

NEXT GENERATION POWER.

Diesel generator sets





FOR THOSE WHO NEED MORE THAN A BACKUP PLAN.

All around the world, and at any time, MTU Onsite Energy diesel generator sets are trusted to provide emergency standby power and prime power. Our customers include major airports, world-class healthcare facilities, data centers and nuclear power plants—places where a simple backup plan isn't enough. They depend on our exceptional reliability, cutting-edge technology and proven performance to ensure uninterrupted power.

With over 50 years of power generation systems expertise and over a century of diesel engine experience, MTU Onsite Energy offers superior reliability. With low lifecycle costs and industry-leading average load factors, MTU Onsite Energy diesel generator sets provide more than just a backup plan. They provide peace of mind.



KNOWLEDGE IS POWER.

MTU Onsite Energy's parent company, the Tognum Group, is one of the world's leading providers of distributed energy systems, diesel engines, injection systems and complete drive systems for ships, heavy land and rail vehicles, military vehicles, construction and agricultural machinery, and the oil & gas industry. Under the umbrella of Tognum AG, MTU Onsite Energy brings a wide range of expertise and technology for distributed

energy systems. MTU Onsite Energy offers comprehensive, intelligent and innovative system solutions based on diesel and gas engine technology – for all applications, for the most diverse needs.

Today and in the future, MTU Onsite Energy represents intelligent systems for the reliable and efficient safeguarding of your power supply. Diesel power generation is an area in

which we have a particularly long tradition. We have been developing and building engines and generator sets for the production of electricity since the middle of the last century. Our unique wealth of experience and expertise makes us a partner who can do a lot more than simply build outstanding generator sets.



ALL KINDS OF SOLUTIONS FOR ALL KINDS OF JOBS.

From mission-critical to everyday backup/standby power, MTU Onsite Energy provides reliable diesel power generation solutions wherever—and whenever—reliability is needed. Our diesel generator sets deliver the refined power required by sensitive computer networks, while accommodating the high transient loads of air conditioners, compressors and other vital equipment.

Whether it is backup power for refrigeration and hotels or uninterruptible power for data centers and hospitals, MTU Onsite Energy is trusted all over the world. With MTU engines, engineered for exceptional load acceptance

capability and low vibration, MTU Onsite Energy generator sets are ideal for use in sensitive environments, as well as under extreme conditions.

With decades of expertise, MTU Onsite Energy offers dependable solutions for emergency standby and prime power applications. In standby use, our generator sets keep power flowing seamlessly in the event of utility failure. When used for prime power, MTU Onsite Energy generator sets are scalable to fit a wide range of applications.

MTU Onsite Energy customers

- // Government and municipalities
- // Hospitals and health care
- // Data centers
- // Sewage and water treatment
- // Manufacturing
- // Communications and cell towers
- // Commercial and industrial buildings
- // Hotels and casinos

- // Educational institutions
- // Fire and ambulance stations
- // Emergency response units
- // Utilities
- // Agricultural
- // Mining and construction
- // Malls and shopping centers
- // Airports



TAKING RELIABILITY TO NEW LEVELS.

You can count on MTU Onsite Energy to meet your high standards. We continue to push the boundaries, bringing our vast engineering expertise from large-scale projects to the new range of MTU Onsite Energy diesel generator sets. Our diesel generator sets offer several advantages:

Reliability

- // Our power solutions ensure continuous operations and reduce exposure to monetary loss from a utility outage.
- // To ensure top performance, our generator sets are designed, assembled and tested completely in-house.
- // From best-in-class engines to cutting-edge electronic controls, we use only quality components from top brands for maximum reliability. All components have been chosen with the performance and reliability of the complete system in mind.
- // MTU Onsite Energy diesel generator sets are developed and designed for high performance and safe operation under the most demanding environmental conditions.
- // MTU Onsite Energy standby diesel generator sets are certified at an 85 percent average load factor over 24 hours, significantly higher than the industry-standard 70

percent average load factor required by ISO 8528.

- // MTU Onsite Energy has been recognized with a variety of certifications for meeting all relevant quality standards, including UL, IBC, DIN EN ISO 14001 and ISO 9001.

Cost Effective

- // Our generator sets are optimized for fuel economy and cutting-edge emissions control to meet current and future requirements.
- // Innovative design for easy installation.

