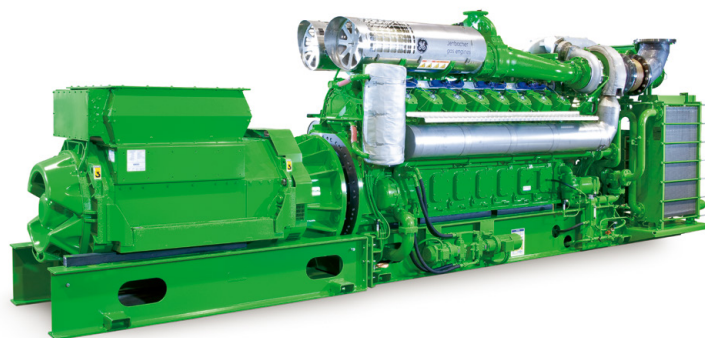


# Jenbacher type 6



## cutting-edge technology

Continuously refined based on our extensive experience, the Jenbacher type 6 engines are reliable, advanced products serving the 1.5 to 4.4 MW power range. Its 1,500 rpm engine speed results in a high power density and low installation costs. The type 6 pre-combustion chamber achieves high efficiency with low emissions. Proven design and enhanced components enable a service life of 60,000 operating hours before the first major overhaul. The new J624 model is available with the new technology of 2-stage turbocharging, which offers high electrical efficiency combined with improved flexibility regarding ambient conditions.

## reference installations

### model, plant

### key technical data

### description

**J612**  
**Beretta, industry;**  
**Gardone, Italy**

Fuel ..... Natural gas  
Engine type ..... 1 x J612  
Electrical output ..... 1,457 kW  
Thermal output ..... 1,536 kW  
Commissioning ..... December 1998

The generated electricity covers the entire electricity requirement of the Beretta factory, while the heat is used for the production process. By using our cogeneration system, Beretta was able to reduce the energy supply costs for the factory by 30%.



**J616**  
**Mussafah Industrial**  
**City, residential area;**  
**Abu Dhabi, UAE**

Fuel ..... Natural gas  
Engine type ..... 3 x J616  
Electrical output ..... 6,018 kW  
Commissioning ..... June 2003

Three Jenbacher generator sets supply power generation for continuous operation of compressor chillers to provide chilled water for cooling to a residential area that incorporates apartments, shopping centres, mosques, a police station, and a cinema complex.



**J620**  
**Wijnen Paprika; Egchel,**  
**The Netherlands**

Fuel ..... Natural gas  
Engine type ..... 3 x J620  
Electrical output ..... 9,123 kW  
Thermal output ..... 10,773 kW  
Commissioning ..... June 2006 (1<sup>st</sup>, 2<sup>nd</sup> engine),  
March 2007 (3<sup>rd</sup> engine)

The Jenbacher cogeneration systems provide power, heat and CO<sub>2</sub> to increase the Wijnen greenhouse paprika production. The CO<sub>2</sub> produced from the exhaust gas of the engines is cleaned and used for fertilization in the greenhouse.



**J624 2-stage**  
**turbocharged**  
**Serres Vinet**  
**greenhouse, Forclum**  
**Machecoul, France**

Fuel ..... Natural gas  
Engine type ..... 2 x J624  
2-stage turbocharged  
Electrical output ..... 8,800 kW  
Thermal output ..... 8,024 kW  
Commissioning ..... January 2011

At this greenhouse facility, two Jenbacher J624 2-stage turbocharged gas engines enable French grower Serres Vinet to generate all of the hot water and electricity required for its extensive tomato and lettuce greenhouse operations. These are the first 2-stage turbocharged gas engines in France and give Serres Vinet the flexibility to switch among electrical energy, thermal energy and fuel sources as economics dictate.



**J620**  
**Barakatullah Electro**  
**Dynamics Ltd. (BEDL),**  
**Fenchuganj,**  
**Bangladesh**

Fuel ..... Natural gas  
Engine type ..... 19 x J620  
Electrical output ..... 51 MW  
Commissioning ..... October 2009

The plant in the town of Fenchuganj is the first of several emergency "rental" power plants that the Bangladesh government installed to help end widespread chronic energy shortages occurring throughout the Southeast Asian nation. The plant features 19 of GE's low-emission, J620 Jenbacher gas engine generator sets that run on natural gas. The electricity produced by the power plant, which was commissioned in October 2009, is sold to the national grid.



