

Technical Datasheet

E80UL Natural Gas CHP Unit



Energy Balance and Part Load Data @ 0.95PF		Units	100%	75%	50%
Electrical Output	(+/-3%)	kW	79	59	39
Electrical Efficiency (LHV)	(+/-5%)	%	34.1%	32.2%	28.6%
Heat Output	(+/-10%)	BTU/min	7033	5715	4437
Thermal Efficiency (LHV)	(+/-8%)	%	53.7%	55.0%	56.9%
Fuel Input (LHV)	(+/-5%)	BTU/min	13088	10392	7791
Total Efficiency (LHV)	(+/-8%)	%	87.8%	87.2%	85.6%
Heat Output from Jacket Water	(+/-8%)	BTU/min	3948	3370	2824
Heat Output from Exhaust Gas (Cooled to 248°F)	(+/-8%)	BTU/min	3085	2346	1613
Aftercooler Heat Output	(+/-8%)	BTU/min	N/A	N/A	N/A
Radiated Heat Output	(+/-8%)	BTU/min	892	678	483
Combustion Air Flow	(+/-5%)	SCFM	122	97	73
Fuel Mass Flow ($\rho = 0.0432\text{lb/SCFM}$)	(+/-5%)	lb/h	37	29	22
Fuel Volume Flow (LHV = 924 BTU/SCFM)	(+/-5%)	SCFM	14	11	8
Exhaust Mass Flow (Wet)	(+/-5%)	lb/h	669	531	398
Exhaust Volume Flow (Cooled to 248°F)	(+/-5%)	ACFM	199	158	118

Engine Details

Manufacturer	MAN
Model	E 0836 E 302
Fuel Type	Natural Gas
Min. Methane Number	80
Cylinders	6
Aspiration	Natural
Speed	1800 rpm

Generator Details

Manufacturer	Stamford
Model	UCI274E-311
Type	Synchronous
Voltage	480 V
Phase	3 Ph
Frequency	60 Hz
Ingress Protection	IP23
Insulation Class	H
Rated Apparent Power	0.8 PF
Rated Apparent Power at 80°C Rise	138 kVA
X"d Dir. Axis Sub-Transient	0.11
T" Sub-Transient Time Const.	0.01

Secondary Water Details

Max. Water In/Out Temp.	176/194°F
Max. Water Flow Rate*	52 GPM
Max. Glycol Content	50 %
Connection Size	2 (50) in (mm)
Flange Type	ANSI B16.5 Class 150
Pressure Loss	0.8 PSIG
Max. Test Pressure	150 PSIG

* Assuming 50% Glycol, higher % available on request

Exhaust Details

Connection Size	4 (100) in (mm)
Flange Type	ANSI B16.5 Class 150
Outlet Temp	248 °F
Max. Allowable Backpressure	TBC inH2O

Ventilation Details

Connection Size	19.7 (500) in (mm)
Ventilation Rate	3625 ACFM
Max. Air Inlet Temp.	86 °F
Max. Air Outlet Temp.	113 °F

Electrical Details

CHP Breaker Size	160 A/Ph
Current Per Phase @ 0.8PF	118 A
Current Per Phase @ 0.95PF	99 A
Efficiency @ 0.8PF	93.1%
Efficiency @ 0.95PF	94.2%

Fuel Details

Connection Size	1.5 (40) in (mm)
Flange Type	ANSI B16.5 Class 150
Min/Max. Supply Pressure	0.29/0.65 PSIG

Emissions

NOX	17.40 g/BHP-h
CO	12.40 g/BHP-h
NMHC	TBC g/BHP-h
NOx ... 3-Way Catalyst	1.00 g/BHP-h
CO ... 3-Way Catalyst	2.00 g/BHP-h
NMHC ... 3-Way Catalyst	0.70 g/BHP-h

Noise

Enclosure SPL	@ 3 ft ... Standard/Low	70/65
Exhaust SPL	@ 3 ft ... Standard/Low	70/60

NB: Energy balance data is stated at ISO 3046-1 conditions. Values for part load are estimates only. Noise data stated at free-field conditions. All information detailed is for guidance only and is subject to change without notice due to our commitment to continuous improvement - all values should be confirmed with ER on a project specific basis.