Saving Energy
with perfect seals

OTTO CHEMIE

Sealants • Adhesives

Preface

Saving energy – the order of the day

Eliminating thermal bridges plays a great role in the renovation of buildings for energy saving purposes. Forming and sealing connection joints in the best possible way, together with good insulation of the facade and roof, are the key to a reduction in heating requirements. Thermography is used to detect weak points in the buildings, after which targeted renovation work can be carried out.

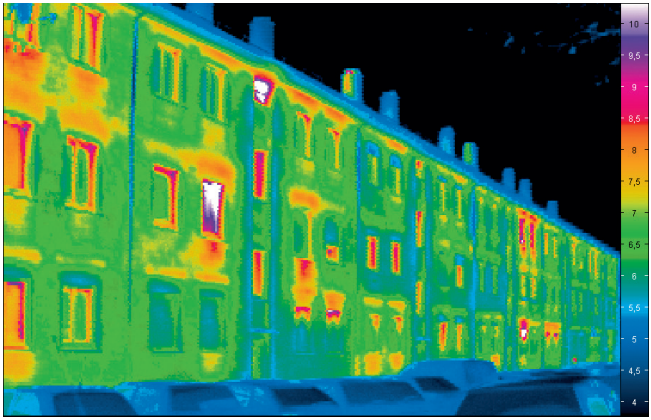
Doors and Windows

Competent and professional insulation of connection joints between doors or windows and the main body of the building can be achieved according to RAL installation guidelines by using both specialised OTTO injectable sealants and OTTO tapes suitable for bricks or concrete.
OTTOPUR assembly foams are available for sound and thermal insulation of connection joints.

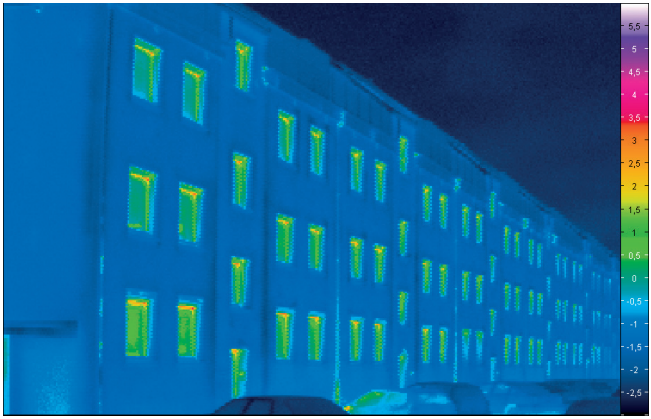
Insulation of exterior walls

These thermographic pictures show clearly that the heat loss of the building has been greatly reduced by the renovation – and in the long run it will reduce costs too.

BEFORE MODERNISATION



AFTER MODERNISATION



Fotonachweis: Passivhaus-Institut, Darmstadt

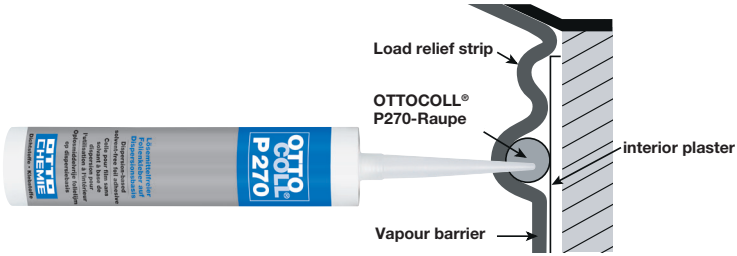
Insulation of the roof

Loss of heat through the roof of a building can be prevented by insulating it in accordance with DIN 4108 using vapour retarders or barriers, the adhesive **OTTOCOLL® P 270** and **OTTOTAPES D-25-I** und **E-40-I**. There are two methods of making an airtight bond with the vapour retarders and barriers on porous surfaces such as plaster, concrete or untreated wood: the wet method for experienced craftsmen, and the dry method, which is more suitable for less experienced workers.

Wet method:

1. Secure edges of vapour barrier with tape. Remove this immediately after applying **OTTOCOLL® P 270** along the top in a caterpillar shape 8 mm thick.

