Basic Technical Data

nominal electrical output			**210**	kW
maximum heat output [1)]			**241**	kW
load	60	75	100	%
maximum heat output[1)]	179	199	241	kW
power input in fuel	350	410	519	kW
electrical efficiency	35,9	38,4	40,4	%
heat efficiency	51,0	48,6	46,5	%
total efficiency (fuel utilization)	86,9	87,0	86,9	%
gas consumption	54	63	80	Nm^3/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	NOx	CO	
with 5% of O_2 in exhaust gases	500	650	mg/Nm^3

Generator

used types	LSA 46.3 L10	
producer	LEROY SOMER	
cos φ	1,0	
efficiency in the working point	95,7	%
voltage	400	V
frequency	50	Hz

Engine

type	E2676LE212	
producer	MAN	
number of cylinders	6	
arrangement of cylinders	in line	
bore × stroke	126/166	mm
displacement	12,42	dm^3
compression ratio	12,6 : 1	
speed	1500	min^{-1}
oil consumption, normal / max.	0,2/0,3	g/kWh
max. engine output	220	kW

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Thermal System

Secondary circuit

heat carrier	water	
circuit's heat output	222	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	2,7	kg/s
max. working pressure	600	kPa
water volume in CHP unit circuit	14	dm^3
pressure loss at the nominal flow rate	12	kPa

Utilization of exhaust gas output for other purposes

heat output of exhaust gases (cooling to 150°C)	102	kW
exhaust gas temperature	425	°C

Primary circuit

circuit's heat output	222	kW
max. working pressure	200	kPa
water volume in CHP unit circuit	146	dm^3

Aftercooler circuit

heat carrier	water + ethylene glycol	
ethylene glycol's concentration	35	%
circuit's heat output	19	kW
max coolant temperature at the input	40	°C
nominal flow rate	1	kg/s
pressure reserve at the nominal flow rate	50	kPa
max. working pressure	250	kPa
water volume in CHP unit circuit	15	dm^3

Fuel, Gas Inlet

methane content	60	%
low heat value	21,6	MJ/N m^3
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	20	kW
aspirated air temperature, min / max	10/35	°C
amount of combustion air	902	Nm^3/h
max. amount of ventilation air at the outlet flange	5017	m^3/h
max. air temperature at the outlet flange	50	°C
max. counter-pressure at the ventilation air offtake flange[1)]	95	Pa
max. counter-pressure at the ventilation air offtake flange at Super Silent[2)]	50	Pa

1) Valid for standard noise parameters
2) The sound protection version Silent or Super Silent is not included in the standard scope of delivery but it can be ordered.

Exhaust Gas and Condensate Outlet

amount of exhaust gases	932	Nm^3/h
exhaust gas temperature, nominal / max	150/180	°C
max. back-pressure of exhaust gases downstream the CHP unit flange[1)]	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 150)	23	m/s

1) Valid for standard version (without economizer)

Lubricant Charges

amount of lubrication oil in the engine	70	dm^3
replenishment oil tank volume	125	dm^3

Noise Parameters

	Standard	Super Silent[1)]	
sound enclosure of CHP unit at 1m	78	65	dB(A)
ventilation outlet of sound enclosure at 1m	89	65	dB(A)
exhaust gases outlet at 1m from the silencer flange	65	60	dB(A)

1) the sound protection version Silent or Super Silent is not included in the standard scope of delivery but it can be ordered
2) 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 [1)]	0,8	
nominal current at cos φ=0.8	378	A
generator circuit breaker	NSX400F 3P	
short-circuit resistance of switchboard	25	kA
contribution of the actual source to the short-circuit current	< 3	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	315	A
recommended connection cable [2)] (length< 50m, at t<35°C)	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 [% Pnom]	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

motor, generator	RAL 7035 (grey)
sound enclosure, base frame	RAL 5015 (blue)

Unit Dimensions and Weights[1)]

length total	4 400	mm
width	1 500	mm
total height	2 230	mm
service weight of the entire CHP unit	4 910	kg

1) Approximate vaules

Caution

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