



SOLAR RATING & CERTIFICATION CORPORATION

OG-100 ICC-SRCC™ CERTIFIED SOLAR COLLECTOR # 10002064

SUPPLIER:
 STEFFES LLC.
 3050 North Highway 22
 Dickinson, ND 58601
www.steffes.com

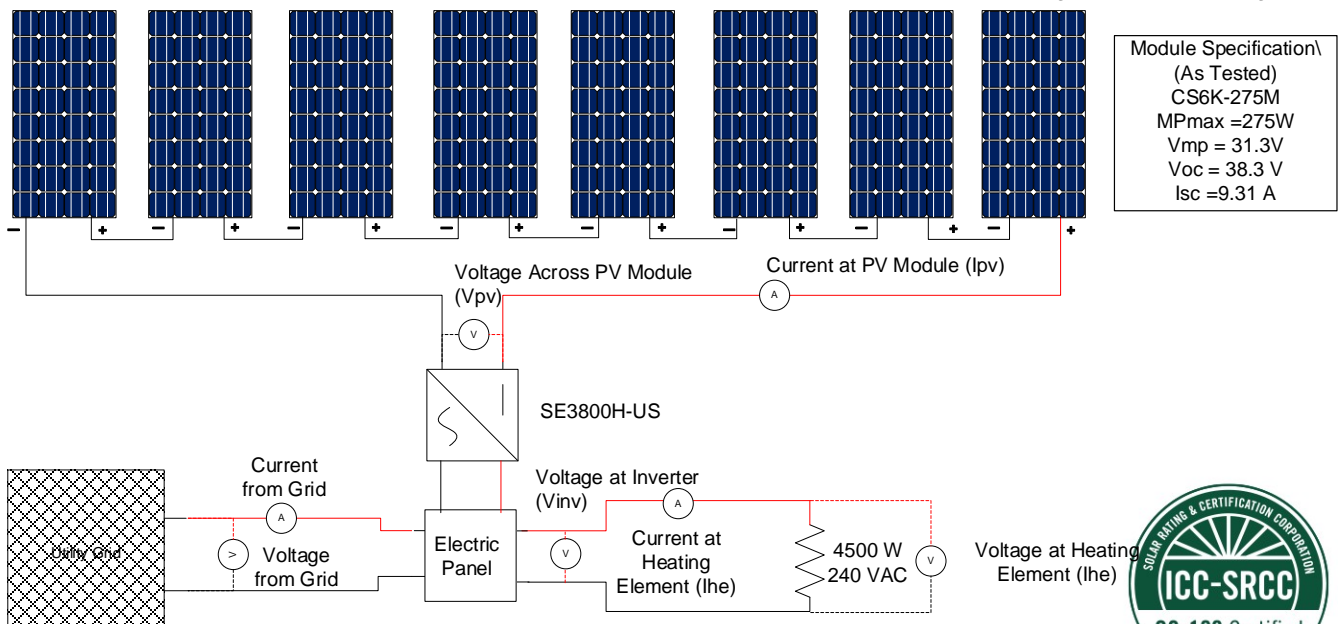
BRAND: Hydro Plus
MODEL: Hydro Plus
COLLECTOR TYPE: PV Water Heating
CERTIFICATION #: 10002064
ORIGINAL CERTIFICATION: April 5, 2018
RENEWAL EXPIRATION DATE*: April 30, 2019
**Certifications must be renewed annually*

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (ICC-SRCC™), an ISO/IEC 17065 accredited and EPA-recognized Certification Body, in accordance with SRCC OG-100, Operating Guidelines and Minimum Standards for Certifying Solar Collectors, and has been certified by ICC-SRCC. This award of certification is subject to all terms and conditions of the SRCC OG-100 Program Agreement and the documents incorporated therein by reference. This document must be reproduced in its entirety.

