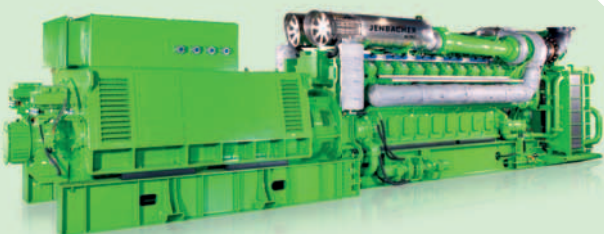


JENBACHER

YOUR DATA
REQUIREMENTS
CONTINUE TO GROW.
**BACK THEM UP WITH
FAST, RELIABLE, LOW-
EMISSION POWER.**

Fast-start, natural gas:
Jenbacher J620



Jenbacher data center solutions
from INNIO

INNIO

JENBACHER TECHNOLOGY DELIVERS RELIABLE POWER WITH A SMALLER ENVIRONMENTAL IMPACT

In our digital world, the role of information technology continues to expand, and data centers are at the core of this evolution. Today's data centers consume about 3% of the total energy generated globally¹, a number that is predicted to rise substantially.

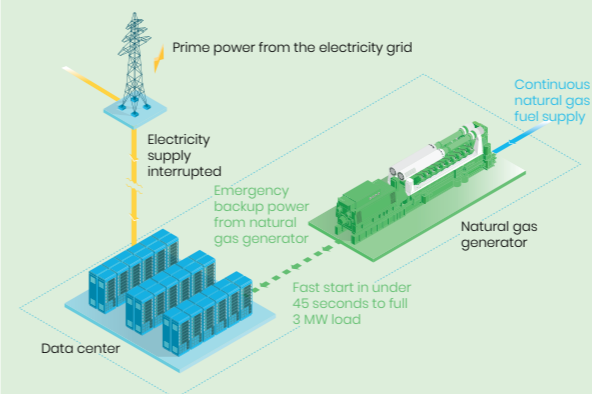
The challenge, then, is to deliver that electricity in a more reliable and environmentally sound way. INNIO*'s innovative Jenbacher* gas-to-power technology can do just that.

Traditionally, data centers have relied on primary power – typically supplied by the public grid – and onsite backup

power – conventionally delivered via diesel generators. However, increases in data center capacity needs are coinciding with regulations on site emission levels. As a result, even backup power generation is becoming constrained.

Lower emissions and the direct connection to the gas grid can provide greater run times. As a result, our technology can become an asset beyond backup power capabilities and provide various monetization options and benefits to the grid.

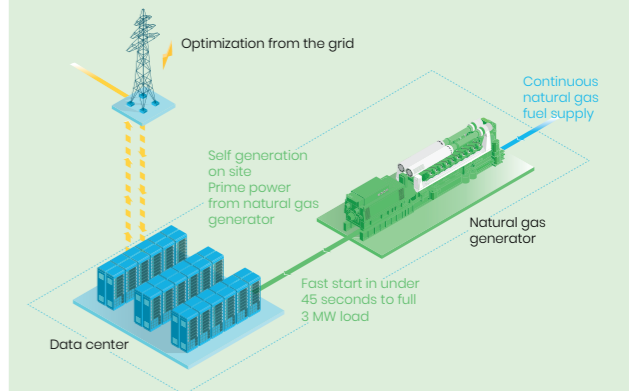
EMERGENCY BACKUP POWER SUPPLY



Advantages

- ✓ Reliable backup power with proven technology
- ✓ Reduced CO₂ and NO_x emissions for longer run times
- ✓ Unlimited stable fuel supply even in emergency situations

ISLAND MODE (With grid parallel option)

