Frame 5/2E gas turbine (33.8 MW, 50/60 Hz)

Heavy-duty power with aero efficiency

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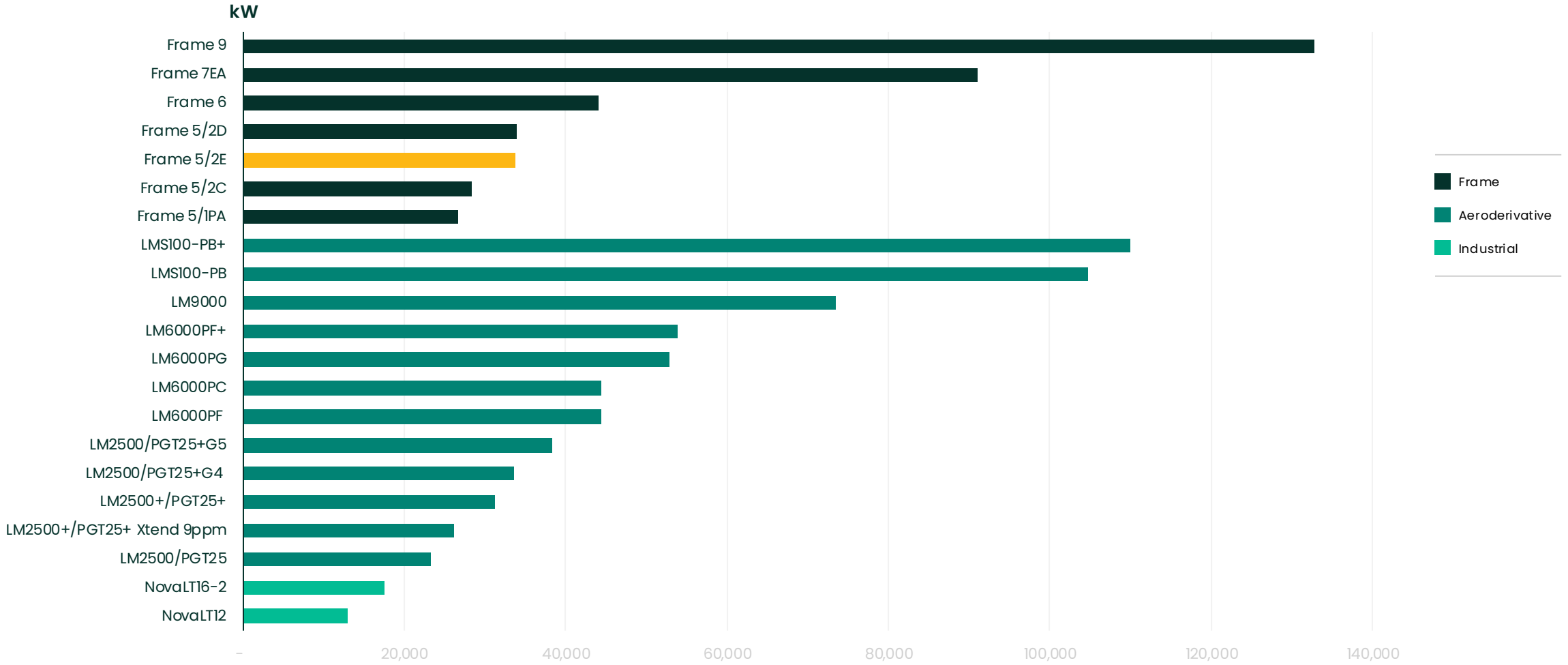
Industry leader in gas turbine technology



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Frame 5/2E

Designed to maximize efficiency and fuel flexibility, with dual use in power generation and mechanical drive. It has low environmental impact while delivering maximum reliability and availability.

The Frame 5/2E is a robust and referenced two-shaft gas turbine based on well-proven technologies, combining the best of our gas turbines portfolio with more than 40 years of OEM experience.

With over 60 units sold worldwide, 46 installed, and more than 800,000 hours experience, the Frame 5/2E performs well in any environment—even with extreme ambient conditions.

Key specifications and benefits:

- Shaft power output: 33.8 kW
- Shaft efficiency: 37%
- High fuel flexibility—can operate on associated gases with high heavy hydrocarbon content
- Low NOx emissions over 50% to 100% load range—single digit capability

Same hardware, two operation modes:

- Performance enhancement (PE) to maximize power and efficiency
- Life enhancement (LE) to maximize availability

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Package

The Frame5/2E single-lift package, including gas turbine and auxiliaries, is designed with optimized dimensions.

To reduce the footprint and guarantee accessibility and maintenance, the equipment in the auxiliary compartment is arranged near the skid edge and can be managed from the walkways around the skid.

