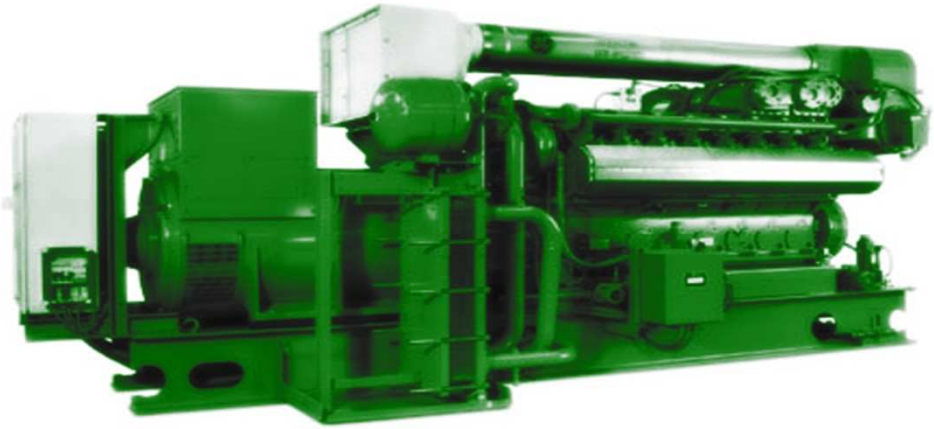


Illustration: may differ from specified module

Compact CHP ready for connection, mainly consisting of

- serially manufactured Industrial-Gas-Otto-engine
- air-cooled synchronous generator
- waste-gas heat exchanger integrated in primary cooling circuit
- oil reservoir with automatic oil feeding
- control cabinet with programmable controller and operating unit
- gas train

Integrated heat exchanger basket, mainly consisting of

- expansion tank in motor circuit and mixture circuit
- relief value in motor circuit, mixture circuit and heater circuit
- filling valves, cleanout valves and exhaust valves
- plate heat exchanger
- pumps for motor circuit, mixture circuit and heater circuit
- 3-way mixing valve for return temperature increase

Water and gas connections are executed with compensators.

Motor and generator are connected through a pluggable elastic metal plastics coupler to compensate radial offest, axial offset or angular offset. It is mounted on a framework vibration-cushionedly. Furthermor the framework is uncoupled through oscillation decoupling elements.
The control cabinet ist executed as a separate unit. All regulation and control functions as well as control elements are part of the control cabinet. Assisted by a menu-navigated display performace data and state data could be readed and adjusted easily.

The drive of the CHP is caused by a water-cooled, supercharged Otto-Gas-Engine. It is stationary engine designed for permanent operation. A micorprocessor-controlled ignition ensures an optimal adaption of the ignition point and the ignition energy to the gas quality (methane number).

Lambda regulation is carried out without a lambda sensor using a calculation program which sets the optimal lambda value for each operating mode using the actual output, charging pressure and mixture temperature values.

Besides an exceedingly high electrical efficiency, a double-staged mixture cooling, including a low temperature circuit and a high temperature circuit, leads to an ideal usage of thermal power from the mixture heat.

Engine data	Hz	400
Mixture cooling to	℃	45
RPM	1/min	1.500
ISO standard power (mech.)	kW	861
Arrangement of cylinders		V 70°
Number of cylinders		16
Bore	mm	135
Stroke	mm	170
Swept volume	l	38,93
direction of rotation (look on balance wheel)		links
compression ratio	ε	11,8 : 1
average effective pressure	bar	17,6933
average piston speed	m/s	8,5

Power data	Hz	50
Load	%	100
Ignition timing	grad	variabel
ISO standard power (mech.)	kW	861
Electrical power	kW el	835
Cooling water heat	kW	391
Low temperature mixture heat	kW	47
High temperature mixture heat	kW	138
Waste gas heat up to 120℃	kW	457
useable thermal power at 120℃	kW	986
radiant heat of module (max.)	kW	121
nominal power	kW	2.089
Fuel consumption (mech.)	kWh/kWh	2,43
Fuel consumption (el.)	‹Wh/kWh el	2,50

Temperatures and pressures		
Waste gas temperature after turbine	℃	447
exhaus back pressure (max.)	mbar	60
Heating water return temperature (max.)	℃	70
Heating water flow temperature (max.)	℃	90
Pressure decrease heating circuit (max.)	mbar	200
maximum backpressure at the air intake	mbar	10

