



# SOLAR SOLUTIONS

## STRUCTURAL BONDING OF SOLAR THERMAL COLLECTORS

**BUILDING TRUST**



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Find further information about solar  
thermal solutions:  
[www.sika.com/solar-thermal](http://www.sika.com/solar-thermal)

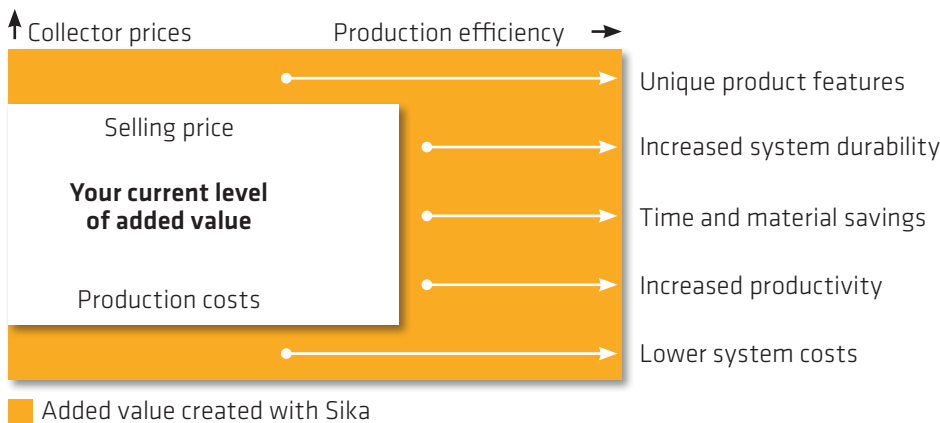
# ADDING VALUE WITH INNOVATIVE ADHESIVE AND APPLICATION TECHNOLOGIES

**NOWADAYS MARKET CONDITIONS PUT HIGH PRESSURE ON COST STRUCTURES,** while demanding top quality and long-term performance of Solar Thermal Collector Systems. The industry is forced to consider optimizations in production processes, material savings as well as new innovative designs.

This leads to a sophisticated adhesive and application technology to obviate additional gaskets or frames to cover or hold the top glasses. Additionally ultra-fast curing or high green strength adhesives enable fast production processes or the elimination of large buffer zones before packaging. The structural and proven adhesive technologies ensure the long-term performance of the collector system.

To implement this new innovative concepts into your production lines, Sika supports you with a comprehensive project support in all phases from design to implementation and beyond with the optimal solution to achieve your targets. Sika can call upon decades in industrial bonding and adhesive application technology.

## THE SIKA ADDED VALUE CONCEPT



### SIKA AND ADHESIVE FEATURES

#### Scope for design:

- Concealed bonding makes for smooth, barrier-free surfaces
- Aligned application technology to adhesive and process
- Compensates the different thermal expansion coefficients of the construction and glass
- Weight reduction
- Bonding of finished materials (e.g. aluminum - glass)
- Different curing speeds and technologies available

### THE BENEFITS FOR YOU

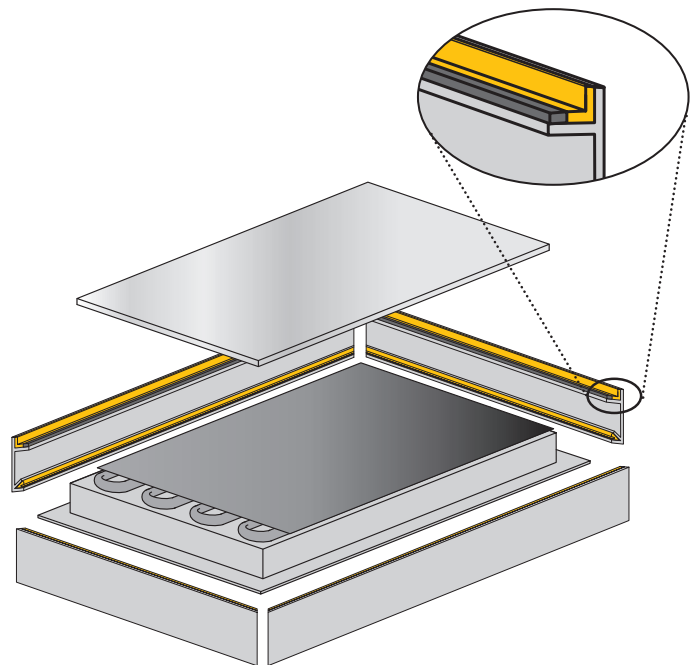
- No frame and no mechanical connecting elements needed
- No accumulation of dirt or water, and snow runs off easily
- Elimination of post-cleaning after adhesive application
- Smooth and aesthetic joint surface
- Can be exposed to temperatures in all climatic zones
- Lower transport costs
- Simplified installation
- Wider range of applications
- Easier handling
- No damage to corrosion protection compared to drilling or screwing
- Curing speed fits the process to eliminate curing zones
- Moisture independent curing

