

Baker Hughes 



NovalT™

Gas Turbines

Here shown
NovaLT16



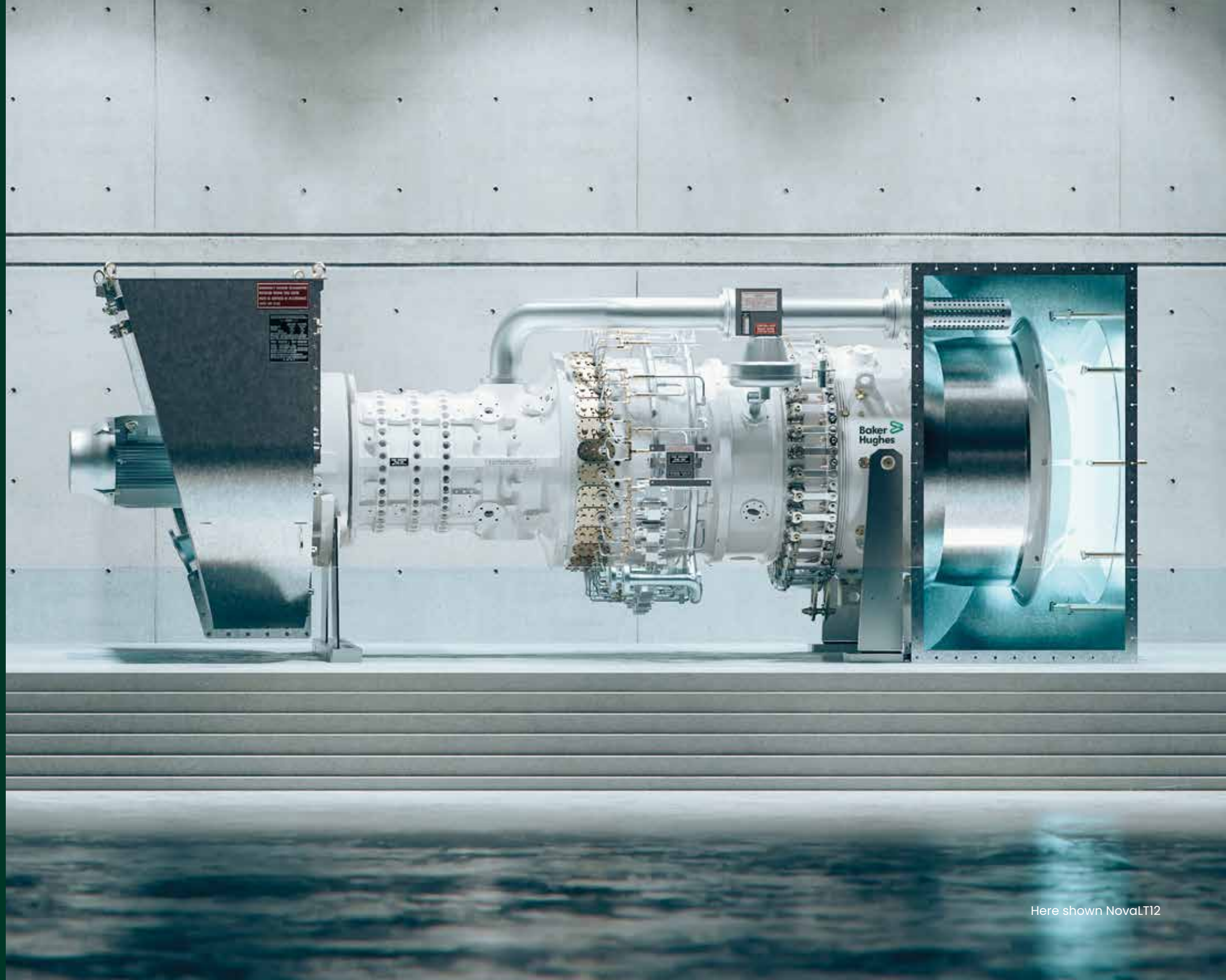
**Best in class
efficiency
for your plant**

NovaLT5 (5 MW)
NovaLT12 (12 MW)
NovaLT16 (16 MW)

NovoLT™

Baker Hughes gas turbines

Designed to meet the needs of industrial applications, the NovoLT is setting new standards in cost-effectiveness for the entire asset lifecycle.



Here shown NovoLT2



Baker Hughes

Baker Hughes is an energy technology company that combines innovation, service excellence and scale to deliver outcomes for energy and industrial customers worldwide.

With operations in over 120 countries and more than a century of experience, we are taking **energy forward** – making it cleaner, safer and more efficient for people and the planet.

Our Turbomachinery & Process Solutions (TPS) business, headquartered in Florence, Italy and with 11,000 employees worldwide, boasts one of the industry's most extensive portfolios for rotating equipment, process flow, transmission technology, and lifecycle services.

Serving the entire energy value stream, TPS operates across onshore-and-offshore production, gas processing, pipeline, liquefied natural gas (LNG), refining, petrochemical and industrial sectors.

We collaborate closely with customers to maximize productivity, enhance efficiency, minimize risk and optimize total cost of ownership, including delivering long-term service agreements, digital analytics, monitoring and maintenance solutions.

Visit us at [bakerhughes.com](https://www.bakerhughes.com)

Your ideal match for CHP projects

Pulp & Paper
Ceramics & Glass
Food & Beverage
Metals & Mining
Rubber
Cement
Pharmaceutical
Fiber & Textile
Universities & Hospitals
District Heating
Biogas

Fleet-wide experience, best in class efficiency (up to 36% electrical and 85% CHP) and flexibility (granting consistent high performance at partial loads) make our technology the ideal solution to decrease carbon footprint, drive savings and address a sustainable future over a wide range of applications.

