TECHNICAL INFORMATION REQUEST

1. **Detailed Technical Specifications:**
   a. What are the full technical specifications of each available model (from MXB 50 HGEN to MXB 5000 HGEN)?
   What are the rated output capacities in kW and kVA?
   The answer to your question is provided in the attachment.

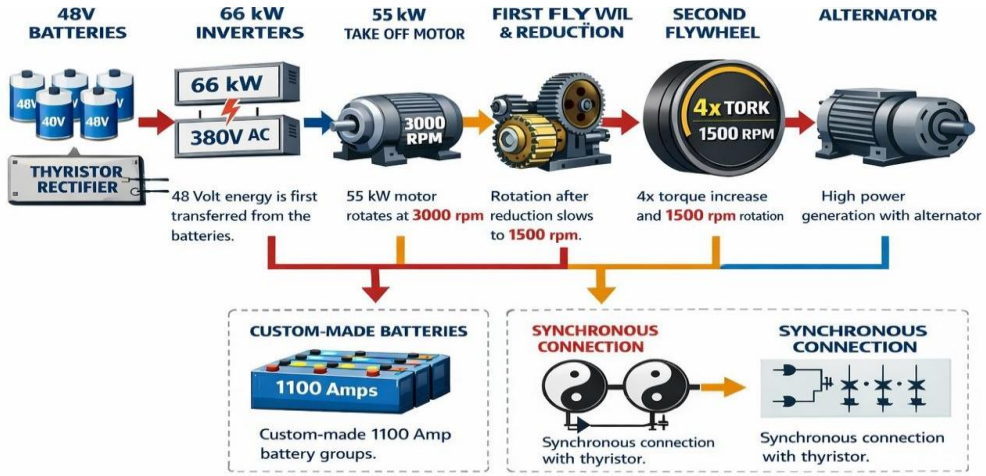
   b. What are the continuous, prime and standby power ratings?
   The device supplies 380 V continuously. When it is switched off, the energy output is zero.

   c. What are the output voltage, frequency and phase configurations?
   Our devices can be manufactured as 380 V three-phase, 50 Hz or 60 Hz.

   d. What are the power factor and the overall energy conversion efficiency?
   It is 99.9%.

2. **Energy Source and Operating Mechanism:**
   a. How does the fuel-free hybrid generator produce electricity?

   The system first takes 48 V energy from the batteries and transfers it to 66 kW parallel-transfer inverters, which convert it to 380/400 V power and feed it to a 3000 rpm, 55 kW starter motor. As the electrically started motor begins to rotate, the rotational power it delivers through the shaft is transferred to the flywheel between the motor and the reduction gear, creating torque and storing energy.
   With the help of the reduction gear, this energy and torque reduce the 3000 rpm input to 1500 rpm and transfer it to the second, larger flywheel after the reduction gear, transmitting the energy linearly and increasing the torque fourfold. With the high torque produced and the resulting 1500 rpm, the alternator starts generating and delivers xxx kW of power. The aim is to obtain high kilowatt output from low power and high-speed torque, and to keep it sustainable.



   After production, each machine undergoes a one-week test. Once tested and installed at the desired location, the device carries a 5-year warranty.
   The batteries are not off-the-shelf products; they are custom-manufactured in the required sizes based on the values we specify. For a 1 MW generator, they consist of approximately two groups with a total of 1100 A. In addition, a thyristor rectifier connection is installed in synchronisation with the batteries. The purpose of this connection is to extend battery life and reduce the energy load on the starter motor.

   b. What specific technology and energy sources does the system use?
   Our system uses Advanced Flywheel technology. As described above, it converts mechanical energy into electrical energy by means of an alternator.

   c. Does the device require a power input, a battery storage system or an external energy source for start-up?

It takes its start-up power from the battery pack built into the device. It does not need an external energy source.

d. Can it operate continuously and independently without any external energy support? What are its operational limitations and expected service life?
Yes, it operates fully independently without any external energy support. The mechanical components of our devices sit in a special oil reservoir that keeps heat generation from friction under control and reduces wear; this special oil has a service life of 17,500 hours. This means the device must be stopped and its oil changed every 17,500 hours. An oil change takes 2–3 hours, and the bearings are also replaced during this work if necessary. After this periodic maintenance, the device is restarted by pressing the start button and can run without interruption until the next maintenance interval. With regular maintenance, the operational life of the device is around 30–40 years. We provide a five-year warranty and a ten-year spare parts supply guarantee for every device.

3. Performance and Operational Requirements:

a. What are the maximum and minimum operating loads?
The maximum operating load equals the model rating. For example, a 5 MW device can deliver a maximum output of 5 MW.

b. How does the device respond to variable electrical loads?

c. What are the operating temperature and environmental requirements?
Inside the device, the cooling oil temperature is kept at 20–22 °C.
The oil used is selected according to the climate in which the device will operate.

d. What is the noise level during operation?
Depending on capacity, the noise level of our devices ranges from 45 to 75 dB.

e. What are the maintenance requirements and recommended service intervals?
Oil and bearing replacement is required every 17,500 hours. The first maintenance service is provided by us free of charge.
Depending on the device capacity, the maintenance cost is approximately EUR 3,000–4,000 and takes about 2–3 hours.

f. What is the expected service life of the main components?
Our devices come with a five-year warranty. With regular maintenance, a service life of 30–40 years is expected. We provide a 10-year spare parts supply guarantee for our devices.

4. Electrical Compatibility and Safety:

a. Which voltage, frequency and phase configurations are supported?
230 V single-phase – 380 V three-phase

b. Does the system support 230 V/400 V and 50 Hz electrical standards?
Yes, we can manufacture for 50 Hz or 60 Hz.

c. What electrical protection and safety systems are available?
Operating safety is ensured by continuous monitoring of the device with computer- and AI-supported software.

d. Is it protected against overload, short circuit and overheating?
Yes

e. Can it be integrated with existing generators, solar energy systems or national power grids?
Yes