

HERTALAN[®]

RhinoBond[®]
Induction Fixing System

INSTALLATION INSTRUCTIONS



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CARLISLE
CM EUROPE

HERTALAN[®]



1. Introduction

These installation instructions offer Roofers and Contractors information about the material technology involved when using the HERTALAN® RhinoBond® induction fastening system.

They support the installer in combination with practical training at our CARLISLE® ACADEMY and/or directly at the construction site. Key installation steps are described in text form and illustrated with appropriate visual material.

Under some circumstances, other local conditions or material combinations not described here, may affect the method of installation. Designs that vary from the installation instructions as well as special solutions therefore require prior agreement with our technical department.

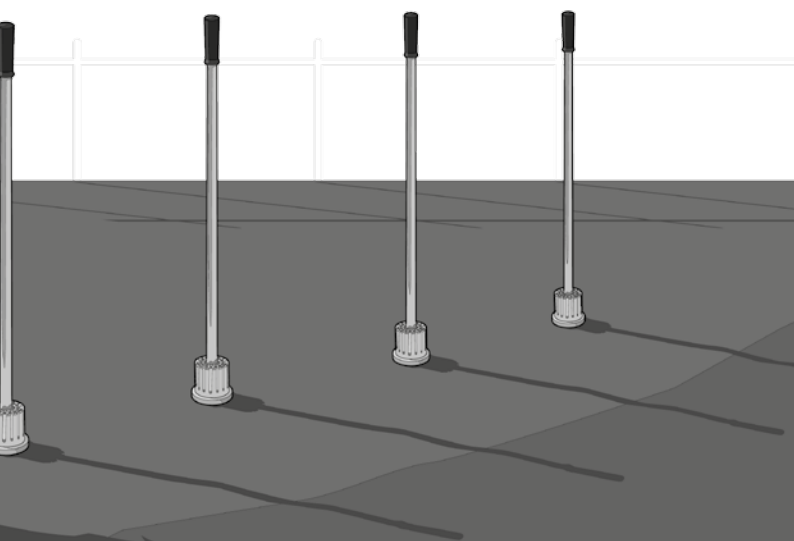
The information and product descriptions in this publication are based on our experience and test results and are correct to the best of our knowledge and belief. They are the basis for all of the solutions described here. Claims for compensation may not be derived from the contents of this publication. We reserve the right to make technically feasible design and structural modifications to our product range in accordance with our high standards regarding quality and continuous advancement.

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2. HERTALAN® RhinoBond® Induction Fixing System

Experience the new dimension of installation with the RhinoBond® Induction Fixing System and our HERTALAN® EASY COVER membranes. This entire system uses induction-compatible plates to secure the HERTALAN® EPDM-membranes and insulation to the roof construction without having to breach the roof membrane.



RHINOBOND®
INDUCTION DEVICE



Please read the instructions for use before using the RhinoBond® induction device.

The RhinoBond® Induction Fixing System comprises perfectly coordinated components: induction welding device, specially coated fastening plates for HERTALAN® EPDM-membranes and magnetic cooling elements.



RHINOBOARD®
FASTENING PLATE
INCL. SCREW

RHINOBOARD®
FASTENING PLATE
TUBE FASTENING
SYSTEM
(TREADSAFE)

