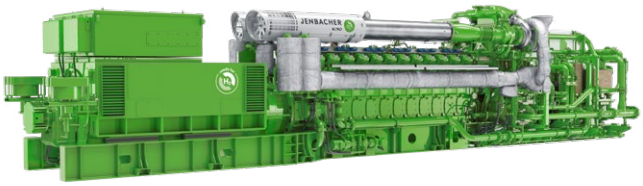
JENBACHER

# JENBACHER TYPE 6

## Advanced technology for hot and humid countries

Continuously refined based on extensive experience, Jenbacher Type 6 engines are reliable, advanced products serving the 2 to 4.5 MW power range. The 1,500 rpm engine speed delivers high power density while helping reduce installation costs. The Type 6 precombustion chamber enables high efficiency with low emissions. Proven design and enhanced components support a service life of 60,000 operating hours before the first major overhaul. The J624 model features advanced two-stage turbocharging technology, offering high electrical and total efficiencies along with improved flexibility across a wide range of ambient conditions.



## Reference installations

### J612 and J620 – Mamuda Foods Nigeria Ltd., Nigeria



Three Jenbacher J612 and seven Jenbacher J620 engines running on natural gas derived from liquid natural gas (LNG) meet the power needs of the Mamuda Foods plant in Kano, Nigeria. This infrastructure project includes a long-time agreement with one of the largest Nigerian LNG companies, which trucks LNG to the site.

| | |
|---|---|
| **Engines** | 3 x J612, 7 x J620 |
| **Electrical output** | 29.47 MW |
| **Thermal output** | - |
| **Energy source** | Natural gas (LNG) |
| **Commissioning** | 2020, 2021, 2022, 2023 |

### J612 – Vitalait, Tunisia




With two Jenbacher J612 engines and a total electrical output of 4 MW, this cogeneration plant helps reduce Vitalait's energy costs with monthly savings of more than €51,000[1]. Plus, carbon emissions are reduced by more than 6,000 metric tons per year.

| | |
|---|---|
| **Engines** | 2 x J612 |
| **Electrical output** | 4 MW |
| **Thermal output** | 3.1 MW |
| **Energy source** | Natural gas |
| **Commissioning** | 2019, 2021 |

### J624 – City Group, Narayangonj, Bangladesh



Based in Narayangonj, City Group is a leading conglomerate and consumer goods manufacturer in Bangladesh. Nine Jenbacher J624 gensets generate a total of 39,573 kW of electricity to support the factory and office buildings.

| | |
|---|---|
| **Engines** | 9 x J624 |
| **Electrical output** | 39.57 MW |
| **Thermal output** | - |
| **Energy source** | Natural gas |
| **Commissioning** | 2019, 2020 |

### J624 – Walton Hi-Tech Industries PLC., Gazipur, Bangladesh



Walton Hi-Tech Industries PLC. is an electrical and electronics manufacturing company based in Gazipur. Five Jenbacher J624 gensets generate a total of 21,985 kW of electricity to support the company's refrigeration and air conditioning manufacturing section, its home appliance section, and its office buildings.

| | |
|---|---|
| **Engines** | 5 x J624 |
| **Electrical output** | 21.99 MW |
| **Thermal output** | - |
| **Energy source** | Natural gas |
| **Commissioning** | 2021 |

[1] 166,000 Tunisian Dinar

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## Technical features

| Feature | Description | Advantages |
|---|---|---|
| **Four-valve cylinder head** | Centrally located purged pre-combustion chamber, developed using advanced computational and simulation methods (CFD) | Reduced charge-exchange losses, highly efficient and stable combustion, supporting excellent ignition conditions |
| **Heat recovery** | Flexible arrangement of heat exchanger, including an optional two-stage oil plate heat exchanger on demand | High thermal efficiency, even at high and fluctuating return temperatures |
| **Air/fuel mixture charging** | Low-pressure mixing of fuel gas and combustion air prior to entering the turbocharger | Main gas supply with low gas pressure, mixture homogenized in the turbocharger |
| **Pre-combustion chamber** | Amplified spark plug ignition energy within the pre-combustion chamber | High efficiency, low $NO_x$ emission values, stable and reliable combustion |
| **Gas dosing valve** | Electronically controlled gas dosing valve with a high degree of control accuracy (for natural gas) | Fast response time, rapid adjustment of air/gas ratio, wide adjustable calorific value range |
| **Two-stage turbocharging** | Next-generation turbocharging technology concept (for J624 only) | Improved performance in terms of output and efficiency, increased flexibility regarding ambient conditions |

