COGEN TECHNIK

Technical Data Sheet

CT - M 210 N

Engine data version 09.2017

Basic Data		
Fuel		natural gas
Minimum heating value Hu	kWh/m³	10
Methane number	Mz	≥ 80
Heating water system temperature	°C	70 / 90
CHP coefficient		0,85
Frequency	Hz	50
Nominal voltage Un	V	400
Speed	min ¹	1.500
Intercooler version	°C	50
Electrical nominal power at cosφ=1	kW	210
Thermal power utile *	kW	248
Fuel power input	kW	529
Efficiency electrical	%	39,7
Efficiency thermal	%	46,9
Efficiency total	%	86,6
After-treatment of exhaust gases		Lean operation and oxicat
Pollutant emissions (dry exhaust gas with 5% O_2)		
Formaldehyde (CH_2O)	mg/Nm³	< 20
NOx measured as NO_2	mg/Nm³	< 250
CO	mg/Nm³	< 300

Engine		
Engine Type		MAN E 2676 LE202
Combustion type		gas engine
Operating principle		4-stroke
Cylinder No./ configuration		6 in line
Displacement	l	12,4
Engine power according ISO 3046/1	kW_mech	220
Specific fuel consumption	MJ/kWh	8,66

Generator		
Type of Generator		Leroy Somer 46.3 M7
Apparent power	kVA	275
Voltage	V	400
Stator connection		Y
Ambient temperature max.	°C	40
Protection class		IP23
Radio interference class acc. VDE 0875		N
Heating class		H

Heat exchanger unit		
Engine cooling water heat output	kW	110
Intercooler HT heat output	kW	17
Intercooler LT heat output	kW	19
Exhaust heat (cooling up to 120°C)	kW	121
Total thermal power output via plate heat exchanger	kW	248
Heating water temp. inlet max.	°C	70
Heating water temp. outlet max.	°C	90

Design and operation		
Lubricant oil content engine min./max.	l	50/70
Lubricant oil storage tank	l	
Generator efficiency cosφ=1, 400V	%	95,3
COGEN current rated	A	379
Radiation heat module	kW	25
Intake air mass flow	kg/h	7.179
Outlet air mass flow	kg/h	6.022
Combustion air mass flow at 25°C and 1013 mbar	kg/h	1.157
Intake air temp. ISO 3046 dimensioning	°C	25
Exhaust mass flow wet	kg/h	1.196
Exhaust volume flow, dry 0% O2 (0°C, 1013 mbar)	Nm³/h	983
Permissible exhaust gas back pressure downstream of module for piping	mBar	5
Externe Pressung des Lüfters	Pa	104
Airborne noise (sound pressure level) encaapsulated modul at 1 m distance **	dB(A)	75
Exhaust noise (sound pressure level) with primary exhaust silencer at 1 m distance ***	dB(A)	75

Connections and interfaces	
Gas inlet	DN40 / PN16
Exhaust gas outlet (flange)	DN200 / PN10
Condensate drain	R 3/4"
Heating water inlet/outlet (flange)	DN50 / PN10
Intercooling system LT inlet/outlet (flange)	DN40 / PN10
Flanges conform to DIN EN 1092-1	

Module dimensions and weigh *		
Length	mm	4.283
Width	mm	1.887
Height	mm	2.277
Operating weight approx.	kg	4.000

* Possibility of increasing thermal power by using a calorific value waste-gas heat exchanger.

** Measurement of noise in free field, tolerance ± 1.0 dB(A)

*** Measurement of noise in free field, tolerance ± 2.5 dB(A)

* Dimensions with ventilator and feet. Lenght whitout stillage for return riser.

Tolerance for preceding heat output ±7% and energy input +5% according full duty.

All further data are valid for grid parallel operation. Derating through adjustment of reactive power factor cosφ by energy supplier possible.

Features of our scope of supply are only warranted, when SES expressly stated the warranty. Power and efficiencies according ISO 3046/1 and DIN 6271, at 25°C air temperature, 100 kPa air pressure (at 100 m above sea level), 30% rel. humidity, methane number see basic data, as well as cosφ= 1. As fuel natural gas according German DVGW Worksheet G260, category 2, group L/H is valid. Furthermore following documents are valid: MAN Operating Materials and Operating Instructions for MAN Industrial Gas Engines in latest edition. These documents are available on request. A gas flow pressure before module of 20 - 50 mbar is necessary (other gas flow pressures are available on request). A temperature of intake air of 10 °C to 25 °C has to be ensured. Data for other operating conditions or gas qualities are available on request.