Emission value at 5% residual oxygen		
NOx	mg/Nm³	< 500
CO	mg/Nm³	< 300

Engine utilities		
Lubricate consumption	kg/h	0,26
Filling capacity lubricant min./max.	l	275
Filling capacity cooling water	l	-
Operating pressure (max.)	bar	2,5
Cooling water recirculated quantity (min. / max.)	m³/h	42,3
Cooling water temperature (inflow)	℃	74,8
Cooling water temperature (exit)	℃	80,7
Balance (inflow/exit, max.)	K	5,9
Mixture inflow temperature after damper (max.)	℃	45
Mixture cooling water, inflow temperature low temperature circuit (max.)	℃	40
Mixture cooling water recirculated quantity low temperature circuit (max.)	m³/h	15

Efficiencies				
	%	100	75	50
Electrical	%	40,0	38,8	36,6
Mechanical	%	41,2	-	-
Thermal	%	47,2	47,8	48,7
Total (el. + th.)	%	87,2	86,6	85,3
Power number		0,85	0,81	0,75

Mass flows and volume flows		
Combustion air mass flow	kg/h	4.323
Combustion air volume flow	Nm³/h	3.344
Supply air volume flow	m³/h	21.648
Combustible mass flow	kg/h	176
Combustible volume flow	m³/h	220
Waste gas m ass flow, wet	kg/h	4.473
Waste gas mass flow, dry	kg/h	4.136
Waste gas volume flow, wet	m³/h	3.538
Waste ga s volume flow, dry	m³/h	3.133
Heating water volume flow (max.)	m³/h	56,477

Technical basic conditions

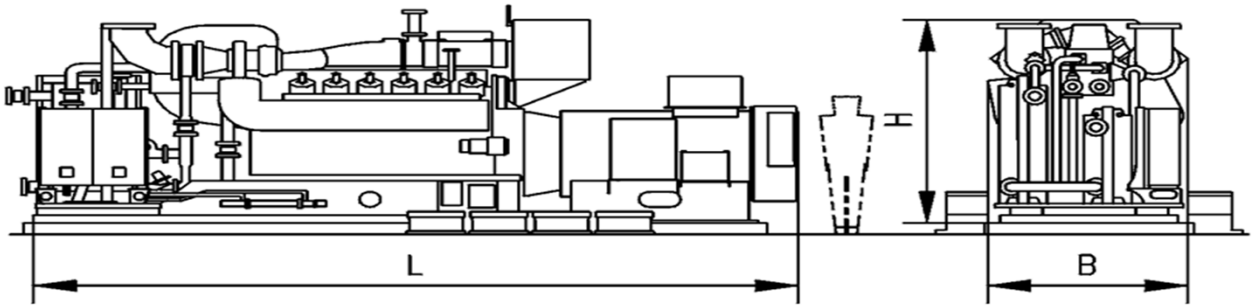
Power conditions acc. to DIN-ISO-3046
Norm conditions: air pressure: 1000mbar,
air temperature: 25℃ or 295 K, rel. hum idity: 30%
Gasquality according "TA 1100-0110"
All data are related to full load engine running at denoted media temperatures and are subject to technical advancements.
Equipment as well as installation systems have to meet all Jenbacher technical instructions.
When installed > 500 m and/or with intake air temperatures > 30 ℃, the power reduction must be determined on a project-specific basis.

Generator data		
Manufacturer		STAMFORD
Type		PE 734 C
Power	kVA	1.044
Voltage	V	400
Frequency	Hz	50
Rated Speed	1/min	1500
Nominal current at Cos φ = 0,8	A	1.506,52
Cos φ		1
Efficiency (full load) at Cos φ = 1	%	97
Efficiency (full load) at Cos φ = 0,8	%	96,2
Reactance Xd	p.u.	1,98
Reactance X'd	p.u.	0,12
Reactance X"d	p.u.	0,09
Mass moment of inertia	kgm²	36,33
Stator circuit		Stern
Ambient air temperature	℃	40
Protection class		IP 23

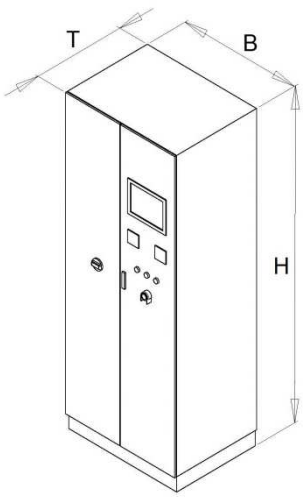
Cos φ has to be between 0,8 and 1,0 within the complete range of capacity. Only inductive power output permitted.

Main dimensions and weights		
Module:		
Length (L)	mm	5.300
Height (H)	mm	2.300
Width (B)	mm	2.300
Weight dry (approx.)	kg	13.000
Control cabinet:		
Height (H)	mm	2.200
Width (B)	mm	1.000
Depth (T)	mm	600
Weight (approx.)	kg	240
Power switch cabinet:		
Height (H)	mm	2.200
Width (B)	mm	600
Depth (T)	mm	600
Weight (approx.)	kg	120

Modul:



Control cabinet:



Power switch cabinet: