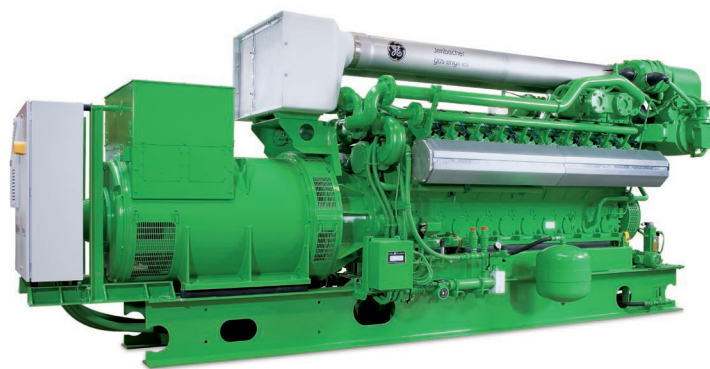




Jenbacher type 3



efficient, durable, reliable

Long service intervals, maintenance-friendly engine design and low fuel consumption ensure maximum efficiency in our type 3 engines. 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

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.



J316 GS

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 us 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

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

..... 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

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)



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, wood 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

1.500 rpm | 50 Hz

1.800 rpm | 60 Hz

1.200 rpm | 60 Hz

NOx <	Type	Pel (kW) ¹	η _{el} (%)	Pth (kW)	η _{th} (%)	η _{tot} (%)	Pel (kW) ¹	η _{el} (%)	Pth (kW)	η _{th} (%)	η _{tot} (%)	Pel (kW) ¹	η _{el} (%)	Pth (kW)	η _{th} (%)	η _{tot} (%)
500 mg/m ³ _N	312	527	39.9	626	47.3	87.2										
	312	637	40.8	725	46.4	87.1	633	38.1	814	49.0	87.1	435	39.7	503	45.9	85.6
	316	835	40.0	986	47.2	87.2	848	38.3	1,089	49.2	87.4	583	40.3	655	45.2	85.5
	320	1,067	40.9	1,208	46.4	87.3	1,059	39.0	1,324	48.8	87.8	795	40.7	855	43.8	84.5
250 mg/m ³ _N	312	637	39.6	759	47.1	86.7	633	36.8	875	50.8	87.5					
	316	802	39.0	977	47.5	86.5	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	637	40.1	741	46.7	86.9						418	38.6	504	46.5	85.2
	316	802	39.2	984	48.1	87.3						559	38.8	671	46.5	85.3
	320	1,063	40.1	1,226	46.3	86.4						730	39.2	853	45.8	84.9

Biogas

1,500 rpm | 50 Hz

1,800 rpm | 60 Hz

NOx <	Type	Pel (kW) ¹	η _{el} (%)	Pth (kW)	η _{th} (%)	η _{tot} (%)	Pel (kW) ¹	η _{el} (%)	Pth (kW)	η _{th} (%)	η _{tot} (%)
500 mg/m ³ _N	312	527	41.1	539	42.0	83.1	633	38.1	787	47.4	85.5
	312	637	40.3	682	43.2	83.6					
	316	703	40.5	743	42.8	83.3	848	38.3	1,054	47.6	85.9
	316	835	39.9	920	44.0	83.9					
	320	1,067	40.9	1,103	42.3	83.3	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
350 mg/m ³ _N	312	637	39.3	720	44.4	83.7					
	316										
	320	1,063	40.1	1,132	42.7	82.8					

1) 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.