Turboden — A Pratt & Whitney Power Systems Company

Model 280 PureCycle® Power System

Energy from a Renewable Resource

Pratt & Whitney Power Systems is a world leader in developing and producing energy solutions for power generation, transportation and mechanical drive applications. We are committed to providing high-quality solutions for the distributed energy market that increase energy productivity, energy reliability and operational savings for our customers.

The PureCycle Power System Model 280 energy solution harnesses heat to power a turbine, turning a renewable resource into 280 kW of electrical power. This modular energy solution can operate on a wide range of fluid resource temperatures starting as low as 195° F (91° C). Based on a thermodynamic cycle known as the Organic Rankine Cycle (ORC), the PureCycle Power System converts low- to moderate-temperature fluids to electric power through the vaporization and expansion of a working fluid in a closed system. Renewable fuel means secure base-load energy production and freedom from reliance on oil, natural gas, high wind and sunny weather, without sacrificing precious water resources.

Sustainability makes good economic sense. And it's achievable today with the PureCycle Power System Model 280 energy solution.

Pratt & Whitney. **It's in our power.™**

Benefits

- Gross power of 280 kW (60Hz); 272 kW (50Hz)
- Free fuel
- Renewable power generation
- 195° F to 300° F (91° C to 149° C) resource range
- Modular and scalable for larger plants
- 24/7/365 remote monitoring
- High availability
- Standardized components and assembly processes
- Backed by Pratt & Whitney Power Systems

clean energy ahead
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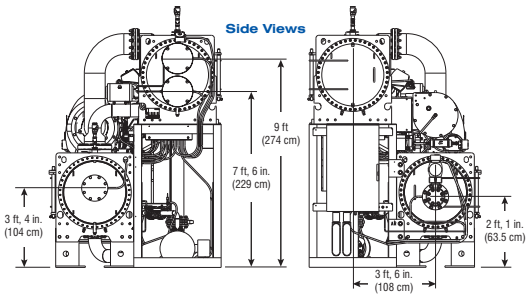

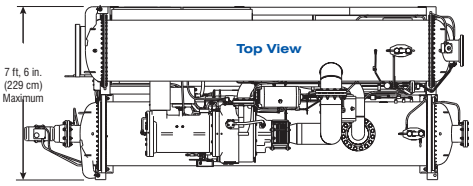

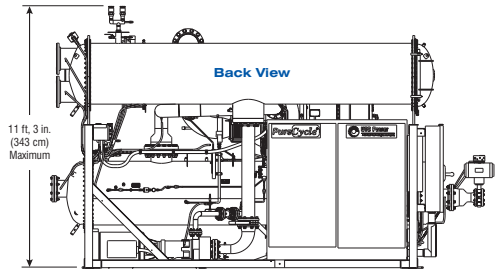

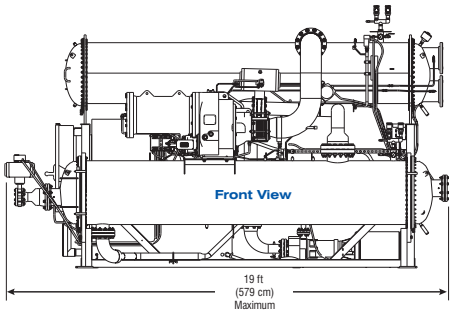

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The PureCycle® power system solution is built with the proven technology and components of commercial centrifugal chillers, ensuring product quality and reliability. This system operates with a nonflammable working fluid refrigerant called R245fa. The PureCycle® power system provides a low maintenance, cost-effective option that creates revenue, reduces process cost and supports an intelligent energy strategy.

Product Facts

Physical Data

Operating weight	33,300 lbs (15,104 kg)
Shipping weight	27,600 lbs (12,519 kg)
Dimensions (L x W x H)	19’ x 7’-6” x 11’-3” (5790 x 2290 x 3430 mm)
Maximum shipping height	10’-3” (3200 mm)

Performance Characteristics

Electric power (gross)	280 kW @ 480V/3-phase/60Hz, 272 kW @ 400V/3-phase/50Hz
Electric power (net)	260 kW @ 60Hz, 252 kW @ 50Hz
Ambient operation	-22 °F to 122 °F (-30° C to 50° C)
Power factor	> 0.95 lagging
Total harmonic distortion	< 5%
Emissions	Zero (closed binary cycle)
Noise	78 dBA at 33 ft (10m)

Design Attributes

Plumbing	ASME B31.1/PED
Turbine	Radial inflow
Generator	Induction
Heat exchangers	ASME Section VIII/PED
Enclosure, electrical	NEMA 4/IP65
Design life	20 years
Lubrication	Integrated internal oil lubrication
UL/CE components	UL 1995, 984 and 1741
Transient voltage/surge suppression at utility interface	IEEE C 62.41-1980 (R1995)
Utility grid-connect protective relaying function	IEEE1547

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