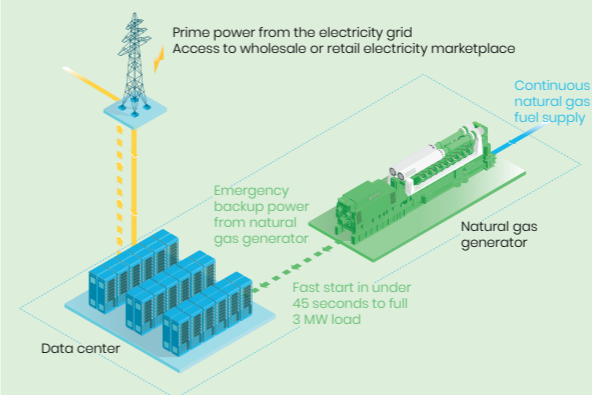


Advantages

- ✓ Cost savings due to lower grid connecting power
- ✓ Avoidance of demand charges or coincident peak charges for electricity
- ✓ Easily expandable due to grid independence
- ✓ Participation in curtailable tariffs and/or as emergency standby

GRID PARALLEL

(Grid services and emergency backup power supply)



Advantages

- ✓ Fast-start resource – providing balancing and ancillary service to the grid
- ✓ Grid value – accommodating intermittent renewable generation
- ✓ Demand response – when needed
- ✓ Peak shaving – with the ability to sell electricity when retail or wholesale prices are high

¹ Source: <https://data-economy.com/data-centres-world-will-consume-1-5-earths-power-2025/>

THE JENBACHER CONCEPT: DESIGNING DATA CENTER- SPECIFIC FEATURES

Based on our proven Jenbacher Type 6 design, INNIO developed a J620 natural gas solution to meet your specific data center requirements. This solution delivers the following key features:

- **Enhanced electrical starting system** with permanent pre-lubrication and pre-heating to help ensure that the unit is always ready for operation
- **Advanced DIA.NE* XT 4 control system** handling with multi-variable, model-based control algorithms to achieve fast start times and transients at desired power quality limits
- **Port injection, enabling cylinder selective gas dosage** for individual cylinder combustion optimization
- **Traditional turbocharger layout with waste gate** that maintains turbocharger speed limits
- **Optional: Different generator voltage levels** to support customer-specific electrical integration concepts
- **Optional: Pre-installed load bank** for continuous standby testing purposes
- **Optional: Catalyst technology** to achieve regulatory emissions compliance
- **Optional: myPlant* remote connection capability** for simplified forward-looking plant maintenance planning

DELIVERING DATA CENTER-SPECIFIC ADVANTAGES:

A smaller environmental footprint

Lower carbon intensity compared to diesel generators without after-treatment:

- Up to 25% lower carbon emissions
- Up to 80%-90% lower NO_x emissions
- Significantly lower particulate matter (PM) emissions
- No SO₂ emissions

Enhanced fuel availability

- Unlimited pipeline supply
- Increased resiliency during natural or man-made disasters
- Cleaner fuel without the need for fuel conditioning