Flexibility

- // We engineer complete systems—with options to accommodate a variety of applications.
- // A wide range of options and accessories is available, including generator set controls, enclosures, diesel fuel tanks, remote annunciators, silencers and circuit breakers.

Proven Quality

- // To ensure high quality, every generator set has to pass rigorous MTU Onsite Energy testing procedures before leaving our factory.

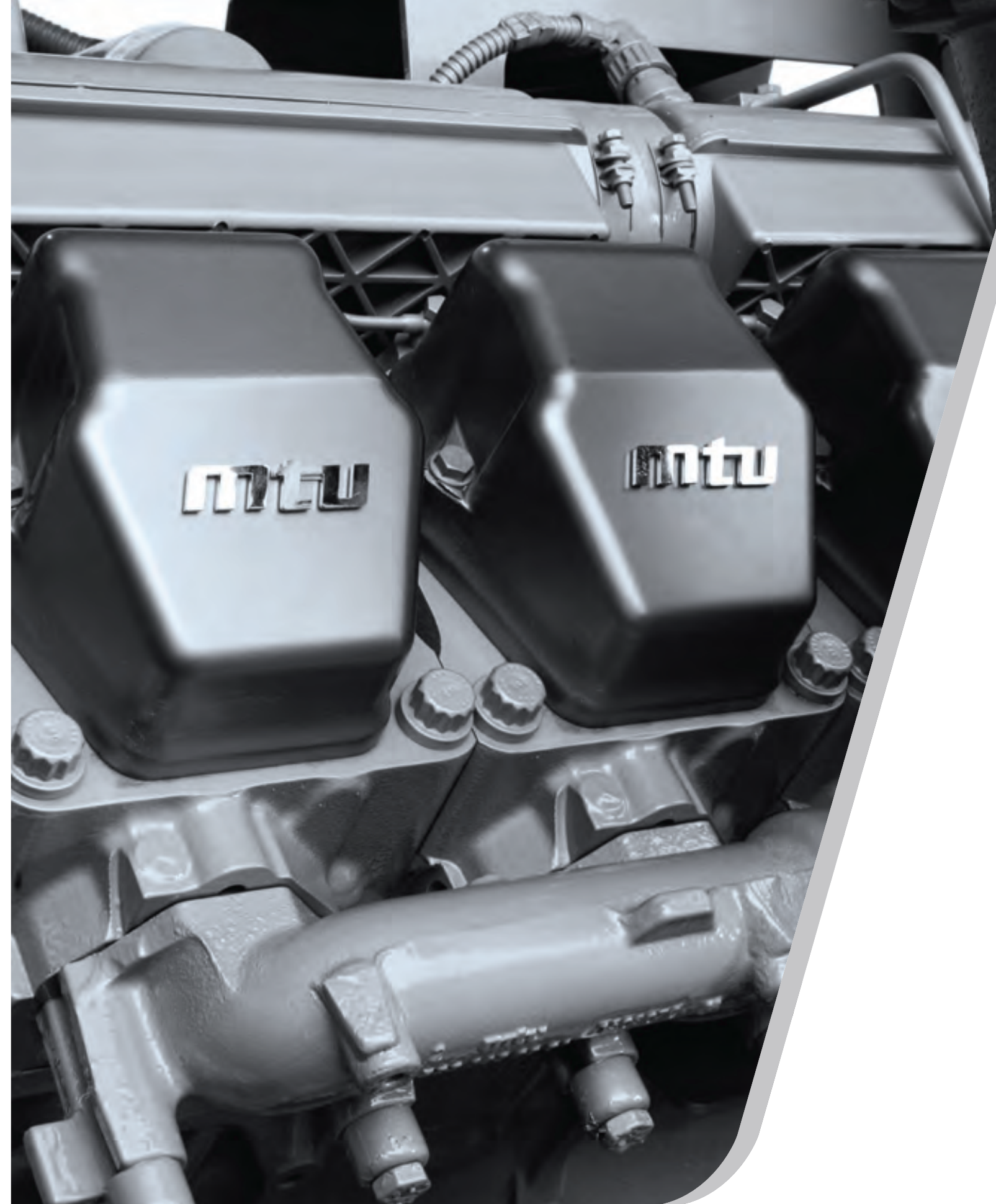
- // Designed and tested to meet or exceed industry standards from NFPA, NEMA, IEEE, ISO 8528-5 and Class G3.

