



SOLAR RATING & CERTIFICATION CORPORATION

**CERTIFIED SOLAR COLLECTOR**

SUPPLIER:  
**EnerWorks, Inc.**  
 969 Juliana Drive  
 Woodstock, ON N4V 1C1 Canada  
 www.enerworks.com

In Accordance with:  
**SRCC Standard 100-2006-09**

BRAND: S-Power  
 MODEL: HP 30/3000/R  
 COLLECTOR TYPE: Tubular  
 CERTIFICATION #: 2010074A  
 Original Certification: February 07, 2011  
 Expiration Date: August 19, 2022

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (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 the SRCC. This award of certification is subject to all terms and conditions of the Program Agreement and the documents incorporated therein by reference. This document must be reproduced in its entirety.

| COLLECTOR THERMAL PERFORMANCE RATING       |   |   |  |                                    |   |   |  |
|--|---|---|--|------------------------------------|---|---|--|
| Kilowatt-hours (thermal) Per Panel Per Day |   |   |  | Thousands of Btu Per Panel Per Day |   |   |  |
| Climate ->                                 | High Radiation<br>(6.3 kWh/m <sup>2</sup> .day) | Medium Radiation<br>(4.7 kWh/m <sup>2</sup> .day) | Low Radiation<br>(3.1 kWh/m <sup>2</sup> .day) | Climate ->                         | High Radiation<br>(2000 Btu/ft <sup>2</sup> .day) | Medium Radiation<br>(1500 Btu/ft <sup>2</sup> .day) | Low Radiation<br>(1000 Btu/ft <sup>2</sup> .day) |
| Category<br>(Ti-Ta)                        |   |   |  | Category<br>(Ti-Ta)                |   |   |  |
| A (-5 °C)                                  | 17.5  | 13.2  | 9.0  | A (-9 °F)                          | 59.6  | 45.1  | 30.6   |
| B (5 °C)                                   | 16.6  | 12.4  | 8.1  | B (9 °F)                           | 56.8  | 42.3  | 27.8   |
| C (20 °C)                                  | 15.4  | 11.2  | 6.9  | C (36 °F)                          | 52.6  | 38.1  | 23.6   |
| D (50 °C)                                  | 13.2  | 9.0   | 4.8  | D (90 °F)                          | 44.9  | 30.7  | 16.5   |
| E (80 °C)                                  | 11.1  | 7.0   | 3.1  | E (144 °F)                         | 38.0  | 23.8  | 10.5   |

A- Pool Heating (Warm Climate) B- Pool Heating (Cool Climate) C- Water Heating (Warm Climate)  
 D- Space & Water Heating (Cool Climate) E- Commercial Hot Water & Cooling

| COLLECTOR SPECIFICATIONS  |                      |                       |                        |           |         |
|---------------------------|----------------------|-----------------------|------------------------|-----------|---------|
| <b>Gross Area:</b>        | 5.030 m <sup>2</sup> | 54.14 ft <sup>2</sup> | <b>Dry Weight:</b>     | 72 kg     | 159 lb  |
| <b>Net Aperture Area:</b> | 4.459 m <sup>2</sup> | 48.00 ft <sup>2</sup> | <b>Fluid Capacity:</b> | 1.4 liter | 0.4 gal |
| <b>Absorber Area:</b>     | 2.794 m <sup>2</sup> | 30.07 ft <sup>2</sup> | <b>Test Pressure:</b>  | 1500 kPa  | 218 psi |

| TECHNICAL INFORMATION  |                             |                     | Tested in accordance with: |               |                                   |
|--|-----------------------------|---------------------|----------------------------|---------------|-----------------------------------|
| <b>ISO Efficiency Equation</b> [NOTE: Based on gross area and (P)=Ti-Ta] |                             |                     |                            |               |                                   |
| <b>SI UNITS:</b>   | $\eta = 0.477 - 1.500(P/G)$ | <b>Y Intercept:</b> | 0.477                      | <b>Slope:</b> | -1.500 W/m <sup>2</sup> .°C       |
| <b>IP UNITS:</b>   | $\eta = 0.477 - 0.264(P/G)$ | <b>Y Intercept:</b> | 0.477                      | <b>Slope:</b> | -0.264 Btu/hr.ft <sup>2</sup> .°F |

| Transverse Incident Angle Modifier |      |      |      |      |      |      |      | Longitudinal Incident Angle Modifier at 50°: |                               |                                |
|------------------------------------|------|------|------|------|------|------|------|--|-------------------------------|--------------------------------|
| $\theta$                           | 10   | 20   | 30   | 40   | 50   | 60   | 70   | <b>Test Fluid:</b>                           | Water                         |                                |
| <b>K<sub>τα</sub></b>              | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 0.92 | 0.67 | <b>Test Mass Flow Rate:</b>                  | 0.0195 kg/(s m <sup>2</sup> ) | 14.35 lb/(hr ft <sup>2</sup> ) |

REMARKS:

*Jean Higgins*

Technical Director

Print Date: October, 2015 Page 1 of 3  
 Please verify certification is active on the SRCC website.  
 © Solar Rating & Certification Corporation™

www.solar-rating.org ♦ 400 High Point Drive, Suite 400 ♦ Cocoa, Florida 32926 ♦ (321) 213-6037 ♦ Fax (321) 821-0910



**CERTIFIED SOLAR COLLECTOR**



SOLAR RATING  
& CERTIFICATION  
CORPORATION

SUPPLIER:  
**EnerWorks, Inc.**  
969 Juliana Drive  
Woodstock, ON N4V 1C1 Canada  
www.enerworks.com

