Technical datasheet of CHP unit

KE-MPG 140 eco-BE

400 V / 50 Hz		Propane
Electrical power	kW	99
Total thermal output	kW	170
Energy input	kW	300
Fuel consumption	Nm^3/h	12,0
Electrical efficiency	%	32,9
Thermal efficiency with LT	%	56,7
Thermal efficiency without LT	%	56,7
Overall efficiency without LT	%	89,6

Engine: MAN Type: E2876 E312

No. of cylinders / configuration	-	6 in line
Engine speed	min^{-1}	1500
Bore / stroke / displacement	mm / mm / dm^3	128/166/12,82
Compression ratio	-	10
Engine power max.	kW	103
Spark plugs type	-	M14
Lube oil consumption max.	kg/h	0,125
Lube oil filling quantity max.	dm^3	70

Alternator: Leroy-Somer Type: LSA 44.3 VL14

Voltage / frequency	V/Hz	400/50
PF	-	0,8L / 0,8C
Alternator efficiency at rated power	%	95,8
Max. ambient temperature	°C	40

Energy balance

					CHP unit performance parameters at rated load
Load	%	**100**	**75**	**50**	**100**
ISO standard engine power	kW	103	-	-	**103**
Electrical power	kW	99	-	-	**99**
Engine cooling thermal output	kW	105	-	-	**105**
Exhaust gas thermal output (120 °C)	kW	65	-	-	**65**
Total thermal output	kW	170	-	-	**170**
Radiation heat max.	kW	15	-	-	**15**
Energy input 1)	kW	300	-	-	**300**
Fuel consumption	Nm^3/h	12,0	-	-	**12,0**
Combustion air mass flow	kg/h	365	-	-	**365**
Exhaust gas mass flow, wet	kg/h	388	-	-	**388**
Exhaust temperature after engine	°C	630	-	-	**630**
Alternator efficiency at PF=1	%	95,8	-	-	**95,8**
Electrical efficiency 1)	%	32,9	-	-	**32,9**
Thermal efficiency	%	56,7	-	-	**56,7**
Overall efficiency without LT	**%**	**89,6**	**-**	**-**	**89,6**

1) According to ISO 3046.

Fuel: Propane

Min. methane number	-	30
Lower calorific value	MJ/Nm^3	90
Gas pressure at gas regulation line inlet 1)	kPa	1,5÷10
Max. gas temperature	°C	30

1) The gas regulation line for MAN engines is standardly dimensioned at 4 ÷ 5 kPa.

Heating water circuit

Thermal output	kW	170
Temperature gradient	°C / °C	90 / 70
Min. cooling medium volume flow	m^3/h	7,51
Pressure loss of heating circuit 1)	bar	0,19
Heat transfer medium	-	Treated water
Max. operating pressure	bar	6

1) Pressure loss of all heating water circuit components at GENTEC CHP scope of supply.

Ventilation and combustion air

Fan air volume flow 1)	m^3/h	4400
Max. allowable pressure loss of air duct 2)	Pa	-
Max. inlet air temperature	°C	35

1) At temperature 35 °C and pressure 101,3 kPa.

2) Air ducts between CHP unit and air inlet/air outlet.

Exhaust gas system

Exhaust gas mass flow, wet	kg/h	388
Exhaust gas temperature at CHP unit outlet	°C	120
Max. allowable pressure loss 1)	mbar	-
Silencer flanges 2)	-	-

1) Exhaust gas pipe between CHP unit and outlet excluding components at GENTEC CHP scope of supply.

2) According to EN 1092-1.

Emissions

CO	mg/Nm^3	<150
NO_x	mg/Nm^3	<50

Correlation 5% O_2.

Noise level

CHP unit design inside container 2)	dB(A)	65
Exhaust gas noise at 1 meter distance to silencer outlet 3)	dB(A)	80
Input/Output air ventilation 1)	dB(A)	80/80

All values of the sound pressure level is considered in free field.

1) Sound pressure level measured at 1 m distance from the CHP unit.

2) Sound pressure level measured at 10 m distance from the container.

3) On request, noise can be reduced by additional optimization of the standard silencer.

Dimensions and weight

Container dimensions L/W/H	mm	5600/2320/2750
Dry weight CHP unit design inside container	kg	8000

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Standard conditions and tolerances

Atmospheric pressure	kPa	100
Air temperature	°C	25
Relative air humidity	%	30
Tolerance for the electrical power	%	±3
Tolerance for the usable thermal output	%	±7
Tolerance for the specific fuel consumption	%	+8

The energy balance parameters listed in this data sheet are related to the standard conditions.

Detailed technical specifications of components on demand.

Change of technical parameters and printing errors reserved.

Release date	Created	Revision	Project / Offer
12.06.2023	EB	0	