Cogeneration for a rubber glove factory

Saving the environment in Malaysia

A 13 MW cogeneration plant powered by a Baker Hughes Nova LT gas turbine. Firing up in March 2019. Able to reduce **54,000 tons of CO2 per year**, the equivalent of planting 2.5 million trees.

Cogeneration for a palm oil refinery

Saving money through simplification in South East Asia

Our technology drove higher overall efficiency by **decreasing by up to 25% fuel cost**.

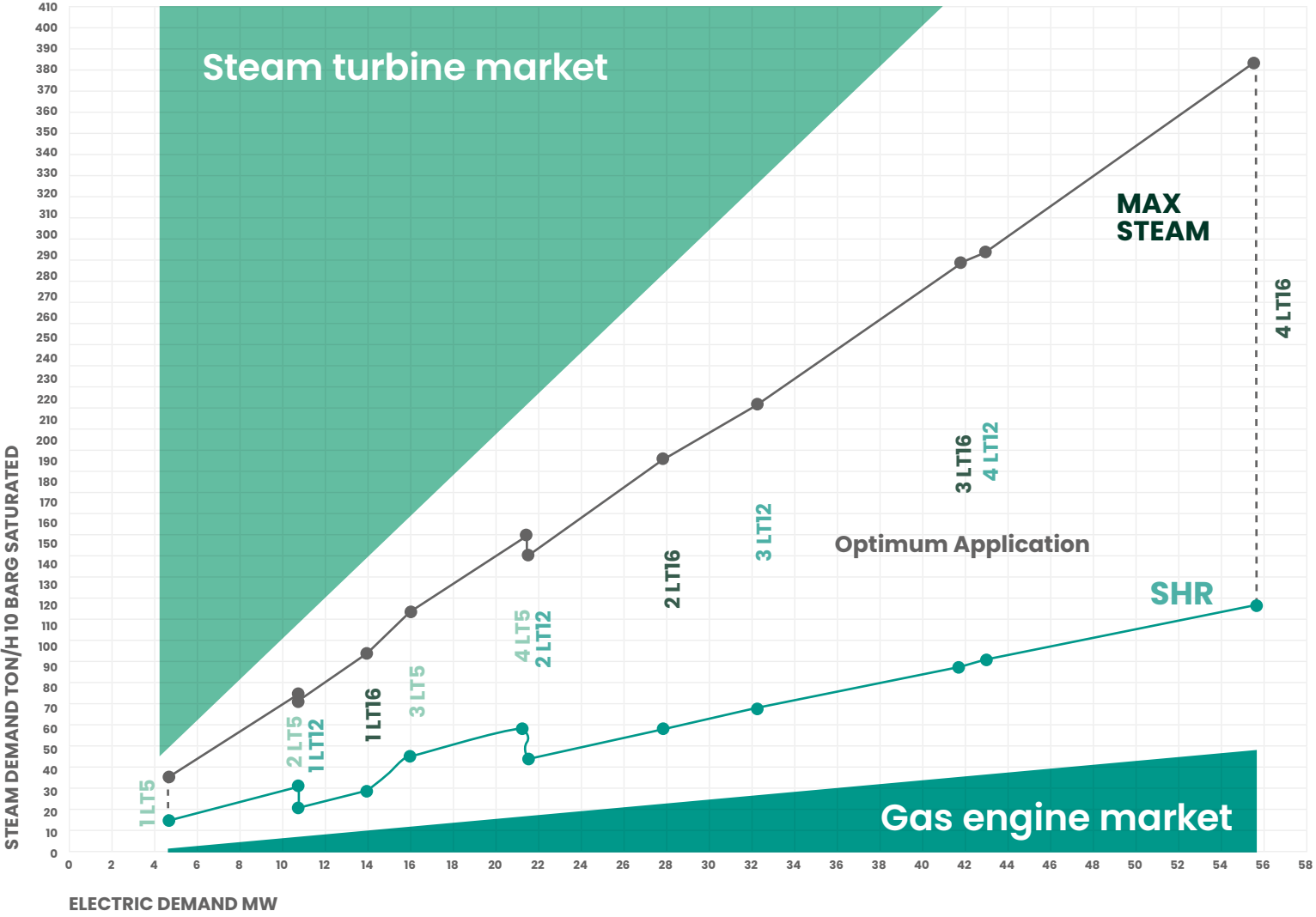
Cogeneration for a paper mill factory

Saving energy in Europe

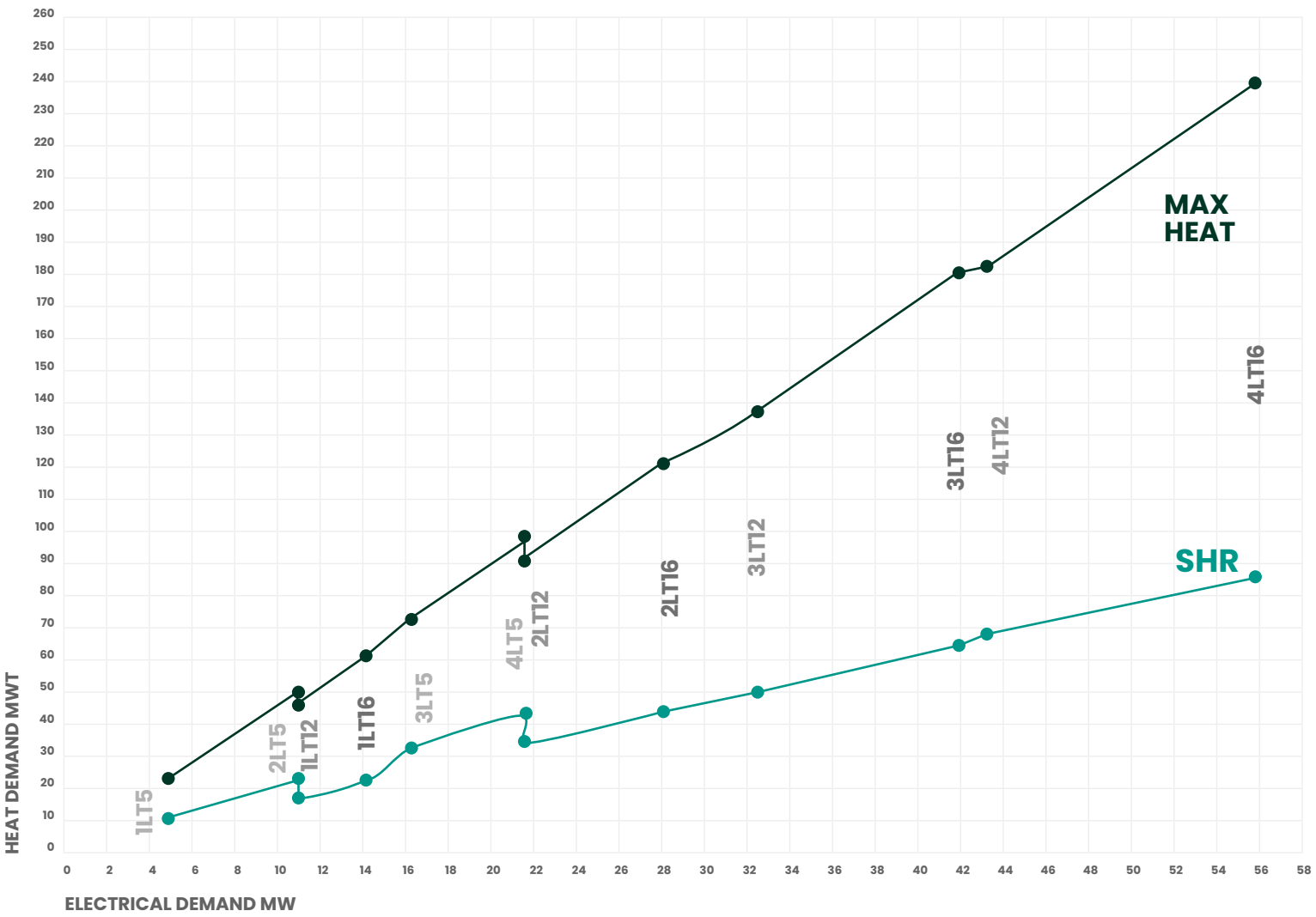
Our rotating equipment technology granted access to country-level white certificates, that enabled **additional revenues of 1.4 M€ per year for the customer**.



