

# Technical Datasheet

## ER2120F Natural Gas CHP Unit



Energy Balance and Part Load Data @ 1.0PF		Units	100%	75%	50%
Electrical Output	(+/-3%)	kW	2129	1597	1065
Electrical Efficiency (LHV)	(+/-5%)	%	42.3%	41.1%	38.8%
Heat Output (LTHW)	(+/-10%)	BTU/min	129266	102683	75984
Thermal Efficiency (LHV)	(+/-8%)	%	45.1%	46.4%	48.6%
Fuel Input (LHV)	(+/-5%)	BTU/min	286650	221250	156300
Total Efficiency (LHV)	(+/-8%)	%	87.4%	87.5%	87.4%
Heat Output from Jacket Water	(+/-8%)	BTU/min	67333	50833	36317
Heat Output from Exhaust Gas (Cooled to 248°F)	(+/-8%)	BTU/min	61933	51850	39667
Intercooler Heat Output (2nd Stage)	(+/-8%)	BTU/min	8133	5633	3650
Radiated Heat Output	(+/-8%)	BTU/min	7917	5938	3959
Combustion Air Flow	(+/-5%)	SCFM <sup>1</sup>	4989	3792	2605
Fuel Volume Flow (LHV = 924 BTU/SCFM)	(+/-5%)	SCFM <sup>1</sup>	310	239	169
Exhaust Mass Flow, Wet	(+/-5%)	lb/h	24948	18971	13045
Exhaust Volume Flow, Wet (32° F)	(+/-5%)	SCFM <sup>1</sup>	5154	3919	2695
Exhaust Temperature	(+/-5%)	°F	826	877	934
Steam Option**: Steam boiler output @ 15 psig	(+/-5%)	lb/h	3141	2648	2020
Chiller Option**: Absorption chiller output	(+/-5%)	Tons	425 - 610	TBC	TBC

### Engine Details

Manufacturer	MTU
Model	GB2129N6
Fuel Type	Natural gas
Min. Methane Number	80
Cylinders	20
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.	170/192 °F
Max. Water Flow Rate	800 GPM
Max. Glycol Content	50 %
Connection Size	5 (125) in (mm)
Connection Type	ANSI B16.5 Class 150
Pressure Loss	On Request PSIG
Max. Test Pressure	150 PSIG

### Exhaust Details\*

Connection Size	20 (500) in (mm)
Outlet Temp†	248 °F
Max. Backpressure at Exhaust Outlet...	8.0 inH2O

### Ventilation Details

Maximum Supply Air Volume Flow Rate	24750 CFM
Minimum Supply Air Volume Flow Rate	16500 CFM
Max. Air Inlet Temp.	85 °F
Max. Air Outlet Temp.	115 °F

### Second Stage Intercooler Details

Max. Coolant Inlet Temp at Engine.	104 °F
Coolant Flow Rate	159 GPM
Connection Size	3 (80) in (mm)
Max. Glycol Content	50 %

### Generator Details

Manufacturer	Leroy Somer
Model	LSA 51.2 VL95
Type	Synchronous
Voltage	480 V
Phase	3 Ph
Frequency/Speed	60/1800 Hz/RPM
Ingress Protection	IP23
Insulation Class	H
Rated Power Factor	0.8 PF
Rated Apparent Power at 105°C Rise	2661 kVA
X'd Dir. Axis Sub-Transient	0.12
T" Sub-Transient Time Const.	0.26

### Electrical Details\*

CHP Breaker Size	A/Ph	3900
Current Per Phase @ 0.8PF	A	3201
Current Per Phase @ 0.95PF	A	2695
Current Per Phase @ 1.0PF	A	2560
Efficiency @ 0.8PF...	%	96.4%
Efficiency @ 0.95PF...	%	97.1%
Efficiency @ 0.95PF...	%	97.3%

### 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)	5/125
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.