, including residential applications.

In addition to our standard acoustic enclosures and ISO containers, we offer custom designed and manufactured silenced and super-silenced containers. Our Power Generation engineers will be pleased to advise on requirements for bespoke containers, canopies and acoustic treatment of plant rooms.

Fuel Systems

A range of specialised fuel systems including base fuel tanks ranging from 10 hours up to 40 hours at 100% load (on certain models), bulk fuel tanks, fuel transfer pumps and associated control systems are available. Workspace Technology design and install all components for fuel systems, including, fuel-water separators, pumps, tank level sensing equipment, dump valves, fuel polishing systems and fire protection products to assure both product quality and installation performance.

Fuel System Features:

- Pressure tested plate steel construction
- Corrosive resistant tank & fittings
- Mechanical fuel level monitoring
- Outer tank/bund, leak detection
- Building management system integration
- Remote warning & monitoring options
- Fire safety systems, including fuel dumping
- DEFRA compliance
- Built to the British Standard for fuel storage

High and low level monitoring is included as standard, providing an early warning alarm for events which include low fuel level, fuel tanker overflow and excess ingress of fluid to the bund area. Workspace Technology fully integrates all alarms with Data Centre or Building Management Systems delivering up to the second monitoring.

System Options



System Options Power Customisation continued

Control & Monitoring Systems

Control is crucial to provide optimum performance and effective operation of the Power Generation system. Workspace Technology's Power Generation team provide safe, easy-to-use control with a range of digital, key start, and synchronising panel systems configured with optional remote communications.

Digital Control Panels allow you to monitor and control your generator set with ease, providing important diagnostic information whilst ensuring your unit operates within safe parameters, combining easy to use menu navigation combined with advanced protection and metering technology. Our range of panels are used in automatic mains failure applications in conjunction with automatic transfer panels.

Key Start systems are equipped with all the necessary generator set instrumentation and protection devices, whilst providing the straightforward functionality and reliability of a key-start panel.

Synchronization Panels allow generator set-to-set/set to mains control for parallel and load sharing applications. The unit is compact and easy to use whilst providing all essential protection, control and monitoring.

Remote Monitoring & Management systems enable full integration into general building management platforms, mission critical or data centre infrastructure management platforms. We offer a range of SNMP, Modbus and Volt Free Contacts (VFC's). Our expert engineers can advise and implement a complete range of local and remote management systems to ensure maximum system availability.

Additional Options

- Starting systems - Duplex, air and specialised DC batteries
- Catalytic exhaust filter, soot filter and exhaust after treatment
- Fuel filtration, storage and transfer systems and associated control systems
- Fire detection, protection and suppression systems
- Spring and captive rubber Anti-vibration mounts (AVM) to suit low noise and mobile generator set applications
- Mobile generator set trailer solutions

Modular Power



Modular Power Pod

Workspace Technology's Modular Power Pod delivers a pre-engineered turnkey power solution which can be easily deployed and installed wherever and whenever needed, with minimal impact on existing plant room and facilities.

Our Modular Power Pod units house generator sets, UPS systems and associated switchgear to deliver uninterrupted power for mission critical environments. Modular Power Pod provides a robust, highly resilient power solution with zero downtime. Typical formats include 'stand-alone' 20-foot or 40-foot container pods.

The Modular Power Pod requires no dedicated space within the data centre facility or plant room. This allows for more of the data centre to be used for critical IT infrastructure. This is especially useful in colocation facilities where increased rack space improves facility revenue.

Modular Power Pod containerised power solutions meet Workspace Technology's stringent EcoDesign™ data centre Best Practice design principles helping reduce energy consumption and also reducing operating costs.

Workspace Technology's Modular Power Pod is a highly efficient and resilient power solution is ideal for:

- Modular data centres requiring a scalable power infrastructure
- Commercial data centre sites requiring additional power
- Industrial applications including utility and heavy engineering
- Military and remote communications installations

Active Power



Active Power “Continuous Power Solutions”

Active Power are world leading manufacturers of predictable, continuous and efficient power systems engineered for organisations with zero tolerance for downtime. Workspace Technology are the UK’s leading Active Power integration partner delivering a range of continuous power solutions combining green battery less UPS systems with reliable containerised generator technology.

Powerhouse®

Powerhouse® is a modular, portable continuous power system available for rapid deployment based on Active Power’s high-efficiency and highly resilient architecture. The system is housed in a standard ISO shipping container. The Powerhouse® can be deployed in any number of locations, including a roof top, loading bays or within secure compounds.