2. Place load relief strip in fold of vapour barrier, this absorbs movements of the building.



3. Press the vapour barrier onto the sticky caterpillar within ten minutes of application.
   WARNING:
   Do not flatten the **OTTOCOLL® P 270** caterpillar – it must be at least 4mm thick.

Dry method:

1. Secure edges of vapour barrier with tape.
   Apply **OTTOCOLL® P 270** along the top in a caterpillar shape 8 mm thick and leave to rest for **1 – 3 days**.
2. Place load relief strip in fold of vapour barrier, this absorbs movements of the building.
3. Press the vapour barrier firmly onto the **OTTOCOLL® P 270** caterpillar.

ATTENTION: During the time between applying the adhesive and fixing the vapour barrier, dust must not be allowed to gather on the **OTTOCOLL® P 270** caterpillar.

Planning and forming the connection joint according to IVD leaflet No. 9

- For sealing the joints a combination of materials must be used which have physical properties and material specifics which are compatible, and which fully meet the requirements. (source: guide to installation, IVD leaflet No. 9). The air-tightness of the exterior walls of a building is an important quality criterium for building inspection and is checked by means of a Blower-Door test.

- The structural requirements for connection joints between windows and walls are very diverse in practice, therefore there is no general rule for sealing either the inside or the outside. The method must be chosen according to the conditions on site.

Current Technology Status of RAL Installation according to EnEV 2009

- New buildings must be constructed in such a way that the heat transfer surfaces, including joints, are durably airtight in conformance with the current status of technology.

- The main priority of the recognised technical regulations and the objective of the EnEV is to reduce heating energy requirements and to minimise structural damage.

- In terms of structural physics, joints that are not airtight are still one of the greatest weaknesses in buildings and they are partly responsible for uncontrolled loss of heat and for humidity damage.

- Connection joints of windows and exterior doors should as a rule be sealed both from the inside and the outside.

- The RAL installation policy of “sealing inside tighter than outside” ensures that any moisture that infiltrates the connection joint is led away to the outside.

Insulation of buildings

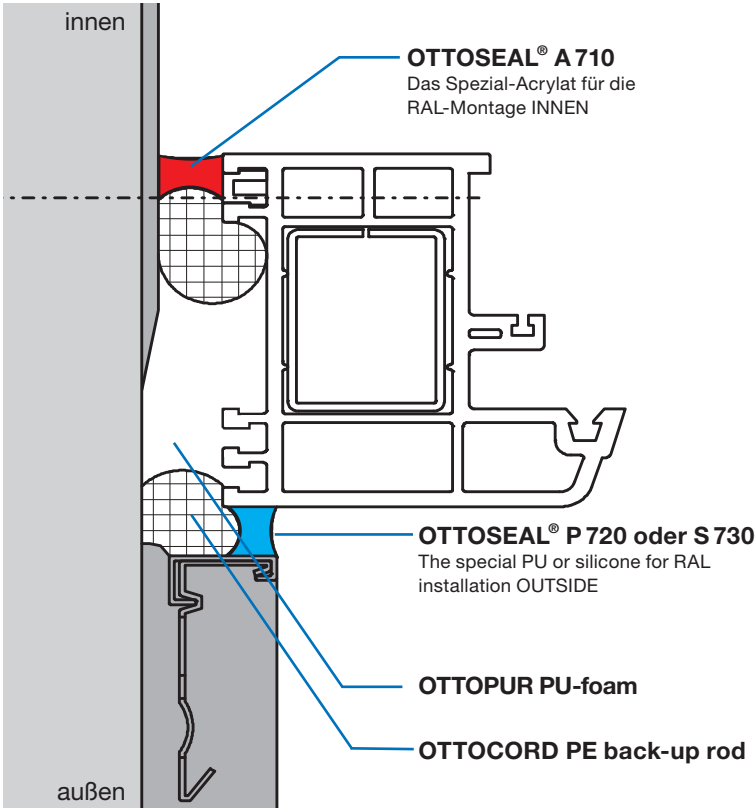
- New buildings must basically be constructed in such a way that the heat transfer surfaces, including joints, are durably airtight in conformance with the current state of technology.