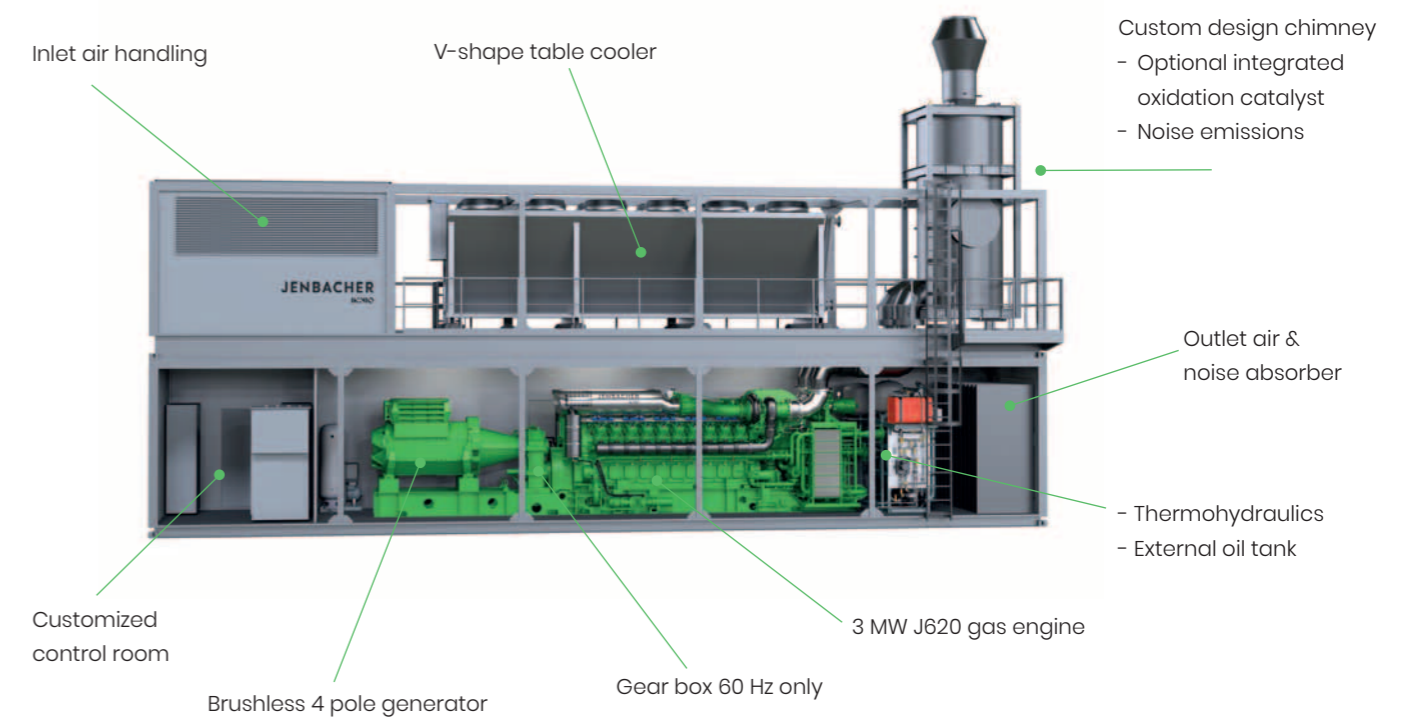
High reliability

- Jenbacher technology can support 99.999% data center availability
- Fast startup capability that delivers load within 15 seconds and full capacity in under 45 seconds

CUSTOMIZATION OPTIONS INCLUDE:

- ✓ 50 Hz or 60 Hz versions
- ✓ Emission solutions (integrated oxidation catalyst or selective catalytic reduction/SCR)
- ✓ Noise emission as per specification
- ✓ Full range of ambient conditions: -37 °C up to +37 °C / -34 °F up to 86 °F and high elevation
- ✓ Genset controller and motor control center as well as circuit breakers as per customer specifications
- ✓ Oil tank extension
- ✓ Automatic fire extinguishing systems
- ✓ UL2200 certification upon request
- ✓ CE declaration
- ✓ Others (e.g. containerized modular solution for fast commissioning-to-startup, heat utilization including cooling)

MEETING DATA CENTER- SPECIFIC REQUIREMENTS



Our containerized modular solution includes everything needed for a fast commissioning-to-startup experience, all customized to meet your data center's specific requirements. The bottom container houses the heart of the system – the Jenbacher generator. The top container holds all auxiliary components and ventilation.

The overarching, 3 MW containerized concept pays special attention to redundancy and allows for a modular, scalable data center layout.

FAST STARTUP CAPABILITY

Typically, gas engine technology has been optimized for continuous operation at high efficiency. However, faster response times have become a priority due to recent changes in the energy landscape, such as the expansion of intermittent renewable energy.

With technical improvements, including port injection and an advanced control management system, our Jenbacher J620 natural gas generator for data centers can provide full output within less than 45 seconds while supporting a single 100% load step.

