



## OG-100 ICC-SRCC™ CERTIFIED SOLAR AIR HEATING COLLECTOR #10002049

**SUPPLIER:**  
Trigo Energies, Inc  
3420 rue de Bordeaux  
Trois-Rivières, QUÉBEC  
J8Y 3P6 Canada  
trigoenergies.com

**BRAND:** Trigo  
**MODEL:** Calento  
**COLLECTOR TYPE:** Air Transpired  
**CERTIFICATION NUMBER:** 10002049  
**ORIGINAL CERTIFICATION DATE:** Jun. 27, 2017  
**RENEWAL EXPIRATION DATE:** May 31, 2019  
*Certifications are subject to annual renewal*

The solar collector listed below has been evaluated by the Solar Rating & Certification Corporation™ (ICC-SRCC™), an ISO 17065 accredited Certification Body, in accordance with ICC-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 OG-100 Program Agreement and the documents incorporated therein by reference. This document must be reproduced in its entirety.

### OG-100 COLLECTOR EFFICIENCY RATINGS<sup>1</sup> (η) – Black Absorber Color<sup>2</sup>

Wind Speed <sup>3</sup> ►	Low Wind (1.0 m/s, 2.2 mph)	Medium Wind (2.0 m/s, 4.5 mph)	High Wind (3.0 m/s, 6.7 mph)
Air Flow Rate			
1.2 scmm/m <sup>2</sup> (4.0 scfm/ft <sup>2</sup> )	0.61	0.57	0.47
1.8 scmm/m <sup>2</sup> (6.0 scfm/ft <sup>2</sup> )	0.72	0.69	0.59
2.4 scmm/m <sup>2</sup> (8.0 scfm/ft <sup>2</sup> )	0.82	0.77	0.67

1: Thermal efficiency (η) is based on aperture area and includes back losses.

2: Efficiency ratings are based on test data for the specific collector described in the "Collector Test Sample Details" section below.

Performance values for collectors that use an absorber painted a different color than the one tested can be estimated by multiplying the efficiency values above by the ratio of the absorptivity of the new paint color and the absorptivity of the tested collector (0.95 in this case). This assumes that the new color paint has a similar emissivity to the tested collector (0.88 in this case), the absorbers in each stage are the same color. Absorptivity should be measured per ASTM C1549.

3. Efficiency data adjusted to 1.0, 2.0, 3.0 m/s speeds by means of linear interpolation. Original data available in Testing Summary below.

### CERTIFIED COLLECTOR SPECIFICATIONS

In order to be considered certified, installed collectors must match the following specifications. Collectors must match the design of the sample tested for certification.

<b>Type</b>	<input checked="" type="checkbox"/> Unglazed <input type="checkbox"/> Glazed
<b>Description</b>	1-Stage Open-Loop Transpired Solar Air Heating Collector
<b>Air Flowrate Range</b>	1.2 to 2.4 scmm/m <sup>2</sup> (4 to 8 scfm/ft <sup>2</sup> )
<b>Panel Width</b>	1.0 m (39.375 in)
<b>Panel Length</b>	1.8 to 12.2 m (6 to 40 ft)
<b>Air Inlet</b>	Transpired – Absorber perforations
<b>Air Outlet</b>	Variable
<b>Installation Orientation</b>	0° (horizontal) - 90° (vertical)
<b>ABSORBER</b>	
<b>Type</b>	Painted perforated plate
<b>Material</b>	Aluminum plate, 1.0 mm (0.032") thick

\* Data supplied by collector manufacturer and was not measured independently by the test laboratory.