- // Comprehensive prototype testing.

- // Optional factory witness and extended run tests are available.

Support

- // We offer a full library of technical documents and up-to-date information. Complete sales, installation and service documentation of the entire generator set is available.
- // Through our global service network, we are able to provide parts, maintenance products and remanufactured products, warranty and training. Factory-trained experts are available 24 hours a day, seven days a week.
- // We are a single-source supplier for complete systems solutions, service and warranty questions.



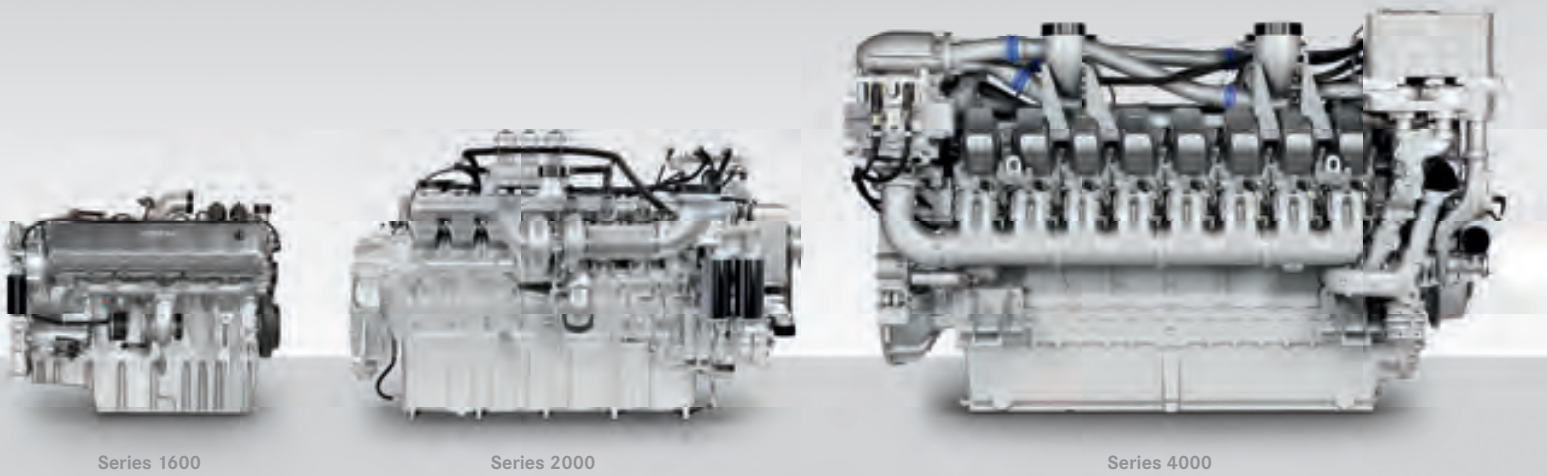
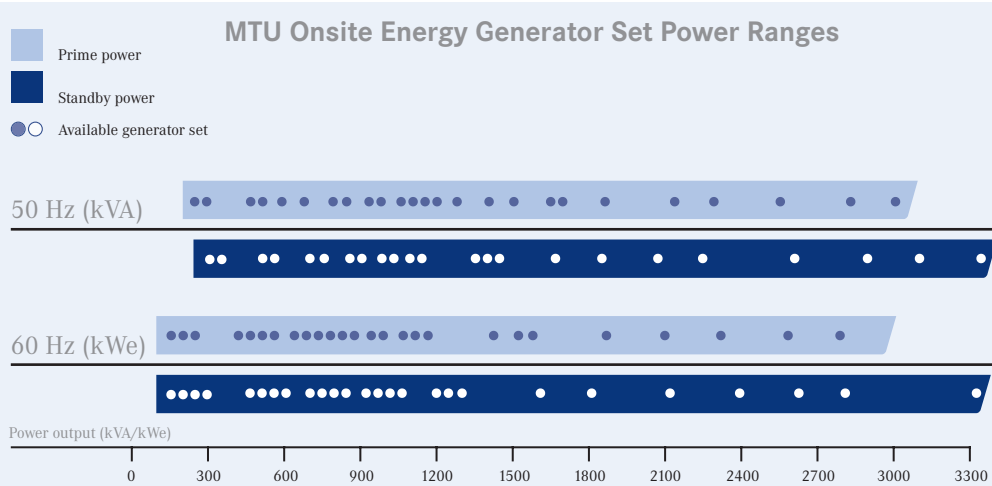
A STRONG, RELIABLE FOUNDATION.

