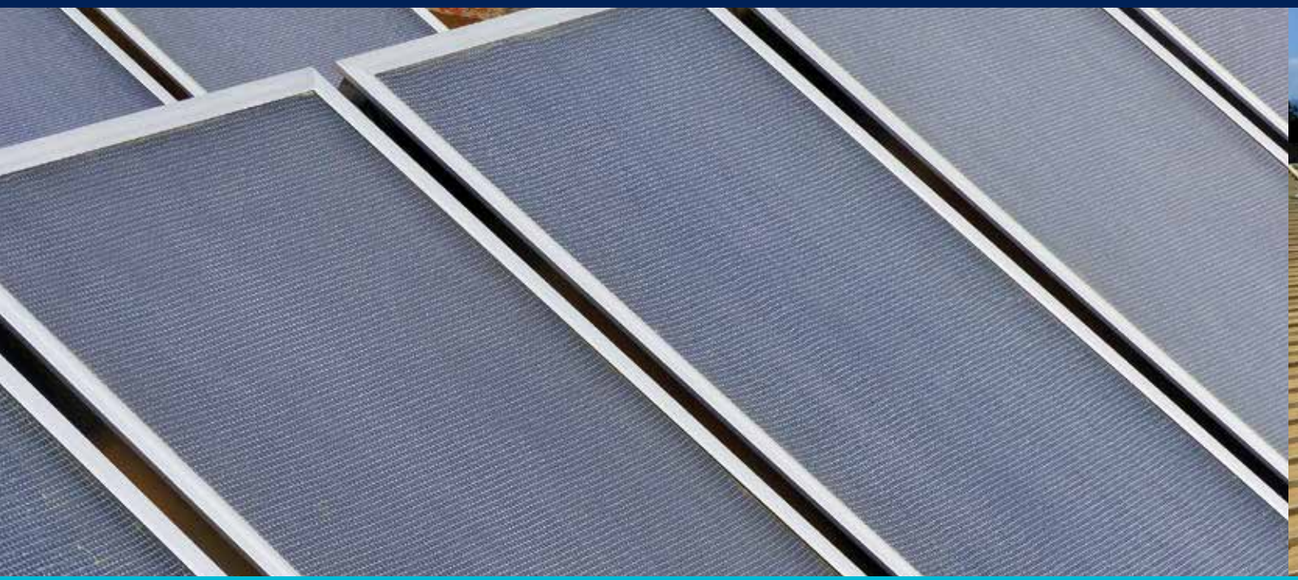
# Transparent Insulation Collector

## Best ROI for cold climate and industrial heat

TIGI

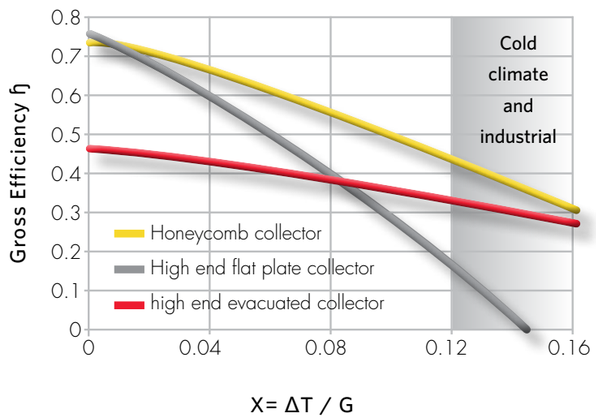
The Honeycomb Collector Company



## The Honeycomb Collector

TIGI makes an advanced new breed of flat plate solar thermal collector – the Honeycomb Collector. Using proprietary transparent insulation technology, **our collector generates more heat, for the least cost of ALL solar thermal solutions!**

- **Technology** – transparent insulation allows solar radiation in, blocks losses
- **Performance** – most year round heat of ALL flat and vacuum collectors per $m^2$
- **Markets** – cold climate domestic hot water, space heating and industrial process heat
- **Lowest cost** – smallest array, mid-range price per $m^2$ leads to lowest solution cost
- **Longevity** – collector-level overheating prevention and sealed case design
- **Low maintenance** – never reach glycol cracking temperatures
- **Components** – double sided AR glass, selective coated absorber, laser welded
- **Winner** of multiple industry awards including **the Intersolar award**
- **Solar Keymark** certified by SPF and field proven



