Datasheet

Basic Technical Data

nominal electrical output			106	kW
maximum heat output 1)			143	kW
load	50	75	100	%
maximum heat output	106	121	143	kW
fuel input	186	235	291	kW
electrical efficiency	28,6	33,9	36,4	%
heat efficiency	57,1	51,7	49,2	%
total efficiency (fuel utilization)	85,7	85,6	85,6	%
gas consumption	28,6	36,1	44,7	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 50 % of the nominal output.

Gas consumption is mentioned for biogas with methane content 65%, 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

Observance of Emission Limits

emissions	CO	NOx	
with 5% of O_2 in exhaust gases	650	500	mg/Nm ³

Generator		
used type	LSA 44.	3 L10
producer	LEROY SOMER	
cos φ	1,0	
efficiency in the working point	94,6	%
voltage	400	V
frequency	50	Hz

Engine

type	TB 110 G5	V TX 86
producer	TED	MC
number of cylinders	6	
arrangement of cylinders	in series	
bore × stroke	130/150	mm
displacement	11946	cm ³
compression ratio	12 : 1	
speed	1500	rpm
oil consumption, normal / max.	0,3 / 0,5	g/kWh
max. engine output	112,5	kW
TB 110 G5V TX 86 850; revision B: 21.5.2014		

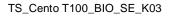
TB 110 G5V TX 86_850; revision B: 21.5.201

Thermal System

Secondary circuit heat carrier water circuit's heat output 143 kW °C nominal water temperature, input / output 70/90 nominal temperature drop 20 °C return water temperature, min / max 40/70 °C nominal flow rate 1,7 kg/s 600 kPa max. working pressure water volume in CHP unit circuit 10 dm³ kPa pressure loss at the nominal flow rate 15

Utilization of exhaust gas output for other purposes

heat output of exhaust gases (cooling to 150°C)	67	kW
exhaust gas temperature	519	°C
Primary circuit		
circuit's heat output	143	kW
max. working pressure	250	kPa
water volume in CHP unit circuit	110	dm ³





Fuel, Gas Inlet

methane content	65	%
low heat value	23,4	MJ/Nm 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	19	kW
aspirated air temperature, min / max	10/35	°C
amount of combustion air	440	Nm ³ /h
max. amount of ventilation air at the outlet flange	4840	m³/h
max. air temperature at the outlet flange	50	°C
max. counter-pressure at the ventilation air offtake flange $^{\rm 1)}$	110	Ра
max. counter-pressure at the ventilation air offtake flange in Silent version ²⁾	90	Ра
max. counter-pressure at the ventilation air flanges in Super Silent version ²	50	Ра

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	472	Nm ³ /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 125)	16,5	m/s

Lubricant Charges

amount of lubrication oil in the engine	56	dm ³
replenishment oil tank volume	125	dm ³

Noise Parameters

version:	standard	Silent ¹⁾	Super Silent ¹⁾	
sound enclosure of CHP unit at 1m	76	70	63	dB(A)
ventilation outlet of sound enclosure at 1m	84	74	64	dB(A)
exhaust gas outlet at 1m from the silencer flange ²⁾	65	65	60	dB(A)

 the sound protection version Silent or Super Silent is not included in the standard scope of delivery but it can be ordered
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 $\cos \phi$ =0.8	192	А	
generator circuit breaker	NSX250B 3P		
short-circuit resistance of switchboard	20	kA	
contribution of the actual source to the short-circuit current	< 2	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	225	А	
recommended connection cable ²⁾ (length< 50m, at t<35°C)	NYY-J 3×120 +70		
1) Power factor adjustable from $0.8C \div 1 \div 0.8L$ (range from $0.8C \div 1$ 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

sound enclosure, base frame, engine, and generator RAL 5015 (blue)

Unit Dimensions and Weights¹⁾

length total / transport	4 080 / 3 150	mm
width	1 250	mm
total height	2 160	mm
service weight of the entire CHP unit	3 750	kg
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1) approximate values

Caution

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