MTU engines are the basis for reliable and economical MTU Onsite Energy power generation solutions. MTU Series 1600, Series 2000 and Series 4000 engines offer low fuel consumption and long service intervals, while meeting emission standards. Because of their rigid structure, MTU engines run smoothly and with a minimal amount of vibration. Their excellent vibration characteristics make them extremely versatile and ideal for use in sensitive environments as well as under extreme conditions.

For optimum performance, MTU engines are engineered for outstanding one-step load acceptance capacities. This means the unit can quickly supply the required power and, as a result, can be used for even the most demanding applications. A maintenance-friendly engine design minimizes downtime and guarantees the maximum availability. MTU engines have low fuel consumption and maintenance costs. This contributes to the low lifecycle cost of the generator set, making MTU Onsite Energy a smart financial choice.

WE’VE GOT YOU COVERED.

Our full lineup of MTU diesel engines enables us to cover a variety of power nodes and applications. Their versatility is put to work in MTU Onsite Energy generator sets. Offered across a wide power range for standby and prime power applications, they cover common industry rating points.



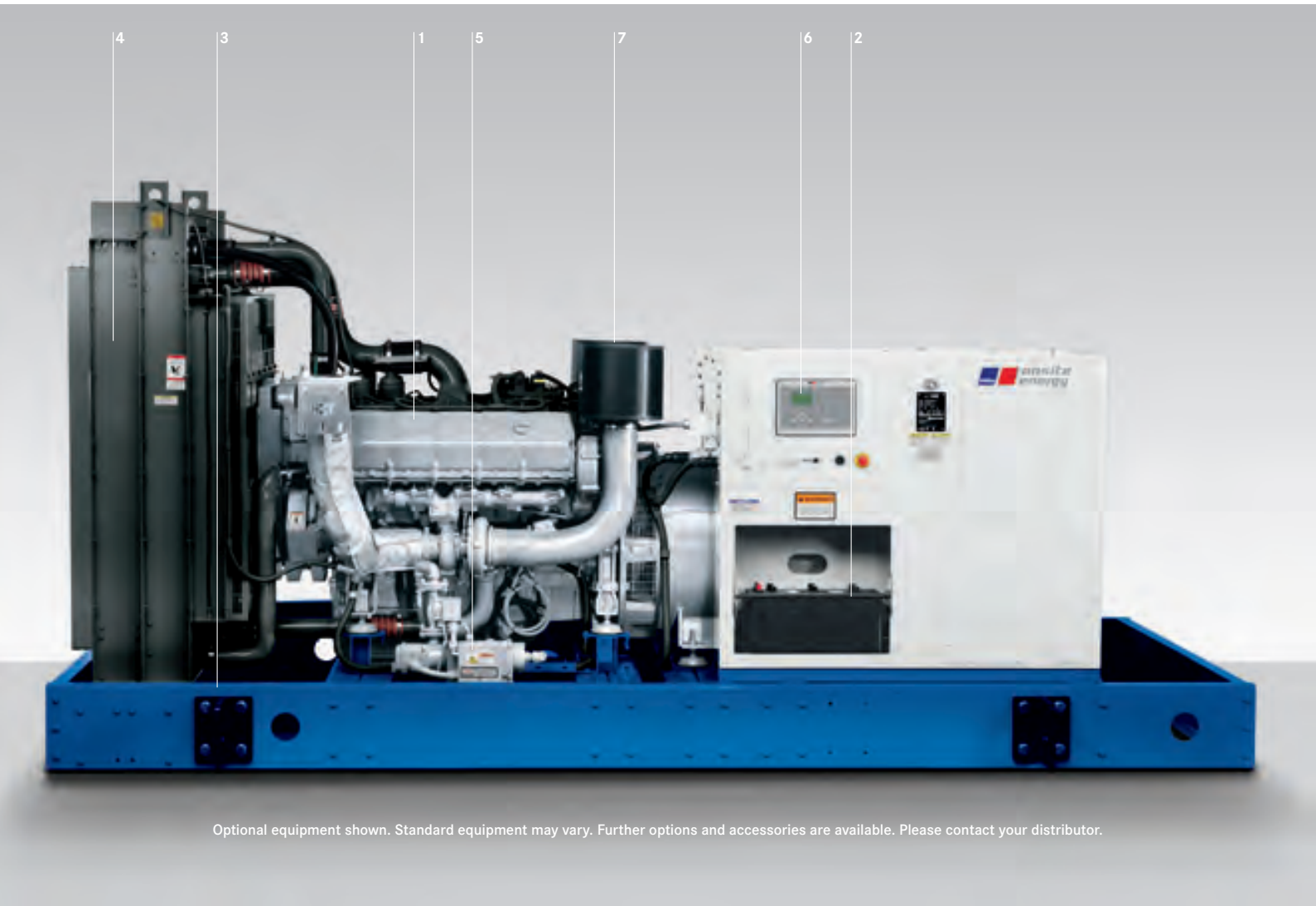
275-715 KVA* POWER RANGE GENERATOR SET OVERVIEW.

