SIKA FENESTRATION SYSTEMS
STRUCTURAL GLASS BONDING

BUILDING TRUST

THE BONDED WINDOW – A HIGH-TECH ELEMENT

THE ARCHITECTURE AND FUNCTION OF A BUILDING is primarily determined by the design and the technology of the building envelope. Worldwide, the increasing requirements to energy efficiency and a reasonable utilization of natural resources essentially influence the development of facades and windows. Modern international market requirements for more transparency and more functionality request innovative and economically convincing solutions.

The use of glass as a reinforcing element in window construction using the latest bonding techniques is based on our 30 years' experience in the vehicle and facade markets. Our experience is proven by several million successfully bonded windows.
The complexity of the window market requires a close and specific cooperation between you, your key suppliers and us as your specialist for adhesives and their application in the window fabrication.

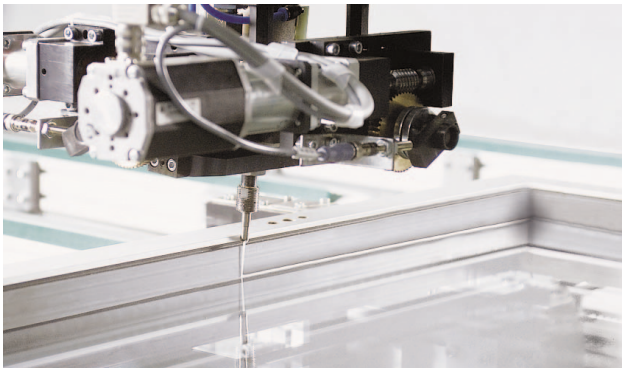
ADVANTAGES OF BONDING TECHNOLOGY

- Improvement of thermal insulation up to 20 %
- Up to 30 % more light
- Dynamic load:
  Increase of approved wind load up to 10 %
- Reduction of production costs up to 10 %
- Reduction of service costs up to 90 %
- Up to 90 % lower complaint rate

Picture left page:
Turning Torso, Malmö, Sweden

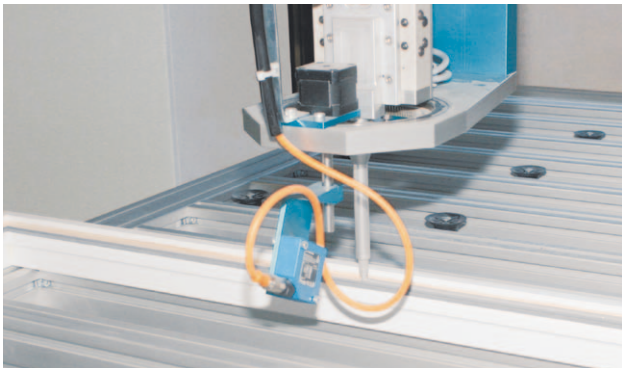
LEVEL OF AUTOMATISATION IN WINDOW BONDING

FULLY AUTOMATED



- Automated infeed and outfeed of sash frame
- Automated marriage of sash frame and IG unit
- Automated application of adhesive with 1-part or 2-part pump and mixing system

SEMI-AUTOMATIC



- Manual or automated infeed and outfeed of sash frame and IG unit
- Automated application of adhesive with 1-part or 2-part pump and mixing system

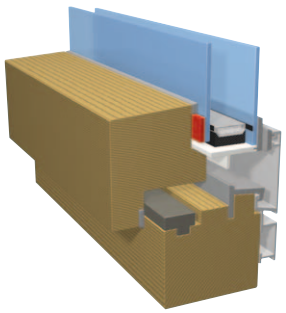
MANUAL

- Manual marriage of sash frame and IG unit
- Manual application of 1-part and 2-part adhesive with gun or pump and mixing system

SIKA – THE FULL RANGE SUPPLIER

Sika's approach to sealing and bonding is to provide the right product solution for each individual application. As the requirements for adhesives differ depending on the customers needs and requirements, Sika focuses on an intensive customer relationship already at the early stage of the project. This includes extensive support in design of adhesive joints, the right adhesive selection and finally the optimisation of application processes. For hand and automated applications the Sika materials are available in 300 ml cartridges, 600 ml unipacks, 23 L pails and 200 L drums. Our core technologies are based on polyurethanes, SB polymers, silicone, acrylates and hotmelts.

