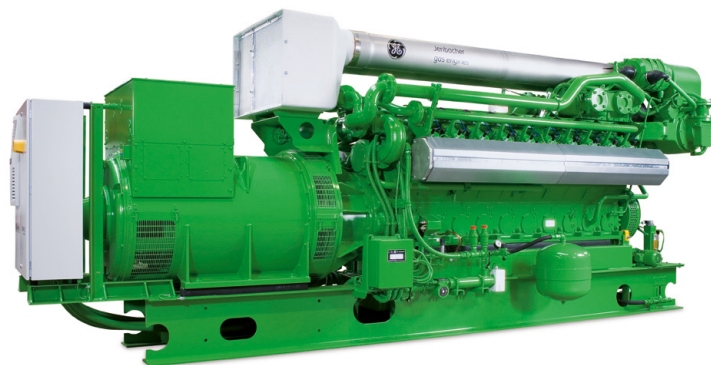


Jenbacher type 3

efficient, durable, reliable

Long service intervals, maintenance-friendly engine design and low fuel consumption ensure maximum efficiency in our type 3 engines. Enhanced components prolong service life even when using non-pipeline gases such as landfill gas. The new type 3D generation offers an outstanding service interval with up to 80,000 operating hours until the major overhaul. This engine type stands out in its 500 to 1,100 kW power range due to its technical maturity and high degree of reliability.



reference installations

model, plant

J312
Containerized
solution
Landfill site;
Cavenago, Italy

key technical data

Fuel Landfill gas
Engine type 2 x J312
Electrical output 1,202 kW
Thermal output 5,102 MBTU/hr
Commissioning September 1999

description

Every system has its own landfill gas feeder line and exhaust gas treatment line. The generated electricity is used on-site, excess power is fed into the public grid. The employment of the CLAIR* system ensures the purification of the exhaust gas to meet stringent Italian emission requirements. As a special feature, at this plant the thermal energy is used for landfill leachate treatment, as well as for greenhouse heating.



J316
Profusa,
producer of coke;
Bilbao, Spain

Fuel Coke gas and natural gas
Engine type 12 x J316
Electrical output
a) with 100% coke gas 5,642 kW
b) with 60% coke gas and 40% natural gas,
or 100% natural gas 6,528 kW
Commissioning November 1995

This installation designed by GE's Jenbacher product team enables Profusa to convert the residual coke gas with a hydrogen content of approximately 50% into valuable electrical energy. Beginning 2008, the 12 engines reached a combined total of one million operating hours.



J320
Ecoparc I;
Barcelona, Spain

Fuel Biogas and natural gas
Engine type 5 x J320
Electrical output 5,240 kW
Thermal output
a) with biogas 10,040 MBTU/hr
b) with natural gas 10,263 MBTU/hr
Commissioning December 2001
to January 2002

In Ecoparc I, organic waste is processed into biogas, which serves as energy source for our gas engines. The generated electricity is used on-site as well as fed into the public power grid. A portion of the thermal energy is used as process heat in the digesters, and the excess heat is bled off in the air coolers.



J320
Amtex Spinning Mills;
Faisalabad, Pakistan

Fuel Natural gas
Engine type 12 x J320
Electrical output 12,072 kW
Commissioning November 2002 (1st, 2nd engine),
April 2003 (3rd engine),
May 2003 (4th - 7th engine),
April 2004 (8th engine),
April 2005 (9th, 10th engine),
March 2008 (11th, 12th engine)

The natural gas-driven units generate electricity for spinning mills in one of Pakistan's most important textile centers. Special features of this Jenbacher plant allow for high ambient temperature, dusty inlet air, and operation in island mode.



GE imagination at work

technical data

Configuration	V 70°		
Bore (inch)	5.31		
Stroke (inch)	6.69		
Displacement/cylinder (cu.in)	148.5		
Speed (rpm)	1,800 (60 Hz)		
Mean piston speed (in/s)	402		
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	J312	J316	J320
No. of cylinders	12	16	20
Total displacement (cu.in)	1,782	2,376	2,970

Dimensions l x w x h (inch)

Generator set	J312	195 x 71 x 91
	J316	205 x 70 x 90
	J320	224 x 70 x 90
Cogeneration system	J312	185 x 91 x 91
	J316	209 x 91 x 91
	J320	224 x 75 x 91
Container	J312	480 x 95 x 102
	J316	480 x 95 x 102
	J320	480 x 95 x 102

Weights empty (lbs)

	J312	J316	J320
Generator set	20,503	24,251	30,203
Cogeneration system	23,590	26,676	31,306

outputs and efficiencies

Natural gas

1,800 rpm | 60 Hz

NOx <	Type	Pel (kW) ¹	η _{el} (%) ¹	Pth (MBTU/hr) ²	η _{th} (%) ²	η _{tot} (%)
1.1 g/bhp.hr	J312	633	38.1	2,839	50.1	88.2
	J316	848	38.3	3,798	50.2	88.5
	J320	1,059	39.0	4,657	50.3	89.3
0.6 g/bhp.hr	J312	633	36.8	3,054	51.9	88.7
	J316	848	36.9	4,047	51.6	88.5
	J320	1,059	38.1	4,835	51.0	89.1

Biogas

1,800 rpm | 60 Hz

NOx <	Type	Pel (kW) ¹	η _{el} (%) ¹	Pth (MBTU/hr) ²	η _{th} (%) ²	η _{tot} (%)
1.1 g/bhp.hr	J312	633	38.1	2,764	48.8	86.9
	J316	848	38.3	3,699	47.6	87.2
	J320	1,059	39.0	4,507	48.6	87.6
0.6 g/bhp.hr	J312	633	36.8	2,934	49.9	86.7
	J316	848	36.9	3,914	49.9	86.9
	J320	1,059	36.9	4,951	50.2	87.4

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.