With power ranges of 275-715 kVA (250-600 kW), MTU Onsite Energy generator sets are powerful, clean and efficient. Powered by the new MTU Series 1600, an engine designed and built specifically for power generation, these generator sets provide the same reliability you have come to expect from MTU Onsite Energy. The unique outlet box design incorporates all electrical components, including the circuit breaker and control panels, in one streamlined package.

Consulting-Specifying Engineer magazine has named MTU Onsite Energy generator sets with 12V1600 engines the 2010 Product of the Year.



* 60 Hz 250-600 kW



1. Engine

// The new MTU Series 1600 engine delivers MTU power, technology and reliability to the lower power range.

2. Battery

// Excellent battery performance and long battery life (with optional battery charger control system). Automatic recharge by the engine-driven charging system and high tolerance for demanding environmental conditions.

3. Base frame

// Steel structure, resilient mounting elements for diesel engine and generator. Easy access to all major components. Flexible design prepared for accommodating further options.

4. Radiator

// Unit-mounted mechanically driven radiator for jacket water and charge-air cooling circuit (40°C/50°C).

5. Pre-heater

// Produces reduced electrical consumption on engine startup. Forced coolant circulation maintains uniform engine heat. Other benefits include extended hose life and reduced heat. Controls for automatic operation included.

6. Generator set controls

// Provides generator set control, metering, protection, fault alarm, event recording, system-auxiliary drive controls and programmable logic in a simple, easy-to-use, reliable, rugged and cost-effective package.

7. Standard air filters

// Single-stage engine air filters operate in light to medium dust conditions. Heavy-duty air filters available.

Enclosure (pictured below)

// Flexible design for weather protection and varying levels of sound attenuation.

Fuel system

// Optional fuel pre-filter with single or switchable water separator available.

Tank

// Providing fuel for 12, 24, 48 or 72 hours.

Circuit breaker

// Manual or electric transfer.