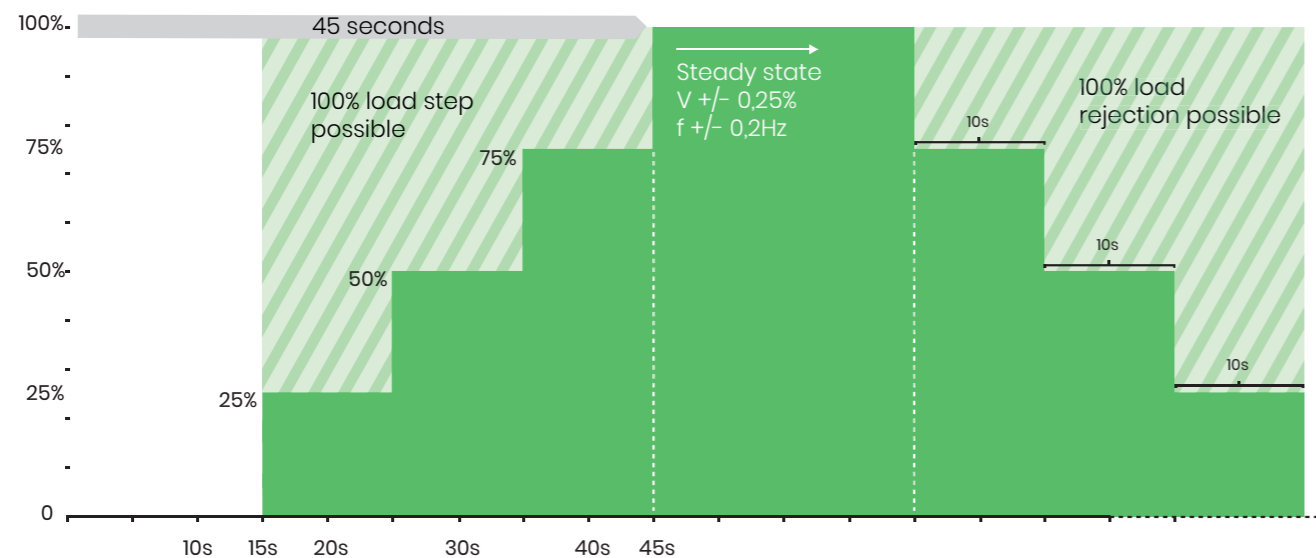
Startup steps	Fast startup with the Jenbacher J620 generator for data centers
Conditions	Pre-heated and pre-lubricated
Start command, delay and pre-lubrication	5 sec
Firing to nominal speed	10 sec
Nominal speed to full load	30 sec
Start to full power	45 sec

LOAD RAMPS/STEPS

With a pre-heated Jenbacher J620 fast-start, natural gas solution, either load steps or ramps can be applied immediately after reaching the nominal speed. Typical load steps during an engine startup take place at 25% intervals with corresponding limits for voltage, frequency

and settling times. The J620 fast-start solution also supports up to 100% load changes without trip and without corresponding limits for voltage frequency and settling time.

BLACK START PROFILE¹



¹ Example profile for pre-heated/-lubricated; Without synchronization; 480 V configuration; Power quality within +/- 10% voltage, +/- 5% frequency

CONTINUOUS IMPROVEMENT AND ENVIRONMENTAL STEWARDSHIP

The first Jenbacher Type 6 gas engines were produced in 1989. Today, hundreds of units are delivered every year.

Decades of continuous technical improvements have provided our Jenbacher Type 6 engine family with significantly enhanced output, efficiency and reliability.

The J620 fast-start, natural gas solution for your data center application is produced at our INNIO headquarters facility in Jenbach, Austria – a site that is ISO 14001 certified for effective environmental management. This means that INNIO not only continuously invests in designing more environmentally sound technology solutions for our customers, but also takes extensive measures to reduce the environmental impact during our product manufacturing process.

Over the past decade, INNIO has succeeded in reducing the environmental impact at our Jenbacher manufacturing site. For instance**, we have reduced the plant's electricity purchase by two-thirds, and water and waste requirements by one-third each.

INNIO'S STRENGTH:

About **90% of our Jenbacher engine platforms can be fueled by renewables**, such as biogas and hydrogen

