Technical datasheet of CHP unit

KE-MTUNG 2500-BEE

	400 V / 50 Hz	Natural gas
Electrical power	kW	2535
Total thermal output	kW	2551
Energy input	kW	5751
Fuel consumption	Nm^3/h	608,9
Electrical efficiency	%	44,1
Thermal efficiency with LT	%	47,4
Thermal efficiency without LT	%	44,4
Overall efficiency with LT	**%**	**91,5**

Engine: MTU Type: 20V4000L64

No. of cylinders / configuration	-	20V
Engine speed	min^{-1}	1500
Bore / stroke / displacement	mm / mm / dm^3	170/210/95,3
Compression ratio	-	14
Engine power max.	kW	2600
Spark plugs type	-	M18
Lube oil consumption max.	dm^3/h	0,44
Lube oil filling quantity max.	dm^3	350

Alternator: Stamford Type:

Voltage / frequency	V/Hz	400/50
PF	-	0,8L / 0,95C
Alternator efficiency at rated power	%	97,5
Max. ambient temperature	°C	40

Energy balance

					CHP unit performance parameters at rated load
Load	%	**100**	**75**	**50**	**100**
ISO standard engine power	kW	2600	1952	1309	**2600**
Electrical power	kW	2535	1901	1268	**2535**
Engine cooling thermal output	kW	1186	869	586	**1186**
Exhaust gas thermal output (120 °C)	kW	1212	996	749	**1212**
Exhaust gas thermal output (80 °C)	kW	153	115	78	**153**
Thermal output mixture cooling - LT	kW	176	120	75	**176**
Total thermal output	kW	2551	1980	1413	**2551**
Radiation heat max.	kW	165	-	-	**165**
Energy input 1)	kW	5751	4395	3052	**5751**
Fuel consumption	Nm^3/h	608,9	465,4	323,2	**608,9**
Combustion air mass flow	kg/h	12423	9300	6280	**12423**
Exhaust gas mass flow, wet	kg/h	12853	9628	6508	**12853**
Exhaust temperature after turbocharger	°C	423	452	488	**423**
Alternator efficiency at PF=1	%	97,5	97,4	96,8	**97,5**
Electrical efficiency 1)	%	44,1	43,3	41,5	**44,1**
Thermal efficiency	%	44,4	45,1	46,3	**44,4**
Overall efficiency without LT	**%**	**88,5**	**88,4**	**87,8**	**88,5**

1) According to ISO 3046.

Fuel: Natural gas

Min. methane number	-	80
Lower calorific value	MJ/Nm^3	34
Gas pressure at gas regulation line inlet 1)	kPa	18÷25
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	2551
Temperature gradient	°C / °C	90 / 70
Min. cooling medium volume flow	m^3/h	112,66
Max. allowable pressure loss 1)	kPa	50
Heat transfer medium	-	Treated water
Max. operating pressure	bar	6

1) Heating water circuit out of scope of supply of GENTEC CHP.

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LT mixture cooling circuit

Thermal output	kW	176
Temperature gradient	°C / °C	46,5 / 43
Cooling medium volume flow	m^3/h	47,10
Max. allowable pressure loss 1)	kPa	-
Heat transfer medium concentration - glycol / water	% vol./% vol.	40/60
Max. operating pressure	bar	6
Dry cooler acoustic sound pressure level at 10 m 2)	dB(A)	65
Max. ambient temperature	°C	35

1) Pipework between CHP unit and dry cooler.

2) The value of the sound pressure level is considered in free field.

Ventilation and combustion air

Fan air volume flow 1)	m^3/h	48400
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	12853
Exhaust gas temperature at CHP unit outlet	°C	80
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)	70
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	15400/3000/2900
Dry weight CHP unit design inside container	kg	51000

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KE-MTUNG 2500-BEE

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	%	±8
Tolerance for the specific fuel consumption	%	+5

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
2205	EB	0	