THE IDEAL ADHESIVE FOR WOOD WINDOWS



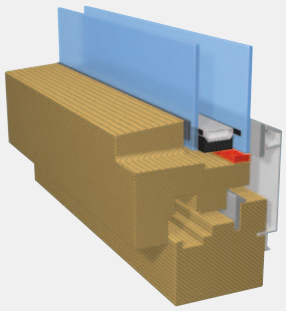
INTERIOR OVERLAP BONDING

- Greatest potential for saving frame material
- Maximum glass area
- Improved thermal insulation
- Reduction of production costs

PRODUCT	TECHNOLOGY	CHARACTERISTICS
Sikasil® WT-485	2 part Silicone, UV-resistant	High curing speed for automated application
Sikasil® WT-480	2 part Silicone, UV-resistant	High modulus, long mixer open time
Sikasil® WT-470	2 part Silicone, UV-resistant	Highly flexible, medium curing speed
Sikasil® AS-66	1 part Silicone, accelerated	High strength at high elongation
SikaFast® 5000 series	2 part Acrylates, UV-resistant	Extremly high modulus, extremly fast curing

GLASS EDGE BONDING

- Improved thermal insulation
- Maximal acceleration of glazing speed with almost unchanged production process



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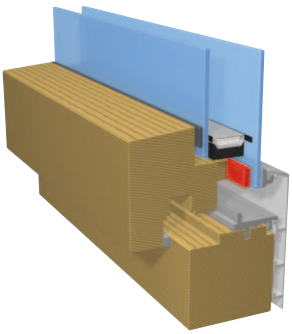
Sikasil® WT-40	1 part Silicone, UV-resistant	Easy to apply
Sikasil® AS-66	1 part Silicone, accelerated	High strength at high elongation
Sika® Glazing Tape Prefix	Acrylic adhesive tape, UV-resistant	Immediate fixation of glass



STEPPED INSULATING GLASS

- Great potential for saving frame material
- Maximum glass area
- Improved thermal insulation

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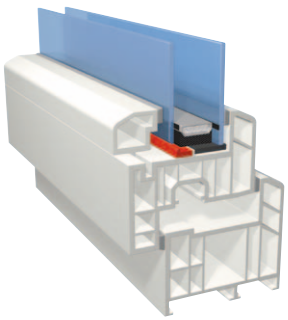
THE IDEAL ADHESIVE FOR PVC WINDOWS



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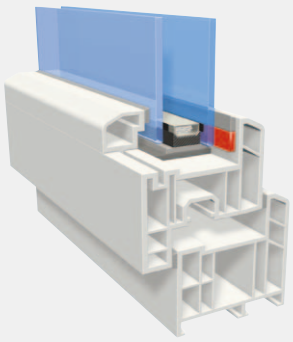
EXTERIOR OVERLAP BONDING

- Easiest start of window bonding
- Reduction of service costs
- Reduction of complaint rate
- Flexibility of product portfolio



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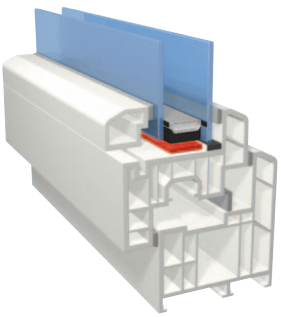

REBATE BONDING

- Improved thermal insulation
- Maximal acceleration of glazing speed with almost unchanged production process

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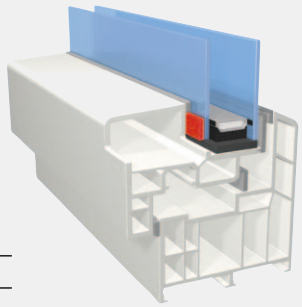
INTERIOR OVERLAP BONDING



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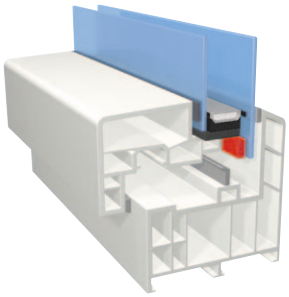

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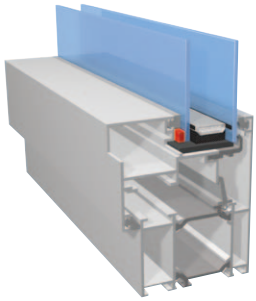
THE IDEAL ADHESIVE FOR ALUMINUM WINDOWS



INTERIOR OVERLAP BONDING

- Greatest potential for saving frame material
- Reduction or elimination of thermal break material
- Improvement of thermal insulation
- Maximum glass area
- Reduction of production costs

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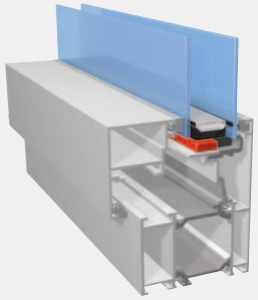
INTERIOR GLASS EDGE BONDING



- Saving of frame material
- Reduction or elimination of thermal break material
- Maximum glass area
- Improved thermal insulation
- Maximum acceleration of glazing speed
- Reduction of production cost

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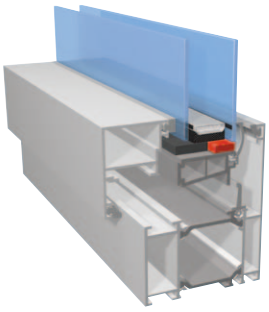

GLASS EDGE BONDING EXTERIOR

- Saving of frame material
- Maximum glass area
- Improved thermal insulation
- Maximum acceleration of glazing speed
- Reduction of production cost