# technical features

feature	description	advantages
<b>Four-valve cylinder head</b>	Centrally located purged pre-combustion chamber, developed using advanced calculation and simulation methods (CFD)	Reduced charge-exchange losses, highly efficient and stable combustion, optimal ignition conditions
<b>Heat recovery</b>	Flexible arrangement of heat exchanger, two stage oil plate heat exchanger on demand	High thermal efficiency, even at high and fluctuating return temperatures
<b>Air/fuel mixture charging</b>	Fuel gas and combustion air are mixed at low pressure before entering the turbocharger	Main gas supply with low gas pressure, mixture homogenized in the turbocharger
<b>Pre-combustion chamber</b>	The ignition energy of the spark plug is amplified in the pre-combustion chamber	High efficiency, lowest NOx emission values, stable and reliable combustion
<b>Gas dosing valve</b>	Electronically controlled gas dosing valve with high degree of control accuracy (for natural gas)	Very quick response time, rapid adjustment of air/gas ratio, large adjustable calorific value range
<b>2-stage turbocharging</b>	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); 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)<sup>1</sup>

Containerized package	J612 - J620	12,000/15,000 x 3,000/6,000 x 8,100
	J624	17,000 x 6,000 x 8,400
Generator set	J612	7,600 x 2,200 x 2,800
	J616	8,300 x 2,200 x 2,800
	J620	8,900 x 2,200 x 2,800
	J624*	12,800 x 2,500 x 2,900
Cogeneration system	J612	7,600 x 2,200 x 2,800
	J616	8,300 x 2,200 x 2,800
	J620	8,900 x 2,200 x 2,800
	J624*	12,800 x 2,500 x 2,900

### Weights empty (kg)<sup>1</sup>

Generator set	J612	J616	J620	J624*
	22,700	28,100	32,000	44,900
Cogeneration system	J612	J616	J620	J624*
	23,200	28,600	32,700	45,500

1) Dimensions and weights are valid for 50 Hz applications.

\*J624 with 2-stage turbocharging

## outputs and efficiencies

### Natural Gas

#### 1,500 rpm | 50 Hz

#### 1,500 rpm | 60 Hz

NOx <	Type	Pel (kW) <sup>1</sup>	ηel (%) <sup>1</sup>	Pth (kW) <sup>2</sup>	ηth (%) <sup>2</sup>	ηtot (%)	Pel (kW) <sup>1</sup>	ηel (%) <sup>1</sup>	Pth (kW) <sup>2</sup>	ηth (%) <sup>2</sup>	ηtot (%)
500 mg/m <sup>3</sup> <sub>N</sub>	J612	2,000	44.7	1,949	43.5	88.2	1,979	44.2	1,960	43.8	88.0
	J616	2,679	44.9	2,598	43.5	88.4	2,654	44.5	2,612	43.8	88.2
	J620	3,356	45.0	3,229	43.3	88.2	3,332	44.7	3,243	43.5	88.1
	J624*	4,401	46.3	4,087	43.0	89.3	4,374	46.0	4,088	43.0	89.0
250 mg/m <sup>3</sup> <sub>N</sub>	J612	2,000	43.4	1,986	43.1	86.6	1,979	43.0	1,997	43.4	86.4
	J616	2,679	43.6	2,647	43.1	86.8	2,654	43.2	2,661	43.3	86.6
	J620	3,356	43.7	3,302	43.0	86.8	3,332	43.4	3,316	43.2	86.6
	J624*	4,401	45.2	4,207	43.2	88.4	4,374	44.9	4,127	42.4	87.3

### Biogas

#### 1,500 rpm | 50 Hz

#### 1,500 rpm | 60 Hz

NOx <	Type	Pel (kW) <sup>1</sup>	ηel (%) <sup>1</sup>	Pth (kW) <sup>2</sup>	ηth (%) <sup>2</sup>	ηtot (%)	Pel (kW) <sup>1</sup>	ηel (%) <sup>1</sup>	Pth (kW) <sup>2</sup>	ηth (%) <sup>2</sup>	ηtot (%)
500 mg/m <sup>3</sup> <sub>N</sub>	J612	1,817	43.9	1,668	40.3	84.1	1,794	43.3	1,770	42.7	86.0
	J616	2,433	44.0	2,225	40.3	84.3	2,405	43.5	2,359	42.7	86.3
	J620	3,044	44.1	2,782	40.3	84.4	3,020	43.7	2,947	42.7	86.4
250mg/m <sup>3</sup> <sub>N</sub>	J612	1,818	43.0	1,717	40.6	83.6	1,794	42.4	1,780	42.1	84.5
	J616	2,433	43.1	2,292	40.6	83.8	2,405	42.6	2,373	42.1	84.7
	J620	3,044	43.2	2,863	40.6	83.8	3,020	42.8	2,965	42.1	84.9

\*J624 with 2-stage turbocharging

1) Technical data according to ISO 3046

2) Total heat output with a tolerance of +/- 8%, exhaust gas outlet temperature 120°C, for biogas exhaust gas outlet temperature 180°C

All data according to full load and subject to technical development and modification.

Further engines versions available on request.