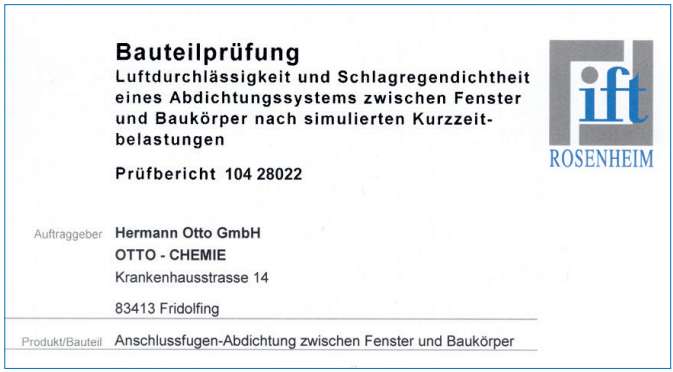
- Should exterior structural elements be replaced or additionally sealed in the course of renovations or repairs, these elements must not exceed the highest levels of heat transition coefficients in accordance with Appendix no. 3 of the EnEV.

- In accordance with the latest EnEV 2009, the permeability of window joints installed in buildings of up to two floors must meet the standards of class 2, and in higher buildings class 3 of the EN 12207.

- Should verification of the insulation be required, buildings with ventilation or air-conditioning systems must not exceed an air exchange of 1,5 h^{-1}, or, respectively, 3,0 h^{-1} when tested (blower-door-test).

(Source: VFF Merkblatt ES.02:2009-09)





Bauteilprüfung

Luftdurchlässigkeit und Schlagregendichtheit eines Abdichtungssystems zwischen Fenster und Baukörper nach simulierten Kurzzeit-belastungen

Prüfbericht 104 28022

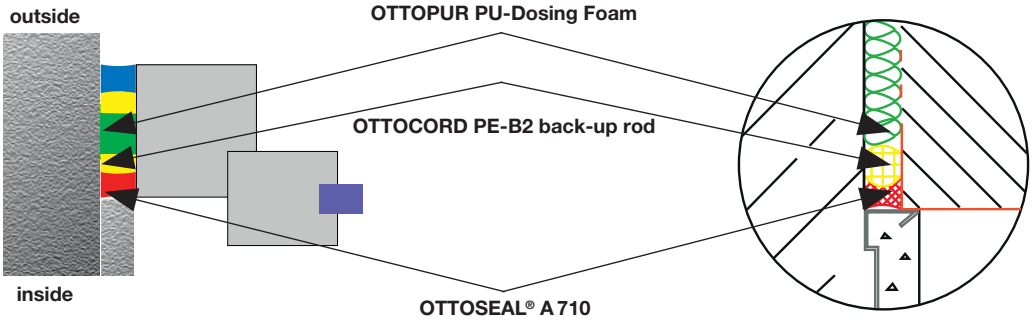
ift ROSENHEIM

Auftraggeber **Hermann Otto GmbH**
OTTO - CHEMIE
Krankenhausstrasse 14
83413 Fridolfing

Produkt/Bauteil Anschlussfugen-Abdichtung zwischen Fenster und Baukörper

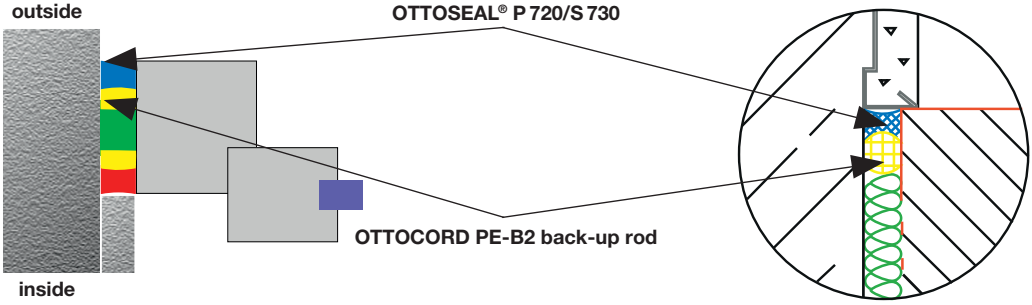
The pre-compressed OTTO joint tape can be used for the outside as an alternative to the combination of injectable sealants and OTTOCORD PE-B2 back-up rods.

