

*Security and independence
for important objects*



Autonomous Mobile Energy-Container

AME – Autonomous Mobile Energy-Container with EMS

Basics and concept

The autonomous-energy-control room was originally developed in 2008 to ensure energy supply with electricity and heat for important objects. The idea was to avoid supply from public network and the back-up with emergency power generators but to realize a self-sufficient power supply by using a power- heat cogeneration combined with a battery storage. The simultaneously produced heat can be widely used for heating of the building, of the drinking water and a swimming pool, as well as for process heat, and for air-conditioning and cooling with e.g. adsorption refrigeration plants. Surplus electrical energy can optionally be stored or fed back into public network. The decision depends on the economic and the actual consumption- and demand- history within the network.



In 2011 the order to create a highly available small power generation for self-sufficient use on gas pipelines of the Russian Gazprom, in inaccessible areas without power supply, was the basis for the development of the container concept. As part of this development the EMS Energy-Management-System, which is the heart of the system, was created as well. It takes over control, regulation and monitoring of the production, storage and consumption of the energy. It allows to vary the energy sources and its power according to the application.

Advantages and benefits

Advantages and benefits of the energy container with EMS is the independence from external suppliers (e.g. during a power failure caused by natural forces, and similar) as well as the economic and ecological use of available resources. If this all is perfectly matched, there will be an optimum utilization of available energy sources to cover your needs for electricity, heat and cold.



Power spectrum (container solution)

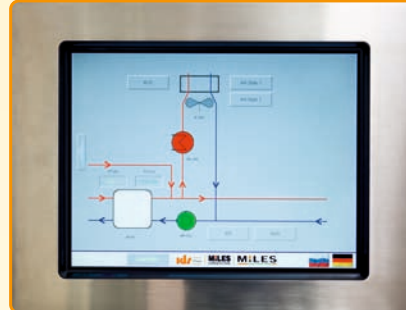
Electric	5,2 kW _{el} to 63 kW _{el}
Thermal	12,5 kW _{th} to 150 kW _{th} (power increase possible)
Operating mode	Self-sufficient or mains parallel
Source of energy	Natural gas / liquid gas / biogas
Battery capacity	Practically unlimited
Tension	400 VAC

Variants

- Involvement of solar power
- Involvement of solar heat
- Involvement of adsorption refrigerating plants for hot-cold-coupling



EMS - Energy Management System



Technical specifications of the basic model

Container size	20 foot container (6058 x 2438 x 2820 mm)
Energy producers	Natural gas CHP (dt. BHKW) with 5.5 kW _{el} / 12,5 kW _{th} maintenance interval: 3500 operating hours
Fuel	Natural gas at a pressure of 20 mbar to 100 bar At pressures above 50 mbar a separate gas reduced station must be integrated.
Electrical power output	1,2 to 1,5 kW _{el} with a targeted service interval of 12 months 5,2 kW _{el} on a service interval of about 3.500 h approximately 10 kW _{el} briefly (up to max. 30 min and in dependence upon the battery capacity)
Tension	400 VAC
Battery pack	24 x 8 OPzV SOLAR.POWER 1000 - 1085 Ah at 48 VDC
Thermal power	23,5 kW (with an additional peak load boiler)
System control	EMS (Energy-Management-System)
Operating modes	Stand-alone operation Stand-alone operation with mains-backup Mains operation with stand-alone-backup
Connection to the public power supply network	Depending on the operating mode – separable Recovery can be allowed but also inhibited (mains operation with stand-alone-backup)

Applications

- Self-supply of sensitive objects, e.g. hospitals, small data centers and similar, by the combination of power generation, also cold and USV-function
- Replacement of diesel-powered emergency generators by CHP units (dt. BHKW) powered by natural gas or liquid gas
- Remote points of consumption like mountain top stations, homesteads, mountain lodges and similar
- Energy security (electricity and heat) for luxury real estate
- Centrally controlled swarm operation for covering peak loads in small and medium supply areas





Autonomous mobile energy container for:

- Hospitals
- Business enterprises
- Department stores
- Hotel facilities
- Leisure centres
- Industrial plants
- Restaurants
- Swimming pools
- Universities
- Schools ...

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... always electricity and heat.