In Accordance with:  
**SRCC Standard 100-2006-09**

BRAND: S-Power  
MODEL: HP 30/3000/R  
COLLECTOR TYPE: Tubular  
CERTIFICATION #: 2010074A  
Original Certification: February 07, 2011  
Expiration Date: August 19, 2022

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (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 the SRCC. This award of certification is subject to all terms and conditions of the Program Agreement and the documents incorporated therein by reference. This document must be reproduced in its entirety.

| ADDITIONAL INFORMATION ( <a href="#">click here to return to the rating page</a> ) |                                       |                |                 |
|--|---------------------------------------|----------------|-----------------|
| Test Lab:  | TÜV Rheinland Energie und Umwelt GmbH | Test Date:     | August 19, 2010 |
| Test Report Number:  | 21210919_S-Power_R_SRCC               | Test Location: |                 |

| SOLAR COLLECTOR CONSTRUCTION DETAILS |         |                     |         |                     |  |
|--------------------------------------|---------|---------------------|---------|---------------------|--|
| <b>Header Enclosure:</b>             |         |                     |         |                     |  |
| <b>Gross Length:</b>                 | 2.252 m | <b>Gross Width:</b> | 2.238 m | <b>Gross Depth:</b> |  |
| <b>Tube Bank:</b>                    |         |                     |         |                     |  |
| <b>Gross Length:</b>                 |         | <b>Gross Width:</b> |         |                     |  |

| COLLECTOR MATERIALS          |            |                        |                               |                         |   |
|------------------------------|------------|------------------------|-------------------------------|-------------------------|---|
| <b>Outer Cover:</b>          | Glass Tube | <b>Enclosure back:</b> | Aluminum                      | <b>Back Insulation:</b> | , |
| <b>Inner Cover:</b>          | None       | <b>Enclosure side:</b> | Aluminum                      | <b>Side Insulation:</b> | , |
| <b>Absorber Description:</b> |            | <b>Flow Pattern:</b>   |                               |                         |   |
| <b>Riser Tube:</b>           |            | Copper                 | <b>Fin:</b>                   |                         |   |
| <b>Absorber Coating:</b>     |            | Selective              | <b>Tube to fin connection</b> |                         |   |

| GLAZING                                       | Outer Cover | Inner Cover                |
|---|-------------|----------------------------|
| <b>Material:</b>                              | Glass Tube  | None                       |
| <b>Surface Characteristics:</b>               |             |                            |
| <b>Thickness:</b>                             | 1.8 mm      | N/A                        |
| <b>Transmissivity:</b>                        |             |                            |
| <b>Gross Tube Length (uninstalled):</b>       | 2.000 m     |                            |
| <b>Diameter:</b>                              | 0.056 m     |                            |
| <b>Tube Glazing to Header Enclosure Seal:</b> | EPDM gasket |                            |
| <b>Reflector Shape:</b>                       |             | <b>Reflector Material:</b> |



Print Date: October, 2015 Page 2 of 3  
Please verify certification is active on the SRCC website.  
© Solar Rating & Certification Corporation™

**CERTIFIED SOLAR COLLECTOR**



SOLAR RATING  
& CERTIFICATION  
CORPORATION

SUPPLIER:  
**EnerWorks, Inc.**  
969 Juliana Drive  
Woodstock, ON N4V 1C1 Canada  
www.enerworks.com

In Accordance with:  
**SRCC Standard 100-2006-09**

BRAND: S-Power  
MODEL: HP 30/3000/R  
COLLECTOR TYPE: Tubular  
CERTIFICATION #: 2010074A  
Original Certification: February 07, 2011  
Expiration Date: August 19, 2022

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (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 the SRCC. This award of certification is subject to all terms and conditions of the Program Agreement and the documents incorporated therein by reference. This document must be reproduced in its entirety.

| ABSORBER                  |        |                                    |         |                            |        |
|---------------------------|--------|------------------------------------|---------|----------------------------|--------|
| Header Material:          |        | Header OD:                         |         | Header Wall:               |        |
| Riser Tube Material:      | Copper | Riser Tube OD:                     |         | Riser Tube Wall Thickness: |        |
| Fin Material:             |        | Fin Thickness:                     | 0.12 mm |                            |        |
| Flow Pattern:             |        | Number of Flow Tubes / Heat Pipes: | 30      | Tube / Heat Pipe Spacing:  |        |
| Number of absorber tubes: | 30     | Flow Tube to Fin Bond:             |         | Length of Flow Path:       | 1.94 m |
| Length of Flow Path:      | 1.94 m | Riser to Fin/Plate Bond:           |         |                            |        |

| INSULATION:                  |                    |           |                      |      |           |
|------------------------------|--------------------|-----------|----------------------|------|-----------|
| Location                     | Type               | Thickness | Location             | Type | Thickness |
| Back – Top Layer:            |                    |           | Sides – Inner Layer: |      |           |
| Back – Bottom Layer:         |                    |           | Sides – Outer Layer: |      |           |
| Enclosure Fastening Methods: | Mechanical Forming |           | Header Enclosure:    |      |           |

| Power Output per Collector(W)<br>[ Ti-Ta, G = 1000 W/m² ] |    |    |    |    |
|---|----|----|----|----|
| 0   | 10 | 30 | 50 | 70 |
|   |    |    |    |    |

| PRESSURE DROP |    |  |      |                     |
|---------------|----|--|------|---------------------|
| Flow          | ΔP |  | Flow | ΔP                  |
| ml/s          | Pa |  | gpm  | in H <sub>2</sub> O |
| 20            |    |  | 0.32 |                     |
| 50            |    |  | 0.79 |                     |
| 80            |    |  | 1.27 |                     |



Print Date: October, 2015 Page 3 of 3  
Please verify certification is active on the SRCC website.  
© Solar Rating & Certification Corporation™