90-plus years of reciprocating gas engine experience

More than **50,000 engines delivered**

500-plus R&D engineers globally

More than **\$800 million in innovation investments** over the last 15 years

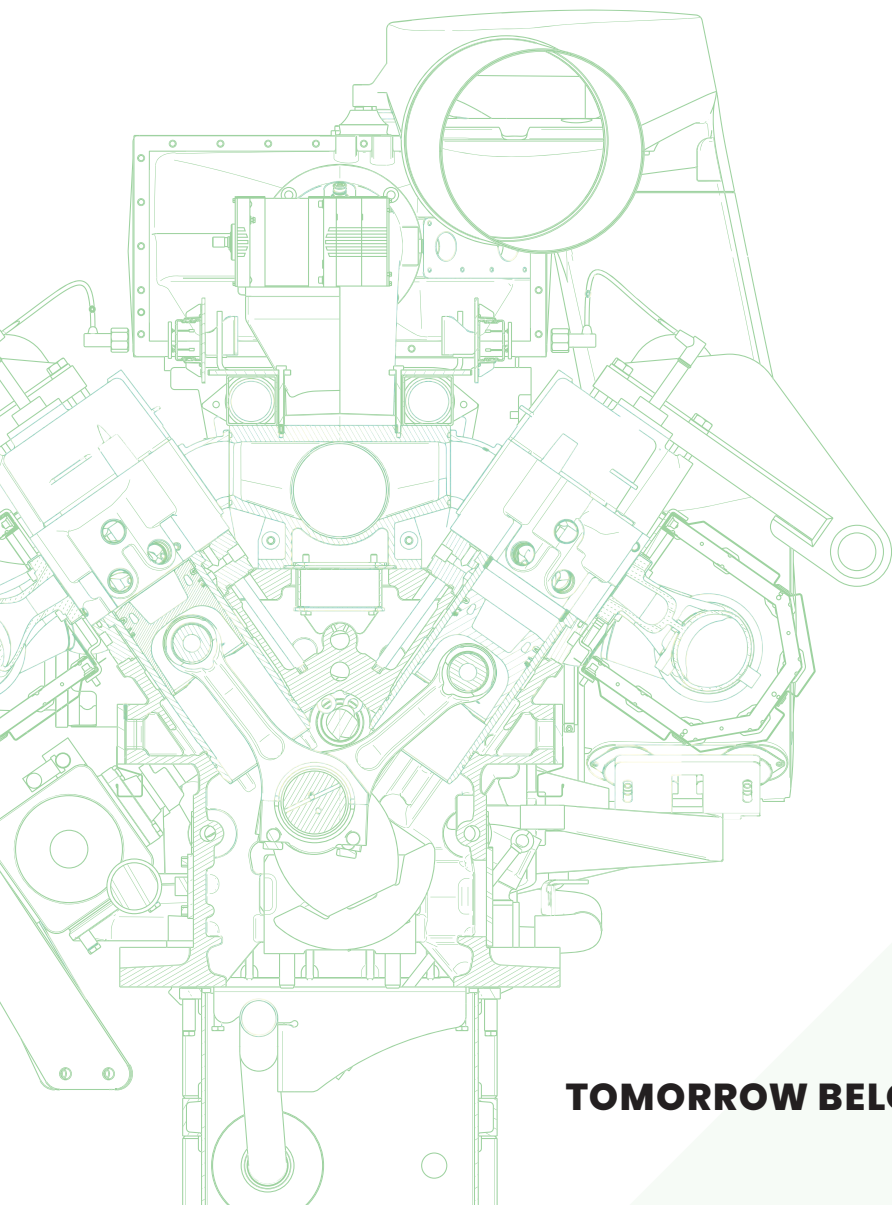
**Related to produced MW

INNIO* is a leading solutions provider of gas engines, power equipment, a digital platform and related services for power generation and gas compression at or near the point of use. With our Jenbacher* and Waukesha* product brands, INNIO pushes beyond the possible and looks boldly toward tomorrow. Our diverse portfolio of reliable, economical and sustainable industrial gas engines generates 200 kW to 10 MW of power for numerous industries globally. We can provide life cycle support to the more than 50,000 delivered gas engines worldwide. And, backed by our service network in more than 100 countries, INNIO connects with you locally for rapid response to your service needs. Headquartered in Jenbach, Austria, the business also has primary operations in Welland, Ontario, Canada, and Waukesha, Wisconsin, US.

Want to find out more about the Jenbacher J620 fast-start, natural gas solution for the data center industry?
For more information, visit: innio.com/datacenter

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TOMORROW BELONGS TO THE BOLD. **INNIO**