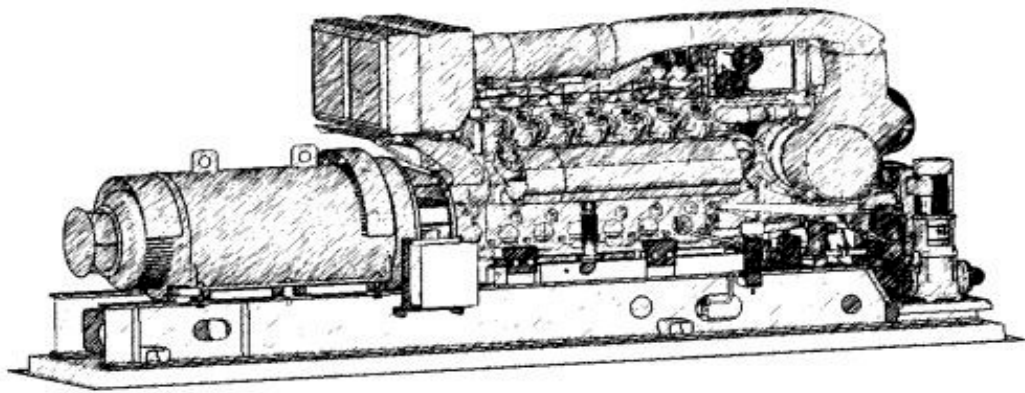




Jenbacher gas engines
Technical Specification



JMS 412 GS-N.L
Natural gas 844kW el.



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CO-GEN Module data:

Electrical output	kW el.	844
Recoverable thermal output (120 °C)	kW	856
Energy input	kW	1.977
Fuel Consumption based on a LHV of 9,5 kWh/Nm ³	Nm ³ /h	208
Electrical efficiency	%	42,7%
Thermal efficiency	%	43,3%
Total efficiency	%	86,0%
Heat to be dissipated (LT-Circuit)	kW	67

Emission values:

NOx < 310 ppm (0% O2)

Additional information:

Sound pressure level (engine, average value 1m)	dB(A)	93
Sound pressure level exhaust gas (1m, 30° off engine)	dB(A)	115
Exhaust gas mass flow rate, wet	kg/h	4.593
Exhaust gas volume, wet	Nm ³ /h	3.626
Max.admissible exhaust back pressure after engine	mbar	60
Exhaust gas temperature at full load	°C [8]	370
Combustion air mass flow rate	kg/h	4.450
Combustion air volume	Nm ³ /h	3.443
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 ³ /h	36,7

Engine data:

Engine type		J 412 GS-A09
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	13,5
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	85

Alternator:

Manufacturer		STAMFORD
Type		PE 734 B2
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

>>> 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 mounted on module frame;
- *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

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:

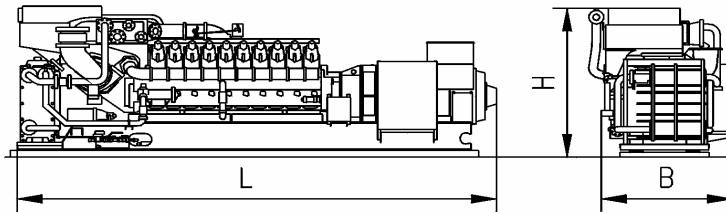
- *Totally enclosed , single door cubicle, wired to terminals and ready to operate, protection IP 41 outside, IP 10 inside, according to VDE-standards

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



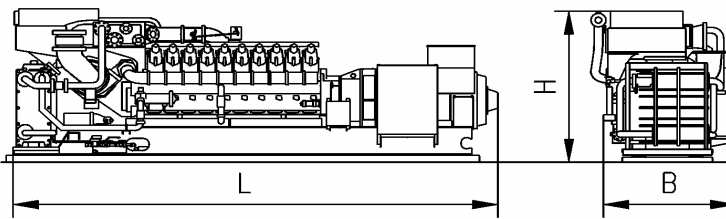
Genset



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

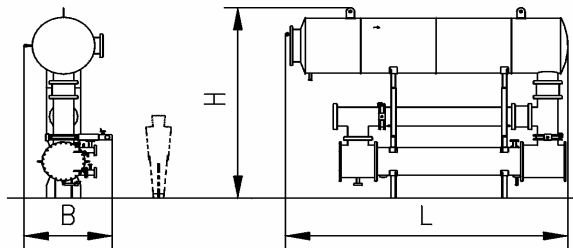
Module



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

Heat recovery module



Main dimensions and weights (approximate value)		
Width B	mm	1.800
Height H	mm	3.750
Length L	mm	4.700

Connections (on heat recovery module)		
Hot water inlet and outlet	DN/PN	80/10
Exhaust gas outlet	DN/PN	300/10
Condensate drain	DN/PN	50/10
Drain line	1/2"	1/2"