30°C Design Ambient Steam Selection



30°C Design Ambient Heat Selection



What sets us apart

5, 12 or 16 MW and best in class efficiency for your plant

Build from well-proven technology

Compressor family from MS5002E
w/ 22 units installed & >200K fleet hours
Combustion from GT5 (NovalT5)
w/ 5 units installed & >300K fleet hours
VATN from MS5002A/B/C/D
w/ 933 units installed & >79,000K fleet hours

Lower maintenance cost w/ 99% availability

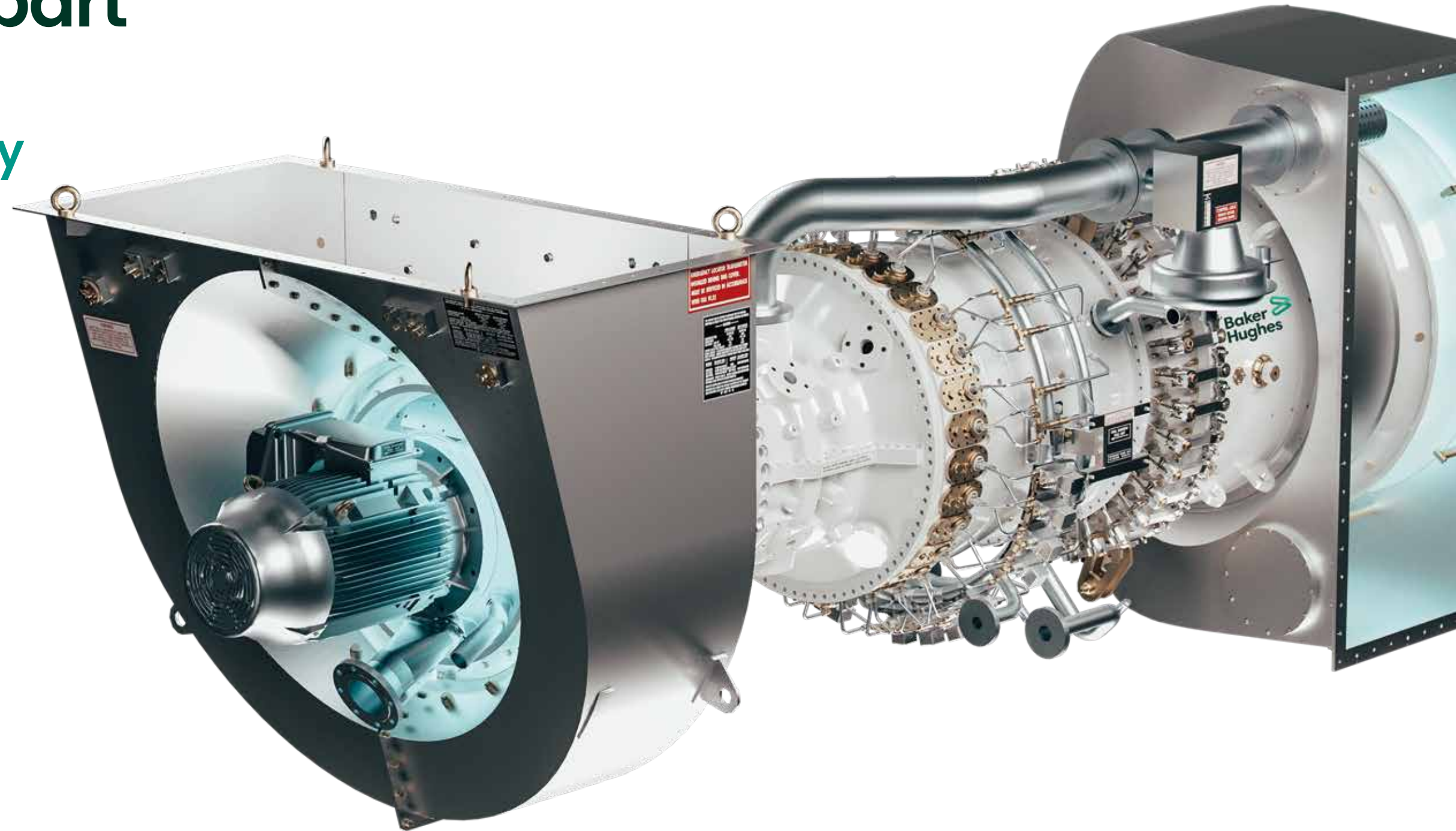
3-4 years continuous run without maintenance stops
NovalT5-1 ... 30 hours engine swap
NovalT12, LT16 ... 24 hours engine swap

