

Model 400 FUEL CELL SYSTEM

PURECELL® SYSTEM BENEFITS

Energy security

proven, continuous generation that is setting durability records

Energy productivity

increased efficiency that is reducing energy costs

Energy responsibility

clean operation that is driving greener customer facilities

PURECELL SYSTEM COMPETITIVE ADVANTAGE

Long life

industry best, 10-year cell stack life assures high availability and low service cost

High efficiency

combined heat and power system with up to 90% overall efficiency

Modular and scalable

systems can be clustered to meet growing energy demands

Experience

most knowledgeable and experienced team in the industry

Grid-independence

proven performance in providing power when the utility grid fails

Load-following

can modulate power output to match building needs

Small footprint

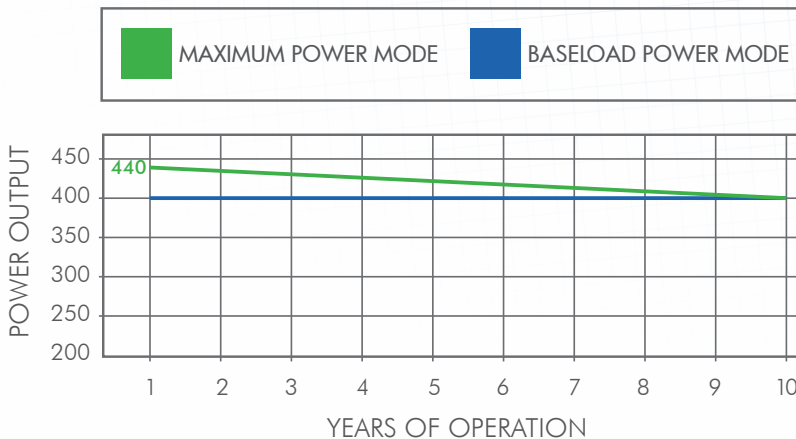
high power density takes less space on site

Flexible siting

indoor, outdoor, rooftop, multi-unit

RATED POWER OUTPUT: 440KW, 480VAC/60HZ

Characteristic	Units	Operating Mode	
		Maximum Power ¹	Baseload Power ¹
Electric Power Output	kW/kVA	440/440	400/471
Electrical Efficiency	%, LHV	41%	42%
Peak Overall Efficiency	%, LHV	90%	90%
Gas Consumption	MMBtu/h, HHV (kW)	4.06 (1,190)	3.60 (1,056)
Gas Consumption ²	SCFH (Nm ³ /h)	3,961 (106.1)	3,515 (94.2)
High Grade Heat Output @ up to 250°F	MMBtu/h (kW)	0.76 (223)	0.64 (188)
Low Grade Heat Output @ up to 140°F	MMBtu/h (kW)	0.99 (290)	0.88 (258)



FUEL

Supply Natural Gas
Inlet Pressure 10 to 14 in. water (25 - 35 mbar)

EMISSIONS^{3, 4}

NO_x 0.01 lbs/MWh (0.006 kg/MWh)
CO 0.02 lbs/MWh (0.009 kg/MWh)
VOC 0.02 lbs/MWh (0.009 kg/MWh)
SO₂ Negligible
Particulate Matter Negligible
CO₂ (electric only) 1,049 lbs/MWh (476 kg/MWh)
(with full heat recovery) 495 lbs/MWh⁵ (225 kg/MWh)

OTHER

Ambient Operating Temp. -20°F to 104°F
(-29°C to 40°C)
Sound Level <65 dBA @ 33 ft. (10m)
Water Consumption None
(up to 85°F (30°C) Ambient Temp.)
Water Discharge None
(Normal Operating Conditions)

CODES AND STANDARDS

ANSI/CSA FC1-2012: Stationary Fuel Cell Power Systems
UL1741: Inverters for Use With Distributed Energy Resources

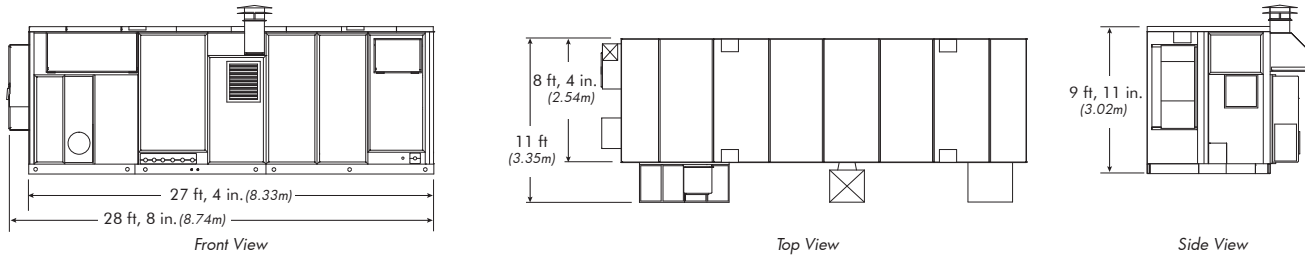
NOTES

- Average performance during 1st year of operation. Refer to the Product Data and Applications Guide for performance over the operating life of the powerplant.
- Based on natural gas higher heating value of 1025 Btu/SCF (40.4 MJ/Nm³)
- Emissions based on 400 kW operation.
- Fuel cells are exempt from air permitting in many U.S. states.
- Includes CO₂ emissions savings due to reduced on-site boiler gas consumption.