Filling the cavity using back-upt material and injectable sealant from **INSIDE**



Pay attention to the following points:
- adhesion and compatibility
- movement capability
- work sequence
- cross-section
- stress on adhesive areas indoors/outdoors

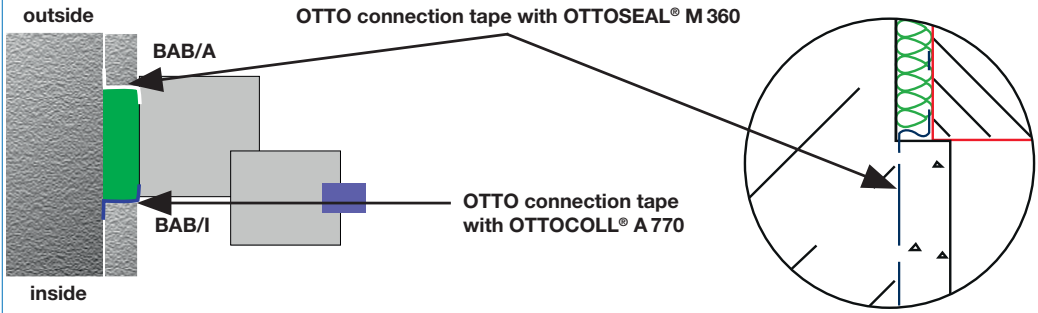
Filling the cavity using back-up material and injectable sealant from **OUTSIDE**



Pay attention to the following points:
- adhesion and compatibility
- movement capability
- work sequence
- cross-section
- stress on adhesive areas indoors/outdoors

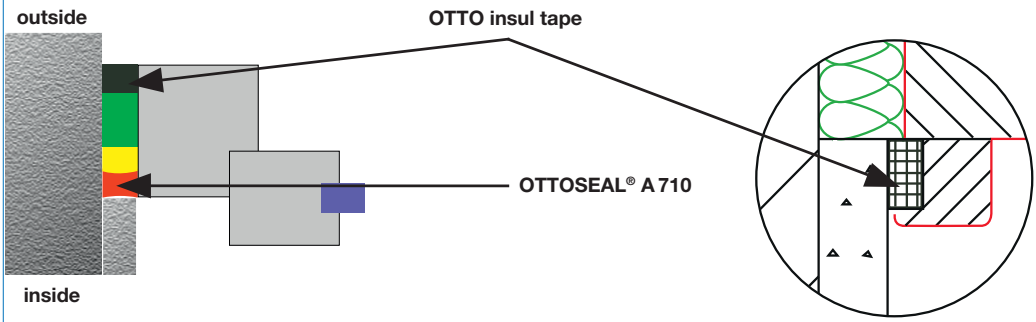
OTTOPUR PU-Foam Sealant
OTTOCORD PE-B2 back-up rod
OTTO Joint Tape
OTTOSEAL® P 720/S 730
OTTOSEAL® A 710
OTTO Connection tape interior/exterior

Using connection tape that can be plastered over **OUTSIDE/INSIDE**



Pay attention to the following points:
- sufficient bonding
- overlapping bonds with **OTTOCOLL® A 770** inside or **OTTOSEAL® M 360** outside
- pretreatment of bonding surfaces not necessary
- sufficient contact pressure
- load relief strip on outside

Using precompressed OTTO insulating tape **OUTSIDE**



Pay attention to thefollowing points:
- degree of compression
- contact surfaces
- corners, connection points
- compatibility
- sequence of materials cross-section

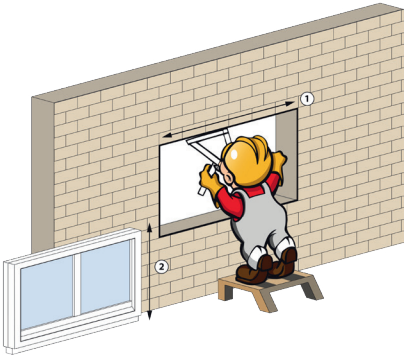
Insulating material for joint fill

The contractor may choose which insulating material is to be used for the connection joint between windows or exterior doors and the structure if there has been no prior agreement between the contracting parties. This is stated in the general technical terms of contract for joineries (ATV) DIN 18355.

For this reason, OTTOPUR PU-Foam in cartridges can be used without an explicit arrangement with the client.

