

Technical Datasheet

ER840F Natural Gas CHP Unit



Energy Balance and Part Load Data @ 1.0PF		Units	100%	75%	50%
Electrical Output	(+/-3%)	kW	840	630	420
Electrical Efficiency (LHV)	(+/-5%)	%	41.7%	40.0%	37.6%
Heat Output (LTHW)	(+/-10%)	BTU/min	51517	40867	30233
Thermal Efficiency (LHV)	(+/-8%)	%	44.9%	45.6%	47.5%
Fuel Input (LHV)	(+/-5%)	BTU/min	114633	89650	63633
Total Efficiency (LHV)	(+/-8%)	%	86.6%	85.6%	85.1%
Heat Output from Jacket Water	(+/-8%)	BTU/min	25733	19467	14067
Heat Output from Exhaust Gas (Cooled to 248°F)	(+/-8%)	BTU/min	25783	21400	16167
Intercooler Heat Output (2nd Stage)	(+/-8%)	BTU/min	2783	2383	1700
Radiated Heat Output	(+/-8%)	BTU/min	4116	3087	2058
Combustion Air Flow	(+/-5%)	SCFM ¹	2015	1531	1061
Fuel Volume Flow (LHV = 924 BTU/SCFM)	(+/-5%)	SCFM ¹	124	97	69
Exhaust Mass Flow, Wet	(+/-5%)	lb/h	10077	7661	5315
Exhaust Volume Flow, Wet (32° F)	(+/-5%)	SCFM ¹	2079	1582	1097
Exhaust Temperature	(+/-5%)	°F	829	880	933
Steam Option**: Steam boiler output @ 15 psig	(+/-5%)	lb/h	1132	953	728
Chiller Option**: Absorption chiller output	(+/-5%)	Tons	135 - 200	TBC	TBC

Engine Details

Manufacturer	MTU
Model	GB840N6
Fuel Type	Natural gas
Min. Methane Number	80
Cylinders	8
Aspiration	Turbocharged/IC/2 Stage
Speed at Engine	1500 rpm
Gearbox Speed	1500/1800 rpm

Secondary Water Details (Client Side)*

Max. Water In/Out Temp.	°F	170/192
Max. Water Flow Rate	GPM	319
Max. Glycol Content	%	50
Connection Size	in (mm)	4 (100)
Connection Type	ANSI B16.5 Class 150	
Pressure Loss	PSIG	On Request
Max. Test Pressure	PSIG	150

Exhaust Details*

Connection Size	in (mm)	14 (350)
Outlet Temp†	°F	248
Max. Backpressure at Exhaust Outlet...	inH2O	8.0

Ventilation Details

Maximum Supply Air Volume Flow Rate	CFM	12000
Minimum Supply Air Volume Flow Rate	CFM	8000
Max. Air Inlet Temp.	°F	85
Max. Air Outlet Temp.	°F	115

Second Stage Intercooler Details

Max. Coolant Inlet Temp at Engine.	°F	104
Coolant Flow Rate	GPM	106
Connection Size	in (mm)	2.5 (65)
Max. Glycol Content	%	50

Generator Details

Manufacturer	Leroy Somer	
Model	LSA 50.2 M6	
Type	Synchronous	
Voltage	V	480
Phase	Ph	3
Frequency/Speed	Hz/RPM	60/1800
Ingress Protection		IP23
Insulation Class		H
Rated Power Factor	PF	0.8
Rated Apparent Power at 105°C Rise	kVA	1050
X"d Dir. Axis Sub-Transient		0.13
T" Sub-Transient Time Const.		0.18

Electrical Details*

CHP Breaker Size	A/Ph	1400
Current Per Phase @ 0.8PF	A	1263
Current Per Phase @ 0.95PF	A	1064
Current Per Phase @ 1.0PF	A	1010
Efficiency @ 0.8PF...	%	95.3%
Efficiency @ 0.95PF...	%	95.8%
Efficiency @ 0.95PF...	%	96.3%

Engine Emissions at 100% Load (Dry)*

NOx	g/BHP-h	1.00
CO	g/BHP-h	2.00
NMHC	g/BHP-h	0.70

Low NOx Engine Emissions†

NOx	g/BHP-h	On Request
CO	g/BHP-h	On Request
NMHC	g/BHP-h	On Request

Noise (dBA)*

Enclosure (free field)...	@ 3 ft ... Standard/Low	78/68
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Fuel Details*

Main Supply Connection Size	in (mm)	3/80
Main Supply Connection Type	ANSI B16.5 Class 150	
Min. Main Supply Pressure	PSIG	2.95

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.

* For Customer Interface ** With Optional Equipment †Selected on a project-specific basis ‡Subject to heat recovery device † Temperature= 32°F, Pressure = 15psi