TESTED COLLECTOR THERMAL PERFORMANCE RATINGS							
Kilowatt-hours (thermal) Per Collector ¹ Per Day				Thousands of Btu Per Collector ¹ Per Day			
Climate →	High Radiation (6.3 kWh/m ² .day)	Medium Radiation (4.7 kWh/m ² .day)	Low Radiation (3.1 kWh/m ² .day)	Climate →	High Radiation (2000 Btu/ft ² .day)	Medium Radiation (1500 Btu/ft ² .day)	Low Radiation (1000 Btu/ft ² .day)
Ambient 0°C	10.5	7.9	5.2	Ambient 32°F	36.0	26.8	17.7
Ambient 10°C	10.5	7.9	5.2	Ambient 50°F	35.9	26.7	17.6
Ambient 20°C	10.5	7.9	5.1	Ambient 68°F	35.8	26.6	17.5
Ambient 30°C	10.5	7.9	5.1	Ambient 86°F	35.7	26.5	17.4
Ambient 40°C	10.4	7.9	5.1	Ambient 104°F	35.6	26.5	17.3

1. Collector area of 13.12 m² (141.2 ft²) gross collector area used for performance rating calculations.

OG-100 COLLECTOR DESCRIPTION: Photovoltaic (PV) modules connected to an inverter powering a resistive heating element.



Please verify certification is active on SRCC website www.solar-rating.org
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PV ARRAY SPECIFICATIONS – IN PRACTICE

Number of Modules: 8 or greater	Nominal Output per Module: ≥ 275 W (@ STC)
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Any PV module is acceptable that meets all of the following conditions:

1. P_{max} equal or greater than 275 W (@STC) and listed by the California Energy Commission (CEC).
2. Each module listed and labeled to UL 1703 and installed in accordance with manufacturer's specifications.
3. Total array output to the inverter is within inverter operating limits.

INVERTER SPECIFICATIONS – IN PRACTICE

Manufacturer: Solar Edge	Number of Inverters: 1
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Model: SE 3800H US

Max Continuous Output Power: 4200 Wac	Voltage (min-nom-max): 211-240-264 Vac
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Operating Range: 270 V to 480 V	Maximum Input DC: 11 A
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Maximum Output: 16 Aac

Other Acceptable Models: SE 5000H, SE 6000H, SE 7600H, SE 10000H, and SE11400H

HEATING ELEMENT SPECIFICATIONS – IN PRACTICE

Heating Element Power: 4500 W at 240 VAC Phase 1	Number of Elements: 1
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Any heating element is acceptable that meets all of the following conditions:

1. P_{max} equal or less than 4500 W
2. Heating element is listed and labeled to UL 1030 and installed in accordance with manufacturer's specifications.
3. Heating element is approved for use with the tank where it is installed.

LABORATORY TEST INFORMATION

Test Lab: LabTest Certification Inc.	Test Report Date: January 19, 2018
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Tested in Accordance With: ICC-SRCC TM-2-2017-04	Test Location: Outdoors
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Tested PV Modules: (8) Canadian Solar CS6K-275M	Tested Inverter: Solar Edge SE3800H-US
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REMARKS:

1. Ratings are based on the output of new PV modules and do not account for degradation of the PV output over time.
2. All wiring, connections, components and labeling shall be made in accordance with the National Electrical Code (NFPA 70) and as specified by the manufacturer.
3. PV module mounting and racking shall comply with all local codes and the manufactures' installation requirements.
4. Any PV module and any resistive heating element may be utilized that meet the conditions specified above and manufacturer's requirements.
5. Performance ratings are only valid for the specific modules, inverters and heating elements tested. Use of different PV modules, inverters and/or heating elements from those tested may result in performance ratings that differ from those given above.
6. PV Water heating collectors certified under the ICC-SRCC OG-100 program include the assembly of components that convert solar radiation to thermal energy in a fluid. In this case, the collector is comprised of the PV modules, an inverter, resistive heating element and all associated cabling and connectors. PV Water heating collectors do not include or account for tanks, auxiliary water heaters, and any controllers. See ICC-SRCC OG-300 certified systems incorporating this collector for information on the certification and performance of complete systems.
7. The collectors listed in this ICC-SRCC OG-100 PV Water Heater certification must display a label within the installation and operation manual(s) in accordance with the *ICC-SRCC Certification, Trademark and Certificate Policy*, which is available on the ICC-SRCC website.

Shawn Martin

Technical Director, ICC-SRCC



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