

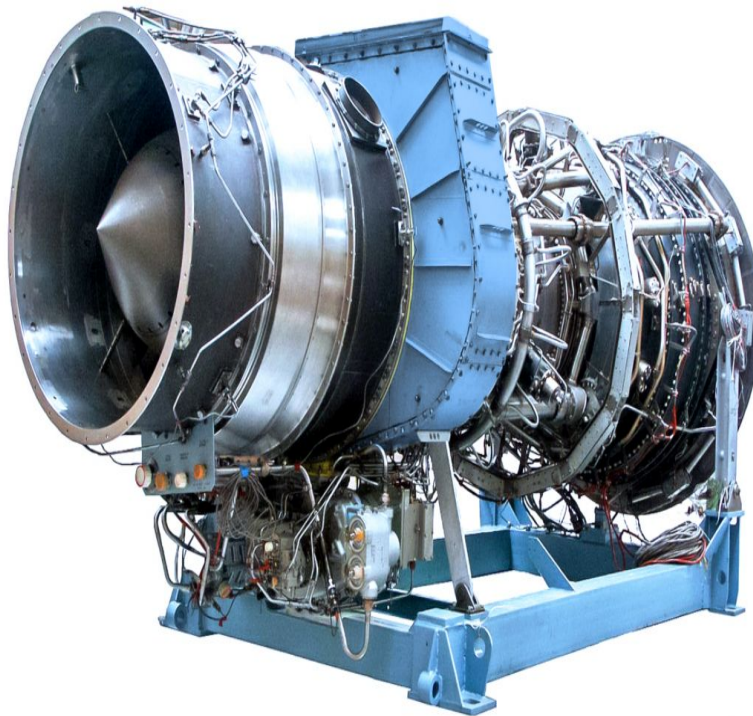
What are gas turbine power plants

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Gas turbine power plant (abbreviated as GTPP) is a plant generating electricity and heat energy. Gas turbine power plants are based on one or several gas turbine units - power units mechanically connected with the electric generator and united by a control system into a single power complex.

A gas turbine power plant can be used as the main or backup power source in parallel with the power system. The gas turbine power plant can be located both indoors and outdoors on a pre-prepared foundation.

In the world practice gas turbine power plants were widely spread in the 50s-60s of the last century, nowadays they are used less frequently because they have low efficiency (33-39%) and relatively high cost per kW of power compared, for example, with [gas-piston power plants](#).



External view of the gas turbine unit

- **Stationary** - mounted on a capital foundation. The most powerful turbines and electric generators are installed on them.
- **Mobile (mobile)** - is a mobile equipment. As a rule, they are used to provide heat and electricity to remote objects, for example, mining and oil-producing settlements. They operate not only on gas, but also on liquid fuel.
- **Mini units** - are characterized by compact dimensions, which allows such a station to be located in close proximity to the consumer
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Stationary gas-tube power plant



Mobile gas turbine power plant

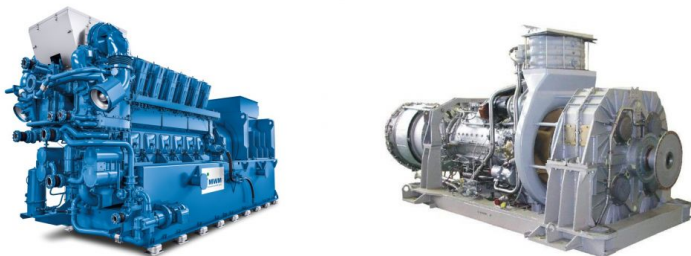
Comparison of gas turbine and gas piston power plants

Parameter	gas piston plant	Gas turbine plant
Cost per kW of power	\$400-600	\$1000-1400

Economy of total heat and electricity, efficiency with cogeneration	High (up to 85%)	High (up to 85%)
Economy per KW, KPI for electricity	High 40-47%	Low 17-36%
Cost of service	Normal	Normal
Quick startup	Normal	Normal
Operating time before overhaul	60-80 thousand hours	30-60 thousand hours
Gas requirements	possible household pressure, less than 10 mbar	average pressure of about 16-20 bar
Environmental friendliness	High	High
Noisiness	Low - when an additional muffler is installed	Low

Gas turbine equipment should be chosen when there is limited space available for its location. Gas turbine power plant is suitable for small enterprises and commercial facilities that do not require large power consumption capacity and every square meter counts. If it is possible to allocate the area for equipment installation, it is more reasonable to choose a gas piston power plant (GPPP), as it has a lower cost, and the resource of GPU is considered to be slightly longer than that of GTU.

A gas turbine plant is more expensive than a gas piston plant. The high cost of equipment and limited choice is explained by a smaller number of GTU manufacturers, separate parts and spare parts are not cheap by themselves, due to which the cost of the plant as a whole increases.



Appearance of MWM GPU and GTU

Gas piston units require more frequent maintenance. It is necessary to change oil and filters. However, this can be compensated for by installing additional systems on the equipment, which will perform oil refilling and cleaning. In this case, the period of time between service works increases. On average, it can be about 3000 hours, i.e. service is performed once a quarter. In general, the resource of GPU is considered to be slightly longer than that of GTU.

In general, [gas-piston plants](#) are attractive because they pay for themselves faster, no matter what the capacity of the power plant.

MKS Group is a leading engineering company in Russia, the main activity of which is the construction of small-scale power generation facilities - turnkey gas piston power plants. For 15 years it has commissioned 53 mini-HPPs in different regions of Russia and abroad. The total capacity of all commissioned facilities of MKS Group amounted to 244 MW. MKS Group is the official Russian dealer and service partner of MWM Austria GmbH.