New, modular design platform

Leading to competitive cost and reduced activities at site for installation.
Forward thinking, design flexibility, uniform speed & quality.

Increased partial load performance

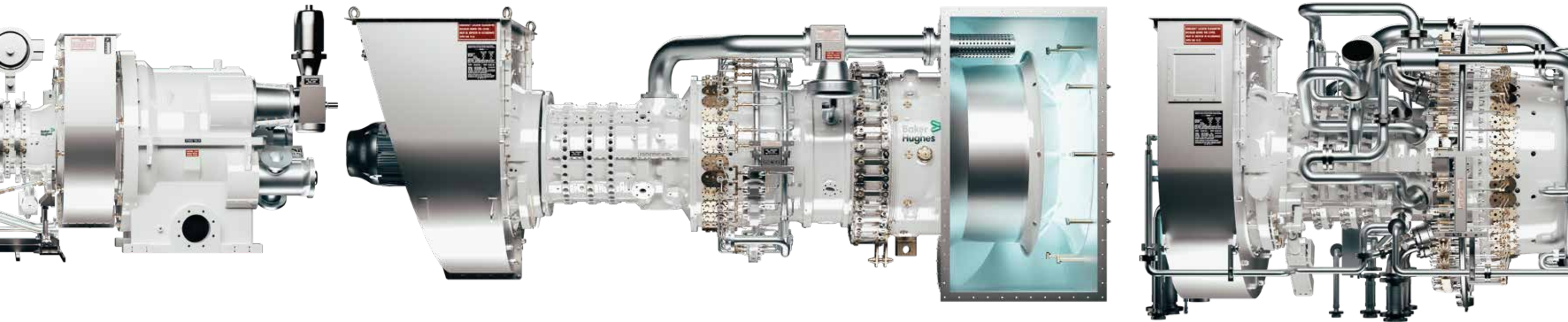
Significantly higher than competition, while being slightly better at full load.



Here shown NovalT12

The NovalT family of gas turbines: full coverage from 0 to 20 mw

Performance	NovalT™5-1 IPG	NovalT™12 IPG	NovalT™16 IPG
Electrical output	5.6 Mwe (*)	12.2Mwe (*)	16.3 Mwe (*)
Efficiency @ full load	30.7% (*)	35.2% (*)	36.1% (*)
Efficiency @ 70% load	28.3% (*)	31.5% (*)	32% (*)
Shaft nominal speed (rpm)	16,630 (**)	8,900	7,800
DI _n turndown	50% or better	50% or better	50% or better
Nox emissions	15Ppm	15Ppm	15Ppm



From left to right > NovalT5 - NovalT12 - NovalT16

Digitally optimized

Powering your power plant with software solutions

Remote Monitoring

Issues management
Manage issues proactively to prevent asset failures.