# ONE-SHOT COVER GLASS BONDING

Most cover glasses of frame-collectors are either fully mechanically fixed and sealed by gaskets and frames, or they are sealed with liquid sealants which still calls for additional profiles or manual finishing. All those common techniques imply a high material usage and additional labour costs.

Thanks to the new, patented application technology from Sika, the structural bonding of the glass and inline finishing can be combined. With the structural and

proven adhesive technology all loads are carried by the adhesive and no additional mechanical fixing is required. While Sika's innovative application technology is securing the consistent filling of the L-shaped joint, the patented application head is finishing the joint surface that no manual post-finishing is needed. Therefore the combination of this technology is saving material and labour cost, and additionally enables new design options for further optimisations.



## BEST RECOMMENDED SIKA PRODUCTS

- **Sikasil® AS-785**  
2-component fast curing and structural Silicone adhesive, meets EOTA ETAG 002
- **Sikasil® AS-790**  
2-component ultra fast curing Silicone adhesive for high speed production lines

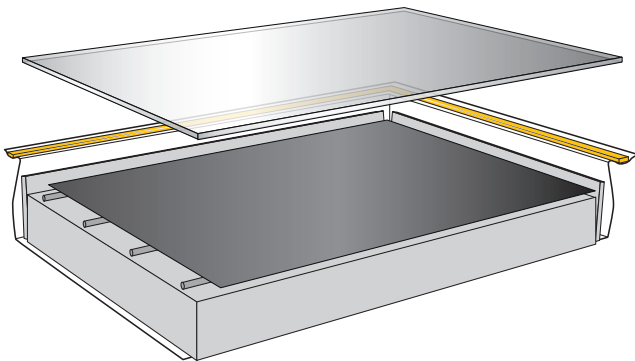
## SYSTEM BENEFITS

- Eliminates mechanical fixing of cover glass
- Minimal post-finishing required
- Enables potentially a reduction of required adhesive quantity compared to existing systems
- Removes raised edges that trap dirt or water
- Simplifies automation of production
- Shortens curing times for high production efficiency
- Secures durability and tightness thanks to structural adhesives

# COVER GLASS BONDING WITH LAP JOINTS

Tray collectors often have a lap joint to bond the cover glass to the tray. In some cases it is then covered by a profile for mechanical fixing or large buffer zones are used before packaging. With Sika's high performing adhesive technology both are not required anymore.

Thanks to the structural properties of the adhesive there is no additional mechanical fixing needed. Additionally with the exceptional initial strength of the innovative Sikasil® AS-780 adhesive a stacking and packaging right after assembly becomes feasible.