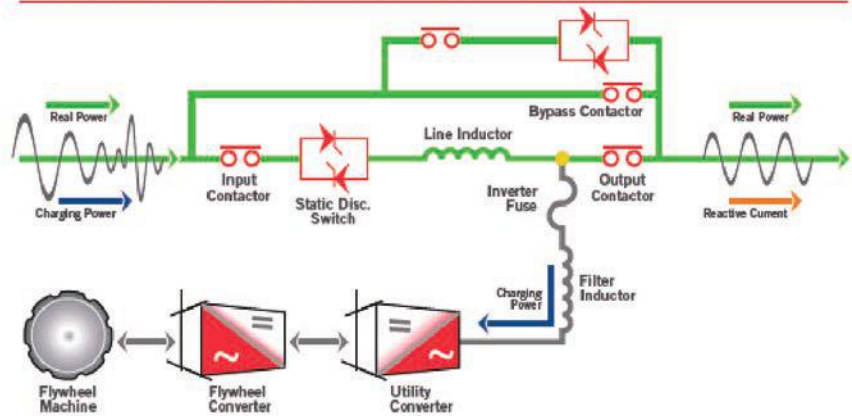
The system is designed to offer high flexibility to your constantly changing environment, available in a series of formats the Powerhouse® is fully scalable, enabling you to expand your backup power infrastructure on demand. The pre-engineered, factory-tested system is delivered as a complete and repeatable solution keeping on-site deployment to a minimum, minimising risk to critical environments.

Powerhouse® Design Benefits

- 98% operating efficiency offering attractive whole life cost savings against any other system.
- Completely battery free negating future battery replacement costs.
- High reliability MTBF >2,000,000 hours.
- Built in active harmonic load conditioning.
- Input Transient Voltage Surge Suppression.
- Built in redundancy of control power supplies, internal communication and cooling fans.
- 0 (zero) air conditioning required, No environmental conditioning required based on a wide operating temperature range (-15°C to + 40°C)
- 0 (zero) battery removal, disposal and replacements for the life of the system.
- Smallest available footprint, kW for kW
- Energy Savings
- Complete scalability / modular and redundant architecture
- Low service and maintenance requirements
- Rapid recharge time (under 5 minutes from 0% to 100% load)
- No hazardous waste material
- The most efficient UPS architecture available, always optimising PUE

Active Power

PARALLEL ONLINE ARCHITECTURE



Example CleanSource® UPS

CleanSource® UPS

The Active Power CleanSource® is battery free UPS system using flywheel technology which takes up less than half the footprint of a legacy battery-based system leaving additional room for revenue generating equipment. With up to 98% efficiency and simple and predictable operation only available in flywheel energy storage systems provides for a low maintenance schedule. You get a life-cycle cost without expensive surprises.

CleanSource® UPS Benefits

- CleanSource® UPS has been proven over and over again with over 2000 global Installations
- The IGBT based UPS architecture provides for a highly fault tolerant system.
- CleanSource® UPS is inherently redundant and modular.
- The systems are expandable to multi-megawatt configurations with paralleling for either capacity or integrated redundancy.
- CleanSource® UPS is the most energy efficient UPS in the world
- 'Blade Ready' ensuring blade server loads do not impact the rating of the UPS which will operate comfortably between 0.7lag to 0.9lead with no de-rating.
- Active Power UPS modules are supplied as standard with a **10-Year parts and labour warranty** in conjunction with a competitive service contract.

Active Power



Active Power Generator Systems

Active Power utilise the latest Diesel Engine management technology, enabling your short break, essential cooling loads to be power <10secs after a power failure. This aspect of the solution is imperative for clients operating within a high density data centre environment. This solution not only enhances the overall resilience of the cooling design, by restoring power quickly and avoiding Thermal Runway, it enables clients to operate their data floor at increased ambient temperatures in-line with the latest ASHRAE guidance.

In addition the Diesel Generator is provided with GenSTART® Active Powers patented generator starting system which increases generator starting availability by a factor of ten.

This ability to protect your short break loads quickly, while operating at an increased ambient can have tremendous impact in terms of the overall Data Centre PUE – All supported by the highly efficient UPS architecture.

Cleansource®, Powerhouse® and GenSTART® are registered trade marks of Active Power Ltd.

Ongoing Service & Support

Workspace Technology is committed to service excellence and will support your generator throughout its lifetime.

To ensure your Power Generation system is operating at peak performance whilst eliminating the risk, cost, disruption and loss of revenue caused by unscheduled downtime Workspace Technology offers regular planned preventative maintenance programmes back up with emergency call-out for unplanned failures.

Our Power Generation post installation services guarantee the protection of your investment with excellent service via our authorized technical service partners located strategically throughout the UK

Service Credentials

- All engineers are highly skilled and professionally trained
- We carry the very latest diagnostic equipment, to help us identify and rectify potential problems fast
- We use genuine parts and accessories

Installation and Support



Installation & Support Services

Installation Services

Workspace Technology's Power Generation Division offers a complete turnkey installation services to help remove uncertainty and eliminate risk associated with this mission critical asset. Our installation services include:

- Electrical Switchgear & Installation
- Specialist Delivery & Position Services
- Construction & Civil Works
- Controls and Management Systems

Our Data Centre Solutions Division provides full Data Centre integration as part of a complete design & build data centre project.