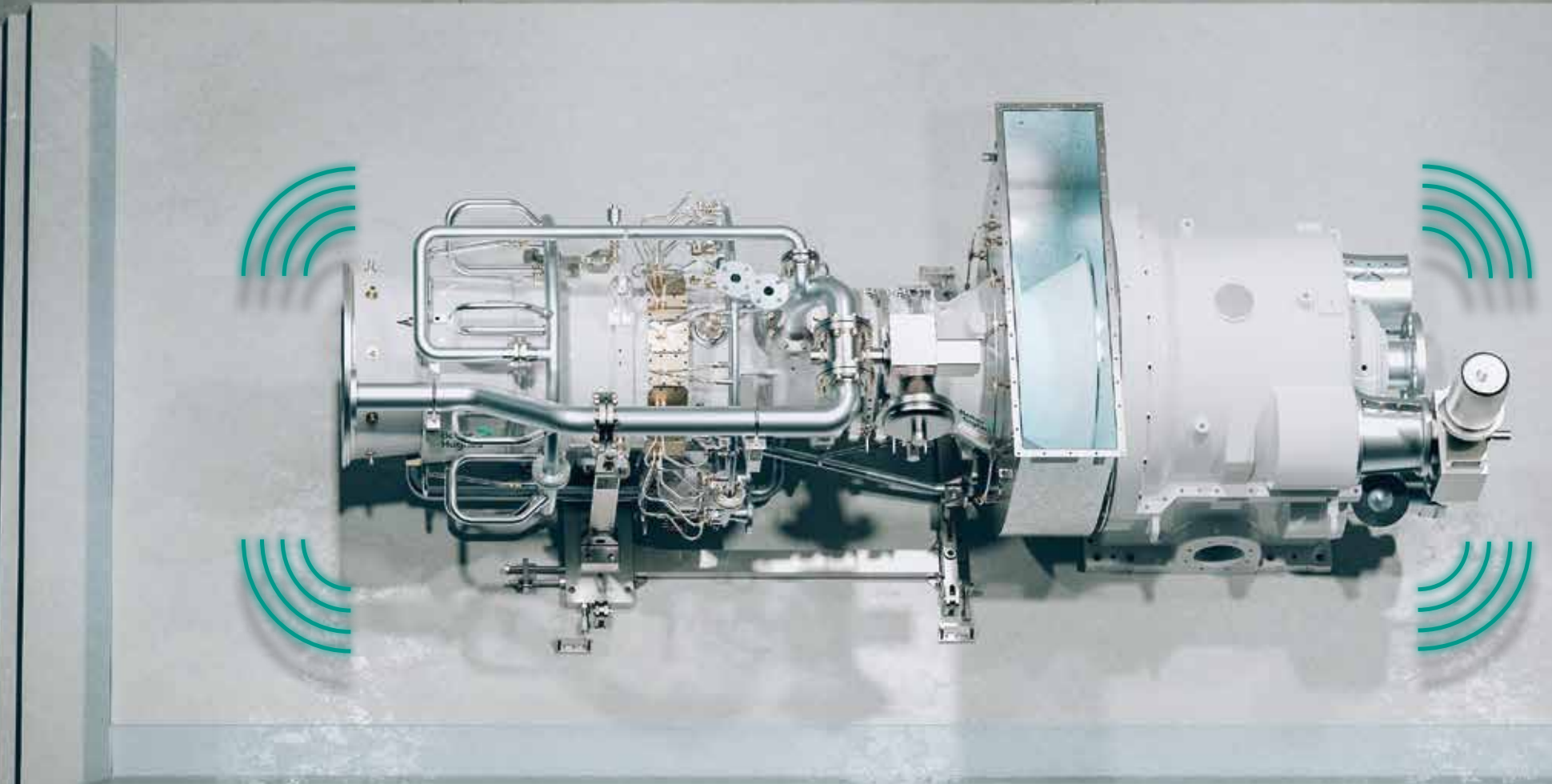
Asset optimization
Troubleshoot and solve problems by working with engineering departments. Optimize asset performance and operation.

Energy management suite

Energy monitor
Monitoring of energy systems (KPI calculation, balances, etc.)

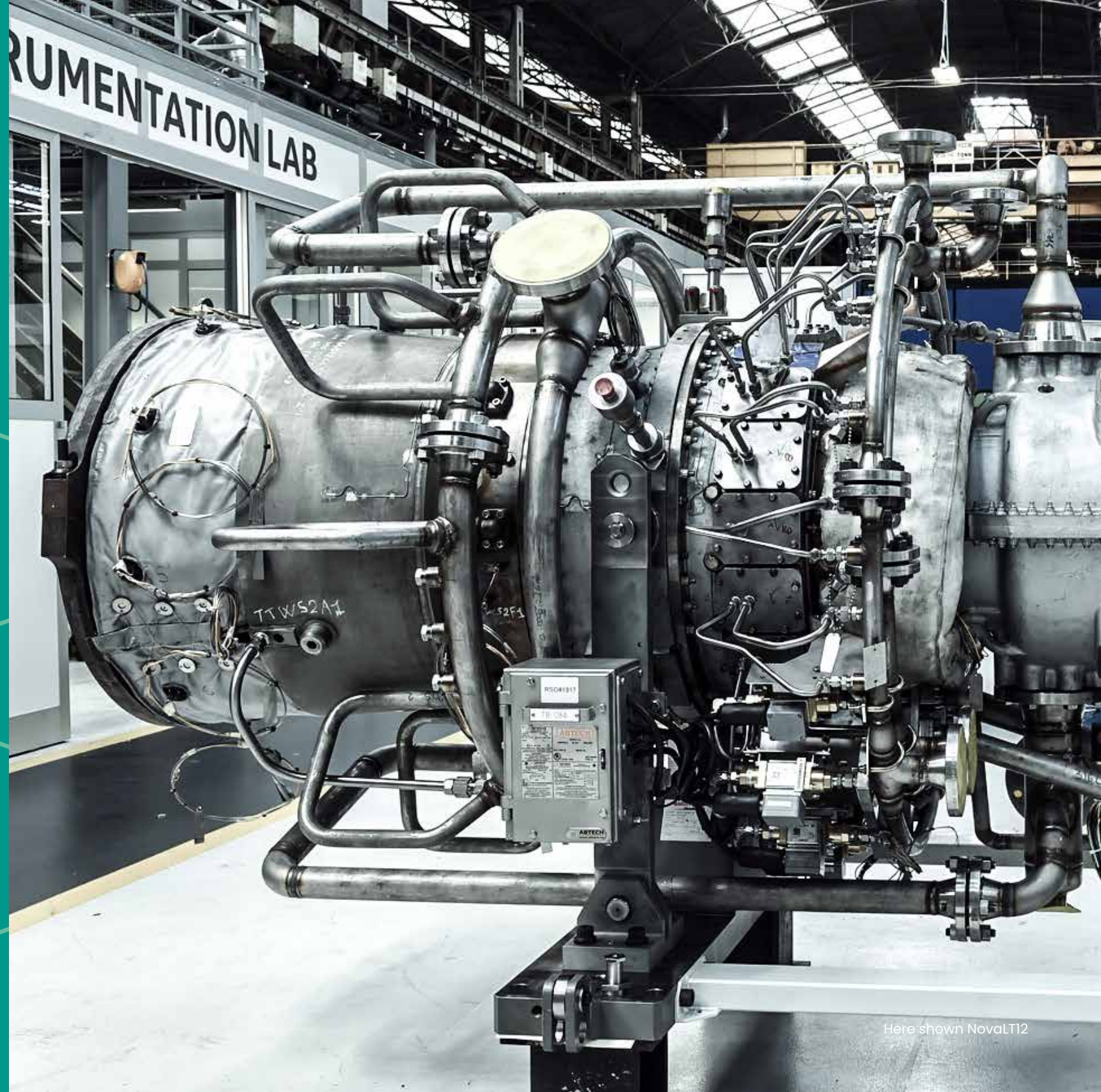
Energy multi-period optimizer
Optimal planning and scheduling of utility assets.