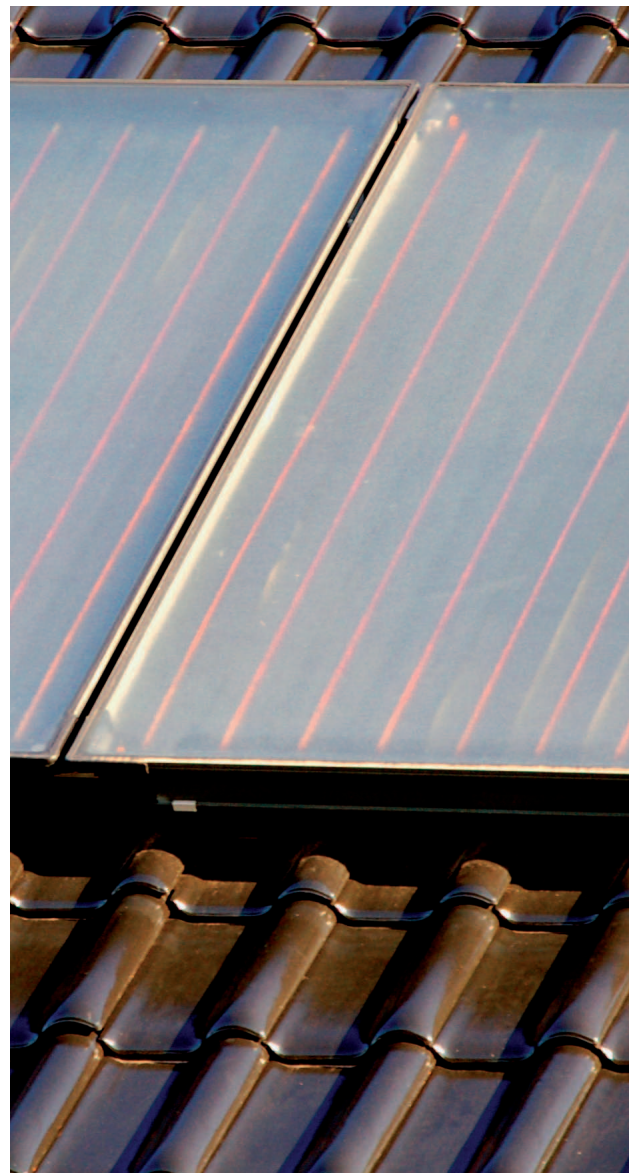


## BEST RECOMMENDED SIKA PRODUCT

- **Sikasil® AS-780**  
2-component fast curing and structural Silicone adhesive with exceptional initial strength, meets EOTA ETAG 002

## SYSTEM BENEFITS

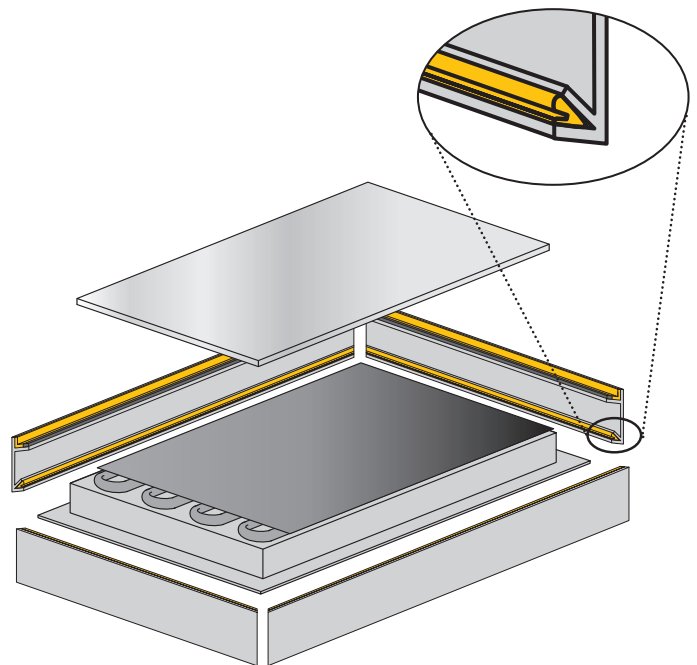
- Enables packaging right after assembly
- Eliminates mechanical fixing of cover glass
- Secures durability and tightness thanks to the structural adhesive
- Increases the production output
- Simplifies automation of production



# BOTTOM PLATE BONDING

The bottom plate bonding is the first bonding step in the collector assembly. It gives the first shape and stiffness to the collector before insertion of the thermal components. Therefore it is crucial for the production process that the adhesive is providing a fast handling strength and curing.

