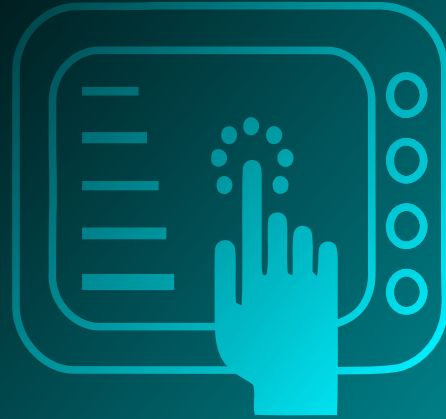
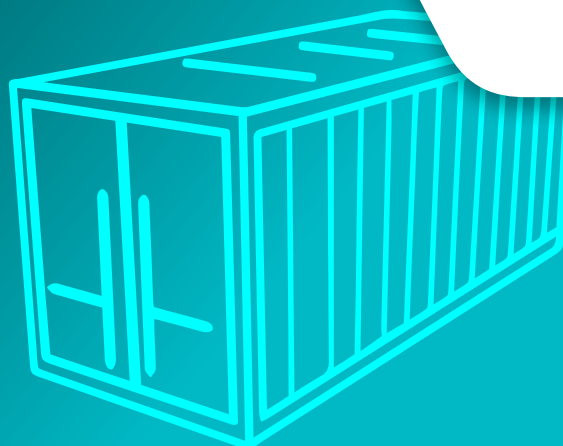




**TAILOR-MADE
Power Solutions**

OPTIONS



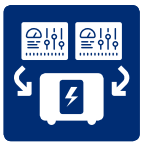
Different options for different needs...

OPTIONS SUPPORTING TAILOR-MADE POWER SOLUTIONS



ELECTRONIC GOVERNOR

Considered as one of the most important parts of a generator set, the engine is the part that supplies mechanical energy to the generator set. Data Center generator sets require an electronic speed regulator in order to reach the desired frequency conditions rapidly when they are required to start. When the proper frequency value is reached, the frequency shall not exceed the nominal values as the generator set is operated thanks to the fast responses given by the electronic governor, and sensitive data center loads may be supplied without any problem with the fixed frequency regulation provided.



REDUNDANT CONTROL SYSTEM

When a malfunction occurs in the generator set control system, the backup control system is activated and the malfunction is intervened rapidly. We may offer the switching from the failed main control system to the backup control system as two options. The first is switching by the operator in case of a malfunction, and the second is to make an uninterrupted switch to the backup control system (hot-standby) without any interruption by the current malfunction when there is a malfunction in the main control system.



DOUBLE AVR

With the double AVR card solution, it is possible to switch from a faulty AVR card to its backup. If, for any reason, the actual voltage regulator cannot continue to function normally, you may switch to the backup voltage regulator to ensure service continuity for your data center.



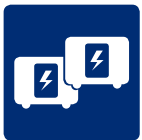
PMG

Generator output voltage regulation for sensitive data center loads may be achieved with the PMG solution. PMG provides an independent supply for the alternator excitation system. We recommend the use of PMG for special applications such as supplying unstable and distorting loads.



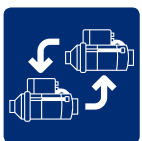
PLC AND HMI

It allows the control of equipment such as generator set auxiliary equipment, fuel system, automatic shutters and fire detection systems, and inspection and observation from a single point with the Human-Machine Interface (HMI).



SYNCHRONIZATION SYSTEMS

Synchronization of more than one generator set with each other and/or with the network is ensured by the synchronization systems. With the synchronization systems, service continuity of data centers may be ensured with a redundant generator set. Let us assume there are 2 main and 1 backup generator sets installed in the data center. After a power failure, 2 main generator sets operate and supply power to the data center synchronously. When one of these 2 main generator sets, which are operational, fails, the backup generator set operates and supplies the load synchronously with the main generator set, and the service continuity of the data center is ensured. With synchronous systems, you may achieve savings in operating expenses, ensure efficient use of generator sets, flexibility, reliability, redundancy and convenience in service and maintenance.