Life Time Support

Workspace Technology is committed to service excellence and will support your generator and mission critical infrastructure throughout its lifetime.

To ensure your Power Generation system is operating at peak performance whilst eliminating the risk, cost, disruption and loss of revenue caused by unscheduled downtime Workspace Technology provides regular planned preventative maintenance programmes backed up with emergency call-out for unplanned failures.

Our Power Generation Engineering & Support Services guarantee the protection of your investment with excellent service via our authorised technical service partners located strategically throughout the UK.

Installation and Support



Service Credentials

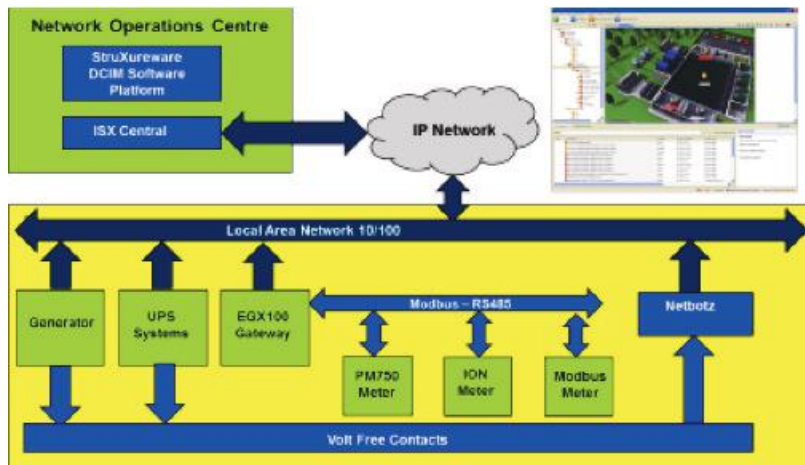
- All engineers are highly skilled and professionally trained
- We carry the very latest diagnostic equipment, to help us identify and rectify potential problems fast
- We use genuine parts and accessories

Enhanced Support Services

Workspace Technology's Power generation Division offers a range of enhanced support services.

<p>Load Bank Testing</p>	<p>Load Bank testing ensures generators operate at full design load on a regular basis. Load bank testing will prevent internal glazing, carbon build up as well as low cylinder pressures and consequent poor piston ring sealing which are caused when generators are constantly run at light loads.</p>
<p>Generator Fuel Maintenance</p>	<p>Fuel maintenance is essential to prevent water build up which will typically occur over time within bunded fuel tanks. In addition the bio content of modern fuel oil will start to break down after approximately 12 months and will result in deposits and bio mass build up.</p> <p>Regular fuel maintenance will ensure fuel quality is maintained preventing potential generator start-up failures.</p>
<p>Fuel Contracts</p>	<p>Workspace Technology can take care of your fuel requirements with guaranteed fuel delivery contracts.</p> <p>Fuel delivery contracts provide peace of mind and ensure generator fuel is delivered on time, where and when it is needed most.</p>
<p>Generator Hire</p>	<p>Our hire services provide contract hire, delivery and full installation, when emergency or temporary generators are required to support planned or extended power outage events.</p>

Remote Critical Power Monitoring



Remote Critical Power Monitoring

Remote Critical Power Monitoring is an essential service for businesses that demand continuous and reliable power availability. Workspace Technology's **Remote Critical Power Monitoring** can be deployed on new or existing mission critical UPS and Generator installations.

The service will deliver 24/7 remote system monitoring, identifying faults, tracking systems utilisation and helping prevent the failure of backup power technology, which is often caused by avoidable issues for example empty fuel tanks or low batteries.

The Remote Critical Power Monitoring service by Workspace Technology utilises Deep Sea Electronics DSEWebNet technology allowing Workspace Technology to deliver comprehensive service including:

- Full remote control and monitoring in real time
- Monitor & control of single set or multi-set load sharing systems
- Configurable reporting options
- Global positioning and Generator set tracking
- Password protection access levels
- Fuel management
- Ability to view multiple sites from our central service location
- Enhanced security via GPS tracking.

One of the key benefits of the Remote Critical Monitoring is that we can set up the generator to carry out an automatic weekly start up and full system check. During this routine we can remotely monitor the generator ensuring peace of mind to the end-user

Workspace Technology's Remote Critical Power Monitoring ensures that the generators start when needed, reducing on-site visits and delivering enhanced system availability.



Data Centre Solutions Expertly Engineered

Workspace Technology Limited

Unit 10, Reddicap Trading Estate
Sutton Coldfield, West Midlands B75 7BU

Tel : 0121 354 4894

Fax: 0121 354 6447

Email: sales@workspace-technology.com

www.workspace-technology.com

www.mobiledatacentre.com



Interested in finding out more?

Our friendly team are on hand to take your call on **0121 354 4894**
or send us an email at sales@workspace-technology.com