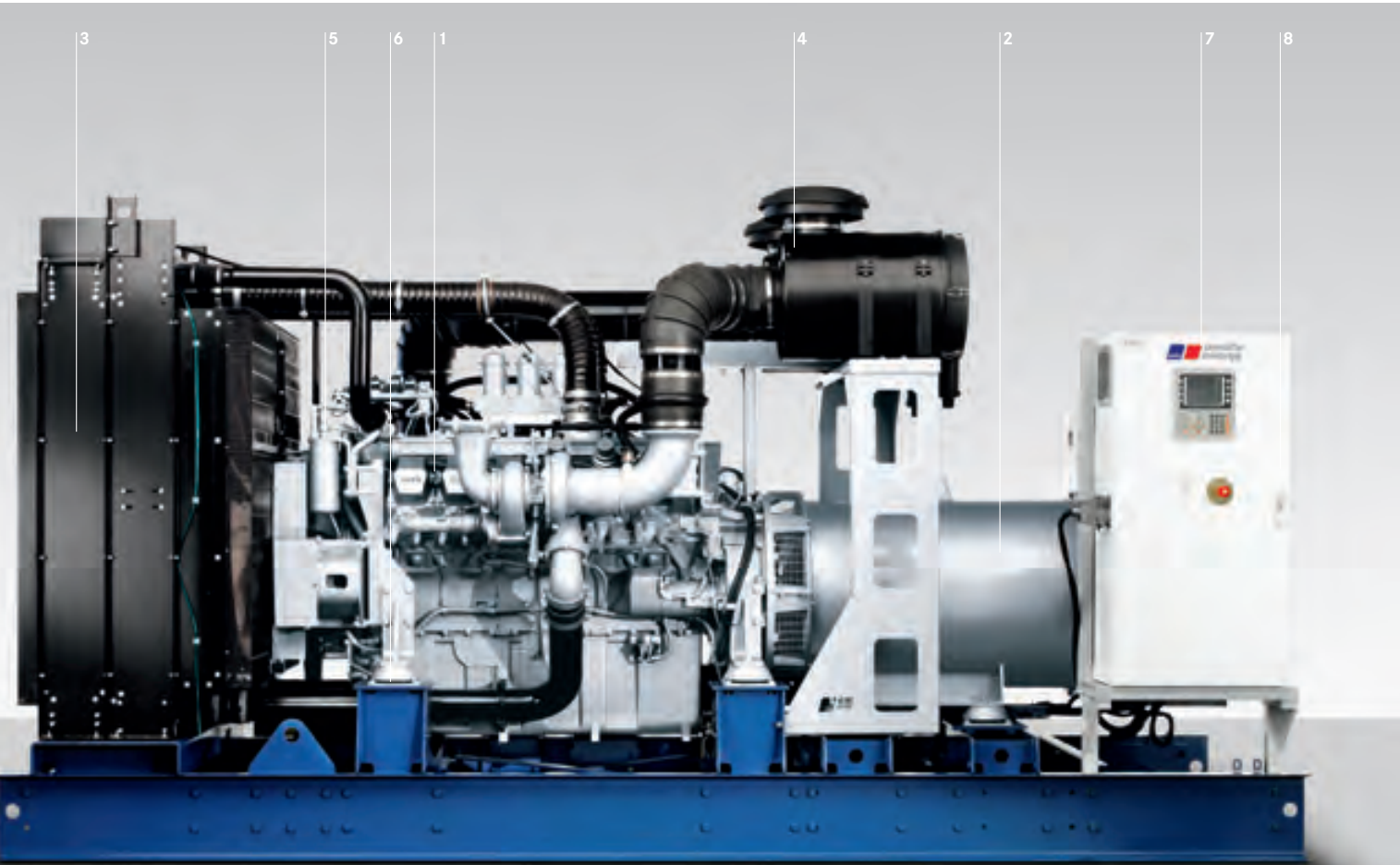


880-3310 KVA* POWER RANGE GENERATOR SET OVERVIEW.

With power ranges of 800-3,310 kVA (640-3,315 kWe), MTU Onsite Energy generator sets, powered by Series 2000 and Series 4000 engines, are designed for reliability and built to last. These generator sets offer industry-leading average load factors. MTU Onsite Energy standby diesel generator sets are certified at an 85 percent average load factor over 24 hours, significantly higher than the industry-standard 70 percent

average load factor required by ISO 8528. And like all MTU Onsite Energy generator sets, they're completely engineered from a single source and production-tested as integrated systems, ensuring reliable operation. Every detail and component is scrutinized for optimal performance.

* 60 Hz 640-3315 kWe



Optional equipment shown. Standard equipment may vary. Further options and accessories are available. Please contact your distributor.

1. Engine

// Series 2000 and Series 4000 engines offer low fuel consumption and long service intervals, while meeting emission standards.

2. Generator

// Equipped with digital voltage regulator, optional 6- or 12-lead, PMG excitation and IP23 trip cover. Star point brought out.

3. Radiator

// Unit-mounted radiator for jacket water and charge-air cooling circuit. Also available with remote radiator (40°C/50°C).

4. Heavy-duty air filter

// Two-stage engine air filter built for medium to heavy dust conditions. Proofed Radial Seal™ technology, compact design and vibration resistant. Also available with standard air filters.