Energy real time optimizer
Real-time solution for modeling and optimization of energy systems (open or closed loop).



Here shown NovalT5

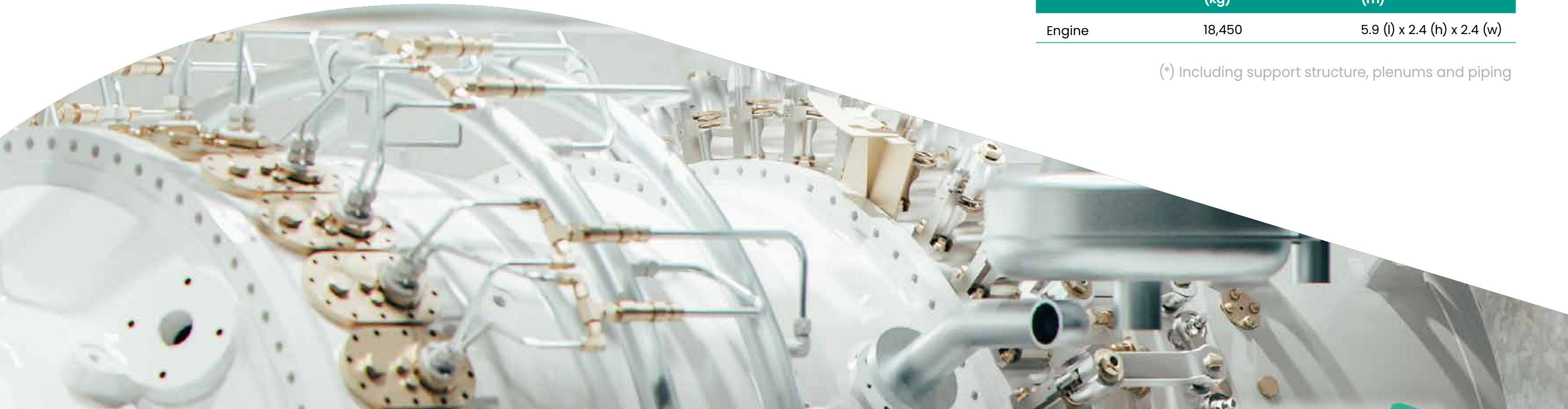
Baker Hughes NovaLT5



Here shown NovaLT12

NovoLT16

An example of high availability



Engine Swap & Overhaul

Inspection	Gas Generator major Inspection	Power Turbine Major Inspection
Hours	35,000	70,000
Start	1,250	2,500

No intermediate boroscopic inspections required

Weight and dimensions (*)

Item	Weight (kg)	Dimension (m)
Engine	18,450	5.9 (l) x 2.4 (h) x 2.4 (w)

(*) Including support structure, plenums and piping

Service options tailored to your desired investment

BASE

For customers who require Baker Hughes support only for maintenance of flange-to-flange equipment (gas turbine).

Contract includes:

- Gas turbine exchange every 35,000 factored fired hours
- Field services needed for site activities
- Wear parts required at site for the gas turbine exchange
- Tooling necessary for gas turbine exchange
- Advisory monitoring and diagnostics from iCenter
- Craft labor can be offered as an option

BASE+

For customers who require Baker Hughes' gas turbine maintenance support plus additional contractual services.

Contract includes:

- All services of the Base contract
- Project management support from Baker Hughes office
- 24/7 Customer Service Center
- Contractor intervention time within 72hrs
- Gas Turbine Availability Program
- Availability Guarantee
- Craft labor can be offered as an option

FULL

For customers who require Baker Hughes maintenance services on auxiliary systems and driven equipment, beyond the Base contract.

All services of the Base contract

- Parts and repairs for auxiliary systems and driven equipment
- Field services for auxiliary systems and driven equipment
- Craft labor can be offered as an option

FULL+

For customers who require Baker Hughes services beyond the Full contract scope.

All services in the Full contract

- Unplanned maintenance on full coverage
- 24/7 Customer Service Center
- Project management support from Baker Hughes office
- Contractor intervention time 72hrs
- Gas Turbine Availability Program
- Auxiliaries Stock Availability Program

	SERVICE	BASE	BASE+	FULL	FULL+
MAINTENANCE	F2F - exchange	●	●	●	●
	F2F - FSE	●	●	●	●
	F2F - Craft labor	○	○	○	○
	Tooling	●	●	●	●
	Train auxiliaries - Parts and repairs			●	●
	Train auxiliaries - FSE			●	●
	Train auxiliaries - Craft labor			○	○
	Driven equipment - Parts and repairs			●	●
	Driven equipment - FSE			●	●
	Driven equipment - Craft labor			○	○
	Unplanned coverage				●
CONTRACTUAL	Project management support		●		●
	Digital solutions (AM&D)	●	●	●	●
	24/7 Customer service center		●		●
	Contractor representative response time (72 hrs at site)		●		●
	Spare gas turbine availability program (72 hrs ready for shipment)		●		●
	Auxiliaries stock availability program (72 hrs ready for shipment)				●
Availability guarantee		●		●	

● Included ○ Optional

Extended systems integration capabilities

Baker Hughes is able to support your project from the conceptual engineering phase through to commissioning, operations and services, supporting your plant with turnkey solutions.