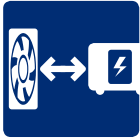
BACKUP STARTER SYSTEM

We can offer flexible solutions such as backup electric starters, backup pneumatic starter systems and backup hydraulic starter systems according to the requirements of the data center. In case of a malfunction in the standard electric starter system used in the generator set, the backup starter system may be activated and the generator set can be started.

In addition to the backup electric starter system, we may also offer a solution for a backup starter battery system. With all these backup starter systems and battery systems, the problem of failing to supply power to the data center as a result of starting error of the generator set after a power failure is avoided.

While we use fully maintenance-free lead acid starter batteries as standard in our battery systems, we may also offer different types of batteries such as Ni-Cd, AGM, Gel etc.

We offer solutions to switch from the main starter and battery systems to the backup starter and battery systems either manually or automatically.



REMOTE RADIATOR

If generator sets shall be placed in ground floors or in underground rooms, they shall likely have limited ventilation. In such cases, with the remote radiator solutions we offer, we may prevent problems caused by limited ventilation by positioning the radiator of the generator set on the ground level or on the roof (away from the generator set).



HEATING AND COOLING SYSTEMS

The conditions of the site where the generator set shall be located are very important in terms of generator set performance. We guarantee the performance of the generator set by offering radiator solutions suitable for hot environments.

Problems in starting the generator set may be encountered in cold environments, if suitable heaters are not used. In order to prevent this problem, we guarantee the performance of the generator set by using crankcases, filters, batteries, switchboards, fuel tanks and ambient heaters.



ACOUSTIC SOLUTIONS

We may offer acoustic solutions to provide the sound levels required by our customers either for in-room or in-canopy generator sets. We provide the desired sound level with our solutions such as sound cartridges both for air intake and exhaust, remote radiator solutions, in-room acoustic insulation and special exhaust silencers, etc. In order to provide sound level, we perform analyses with our engineering software and thus we can reliably determine which insulation materials and which equipment shall be used.



PAINT SOLUTIONS

We may paint our generator sets, canopy and panels in the desired color according to the requirements of our customers. With marine type paints (ISO 12944) suitable for humid and salty (seaside) environments, we ensure that the paint of the generator sets and equipment is not affected by the ambient conditions.



FIRE DETECTION AND EXTINGUISHING SYSTEM

We offer fire detection and extinguishing system solutions in our generator sets with canopy and containers. The fire detection system detects the fire that may occur, stops the generator set if it is running, closes the automatic shutter air intake/exhaust sections of the canopy and container, and discharges the fire extinguishing gas into the canopy and container, and thus prevents the fire. By offering fire detection and extinguishing products with complete system approval, we guarantee that our solution shall work and extinguish the fire in case of any fire. System approval includes installation and testing of all equipment used in the fire detection and extinguishing system by the company that have manufactured these equipment. It can be considered as the performance of type testing of the relevant system.



AUTOMATIC SHUTTER

The automatic shutter allows the generator set to be protected from cold and adverse ambient conditions when the generator set is not operating. It is used in shutter systems that are installed in the air intake and exhaust openings. Automatic shutters are also used in fire detection and extinguishing systems.



CANOPY AND CONTAINER

It is used for meeting requirements such as protecting the generator set from ambient conditions, achieving the noise level required and preventing unauthorized access to the generator set when it is not possible to build a building or room inside the building for generator sets that shall supply power to the facility. In such cases, we may offer custom designed canopy/container solutions along with our standard canopy and container solutions in line with the requests and requirements of the customers.



FUEL SYSTEMS

With all our generator sets, we provide a cubic type fuel tank inside the chassis or as independent from the generator set, depending on the power of the generator set. We may manufacture the daily fuel tanks we provide, either in high capacity, with double walls, with bunded tank and or as made of stainless material, in line with customer requirements and requests.

In addition to the daily fuel tank of the generator set, we may also offer solutions with a main fuel tank and fuel filling systems. We may provide main fuel tanks either above ground or underground, with single or double walls, with a fuel leak detection system, with an automatic fuel filling system from the main fuel tank to the daily fuel tank, and with a fuel polishing system for cleaning the fuel in the fuel tank. We also offer all these systems that we provide as redundant systems so that we may ensure the continuity of service of Data Centers by switching to backup equipment in case of any equipment failure.



