

Turbo Generator MTG550

RMG REGEL+MESSTECHNIK GmbH, Germany

Active Magnetic Bearing Applications



«The digitally controlled
Active Magnetic Bearing from
Mecos is the key element
in our new natural gas
turbogenerator.»

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Application

Recovering energy from natural gas expansion at the nodes between a high pressure gas pipeline and a low pressure consumer network has become increasingly important.

This energy recovery and the subsequent electrical power generation can be performed with an overall efficiency of more than 80%, whereas the common expansion process with conventional throttle valves transforms all gas pressure energy into heat loss.

The customer was convinced of the high profitability of recovering energy from natural gas expansion.

Solution

The magnetic bearings are located in the process gas, enabling a fully encapsulated machine with no danger of explosive gas leakage through seals.

The magnetic bearings do not need any lubrication and contamination of the natural gas is impossible. The result is a compact machine with higher power density, thanks to the increase in rotational speed.

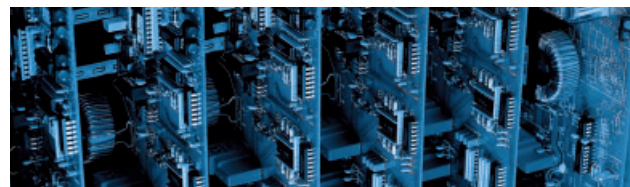
Implementation

The suspension system for the MTG550 turbo generator features full five-axis magnetic bearings. The digital control system allows remote modem access. Machine operation can thus be monitored from any location and at any time.

The magnetic bearings are equipped with an unbalance force rejection control system (UFRC) to eliminate all rotation-synchronous vibration forces. This drastically reduces machine noise.

The first machines have been in operation since 1994 and have proven the high reliability of magnetic bearings.

Generator power: 550 kW
 Rotation speed: 32 000 rpm
 Rotor mass: 112 kg
 Rotor length: 1100 mm
 Bearing diameter: 110 mm



Our industrially proven magnetic bearings are the result of extensive technical research, opening up possibilities of application unknown with traditional bearings. Mecos offers you viable and flexible solutions – whatever your market needs may be.

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