5. Fuel system

// Electronically controlled high-pressure injection with single unit injection pumps (EVP).
// Fuel pre-filter optionally available with single or dual water separators.

6. Resilient engine & generator mounting

// Also available with rigid mounting.

7. Generator set controls

// Provides generator set control, metering, protection, fault-alarm status indication, event recording, system-auxiliary drive controls and programmable logic in a simple, easy-to-use, reliable, rugged and cost-effective package. Advanced controller shown.

8. Battery charger

// Features complete system status and diagnostics. Enabled or disabled automatic fast charging and automatic temperature compensation, or installation of optional remote temperature sensor. Float and boost voltage is electronically controlled with a fast charge program.

Pre-heater

// Produces reduced electrical consumption on engine startup. Forced coolant circulation maintains uniform engine heat. Other benefits include extended hose life and reduced heat. Controls for automatic operation also included.

Silencer

// 10/30/40 dB(A) including set of bellows with gaskets and companion flanges.

Automatic Transfer Switch (ATS)

// Continuous protection and monitoring 24 hours a day, seven days a week.
// Automatic test programs keep the generator set ready to start.

Circuit breaker

// Manual or electric transfer.

PERFORMANCE POWERED BY INTELLIGENCE.

MTU Onsite Energy generator set controllers are highly advanced and integrated. They hold up to almost any environment and remain flexible to meet your needs. The device provides generator set control, metering, protection, fault-alarm-status indication, event recording, system-auxiliary drive controls and programmable logic in a simple, easy-to-use,

reliable, rugged and cost-effective package. Communication with the engine governor ADEC/MDEC is performed via MCS5 CAN bus protocol.

Advanced functionality for parallel operation with the mains is provided by our in-house-developed controller.

Controller features

- // Multilingual capability
- // Battery backup for Real Time Clock (RTC)
- // Wide ambient temperature range
- // System monitoring
- // Engine metering and protection
- // Current sensing
- // System measurement, protection and supervision
- // Intuitive and powerful Microsoft® Windows® based control panel communication software
- // Timer, counters

Control options

Several control options are available in the following configurations.

1. Terminal box

- // Connections for external controller.

2. Single generator set without mains

- // Control variant for a single generator set in isolated operation mode.

3a. Single generator set with ATS (Automatic Transfer Switch)

- // Includes supervision of the mains and an emergency start option.

3b. Single generator set with electrical interlock circuit breakers

- // Single generator set operated with two electrically interlocked breakers, controlled by the generator set control unit.

4. Generator set in parallel island operation

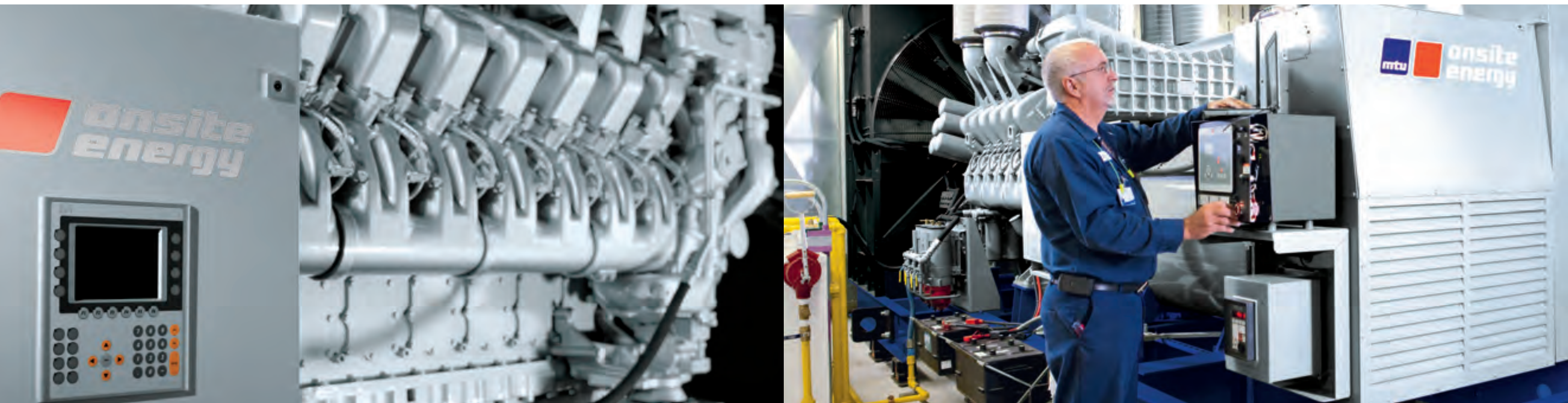
- // After the start signal is given, the generator sets (up to 15) start, synchronize and switch on automatically.

