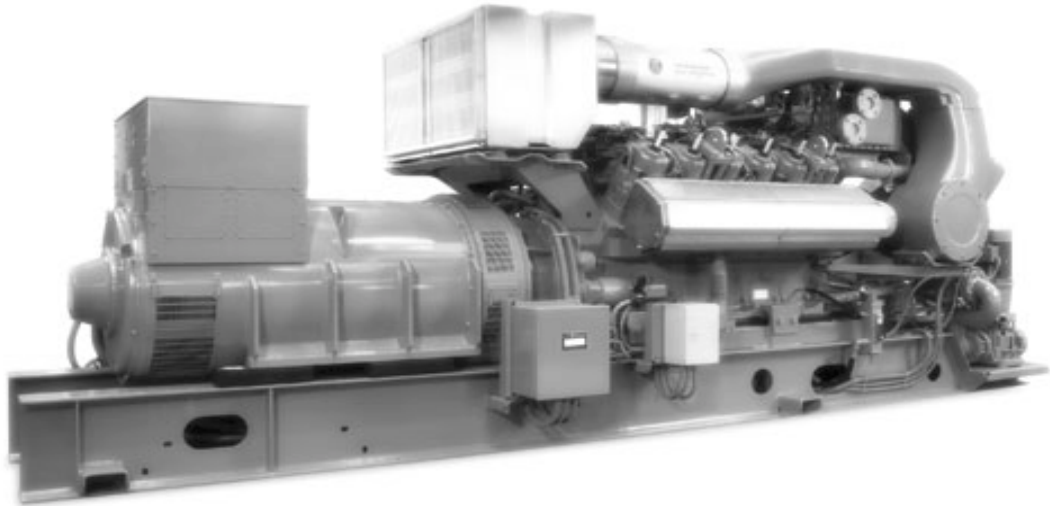




**Jenbacher gas engines**  
Technical Specification



**JMS 412 GS-N.L**

Natural gas 844kW el.



# Jenbacher gas engines

## Technical Specification

### JMS 412 GS-N.L

Natural gas 844kW el.

#### CO-GEN Module data:

Electrical output	kW el.	844
Recoverable thermal output (120 °C)	kW	865
Energy input	kW	1.977
Fuel Consumption based on a LHV of 9,5 kWh/Nm <sup>3</sup>	Nm <sup>3</sup> /h	208
Electrical efficiency	%	42,7%
Thermal efficiency	%	43,8%
Total efficiency	%	86,4%
Heat to be dissipated (LT-Circuit)	kW	53

Emission values:

NOx < 500 mg/Nm<sup>3</sup> (5% O2)

#### Additional information:

Sound pressure level (engine, average value 1m)	dB(A)	95
Sound pressure level exhaust gas (1m, 30° off engine)	dB(A)	117
Exhaust gas mass flow rate, wet	kg/h	4.494
Exhaust gas volume, wet	Nm <sup>3</sup> /h	3.551
Max.admissible exhaust back pressure after engine	mbar	60
Exhaust gas temperature at full load	°C [8]	390
Combustion air mass flow rate	kg/h	4.352
Combustion air volume	Nm <sup>3</sup> /h	3.367
Max. inlet cooling water temp. (intercooler)	°C	40
Max. pressure drop in front of intake-air filter	mbar	10
Return temperature	°C	70
Forward temperature	°C	90
Hot water flow rate	m <sup>3</sup> /h	37,1

#### Engine data:

Engine type		J 412 GS-A05
Configuration		V 70°
No. of cylinders		12
Bore	mm	145
Stroke	mm	185
Piston displacement	lit	36,66
Nominal speed	rpm	1.500
Mean piston speed	m/s	9,25
Mean effe. press. at stand. power and nom. sp	bar	19,00
Compression ratio	Epsilon	12,5
ISO standard fuel stop power ICFN	kW	871
Spec. fuel consumption of engine	kWh/kWh	2,27
Specific lube oil consumption	g/kWh	0,30
Weight dry	kg	4.265
Filling capacity lube oil	lit	288
Based on methane number	MZ	70

#### Alternator:

Manufacturer	STAMFORD e)	
Type	PE 734 B2 e)	
Type rating	kVA	1.400
Efficiency at p.f. = 1,0	%	96,9%
Efficiency at p.f. = 0,8	%	95,8%
Ratings at p.f. = 1,0	kW	844
Ratings at p.f. = 0,8	kW	834
Frequency	Hz	50
Voltage	V	400
Protection Class	IP 23	
Insulation class	H	
Speed	rpm	1.500
Mass	kg	2.710

#### Technical parameters:

Applicable standards:

Based on DIN-ISO 3046

Based on VDE 0530 REM with specified tolerance

Standard conditions:

Air pressure: 1000 mbar or 100 m above sea level

Air temperature: 25°C or 298 K

Relative Humidity: 30%

Engine output derating:

for plants installed at > 500m above sea level and/or intake temperature > 30°C, the reduction of engine power is determined for each project.