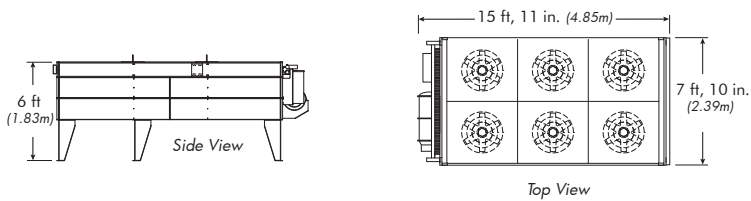
DS0100 040814

SYSTEM DIMENSIONS

Power Module



Cooling Module



Shipping Dimensions

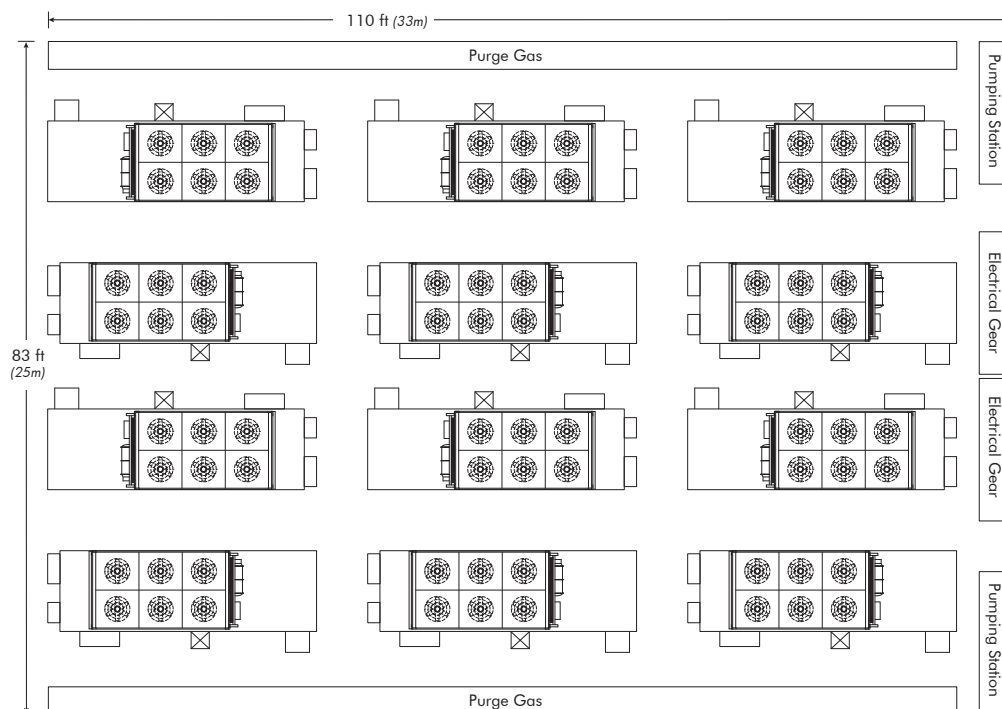
	Power Module	Cooling Module
Length	28 ft, 8 in. (8.74m)	15 ft, 11 in. (4.85m)
Width	8 ft, 4 in. (2.54m)	7 ft, 10 in. (2.39m)
Height	9 ft, 11 in. (3.02m)	6 ft (1.83m)
Weight	60,000 lb (27,216 kg)	3,190 lb (1,447 kg)

MULTI-MEGAWATT CAPABILITY

For multi-megawatt sites, individual power plants can be arranged in multiple orientations. The 12-unit layout defined below represents one option with cooling modules located on the roof of the power plants minimizing the overall footprint of the site.

No. of Units	Baseload Electric Output MW	High-Grade Heat MMBtu/h (kW)	Low-Grade Heat MMBtu/h (kW)	Fuel Consumption MMBtu/h, HHV (kW)	Site Area ft ² (m ²)
6	2.4	3.8 (1,128)	5.3 (1,548)	21.6 (6,334)	4,400 (410)
12	4.8	7.7 (2,256)	10.6 (3,096)	43.2 (12,668)	8,900 (830)
24	9.6	15.4 (4,512)	21.1 (6,192)	86.5 (25,337)	17,800 (1,650)
36	14.4	23.1 (6,768)	31.7 (9,288)	129.7 (38,005)	26,700 (2,480)
48	19.2	30.8 (9,024)	42.3 (12,384)	172.9 (50,673)	35,600 (3,310)
60	24.0	38.5 (11,280)	52.8 (15,480)	216.2 (63,341)	44,500 (4,140)

12-Unit System Layout



NOTES

- Space required for electrical gear and pumping stations is representative only.
- Purge gas is required to purge the system of unspent fuel during shutdowns and prior to start-up.

The manufacturer reserves the right to change or modify, without notice, the design or equipment specifications without incurring any obligation either with respect to equipment previously sold or in the process of construction. The manufacturer does not warrant the data on this document. Warranted specifications are documented separately.

ClearEdge Power
 Corporate Headquarters
 920 Thompson Place, Suite 100
 Sunnyvale, CA 94085

clearedgepower.com

Copyright © 2014 by ClearEdge Power. All rights reserved. This document contains no technical information subject to U.S. Export Regulations.