- No hydraulic oil—only electric valves and actuators
- Ventilation system designed with 2 x 100% fans and pushing system
- Pressurized enclosure suitable for installation in classified area

Main applications

- Pipeline and gas storage
- Refinery, petrochemical, and fertilizer
- Industrial and combined heat and power

Typical mechanical-drive configuration

Typical power-generation configuration

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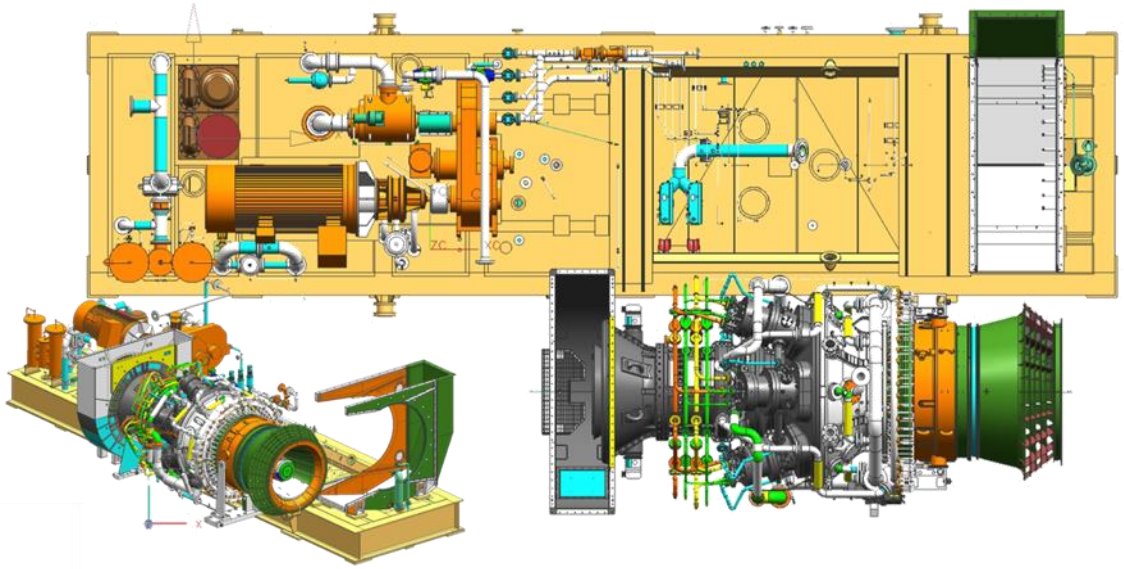
Package

Installation and maintenance

A common baseplate supports the engine and main auxiliaries needed for its operation. Maintainability features have been carefully considered for added value:

- The horizontally split high-pressure turbine casings and the removable enclosure roof enable on-site maintenance
- Combustors can be disassembled without removal of the compressor discharge case, and bearings #1, #3, and #4 are easily accessible for inspection
- Low pressure turbine maintenance through module swap
- The enclosure doors on the auxiliary compartment are equipped with inspection glass for a clear view of instruments from outside, and have the gauge boards in front of them
- The enclosure and package are designed for fast removal of engine parts and to enable fast engine swap



Flange-to-flange modular replacement

Maintenance plan from 0 to 48k hours with two planned inspections:

- 1 combustion and hot-gas-path inspection at 24k hours
- 1 major inspection at 48k hours
- 32/64k hours maintenance plan available as an option (fire temperature and power de-rate, same hardware)

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Datasheet

Power generation

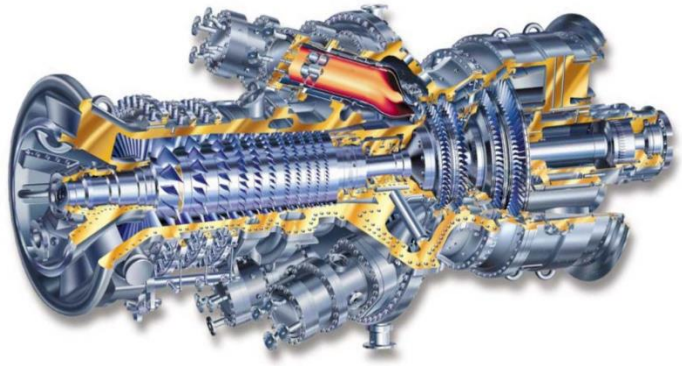
Power	MWe	32.8(*)
Efficiency	%	35.8(*)
NOx	ppm	9 - 15
Exhaust	°C	518
Speed	rpm	1,500/1,800 (geared)

Mechanical drive

Power	MWe	33.8
Efficiency	%	37
NOx	ppm	9 - 15
Exhaust	°C	518
Speed	rpm	5,147

Main architecture attributes

- Axial compressor pressure ratio: 17.3 with 11 stages
- Two-stage HP turbine; two-stage LP turbine
- DLN2.5 combustion system, 6 cans; F class technology at de-rated Tfire



Power-generation package
(Typical dimensions & weights)

		GT skid	GB+EG skid
LxWxH	m	12.95x4.4x4.4	9.0x3.5x7.5
Weight	kg	96,500	125,000

Mechanical-drive package
(Typical dimensions & weights)

		GT skid	CE CO skid
LxWxH	m	12.95x4.4x4.4	9.0x3.5x7.5
Weight	kg	96,500	92,000

Main inspections

HGP	hrs	24,000 (or 32,000 @ lower Tfire)
Major insp.	hrs	48,000 (or 64,000 @lower Tfire)

ISO conditions with natural gas fuel, ambient temperature 15°C, no inlet or exhaust losses, sea level, 60% relative humidity.
Mechanical package dimensions driven equipment excluded.
(*) assuming average efficiency of gearbox and generator.

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Projects

Cogeneration experience

- CHP plant in Europe—production of 30 MWe and 50 tons/h steam
- Stability in steam more important than stability on electricity (grid back-up)

Russian pipeline

- Mechanical application
- -55°C minimum operating ambient temperature

Fertilizer

- More than 150 MW of power delivered in cogeneration plants in Asia Pacific

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