Gas quality:

according to TA 1000-0300

Gas flow pressure: 80 - 200 mbar

(Lower gas pressures upon inquiry)

Max. variation in gas pressure: ±10%



### >>> Scope of supply genset - JGS 412 GS-N.L

#### Basic engine equipment:

- \*Exhaust gas turbocharger, Intercooler
- \*Motorized carburator for LEANOX control
- \*Electronic contactless high performance ignition system
- \*Lubricating oil pump (gear driven)
- \*Lubricating oil filters in main circuit
- \*Lubricating oil sump; Lubricating oil heat exchanger
- \*Jacket water pump
- \*Fuel-, lubricating oil and jacket water pipe work on engine
- \*Flywheel for alternator operation; Exhaust gas manifold
- \*Viscous damper
- \*Knock sensors

#### Engine accessories:

- \*Electric starter motor
- \*Electronic speed governor
- \*Electronic speed monitoring device including starting and overspeed control
- \*Transducers and switches for oil pressure, jacket water temp., jacket water pressure, charge pressure and mixture temperature
- \*One thermocouple per cylinder

#### Supplied loose:

Gas train according to DIN-DVGW consisting of:

- \*Manual stop valve, fuel gas filter, two solenoid valves, Leakage control device, gas pressure regulator

#### Documentation:

- \*Operating and maintenance manual
- \*Spare parts manual
- \*Drawings

Assembly, painting, testing in Jenbach/Austria

#### Module equipment:

- \*Base frame for gas engine, alternator and heat exchangers
- \*Internal pole alternator with excitation alternator and with automatic voltage regulator; p.f. 0,8 lagging to 1,0
- \*Flexible coupling, bell housing
- \*Anti-vibration mounts
- \*Air filter
- \*Automatic lube oil replenishing with level control
- \*Wiring of components to module interface panel
- \*Crankcase breather
- \*Jacket water electric preheating

#### Module control panel:

- \*Totally enclosed, single door cubicle, wired to terminals and ready to operate, protection IP 41 outside, IP 10 inside, according to VDE-standards

#### Control equipment:

- \*Engine-Management-System dia.ne (Dialog Network)
- \*\*Visualisation (industry PC-10" color graphics display): Operation data, controller display, Exh. gas temp., Generator electr. connection, etc.
- \*\*Central engine- and module control: Speed-, Power output-, LEANOX-Control and knock control, etc.
- \*Multi-transducer
- \*Lockable operation mode selector switch  
Positions: "OFF", "MANUAL", "AUTOMATIC"
- \*Demand switch

### >>> Scope of supply module - JMS 412 GS-N.L

Identical to Genset except that heat recovery is included.

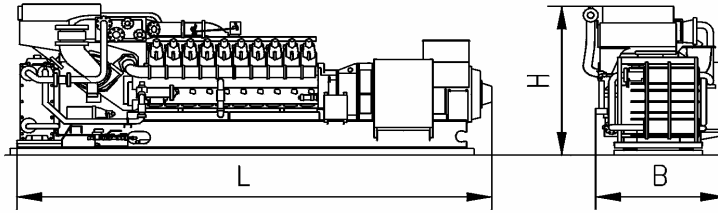
- \*jacket water heat exchanger mounted on module frame
- \*exhaust gas heat exchanger delivered loose
- \*all heat exchangers with complete pipework
- \*Heat exchangers and all inherent auxiliaries

### >>> Scope of supply container - JG(M)C 412 GS-N.L

- \*Identical to module/genset but installed in 40' ISO container (65 dB(A) @ 10m); complete with all pipework and fittings
- \*Twin circuit radiation cooler for dissipation of intercooler jacket water and lube oil thermal output; ventilation equipment
- \*Gas & smoke detectors; exhaust silencer; lube oil equipment; starting system; flexible connections
- \*Separate control room complete with generator switchgear and all internal power and monitoring cables



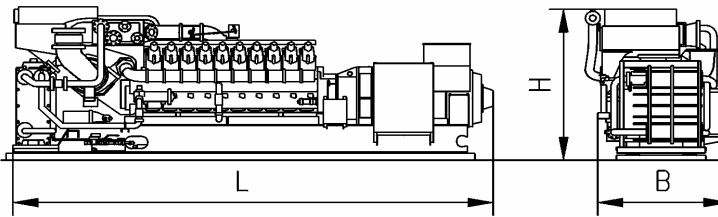
**Genset**



Main dimensions and weights (approximate value)		
Length L	mm	5.400
Width B	mm	1.800
Height H	mm	2.200
Weight empty	kg	10.900
Weight filled	kg	11.600

Connections (at genset)		
Jacket water inlet and outlet	DN/PN	80/10
Exhaust gas outlet	DN/PN	300/10
Fuel gas (at gas train)	DN/PN	80/16
Intercooler water connection:		
Low Temperature Circuit	DN/PN	65/10

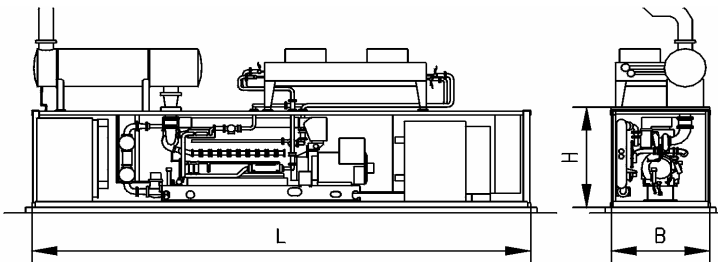
**Module**



Main dimensions and weights (approximate value)		
Length L	mm	6.000
Width B	mm	1.800
Height H	mm	2.200
Weight empty	kg	11.500
Weight filled	kg	12.200

Connections (at module)		
Hot water inlet and outlet	DN/PN	80/10
Exhaust gas outlet	DN/PN	300/10
Fuel gas (at gas train)	DN/PN	80/16
Intercooler water connection:		
Intercooler water-Inlet/Outlet 2nd stage	DN/PN	65/10

**Container**



Main dimensions and weights (approximate value)		
Length L	mm	12.200
Width B	mm	3.000
Height H	mm	2.600
Container weight (dry)	kg	28.800
Container weight (filled)	kg	30.200

Connections (container)		
Jacket water inlet and outlet	DN/PN	80/10
Exhaust gas outlet	DN/PN	300/10
Fuel gas connection (container)	mm	80/16
Fresh oil connection	G	28x2"