## Technical data

| | | | | |
|---|---|---|---|---|
| **Configuration** | V 60° | | | |
| **Bore (mm)** | 190 | | | |
| **Stroke (mm)** | 220 | | | |
| **Displacement/cylinder (lit)** | 6.24 | | | |
| **Speed (rpm)** | 1,500 (50 Hz)<br>1,500 with gearbox (60 Hz) | | | |
| **Mean piston speed (m/s)** | 11 (1,500 1/min) | | | |
| **Scope of supply** | Generator set, cogeneration system, containerized package | | | |
| **Applicable gas types** | Natural gas, flare gas, biogas, landfill gas, sewage gas, special gases (e.g., coal mine gas, coke gas, wood gas, pyrolysis gas) | | | |
| **Engine type** | J612 | J616 | J620 | J624 |
| **No. of cylinders** | 12 | 16 | 20 | 24 |
| **Total displacement (lit)** | 74.9 | 99.8 | 124.8 | 149.7 |

| | | Dimensions l x w x h (mm) |
|---|---|---|
| **Generator set** | J612 | 7,600 x 2,200 x 3,000 |
| | J616 | 8,300 x 2,200 x 3,000 |
| | J620 | 9,500 x 2,200 x 3,000 |
| | J624 | 12,800 x 2,500 x 3,100 |
| **Cogeneration system** | J612 | 7,600 x 2,200 x 3,000 |
| | J616 | 8,300 x 2,200 x 3,000 |
| | J620 | 9,300 x 2,200 x 3,000 |
| | J624 | 12,800 x 2,500 x 3,100 |
| **Containerized package**[2] | J612–J624 | 12,000 – 20,500 x 3,000 – 6,000 x 3,800 – 15,000 |
| | | **Weights empty (kg)** |
| **Generator set** | J612 | 24,000 |
| | J616 | 29,200 |
| | J620 | 36,900 |
| | J624 | 52,100 |
| **Cogeneration system** | J612 | 24,500 |
| | J616 | 29,700 |
| | J620 | 37,500 |
| | J624 | 52,100 |

Dimensions and weights are valid for 50 Hz applications

## Outputs and efficiencies

**Natural gas** — **1,500 1/min | 50 Hz**

| $NO_x$< | Type | Pel (kW)[3] | ηel (%)[3] | Heat rate (kJ/kWhe)[4] | Pth (kW)[5] | ηth (%)[4] | ηtot (%) |
|---|---|---|---|---|---|---|---|
| 500 mg/m³$_N$ | J612 | 4499 | 46.4 | 7762 | 4035 | 41.6 | 88.0 |
| | J616 | 3431 | 45.0 | 8002 | 3407 | 44.7 | 89.7 |
| | J620 | 2736 | 44.8 | 8028 | 2724 | 44.7 | 89.5 |
| | J624 | 2046 | 44.7 | 8051 | 2042 | 44.6 | 89.3 |

[2] The dimensions refer to the standard base models with horizontal exhaust silencer.
[3] Type 6 gas engine with site condition ≤ 50 m above sea level and T1 ≤ 40°C
[4] Technical data and fuel consumption according to ISO 3046
[5] Total heat output @ hot water profile 70°C–90°C

All data according to full load and subject to technical development and modification. Additional engine versions available on request.

In general, "Ready for $H_2$" Jenbacher units can be converted to operate on up to 100% hydrogen in the future. Details on the cost and timeline for a future conversion may vary and need to be clarified individually.

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