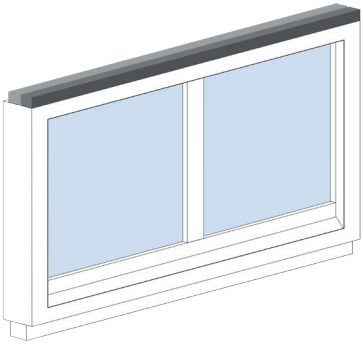
The contracting company can decide which insulating materials are suitable for use if the client has not specificied a choice.

Multifunctional sealing tape for **RAL installation** and for window sills

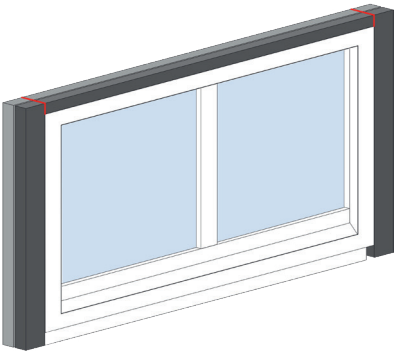


Step 1: Measure the opening and the window frame.

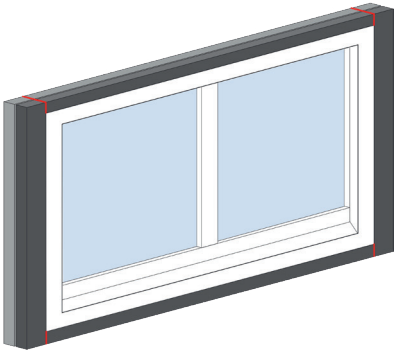
Step 2: Clean window frame
(e. g. with OTTO Cleaner T)
and remove dirt from the reveal.



Step 3: Stick OTTOTAPE Trio-BKA along the top of the frame.

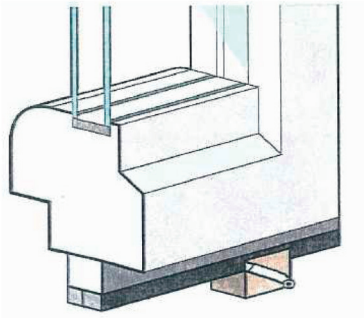


Step 4: Stick OTTOTAPE Trio-BKA down the sides, allowing overhang up to lintel and down to window sill.



Step 5: Stick OTTOTAPE Trio-FBA along the base profile.

Step 6: Place window frame into the opening, adjust and fasten.



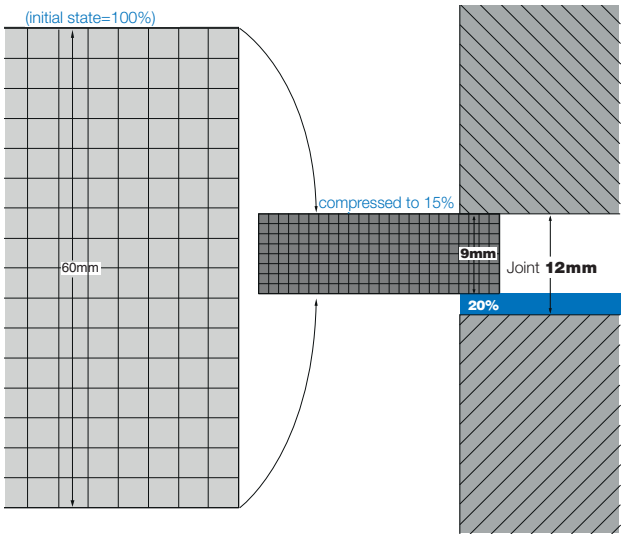
Cut OTTOTAPE Trio-FBA to measure on each side of the blocks.

	Length of element						
	up to 1,5 m	up to 2,5 m	up to 3,5 m	up to 4,5 m	up to 2,5 m	up to 3,5 m	up to 4,5 m
Type of window profile	Minimum joint width for adjustable mounting B in mm				Minimum joint width for inside mounting B in mm		
Hard PVC (white)	10	15	20	25	10	10	15
Hard PVC and PMMA (dark) (coloured extrudes)	15	20	25	30	10	15	20
Hard PUR-integral foam	10	10	15	20	10	10	15
Wood/metal window construction (lightl)	10	10	15	20	10	10	15
Wood/metal window construction (dark)	10	15	20	25	10	10	15
Aluminium/plastic thermal barrier profile (light)	10	10	15	20	10	10	15
Aluminium/plastic thermal barrier profile (dark)	10	15	20	25	10	10	15
Wooden window profile	10	10	10	10	10	10	10

These minimum widths B apply to the connection joints of window or exterrior door installation, and to interior installation using sealants >15 % ZGV (permissible total deformation).

