

Jenbacher type 3



50
over
years of power

Jenbacher gas engines

efficient, durable, reliable

Long service intervals, maintenance-friendly engine design and low fuel consumption ensure maximum efficiency in our type 3 engines. Optimized components prolong service life even when using non-pipeline gases such as landfill gas. The type 3 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

key technical data

description

J312 GS
Containerized solution
Landfill site;
Cavenago, Italy

Fuel Landfill gas
Engine type 2 x JMC 312 GS-L.L
Electrical output 1,202 kW
Thermal output 1,494 kW
Commissioning September 1999

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 CL.AIR® 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 GS
Profusa,
producer of coke;
Bilbao, Spain

Fuel Coke gas and natural gas
Engine type 12 x JGS 316 GS-S/N.L
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 GS
Ecoparc I;
Barcelona, Spain

Fuel Biogas and natural gas
Engine type 5 x JMS 320 GS-B/N.L
Electrical output 5,240 kW
Thermal output
a) with biogas 2,960 kW
b) with natural gas 3,005 kW
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 GS
Amtex Spinning Mills;
Faisalabad, Pakistan

Fuel Natural gas
Engine type 12 x JGS 320 GS-N.L
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.



technical data

Configuration	V 70°
Bore (mm)	135
Stroke (mm)	170
Displacement/cylinder (lit)	2.43
Speed (rpm)	1,500 (50 Hz) 1,200/1,800 (60 Hz)
Mean piston speed (m/s)	8.5 (1,500 rpm) 6.8 (1,200 rpm) 10.2 (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, pyrolysis gas)
Engine type	J312 GS J316 GS J320 GS
No. of cylinders	12 16 20
Total displacement (lit)	29.2 38.9 48.7

Dimensions l x w x h (mm)

Generator set	J312 GS	4,700 × 1,800 × 2,300
	J316 GS	5,200 × 1,800 × 2,300
	J320 GS	5,700 × 1,700 × 2,300
Cogeneration system	J312 GS	4,700 × 2,300 × 2,300
	J316 GS	5,300 × 2,300 × 2,300
	J320 GS	5,700 × 1,900 × 2,300
Container	J312 GS	12,200 × 2,500 × 2,600
	J316 GS	12,200 × 2,500 × 2,600
	J320 GS	12,200 × 2,500 × 2,600

Weights empty (kg)

	J312 GS	J316 GS	J320 GS
Generator set	8,000	8,800	10,500
Cogeneration system	9,400	9,900	11,000
Container (generator set)	19,400	22,100	26,000
Container (cogeneration)	20,800	23,200	26,500

outputs and efficiencies

Natural gas

1,200 rpm | 60 Hz

1,500 rpm | 50 Hz

1,800 rpm | 60 Hz

NOx <	Type	Pel (kW) ¹	ηel (%)	Pth (kW) ²	ηth (%)	ηtot (%)	Pel (kW) ¹	ηel (%)	Pth (kW) ²	ηth (%)	ηtot (%)	Pel (kW) ¹	ηel (%)	Pth (kW) ²	ηth (%)	ηtot (%)
500 mg/m ³ _N	312						³ 526	39.5	634	47.6	87.1					
	312	435	39.7	511	46.6	86.3	635	40.4	731	46.5	86.9	633	38.1	814	49.0	87.1
	316	583	40.3	665	45.9	86.2	835	40.0	994	47.6	87.6	848	38.3	1,089	49.2	87.4
	320	795	40.7	874	44.8	85.5	1,067	40.9	1,208	46.4	87.3	1,059	39.0	1,324	48.8	87.8
250 mg/m ³ _N	312						635	39.2	766	47.3	86.5	633	36.8	875	50.8	87.5
	316						802	39.0	983	47.8	86.8	848	36.9	1,159	50.5	87.4
	320						1,067	39.9	1,256	47.0	86.9	1,059	38.1	1,380	49.7	87.8
350 mg/m ³ _N	312	418	38.6	512	47.3	85.9	635	39.8	752	47.0	86.8					
	316	559	38.8	682	47.2	86.0	802	39.2	990	48.4	87.6					
	320	730	39.1	870	46.6	85.7	1,067	40.3	1,241	46.8	87.1					

Biogas

1,200 rpm | 60 Hz

1,500 rpm | 50 Hz

1,800 rpm | 60 Hz

NOx <	Type	Pel (kW) ¹	ηel (%)	Pth (kW) ²	ηth (%)	ηtot (%)	Pel (kW) ¹	ηel (%)	Pth (kW) ²	ηth (%)	ηtot (%)	Pel (kW) ¹	ηel (%)	Pth (kW) ²	ηth (%)	ηtot (%)
500 mg/m ³ _N	312						635	39.7	694	43.3	83.0	633	38.1	787	47.4	85.5
	316						835	39.7	936	44.4	84.1	848	38.3	1,054	47.6	85.9
	320						1,067	40.6	1,122	42.7	83.2	1,059	39.0	1,269	46.7	85.7
250 mg/m ³ _N	312											633	36.8	837	48.6	85.3
	316											848	36.9	1,118	48.7	85.6
	320											1,059	36.9	1,406	49.0	85.9

1) Electrical output based on ISO standard output and standard reference conditions according to ISO 3046/I-1991 and p.f. = 1.0 according to VDE 0530 REM with respective tolerance;

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.