

Basic Data		
Fuel	natural gas	
Minimum heating value Hu	kWh/m ³	10
Methane number	Mz	≥ 80
Heating water system temperature	°C	80 / 92
CHP coefficient		0,64
Frequency	Hz	50
Nominal voltage Un	V	400
Speed	min ⁻¹	1.500
Intercooler version	°C	-
Electrical nominal power at cosφ=1	kW	70
Thermal power utile *	kW	109
Fuel power input	kW	204
Efficiency electrical	%	34,3
Efficiency thermal	%	53,4
Efficiency total	%	87,7
After-treatment of exhaust gases	lambda=1 and three-way-cat	
Pollutant emissions (dry exhaust gas with 5% O ₂)		
Formaldehyde (CH ₂ O)	mg/Nm ³	< 20
NOx measured as NO ₂	mg/Nm ³	< 125
CO	mg/Nm ³	< 150

Engine		
Engine Type	MAN E 0836 E 302	
Combustion type	gas engine	
Operating principle	4-stroke	
Cylinder No./ configuration	6 in line	
Displacement	l	6,9
Engine power according ISO 3046/1	kW_mech	75
Specific fuel consumption	MJ/kWh	9,79

Generator		
Type of Generator	Leroy Somer 44.3 S4	
Apparent power	kVA	90
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	63
Intercooler HT heat output	kW	-
Intercooler LT heat output	kW	-
Exhaust heat (cooling up to 120°C)	kW	46
Total thermal power output via plate heat exchanger	kW	109
Heating water temp. inlet max.	°C	80
Heating water temp. outlet max.	°C	92

Design and operation		
Lubricant oil content engine min./max.	l	24/34
Lubricant oil storage tank	l	70
Generator efficiency cosφ=1, 400V	%	94,6
COGEN current rated	A	126
Radiation heat module	kW	25
Intake air mass flow	kg/h	5.559
Outlet air mass flow	kg/h	5.302
Combustion air mass flow at 25°C and 1013 mbar	kg/h	257
Intake air temp. ISO 3046 dimensioning	°C	25
Exhaust mass flow wet	kg/h	272
Exhaust volume flow, dry 0% O ₂ (0°C, 1013 mbar)	Nm ³ /h	221
Permissible exhaust gas back pressure downstream of module for piping	mBar	5
Externe Pressung des Lüfters	Pa	25
Airborne noise (sound pressure level) encaapsulated modul at 1 m distance **	dB(A)	69
Exhaust noise (sound pressure level) with primary exhaust silencer at 1 m distance ***	dB(A)	65

Connections and interfaces		
Gas inlet		Rp 1"
Exhaust gas outlet (flange)		DN80 / PN10
Condensate drain		R 1/2"
Heating water inlet/outlet (flange)		DN40 / PN10
Intercooling system LT inlet/outlet (flange)		-
Flanges conform to DIN EN 1092-1		

Module dimensions and weigh *		
Length	mm	3.535
Width	mm	1.008
Height	mm	1.756
Operating weight approx.	kg	2.600

* 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. Length without 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.