Concept



Engineering



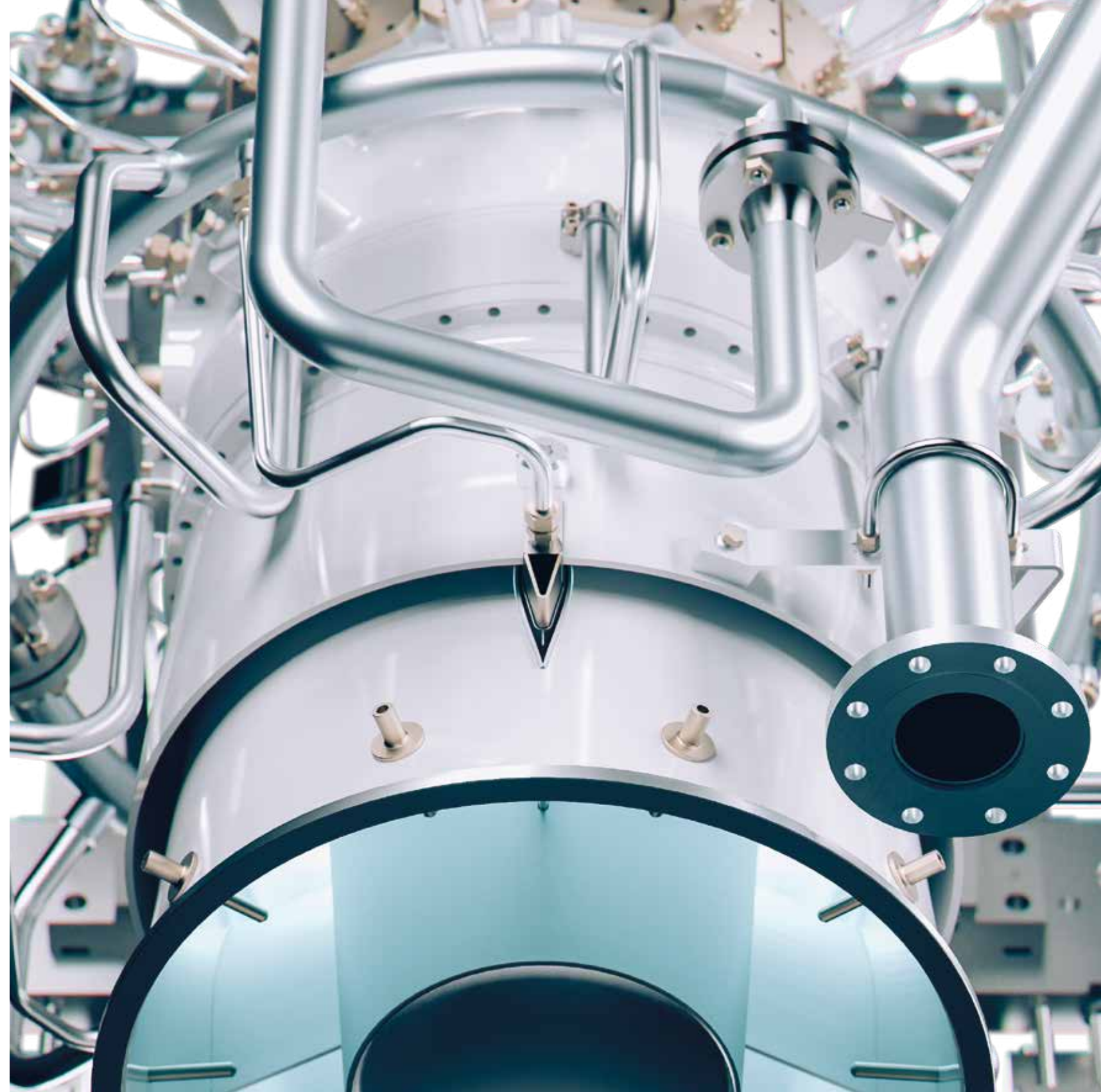
Construction services



Commissioning start-up support



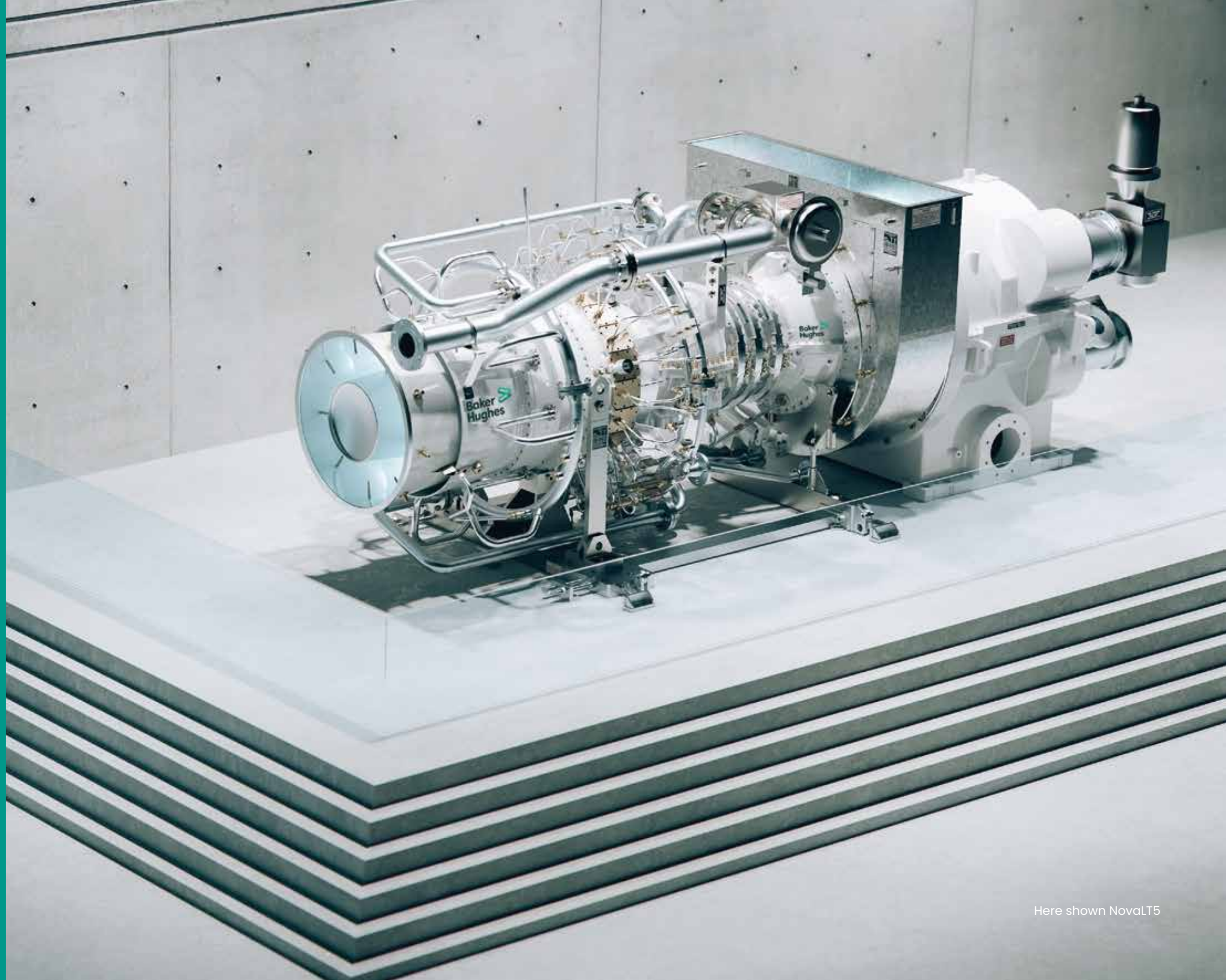
Service support



Technology heritage and references

World leader
in gas turbine technology.

Proven solutions for power
generation, mechanical drive,
