

Technical Datasheet

ER385 Natural Gas CHP Unit



Energy Balance and Part Load Data @ 0.95PF		Units	100%	75%	50%
Electrical Output	(+/-3%)	kW	380	285	190
Electrical Efficiency (LHV)	(+/-5%)	%	37.5%	35.5%	31.6%
Heat Output	(+/-10%)	BTU/min	29010	23443	18044
Thermal Efficiency (LHV)	(+/-8%)	%	50.3%	51.3%	52.8%
Fuel Input (LHV)	(+/-5%)	BTU/min	57664	45698	34176
Total Efficiency (LHV)	(+/-8%)	%	87.8%	86.8%	84.4%
Heat Output from Jacket Water	(+/-8%)	BTU/min	15379	13088	10932
Heat Output from Exhaust Gas (Cooled to 248°F)	(+/-8%)	BTU/min	13631	10354	7112
Aftercooler Heat Output	(+/-8%)	BTU/min	737	557	378
Radiated Heat Output	(+/-8%)	BTU/min	1802	1368	971
Combustion Air Flow	(+/-5%)	SCFM	815	646	483
Fuel Mass Flow ($\rho = 0.0432\text{lb/SCFM}$)	(+/-5%)	lb/h	162	128	96
Fuel Volume Flow (LHV = 924 BTU/SCFM)	(+/-5%)	SCFM	62	49	37
Exhaust Mass Flow (Wet)	(+/-5%)	lb/h	4384	3474	2598
Exhaust Volume Flow (Cooled to 248°F)	(+/-5%)	ACFM	1303	1033	772

Engine Details

Manufacturer	MAN
Model	E 2842 LE 332
Fuel Type	Natural Gas
Min. Methane Number	80
Cylinders	12
Aspiration	Turbocharged
Speed	1800 rpm

Secondary Water Details

Max. Water In/Out Temp.	176/194°F
Max. Water Flow Rate*	215 GPM
Max. Glycol Content	50 %
Connection Size	4 (100) in (mm)
Connection Type	ANSI B16.5 Class 150
Pressure Loss	2.5 PSIG
Max. Test Pressure	150 PSIG

* Assuming 50% Glycol, higher % available on request

Exhaust Details

Connection Size	8 (200) in (mm)
Connection Type	ANSI B16.5 Class 150
Outlet Temp	248 °F
Max. Allowable Backpressure	TBC inH2O

Ventilation Details

Connection Size	24.8 (630) in (mm)
Ventilation Rate	7475 ACFM
Max. Air Inlet Temp.	86 °F
Max. Air Outlet Temp.	113 °F

Aftercooler Details

Max. Water Inlet Temp.	113 °F
Water Flow Rate	20 GPM
Connection Size	1 (25) in (mm)
Connection Type	ANSI B16.5 Class 150
Pressure Loss	TBC PSI
Max. Test Pressure	43.5 PSI
Max. Glycol Content	50 %

Generator Details

Manufacturer	Stamford
Model	HCI544D-311
Type	Synchronous
Voltage	480 V
Phase	3 Ph
Frequency	60 Hz
Ingress Protection	IP23
Insulation Class	H
Rated Power Factor	0.8 PF
Rated Apparent Power	644 kVA
X"d Dir. Axis Sub-Transient	0.1
T" Sub-Transient Time Const.	0.012

Electrical Details

CHP Breaker Size	A/Ph	600
Current Per Phase @ 0.8PF	A	571
Current Per Phase @ 0.95PF	A	481
Efficiency @ 0.8PF	%	95.2%
Efficiency @ 0.95PF	%	96.0%

Emissions

NOx	g/BHP-h	1.00
CO	g/BHP-h	1.60
NMHC	g/BHP-h	0.20
NOx ... 3-Way Catalyst	g/BHP-h	N/A
CO ... 2-Way Catalyst	g/BHP-h	2.00
NMHC ... 2-Way Catalyst	g/BHP-h	TBC

Noise

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

Fuel Details

Main Supply Connection Size	in (mm)	2.5 (65)
Main Supply Connection Type		ANSI B16.5 Class 150
Min/Max. Main Supply Pressure	PSIG	TBC/TBC

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.

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Database	Unit Database (US) v4.1 - Working Copy	F: +1 201 438 3403	765 Route 17 N
Sheet	1 of 1	www.ener-g-rudox.com	Carlstadt, NJ 07072, USA