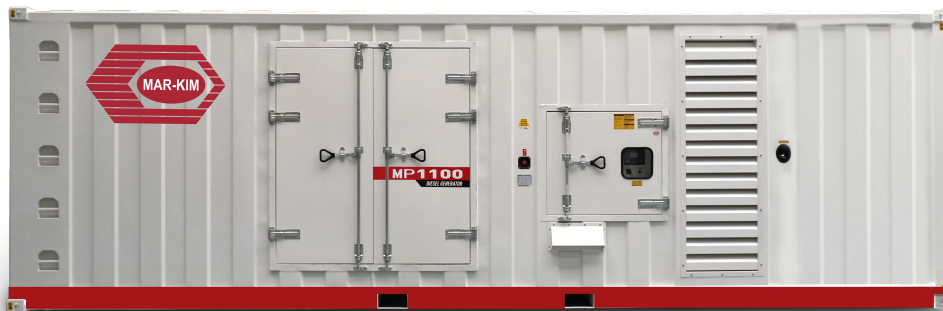
SPECIAL ALTERNATOR SOLUTIONS

By selecting alternators against unbalanced loads caused by IT equipment and UPS equipments in data centers, we may prevent alternator failures caused by the loads. We may also guarantee the service continuity of the data centers by selecting the proper alternator depending on the capacitive reactive characteristics of the data center loads.

We may use class F and B alternators in terms of temperature rise in line with customer request and requirements.

Although it is not much common in data centers, we may also provide solutions at medium voltage level for output voltages of the generator sets.

**TAILOR-
MADE
POWER
SOLUTIONS**



50 Hz TAILOR-MADE Product Range



3 Phase - 400 V

GENSET MODEL	Emergency Stand-by Power (ESP) kVA	Data Center Power (DCP) kVA	ENGINE MODEL	ALTERNATOR MODEL
MP 600	600	550	2806A-E18TAG1A	M 47.2 M8
MP660	660	600	2806A-E18TAG1A	M 47.2 L9
MP675	675	614	2806A-E18TAG1A	M 49.3 S4
MP715	715	660	2806A-E18TAG2	M 49.3 S4
MP810	810	730	2806A-E18TTAG5	M 49.3 M6
MP848	848	770	2806A-E18TTAG5	M 49.3 M8
MP810	810	730	4006-23TAG2A	M 49.3 M6
MP894	894	800	4006-23TAG3A	M 49.3 M8
MP1017	1017	910	4008TAG1A	M 49.3 L9
MP1130	1130	1000	4008TAG2A	M 49.3 L10
MP1250	1250	1112	4008-30TAG3	M 50.2M6
MP1375	1375	1250	4012-46TWG2A	M 50.2M6
MP1485	1485	1350	4012-46TWG3A	M50.2L7
MP1516	1516	1382	4012-46TWG3A	M50.2L8
MP1650	1650	1500	4012-46TAG2A	M50.2L8
MP1800	1800	1640	4012-46TAG3A	M50.2VL10
MP1902	1902	1733	4012-46TAG3A	M52.3S5
MP2018	2018	1860	4016-61TRG1	M52.3S5
MP2200	2200	2000	4016-61TRG2	M52.3S6
MP2273	2273	2024	4016-61TRG2	M52.3S7
MP2502	2502	2256	4016-61TRG3	M52.3L9
MP2792	2792	2530	S16R2 PTAW2-E	M52.3UL16

DIFFERENCES OF THE GENERATOR SET DESIGNED FOR TAILOR-MADE *

- 1 Engine Electronic Governor
- 2 Redundant Control System
- 3 Dual AVR Card
- 4 PMG
- 5 Class F Alternator
- 6 Redundant Electric Starter
- 7 Redundant Battery Group
- 8 AGM Battery
- 9 Heater for Cold Enviroments
- 10 Tropical Radiator



*Related differences are optional, please contact us for detailed information.

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COMPANY***



+255 0677 062 017
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