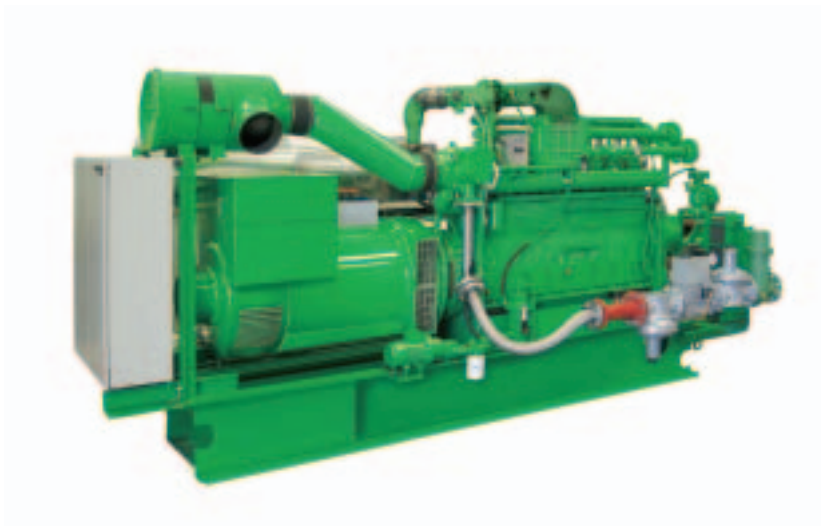


# Jenbacher type 2



## continuous development for 30 years

Introduced in 1974, the Jenbacher type 2 engine offers extremely high efficiency in the 250 to 350 kW power range. Its robust design and stationary engine concept result in excellent component durability and a service life of 60,000 operating hours before the first major overhaul. Optimized components and a proven control and monitoring concept give this engine outstanding reliability.

## reference installations

### model, plant

### key technical data

### description

**J208 GS**  
**Sewage treatment**  
**plant; Strass im**  
**Zillertal, Austria**

Fuel ..... Sewage gas  
Engine type ..... 1 x JMS 208 GS-B.LC  
Electrical output ..... 330 kW  
Thermal output ..... 420 kW  
Commissioning ..... April 2001

In addition to two existing Jenbacher systems, a J208 GS engine has been installed at this sewage treatment plant. Due to the high efficiency of this new engine, the annual electricity output could be increased by more than 20% while maintaining the fuel gas consumption at the same level. Our three cogeneration systems cover 85% of the electricity requirement and 100% of the heat requirement of the sewage treatment plant.



**J208 GS**  
**Containerized**  
**solution**  
**Biogas plant Wolfring;**  
**Fensterbach,**  
**Germany**

Fuel ..... Biogas  
Engine type ..... 1 x JMC 208 GS-B.L  
Electrical output ..... 330 kW  
Thermal output ..... 421 kW  
Commissioning ..... November 2002

Renewable resources such as grass, corn, and chicken dung are fermented to produce biogas that fuels our gas engine. The generated electricity is entirely fed into the public grid; the heat produced is used for heating purposes at the Wolfring estate. During summer, the exhaust gas from the engine is used to dry grain and wood chips. The substrate from the biomass fermentation serves as fertilizer for the Wolfring farm. Due to the exceptional technical and operational characteristics, in November 2005 the German Federal Ministry of Consumer Protection, Food and Agriculture declared the plant to be a "model solution for the ecological and economical generation of energy using agricultural biogas".



**J208 GS**  
**Biogas plant**  
**Lamping;**  
**Emstek, Germany**

Fuel ..... Biogas  
Engine type ..... 1 x JMS 208 GS-B.L  
Electrical output ..... 330 kW  
Thermal output ..... 405 kW  
Commissioning ..... December 2003

The gas engine runs on biogas produced from liquid manure and corn from the Lamping farm. The generated electricity is entirely fed into the public grid, and the produced heat is used for heating of the digester, housing and stables.



# technical data

Configuration	In line
Bore (mm)	135
Stroke (mm)	145
Displacement/cylinder (lit)	2.08
Speed (rpm)	1,500 (50 Hz) 1,800 (60 Hz)
Mean piston speed (m/s)	7.3 (1,500 rpm) 8.7 (1,800 rpm)
Scope of supply	Generator set, cogeneration system, generator set/cogeneration in container
Applicable gas types	Natural gas, flare gas, propane, biogas, landfill gas, sewage gas. Special gases (e.g., coal mine gas, coke gas, wood gas, pyrolysis gas)
Engine type	J208 GS
No. of cylinders	8
Total displacement (lit)	16.6

## Dimensions l x w x h (mm)

Generator set	4,900 x 1,700 x 2,000
Cogeneration system	4,900 x 1,700 x 2,000
Container 20-foot (generator set)	6,100 x 2,500 x 2,600
Container 40-foot (cogeneration)	12,200 x 2,500 x 2,600

## Weights empty (kg)

Generator set	4,900
Cogeneration system	5,600
Container 20-foot (generator set)	13,100
Container 40-foot (cogeneration)	17,000

# outputs and efficiencies

## Natural gas

### 1,500 rpm | 50 Hz

### 1,800 rpm | 60 Hz

NOx <	Type	Pel (kW) <sub>1</sub>	η <sub>el</sub> (%)	Pth (kW) <sub>2</sub>	η <sub>th</sub> (%)	η <sub>tot</sub> (%)	Pel (kW) <sub>1</sub>	η <sub>el</sub> (%)	Pth (kW) <sub>2</sub>	η <sub>th</sub> (%)	η <sub>tot</sub> (%)
500 mg/Nm <sup>3</sup>	208	329	38.6	358	42.0	80.6	335	37.2	406	45.0	82.2
250 mg/Nm <sup>3</sup>	208	294	37.6	395	50.5	88.0	335	35.8	409	43.7	79.5

## Biogas

### 1,500 rpm | 50 Hz

### 1,800 rpm | 60 Hz

NOx <	Type	Pel (kW) <sub>1</sub>	η <sub>el</sub> (%)	Pth (kW) <sub>2</sub>	η <sub>th</sub> (%)	η <sub>tot</sub> (%)	Pel (kW) <sub>1</sub>	η <sub>el</sub> (%)	Pth (kW) <sub>2</sub>	η <sub>th</sub> (%)	η <sub>tot</sub> (%)
500 mg/Nm <sup>3</sup>	208	249	39.1	295	46.3	85.4	335	36.2	391	42.3	78.5
	208	329	38.6	400	47.0	85.6					

## Propane

### 1,500 rpm | 50 Hz

NOx <	Type	Pel (kW) <sub>1</sub>	η <sub>el</sub> (%)	Pth (kW) <sub>2</sub>	η <sub>th</sub> (%)	η <sub>tot</sub> (%)
500 mg/Nm <sup>3</sup>	208	231	34.4	334	49.9	84.3
250 mg/Nm <sup>3</sup>	208	231	33.3	344	49.6	82.9

1) Electrical output based on ISO standard output and standard reference conditions according to ISO 3046/-1-1991 and p.f. = 1.0/low voltage alternator according to VDE 0530 REM with respective tolerance; minimum methane number 70 for natural gas

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

3) Special version with higher compression ratio

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