

Series 2000 and 4000 Diesel Engines for Stationary Power Generation

FACT Sheet



Minimal assembly and engineering work

- > Comprehensive range of accessories (e.g. air filters, exhaust compensators, engine and generator mountings, etc.)
- > Optimized interface configuration
- > Bespoke system and installation planning

- > Low vibration properties
- > Automatic engine protection if ambient conditions change (ESCM – Engine Site Condition Management System)
- > Outstanding load response characteristics
- > High stability of speed and frequency

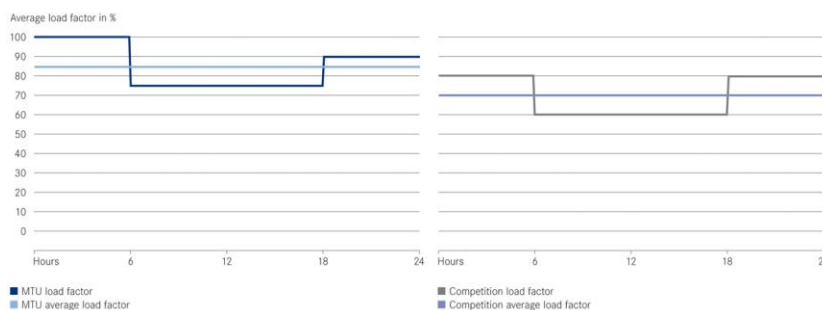
- > Leaders in national and international emissions standards compliance
- > Low fuel and lubricant consumption
- > Low noise and vibration output
- > Finished in ecologically safe paints

MTU Malcopower Onsite Energy offers many advantages for critical applications

MTU Malcopower Onsite Energy offers highly reliable products and provides a unique approach to maximize customer satisfaction. To the benefit of risk-averse data-center designers, MTU Malcopower Onsite Energy takes a very conservative approach to designing and rating its generator sets. For example, MTU generator-drive engines are designed with more cylinder displacement per rated horsepower than alternative products. As a result, MTU Malcopower Onsite Energy generator sets are certified at an 85 percent average load factor over 24 hours, significantly higher than the 70 percent average load factor required by ISO 8528. Other generator set manufacturers merely meet the ISO load-factor minimum, which means that the average load factor that can be sustained by most generator sets over an extended power outage is only 70 percent of the nameplate rating. Since MTU Malcopower Onsite Energy gensets can handle 15 percent higher average loads than competing products, users may be able to specify fewer generator sets for data-center applications, depending on the size of the installation.

For instance, a 2,000 kW generator set operated at 70 percent load factor can only supply an average 1,400 kW over 24 hours, while an MTU Malcopower Onsite Energy 2,000 kW generator set rated at 85 percent load factor can supply 1,700 kW. In larger installations, this means that nine MTU Malcopower Onsite Energy generator sets operating at 85 percent load factor would be equivalent to 10 standard generator sets operating at 70 percent load factor. (See Figure 1.)

MTU LOAD-FACTOR ADVANTAGE



The MTU displacement advantage also results in lower engine stress, reducing maintenance and lengthening engine life. With more reserve capacity than competing products, MTU engines offer good transient performance as well, stabilizing sooner after loads are applied or removed.

Another feature that gives MTU Malcopower Onsite Energy gensets a competitive edge is MTU's advanced common rail fuel injection, which helps engines with 3,000 hp or higher output meet the U.S. Environmental Protection Agency's Tier 2 emissions requirements.

An important customer service difference between MTU Malcopower Onsite Energy and its competitors concerns the role of distributors. For critical installations like data centers, competitors rely on their distributors to make modifications to the generator sets in the field. The results vary, depending on the capabilities of the distributor. By contrast, MTU Malcopower Onsite Energy's data-center packages are supplied directly by the factory. These packages also include factory warranties and support, so customers have to deal with only a single source.

MTU Malcopower Onsite Energy also takes a different approach to the factory acceptance test (FAT), when the vendor demonstrates to the customer that system design and manufacturing meet project requirements. Most specifications call for such a test, but only MTU offers it in a factory setting.

Online economy depends on standby generators

E-commerce and corporate data centers assess their power/downtime risks differently, and this can affect the design of the standby power system required. MTU Malcopower Onsite Energy shares examples of how four major online companies are using the manufacturer's emergency standby generator sets to assure business continuation.

That's why one of the major goals of any online business is continuous uptime. To cope with costly power failures or even brief nuisance outages, these businesses equip themselves with layers of backup power systems that include emergency standby generator sets from MTU Malcopower Onsite Energy. In fact, six of the online

economy's top 10 companies rely on MTU Malcopower Onsite Energy standby generator sets to keep power flowing to their critical facilities.

Major firms rely on generator sets from MTU Malcopower

The biggest names in e-commerce have chosen MTU Malcopower Onsite Energy emergency standby generator sets for several important reasons. These include:

- Generator sets that offer high reliability, rapid response to changes in load, superior fuel economy and low emissions.
- Critical-power generator set packages that are configured, tested and certified at the factory.
- A sales team that listens, pays attention to detail and delivers solutions that meet or exceed specifications — on time and on budget.

Conclusion

- Many of the businesses that form the backbone of today's e-commerce rely on MTU Malcopower Onsite Energy to provide standby power, power that keeps these companies online all the time to meet customers' needs and expectations. By helping to ensure that critical data centers stay up and running, MTU Malcopower Onsite Energy is playing a vital role in maintaining the burgeoning online economy.