5. Single generator set in short parallel operation with the mains (if main power returns)

- // If mains voltage is available again, the generator set synchronizes after adjustable time or manual request.

6. Single generator set in permanent parallel operation with the mains

- // Emergency standby power operation – in case of main failure, the generator set will start automatically. If mains voltage is available again, the generator set synchronizes after adjustable time or manual request.
- // Parallel operation with the main supply – after the start signal is given, the generator set starts and synchronizes automatically to the mains.



GOING ABOVE AND BEYOND.

MTU_VALUECARE

Our commitment to quality extends well beyond the sale. **MTU_ValueCare** is a robust solution package that includes a global network of engineers, technicians and service staff—all experts who share a commitment to stand behind your MTU Onsite Energy generator set and support your critical power needs. The unparalleled **MTU_ValueCare** portfolio of value-enhancing service and product offerings can be individually tailored to your specifications.

Under **MTU_ValueCare**, we offer three main product lines:

- // **MTU_ValueService** – Service solutions
- // **MTU_ValueSpares** – Parts and maintenance products
- // **MTU_ValueExchange** – Remanufactured products

Our global network of service locations means that you are never far from an authorized distributor or dealer who has a knowledgeable sales staff and certified technicians who can fulfill all your power needs.





AN UNPARALLELED SUPPORT SYSTEM. MTU_VALUESERVICE

MTU_ValueService offers extensive service solutions from the global MTU Onsite Energy service network, including maintenance, training, warranty, technical documentation and remote diagnostic solutions.

MTU_ValueService provides professional maintenance, extended coverage and repair solutions according to your needs.

MTU Extended Coverage provides peace of mind after the expiration of the standard warranty, covering engine and on-engine electronics. Benefits include repairs conducted by MTU Onsite Energy experts, financial security against unexpected repairs and transferability upon sale of the equipment.

With MTU Annual Check, MTU experts conduct a thorough examination of your engines and evaluate the effectiveness of your maintenance program. MTU Annual Check also highlights any additional maintenance or repair work that may be required. Contract periods are flexible.

Training is critical to the efficient operation of any business. Our training gives service personnel the opportunity to become proficient in MTU Onsite Energy engines and generator sets. We conduct courses at our MTU Onsite Energy Training Centers, or we can customize courses and train at your facility.

MTU_ValueService also offers complete technical system documentation. Operation and maintenance manuals, maintenance schedules and quick reference guides provide the technical information you need.

Monitoring the system from any location with remote services has many advantages. MTU remote diagnostics solutions provide a monitoring service from any location, offering visibility to your MTU Onsite Energy generator set, saving you travel costs and time.



EVERYTHING YOU NEED FOR THE LONG RUN.



MTU_ValueSpares

To ensure the continued peak performance of your MTU Onsite Energy generator sets, **MTU_ValueSpares** offers genuine parts and maintenance products. They are designed, tested and approved specifically for MTU Onsite Energy products and include the latest engineering updates. Spare parts programs can also be designed to meet your unique needs. Additionally, we offer a full line of maintenance products to protect your investment and provide peace of mind. We offer a full line of lubricants, coolants and filters that are specifically engineered for maximum performance and low cost of operation for MTU Onsite Energy generator sets.

MTU_ValueExchange

MTU Onsite Energy provides remanufactured parts, engines and systems to help you continue to enjoy robust, reliable performance from your generator sets at tremendous savings. In the **MTU_ValueExchange** process, used products and assemblies are fully disassembled, cleaned and inspected, then reassembled with all genuine, new wear parts from MTU Onsite Energy. Since our products have the appearance, performance and life expectancy of new goods, they meet the same performance requirements and enjoy warranties similar or identical to equivalent new goods. Because our **MTU_ValueExchange** products incorporate the latest updates in materials and design, they can be better than the products they replace.



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