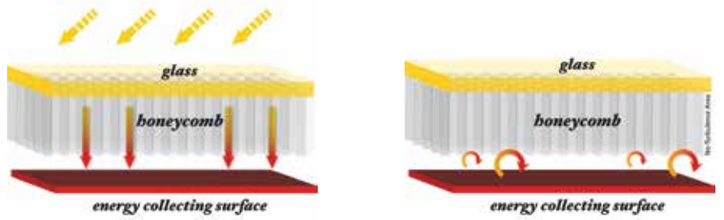

The graph shows the advantage of the honeycomb collector over high-end vacuum and flat collectors in almost all climate and application scenarios.

- $\eta_0$ 80.3%
- $a_1$ 2.4
- $a_2$ 0.0058

## The Challenge that Solar Thermal Collectors Face

When solar thermal collectors work at high temperature differential from the ambient, they lose energy to the environment, resulting in reduced performance.
Most losses of flat collectors occur where they have no thermal insulation – on the side facing the sun. TIGI solved this problem using transparent insulation.

## The Principle of Using Transparent Insulation




1. Sunlight passes through the TI, heating the absorber
2. The TI layer suppresses convection and back radiation heat losses
3. The result is a very efficient module allowing radiation to enter freely while limiting energy losses to a minimum.

## Technology that ensures safety and long life of performance

**Overheating prevention** - the Honeycomb Collector uses an internal closed loop heat-pipe to eliminate overheating, reducing stagnation temperature from 250°C to 130°C. This patented technology dramatically simplifies implementation of systems and safeguards system integrity.

**Hermetically sealed case** - pressure-neutralized internal breathing eliminates accumulation of humidity and dust inside the collector, improving long term performance.

## Technical Specifications

| Dimensions | |
|---|---|
| Overall dimensions (LxWxH) | 2028x1028x180 mm |
| Gross area | 2.084 $m^2$ |
| Aperture aera | 1.8 $m^2$ |
| Absorber area | 1.8 $m^2$ |
| Glazing - highly transparent anti reflection glass | t=96% |
| Weight | 52 kg |
| Fluid volume | 1L |
| Inlet and outlet dimensions | 22 mm |
| **Mounting** | |
| Recommended inclination | 20-90° |
| **Test report** | |
| Performance test report | EN12975:2006 |
| **Quality test report** | |
| Stagnation temperature with overheating prevention | <130 °C |
| Stagnation temperature without O.P.D. | 250 °C |
| Maximum operating pressure | 8 bar |
| Flow rate (Rated) | 120 L/h |
| Heat transfer fluid | Water/Glycol |
| **Operating data** | |
| Efficiency (DIN 4757-4) | |
| $\eta_0$ | 0.803 |
| $a_1$ | 2.4 $W/m^2K$ |
| $a_2$ | 0.0058 $W/m^2K^2$ |
| Incident angle modifier | 0.91 |

## Competitive Advantages:

Honeycomb Vs. Flat plate & Evacuated tube

| | Honeycomb | Flat Plate | Evacuated tube |
|---|---|---|---|
| Efficiency at high ΔT applications | ✓ | ✗ | ✓ |
| Useful life | ✓ | ✓ | ✗ |
| Cost effectiveness | ✓ | ✓ | ✗ |
| Resilience in tough conditions | ✓ | ✓ | ✗ |
| Performance in frost and snow | ✓ | ✗ | ✗ |
| Sealed collector avoiding internal dust | ✓ | ✗ | ✓ |
| Prevents overheating | ✓ | ✗ | ✗ |



TIGI

The Honeycomb Collector Company

Contact info:
Email: sales@tigisolar.com
T: +972-3-635-3626
F: +972-3-635-3625
www.tigisolar.com