Sika provides a range of products with different curing and processing speeds as well as initial strengths, to fit into your production processes and cycles.



## BEST RECOMMENDED SIKA PRODUCTS

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- **Sikasil® AS-790**  
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## SYSTEM BENEFITS

- Shortens cycle times with faster curing technologies
- Reduces handling times thanks to increased initial strength
- Secures joint performance with structural adhesives

# OUR PERFORMANCE – YOUR BENEFITS

## PERFORMANCE

## BENEFITS

Construction consultancy

- Review and consultancy of existing and new collector systems with regard to suitability for bonding
- Advice on system improvements i.e. material choice or dimensioning

Functional testing

- Support with prototyping
- Functional tests / test plan of entire system for compatibility, adhesion and function

Application technology

- Active consulting, including the selection of right application technology
- Assist in system and equipment engineering / bonding technology
- Support with application and quality procedures

Applicator training

- Preparation of operating manuals for bonding in conformity with ISO
- On-site training of applicators

External approvals

- Best practice sample preparation

## OUR CORE COMPETENCE - FROM DESIGN TO PROCESS

Sika develops bonding and sealing solutions in close cooperation with its customers in the solar industry. To Sika, this means not only developing best-in-class technology solutions to match the customer's technical and commercial requirements, but also ensuring appropriate performance throughout the design, prototyping, validation and full production phases. Experts in Sika's R&D, Technical Service and System Engineering specialize in devising unique client-oriented solutions.



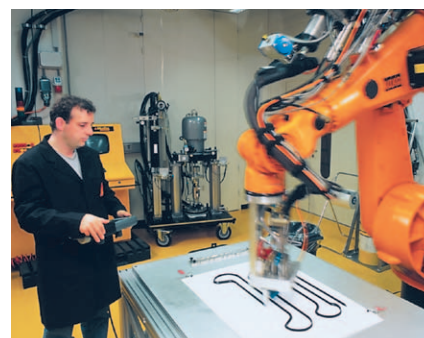
## DESIGN AND SYSTEM ENGINEERING

Application oriented adhesives and sealants, as well as innovative construction methods are currently in high demand, which calls for design and application support. At Sika Solar Competence Centers, the most suitable solutions are developed in partnership with our customers to achieve the targeted results. Ultimately, this means reduced production costs, greater product reliability, improved aesthetic appeal and faster turn-around times, adding value to the activities of Sika customers.



## TECHNICAL SERVICE

Sika Technical Service teams are located around the world, and are dedicated to providing best practice selection, validation and application of Sika materials. By being located close to our customers, Sika Technical Service can assure optimum local language communication and understanding throughout the technical application development process to ensure the best possible results.



# GLOBAL BUT LOCAL PARTNERSHIP



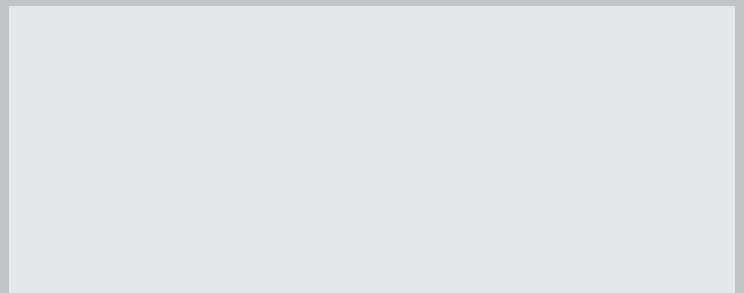
## FOR MORE INFORMATION:



[www.sika.com/solar](http://www.sika.com/solar)

### WHO WE ARE

Sika AG, Switzerland, is a globally active specialty chemicals company. Sika supplies the building and construction industry as well as manufacturing industries (automotive, bus, truck, rail, solar and wind power plants, facades). Sika is a leader in processing materials used in sealing, bonding, damping, reinforcing and protecting loadbearing structures. Sika's product lines feature high-quality concrete admixtures, specialty mortars, sealants and adhesives, damping and reinforcing materials, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.



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**BUILDING TRUST**