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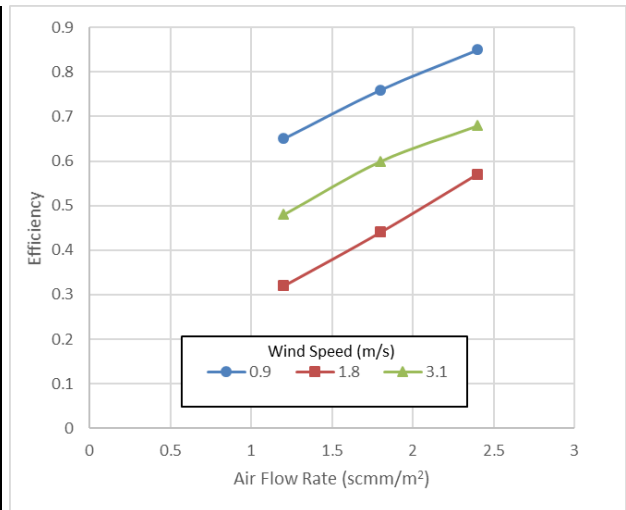
# TESTING SUMMARY

## TRIGO CALENTO COLLECTOR

### ICC-SRCC OG-100 CERTIFICATION #10002049

<b>Test Lab</b>	Exova Canada, Inc.	Laboratory testing of a collector sample is required for OG-100 certification to confirm that the collector passes qualification tests and to obtain performance results. The following sections provide information on the collector tested for the purposes of OG-100 certification.
<b>Test Report Number</b>	13-06-S0006A	
<b>Test Report Date</b>	November 20, 2013	
<b>Test Standard</b>	CSA F378-1987, ISO 9806-1, -03	

COLLECTOR TEST SAMPLE DETAILS		
<b>Absorber</b>	<b>Coating</b>	Paint: Black PVDF
	<b>Absorptivity</b>	0.95*
	<b>Material</b>	Aluminum, 1.0 mm (0.032") thick
	<b>Porosity</b>	Not Reported
	<b>Profile</b>	BWS390
<b>Gross Area</b>		7.981 m <sup>2</sup> ( 85.90 ft <sup>2</sup> )
<b>Aperture Area (Net)</b>		7.981 m <sup>2</sup> ( 85.90 ft <sup>2</sup> )
<b>Gross Sample Dimensions (LXWXH)</b>		2.825 m x 2.825 m x 13.5 cm (9.30 ft x 9.30 ft x 5.31 in)
<b>Dry Weight</b>		86.59 kg (190.9 lb)
THERMAL EFFICIENCY TESTING DETAILS		
<b>Testing Location</b>		Indoors, conditioned space (20° C)
<b>Added Back Insulation</b>		2" rigid foam



THERMAL EFFICIENCY DATA SUMMARY (900 W/m <sup>2</sup> average insolation)							
Wind Speed		0.9 m/s (2.0 mph)		1.8 m/s (4.0 mph)		3.1m/s (6.9 mph)	
Air Flow		$\eta$	$\Delta T$ (K)**	$\eta$	$\Delta T$ (K)**	$\eta$	$\Delta T$ (K)**
1.2 scmm/m <sup>2</sup> (4.0 scfm/ft <sup>2</sup> )		0.65	23.1	0.57	20.1	0.48	17.0
1.8 scmm/m <sup>2</sup> (6.0 scfm/ft <sup>2</sup> )		0.76	18.2	0.69	16.4	0.60	14.2
2.4 scmm/m <sup>2</sup> (8.0 scfm/ft <sup>2</sup> )		0.85	15.3	0.77	13.9	0.68	12.4

\* Data supplied by coating manufacturer and was not measured independently by the test laboratory.

\*\* $\Delta T$  defined as  $T_e - T_a$  where  $T_e$  is the temperature of the air exiting the collector and  $T_a$  is the ambient (inlet) air temperature.

**REMARKS:**

- Performance is unreliable if the collector is used at a pressure drop of less than 25 Pa.
- Wind impact on efficiency should not be extrapolated to large-scale systems because the ratio of wind-blown edge loss to gain across the surface area is diminished for large vs. small collectors (arrays).
- All lengths of this collector are certified.

*Shawn Martin*

Vice President of Technical Services, ICC-SRCC