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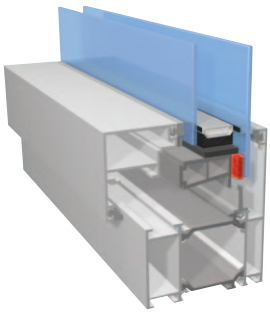

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OUR PERFORMANCES – YOUR BENEFITS

Performance	Benefit
Construction consultancy	- Review of existing window systems referring to suitability for bonding - Advice for system amendments
Functional testing	- Support with prototyping - Functional tests/test plan of whole system for compatibility, adhesion and function
Application technology	- Active consulting with the selection of application technology - Systems and equipment engineering/bonding technology - Support of equipment application procedures
Applicator training	- Preparation of operation manuals for bonding/ repair glazing in conformity with ISO - Customer service
External approvals	- Best practice sample preparation

OUR CORE COMPETENCES

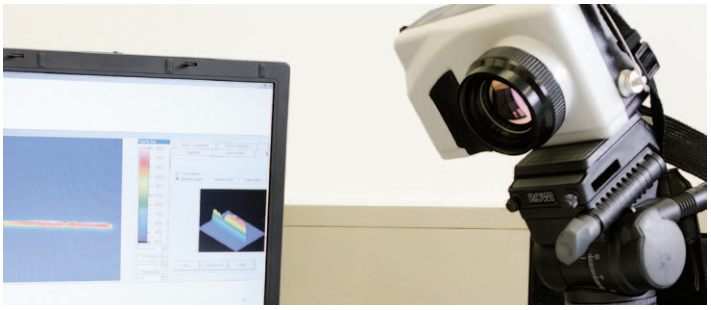
Sika is the technology leader in fenestration and offers its customers best practice solutions for bonding, sealing, damping and reinforcing.

Sika's window engineers support the window manufacturers by developing solutions for bonded windows.

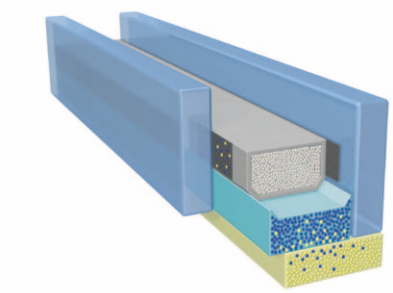
SIKA COMBINES BONDING TECHNOLOGY WITH WINDOW FABRICATION

Our Fenestration Competence Centre

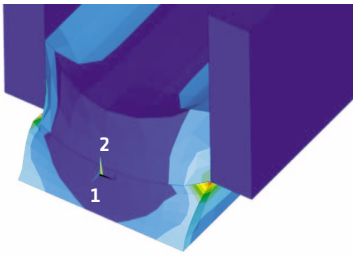
R&D has always taken pride of place at Sika. At our Fenestration Competence Centre in Switzerland, we combine R&D with a very special service: individualized project service and support. This project service is Sika's response to increasing distinctiveness of window technology. Innovative uses of new sealants and adhesives for window constructions are in demand. But there is also a growing need for technical support in project planning and execution. At our Fenestration Competence Centres, we develop new products and processing technologies, test known bonding methods for the applicability in windows, and use the results to optimize our technical service.

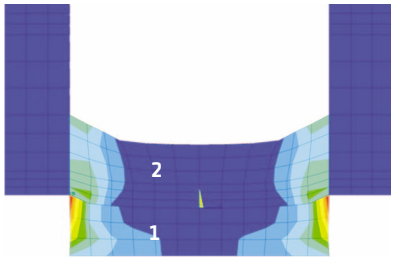


Sika System Engineering supports the optimization of the adhesive application by patented test methods. The above image shows an infrared camera measuring the adhesives heat of reaction.



In windows with rebate bonding and glass edge bonding the IG secondary sealant is in direct contact with the window adhesive. Therefore, the adhesive must be compatible with the edge sealant.
Sika's sealants and adhesive systems are tested and approved to avoid incompatibility.
More information about compatibility of our systems can be found on ses.sika.com.





Rebate bonding
1 Window adhesive
2 Insulating glass secondary sealant

Finite element calculations show the critical points in a construction. The window construction is optimized by the right choice of adhesive and joint geometry.

GLOBAL PRESENCE – LOCAL SUPPORT

In cooperation with our local technical service centres, the experts in our Fenestration Competence Centre attend to window manufacturers on all continents, from planning to execution. Thereby we focus on the interdisciplinary cooperation with the partners of the glass industry and the profile suppliers.

For individual reports visit our Sealant Compatibility Check tool on ses.sika.com

GLOBAL BUT LOCAL PARTNERSHIP

FOR MORE INFORMATION:

ses.sika.com

WHO WE ARE

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika has subsidiaries in 90 countries around the world and manufactures in over 160 factories. Its more than 17,000 employees generated annual sales of CHF 5,6 billion in 2014.

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BUILDING TRUST