Degree of compression using precompressed OTTO Insulating Tape

The degree of compression is the term for the percentual degree to which the insulating tape has been compressed.



Insulation if tape swells by:

20 %
➔ driving rain/ highly soundproof

33 %
➔ **only** wind and rain

40-50 %
➔ **only** light snow and dust

60-70 %
➔ **only** thermal and accoustic insulation

<10 %
➔ potential damage to tape

OTTOSEAL® A 710

The special acrylic for window and door mounting INSIDE
1-component sealant based on acrylate
For indoor application

OTTOSEAL® P 720

The special PU for window and door mounting OUTSIDE
1-component sealant based on polyurethane
For outdoor application

OTTOSEAL® S 730

The special silicone for window and door mounting OUTSIDE
1-component silicone sealant based on oxime, neutral cross-linking, MEKO-free
For outdoor application

OTTOTAPE Trio-BKA

The multifunctional sealing tape for RAL assembly
Polyurethane foam, saturated with modified acrylic resin impregnation

OTTOTAPE Trio-FBA

The multifunctional sealing tape for joining the window sill to the window frame
Polyurethane foam, saturated with modified acrylic resin impregnation

OTTO Window Tape Interior

The window tape for mounting according to RAL-guideline
Fleece covered tape with good flexibility

OTTO Window Tape Exterior

The window tape for mounting according to RAL-guideline
Fleece covered tape with good flexibility

OTTOCOLL® A 770

The dispersion acrylic adhesive for OTTO Window Tapes
1-component acrylic adhesive
For indoor and outdoor application

OTTOSEAL® M 350

The MS sealant
1-component hybrid polymer STP sealant
For indoor and outdoor application

OTTOSEAL® M 360

Paintable

The hybrid sealant for building joints
1-component hybrid polymer STP sealant
For indoor and outdoor application

OTTOSEAL® M 361

Paintable

The textured hybrid sealant for building joints
1-component structured hybrid polymer STP sealant
For indoor and outdoor application

OTTOCOLL® M 500

PREMIUM

The water-resistant premium hybrid adhesive/sealant
1-component hybrid polymer STP adhesive and sealant
For indoor and outdoor application

OTTOCOLL® M 501

PREMIUM

The transparent premium hybrid-adhesive
1-component hybrid polymer STP adhesive
For indoor and outdoor application

OTTOCOLL® AllFlex

The ultra flexible mounting adhesive
1-component adhesive based on hybrid polymer STP
For indoor and outdoor application

OTTOCOLL® HiTack

The hybrid adhesive with high initial adhesion
1-component hybrid polymer STP adhesive
For indoor and outdoor application

OTTOPUR OP 910

The 1-component dosing foam for applicator guns
1-component mounting and insulating foam based on polyurethane

OTTOPUR OP 920

The 2-component PU foam
2-component assembly and insulation foam based on polyurethane

OTTOPUR OP 930

The 1-component mounting and insulating foam
1-component mounting and insulating foam based on polyurethane

OTTOPUR OP 940

The soundproofing and thermal insulating foam
1-component mounting and insulating foam based on polyurethane

OTTOPUR Turbo

The 2-component PU Door Frame Foam
2-component mounting foam based on polyurethane

OTTOPUR Cleaner

The gun cleaner
Cleaning spray

OTTOCOLL® P270

The dispersion-based solvent-free foil adhesive
1-component dispersion adhesive
For indoor application

OTTOTAPE D-25-I Duct

The adhesive film tape for vapour retarders and vapour barriers
Single-sided adhesive foil tape

OTTOTAPE E-40-I Overlapping

The adhesive tape for vapour retarders and vapour barriers
Single-sided, solvent-free adhesive tape

OTTOCOLL® P520

PREMIUM

The premium 2-component PU adhesive
2-component adhesive based on polyurethane
For indoor and outdoor application

OTTOCOLL® M570

The 2-component hybrid mounting adhesive
2-component hybrid polymer STP adhesive
For indoor and outdoor application

OTTO Insulating tape BG2

The precompressed insulating tape
Impregnated foam tape, self-adhesive on one side

