

## Basic Technical Data

nominal electrical output	528	kW
maximum heat output <sup>1)</sup>	613	kW

load	60	75	100	%
maximum heat output	353	483	613	kW
fuel input	852	1022	1315	kW
electrical efficiency	37,2	38,9	40,2	%
heat efficiency	52,9	47,2	46,6	%
total efficiency (fuel utilization)	90,1	86,0	86,8	%
gas consumption	120	170	219	Nm <sup>3</sup> /h

The Basic Technical Data are applicable for the standard conditions pursuant to the "Technical instructions" document.

The minimum permanent electrical output must not drop below 60 % of the nominal output.

Gas consumption is mentioned for biogas with methane content 60%, at normal conditions (0°C, 101,325 kPa)

Gas consumption tolerance, or fuel input tolerance, at 100% load is +5%.

Tolerances of other parameters are mentioned in "Technical Instructions-Validity of Technical Data" document.

1) Maximum heat output is a sum of heat outputs of secondary circuit with exhaust gas cooled to 150°C and aftercooler circuit

## Observance of Emission Limits

emissions	NO <sub>x</sub>	CO	
with 5% of O <sub>2</sub> in exhaust gases	500	650	mg/Nm <sup>3</sup>

## Generator

used types	LSA 49.3 M8		
producer	LEROY SOMER		
cos φ	1,0 / 0,8		
efficiency in the working point	96,3 / 95,2	%	
voltage	400	V	
frequency	50	Hz	

## Engine

type	E 3262 LE 212		
producer	MAN		
number of cylinders	12		
arrangement of cylinders	V		
bore × stroke	132/157	mm	
displacement	25800	cm <sup>3</sup>	
compression ratio	13,6 : 1		
speed	1500	rpm	
oil consumption, normal / max.	0,2/0,3	g/kWh	
max. engine output	550	kW	

E 3262 LE212;BIO;08.12.2017

## Thermal System

### Secondary circuit

heat carrier	water		
circuit's heat output	577	kW	
nominal water temperature, input / output	70/90	°C	
nominal temperature drop	20	°C	
return water temperature, min / max	40/70	°C	
nominal flow rate	6,9	kg/s	
max. working pressure	1600	kPa	
water volume in CHP unit circuit	56	dm <sup>3</sup>	
pressure loss at the nominal flow rate	15	kPa	

### Utilization of exhaust gas output for other purposes

heat output of exhaust gases (cooling to 150°C)	253	kW
exhaust gas temperature	426	°C

### Primary circuit

circuit's heat output	577	kW
max. working pressure	300	kPa
water volume in CHP unit circuit	296	dm <sup>3</sup>

### Aftercooler circuit

heat carrier	water + ethylene glycol	
ethylene glycol's concentration	35	%
circuit's heat output	36	kW
max coolant temperature at the input	42	°C
nominal flow rate	2,5	kg/s
pressure reserve at the nominal flow rate	70	kPa
max. working pressure	250	kPa
water volume in CHP unit circuit	10	dm <sup>3</sup>



## Fuel, Gas Inlet

methane content	60	%
low heat value	21,6	MJ/Nm <sup>3</sup>
gas pressure	5 ÷ 10	kPa
max. pressure change under varying consumption	10	%
max. gas temperature	35	°C

## Combustion and Ventilation Air

unused heat removed by the ventilation air	62	kW
aspirated air temperature, min / max	10/35	°C
amount of combustion air	1991	Nm <sup>3</sup> /h

## Exhaust Gas and Condensate Outlet

amount of exhaust gases	2200	Nm <sup>3</sup> /h
exhaust gas temperature, nominal / max	150/180	°C
max. back-pressure of exhaust gases downstream the CHP unit flange	20	mbar
pressure loss of the freely delivered silencer	10	mbar
permissible pressure loss of the interconnecting exhaust piping	10	mbar
speed of exhaust gases at the outlet (DN 200)	30,1	m/s

## Lubricant Charges

amount of lubrication oil in the engine	90	dm <sup>3</sup>
replenishment oil tank volume	130	dm <sup>3</sup>

## Noise Parameters

CHP unit at 1m	94	dB(A)
exhaust gas outlet at 1m from the silencer flange <sup>1)</sup>	65	dB(A)

1) the noise parameter can be reduced by optimizing the exhaust silencer to the required acoustic pressure level or by applying the exhaust silencer beyond the standard range designed for 60 dB(A) at 1 m

## Electrical Parameters

nominal voltage	230/400	V
nominal frequency	50	Hz
power factor <sup>1)</sup>	0,8	
nominal current at cos φ=0.8	952	A
generator circuit breaker	NS1000HFE2	
short-circuit resistance of switchboard	35	kA
contribution of the actual source to the short-circuit current	< 10	kA
protection of switchboard's power part closed/open	IP 31/00	
protection of switchboard's control part closed/open	IP 31/00	
recommended superior protection	1000	A
[recommended connection cable <sup>2)</sup> (length < 50m, at t < 35°C)	3× (NYY-J 3×150+70)	

1) Power factor adjustable from 0,8C ÷ 1 ÷ 0,8L (range from 0.8C ÷ 1 must be verified according to the various types of generators).

L = inductive load - overexcited

C = capacitive load - underexcited

Operation of the generator with a power factor of less than 0.95 causes a power limitation sets the following table:

power factor [-]	1	0,95	0,8
output [% P <sub>nom</sub> ]	100	100	98

2) The stated cables are for information only. A check calculation for temperature rise and voltage drop must be made according to the actual length, placement and type of the cable (maximum allowed voltage drop is 10 V)

## Colour Version

base frame	RAL 5015 (blue)
------------	-----------------

## Unit Dimensions and Weights\*

length total / transport	4800	mm
width	1750	mm
total height	2200	mm
service weight of the entire CHP unit	8700	kg

\* approximate values

## Caution

Manufacturer reserves the right to alter this document and the linked source materials.

