Technical datasheet of CHP unit

GT-MTUNGS 1000-BEE

	480 V / 60 Hz	Natural gas
Electric power	kW	997
Total thermal output	kBTU/hr	3736
Energy input	kBTU/hr	7804
Fuel consumption	SCFM	154.8
Electrical efficiency	%	43.6
Thermal efficiency with LT	%	50.9
Thermal efficiency without LT	%	47.9
Overall efficiency with LT	**%**	**94.5**

Engine: MTU Type: 8V4000L64FNER

No. of cylinders / configuration	-	8V
Engine speed	rpm	1800
Bore / stroke / displacement	in / in / cu in	6.69/8.27/2327
Compression ratio	-	12.5
Engine power max.	kW	1040
Spark plugs type	-	M18
Lube oil consumption max.	cu in/h	10.98
Lube oil filling quantity max.	US gal	52.8

Alternator: Stamford Type:

Voltage / frequency	V/Hz	480/60
PF	-	0.8L / 1.0R
Alternator efficiency at rated power	%	96.8
Max. ambient temperature	°F	104

Energy balance

					CHP unit performance parameters at rated load
Load	%	**100**	**75**	**50**	**100**
ISO standard engine power	kW	1040	785	531	**1040**
Electric power	kW	997	748	498	**997**
Engine cooling thermal output	kBTU/hr	1843	1372	952	**1843**
Exhaust gas thermal output (248 °F)	kBTU/hr	1686	1419	1143	**1686**
Exhaust gas thermal output (176 °F)	kBTU/hr	208	157	107	**208**
Thermal output mixture cooling - LT	kBTU/hr	235	164	113	**235**
Total thermal output	kBTU/hr	3736	2948	2202	**3736**
Radiation heat max.	kBTU/hr	283	-	-	**283**
Energy input 1)	kBTU/hr	7804	6026	4299	**7804**
Fuel consumption	SCFM	154.8	119.6	85.3	**154.8**
Combustion air mass flow	lb/hr	10878	8228	5611	**10878**
Exhaust gas mass flow, wet	lb/hr	11248	8514	5814	**11248**
Exhaust temperature after turbocharger	°F	798.8	856.4	964.4	**799**
Alternator efficiency at PF=1	%	96.8	96.3	95.2	**96.8**
Electrical efficiency 1)	%	43.6	42.4	39.5	**43.6**
Thermal efficiency	%	47.9	48.9	51.2	**47.9**
Overall efficiency without LT	**%**	**91.5**	**91.3**	**90.7**	**91.5**

1) According to ISO 3046.

Fuel: Natural gas

Min. methane number	-	72
Lower calorific value	BTU/SCF	840
Gas pressure at gas regulation line inlet 1)	psi	0.168÷0.363
Max. gas temperature	°F	30

1) The gas regulation line for MAN engines is standardly dimensioned at 0.58 ÷ 0.73 psi.

Heating water circuit

Thermal output	kBTU/hr	3736
Temperature gradient	°F / °F	194 / 158
Cooling medium volume flow min.	GPM(US)	212.26
Max. allowable pressure loss 1)	psi	7.25
Heat transfer medium	-	Treated water
Max. operating pressure	psi	87

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

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LT mixture cooling circuit

Thermal output	kBTU/hr	235
Temperature gradient	°F / °F	112.46 / 109.4
Cooling medium volume flow min.	GPM(US)	171.71
Max. allowable pressure loss 1)	psi	-
Heat transfer medium concentration - glycol / water	% vol./% vol.	40/60
Max. operating pressure	psi	87
Dry cooler acoustic sound pressure level at 33 ft 2)	dB(A)	65
Max. ambient temperature	°F	95

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)	GPM(US)	73800
Max. allowable pressure loss of air duct 2)	mpsi	-
Max. inlet air temperature	°F	95

1) At temperature 95 °F and pressure 14.69 psi.

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

Exhaust gas system

Exhaust gas mass flow, wet	lb/hr	11248
Exhaust gas temperature at CHP unit outlet	°F	176
Max. allowable pressure loss 1)	mpsi	-
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	g/bhp-h	<0.31
NO_x	g/bhp-h	<0.105

Correlation 15% O_2 and at exhaust gas density 0.0326 g/SCF

Noise level

CHP unit design inside container 2)	dB(A)	70
Exhaust gas noise at 3 ft 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 3 ft distance from the CHP unit.

2) Sound pressure level measured at 33 ft 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	in	511.8/96/114.2
Dry weight CHP unit design inside container	lbs	59525

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Standard conditions and tolerances

Atmospheric pressure	psi	14.5
Air temperature	°F	77
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
2208	EB	0	