OTTOCOLL® P85

PREMIUM

The premium PU mounting adhesive
1-component adhesive based on polyurethane
For indoor and outdoor application

OTTOCOLL® Rapid

GEV-EMICODE EC 1 PLUS very low emission

The super rapid power adhesive
1-component adhesive based on polyurethane
For indoor and outdoor application

OTTOSEAL® S94

The neutral fire protection silicone
1-component silicone sealant based on oxime, neutral cross-linking, MEKO-free
For indoor and outdoor application

OTTOSEAL® S110

PREMIUM

GEV-EMICODE EC 1 PLUS very low emission

The premium neutral silicone
1-component silicone sealant based on oxime, neutral cross-linking, MEKO-free
For indoor and outdoor application

OTTOSEAL® S112

Window bar filler
1-component silicone sealant compound based on alkoxy, neutral cross-linking
For indoor application

OTTOSEAL® S120

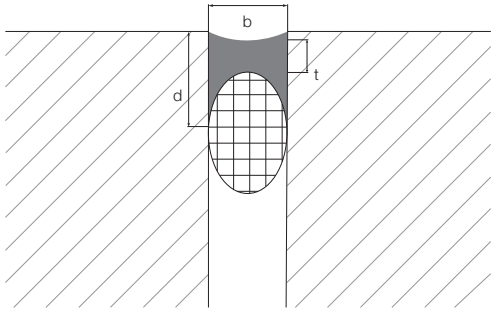
PREMIUM

GEV-EMICODE EC 1 PLUS very low emission

The premium alkoxy window silicone
1-component silicone sealant based on alkoxy, neutral cross-linking
For indoor and outdoor application

Joint width b in relation to joint depth t [mm]					
b	10-15	15-20	20-25	25-30	30-35
t	8 ± 2	10 ± 2	12 ± 2	15 ± 3	15 ± 3

Source: Industrieverband Dichtstoffe e.V. / HS PR. Additional information on the IVD information leaflets under www.ivd-ev.de



Basic rule for calculating the joint dimension is as follows:

Sealant depth (t) = 0,5 x joint width (b).

The thickness of the sealant (d) equals 2/3 of the joint width (b).

Download the information material from our website or order online

OTTO offers not only professional quality sealants and adhesives, but also provides the necessary information on choice of product, correct workmanship and maintenance of the joints. You can download as PDF documents, browse through our website or order printed copies.

OTTO Professional Guides

Here the professional workman will find concise information on various topics such as „Saving Energy with perfect seals“ or „Mould, prevention and treatment“.

Product Catalogue for Buildings

The OTTO catalogue provides information on the properties and various applications of the sealants and adhesives available from stock, as well as supplementary products.

OTTO Product Information

Flyers with the most important information on the OTTO products

OTTO Professional Tips

Useful hints and tips on all aspects of sealing and bonding; the practical A-4 format is ideal for printing

OTTO Head office
Tel.: 0049-8684-908-540
Fax: 0049-8684-908-549
E-mail: info@otto-chemie.com
From UK: 0800-783 60 53

OTTO Technical Service
Tel.: 0049-8684-908-460
Fax: 0049-8684-908-469
E-mail: tae@otto-chemie.de

OTTO Order processing
Tel.: 0049-8684-908-310
Fax: 0049-8684-908-319
E-mail: mab@otto-chemie.de

Your specialised dealer:

For information relating to certification marks, please see www.otto-chemie.de under the heading „Information on Certification Marks". The requirements and test criteria of the DGNB and LEED can be found on www.dgnb.de and www.german-gba.org. Please note that these companies do not evaluate our individual products, but the sustainability as a whole of each complete building project.

The information in the present document corresponds to the status quo on going to print, refer to the index. With a new edition this edition becomes invalid. Due to the many possible influences during and after application, the customer always has to carry out trials first. Please observe the respective technical data sheet! This information is available on the Internet at www.otto-chemie.com. Errors and typographical errors are excepted.

OTTO CHEMIE

Sealants • Adhesives

Hermann Otto GmbH · Krankenhausstr. 14 · 83413 Fridolfing, GERMANY
Tel.: 0049-8684-908-0 · Fax: 0049-8684-1260
E-mail: info@otto-chemie.com · Internet: www.otto-chemie.com

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