and industrial applications.



Here shown NovaLT5

NovalT16

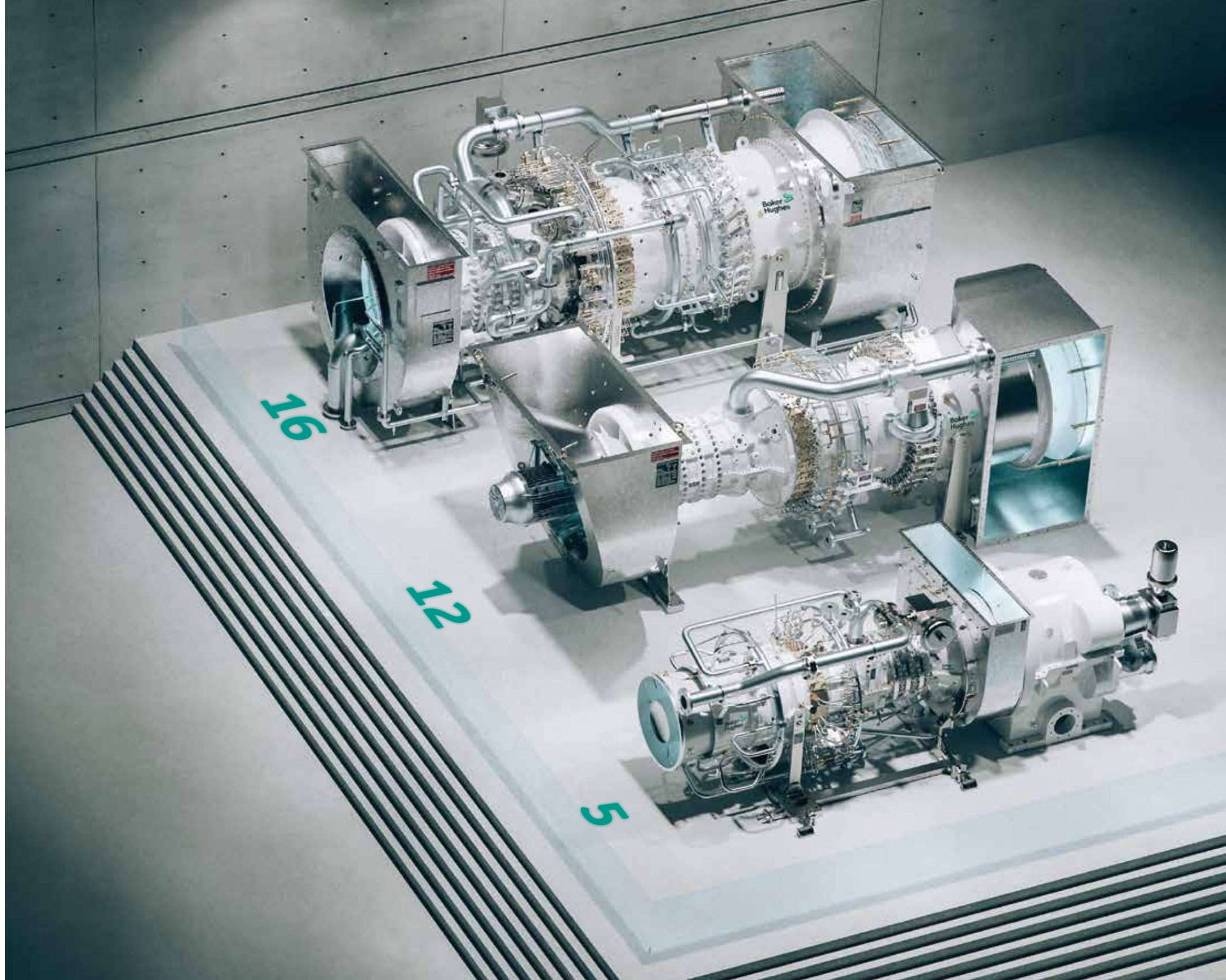
Proven and reliable in any condition

NovalT12

Best efficiency for your plant

NovalT5

Best in class lead and delivery time
single lift package solution



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