PROTECTIVE PLATE
FOR USE ON MELTABLE
SUBSTRATES

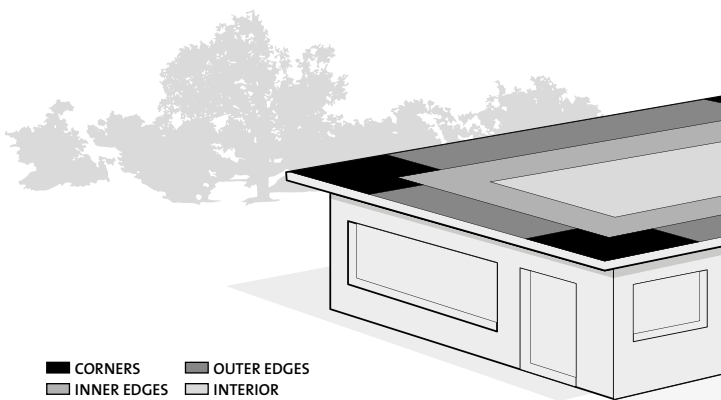


SET OF 6 MAGNETIC
COOLING RODS

3. Principles

The RhinoBond® induction system is used in combination with HERTALAN® EASY COVER EPDM-membranes (EASY COVER FR if required). Through induction, the coating on the fastening plates is heated to around 280 °C and liquefied in the process. With firm pressure on the coating, the magnetic cooling rods create a permanent bond with the HERTALAN® EPDM-membranes.

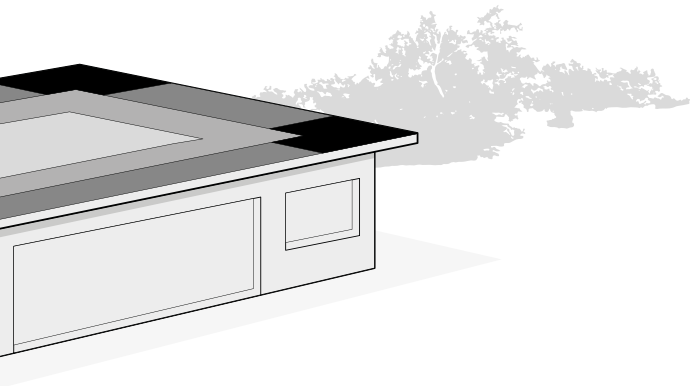
Unlike with seam fastenings (e.g. with EASY WELD MF), there is no penetration of the EPDM EASY COVER membranes by the fixings. The field fixing of the fastening plates distributes the wind load evenly over the membranes, unlike traditional seam fixing. This prevents any asymmetrical force impact on the fastening plates and seams. The position of the fastening plate is defined based on the wind load calculations for the property and distributed in the roof system. As a result, despite mechanical fixing, larger membranes can be used and a clear reduction achieved in the seam proportions and seam overlap compared to conventional systems fixed in place by mechanical means.



- If insulating boards (new-build or subsequent insulation) are being applied, the manufacturer's specifications with regard to the fixings used must be complied with. The insulation is secured across the entire roof surface with a combination of fastening plates and special screws. Overall, fewer fixing elements are required than with the separate fixing of insulation and membranes.
- The RhinoBond® System is not suitable for direct use on metal substrates such as foil-laminated insulating boards. Doing so interferes with the induction device's function. This problem can be prevented by first applying at least 40 mm of insulation with a suitable facing.
- When using the RhinoBond® System on a meltable substrate, such as EPS insulation, a protective plate must be positioned between the fastening plate and the substrate. This prevents the insulation from melting when the plate heats up.



For specific details on the installation process and individual on-site requirements, please contact our Technical Department.



4. Design

4.1 POSITIONING OF THE FIXING POINTS

An installation pattern is defined for the fastening plates using the wind load calculation and manufacturer's specifications for the insulation.



Apply the installation pattern to the roof using, for example a chalk line.



Affix the fastening plates as per the installation pattern.



In the case of meltable substrates, apply the protective plate together with the fastening plate.



The tops of the fastening plates must be clean and dry.

4.2 INSTALLING HERTALAN® EPDM-MEMBRANES

Once the fastening plate has been installed, the HERTALAN® EPDM-membrane is positioned and unrolled. The membranes must be rolled out smooth and allowed to relax.



Remove the membranes from the packaging.



Position the membranes and unroll them.



Completely unfold the membranes.

4.3 WELDING PREPARATION

Before the HERTALAN® EPDM-membrane is induction-welded to the fastening plates, the device settings (calibration) must be coordinated with the weather and environmental conditions.

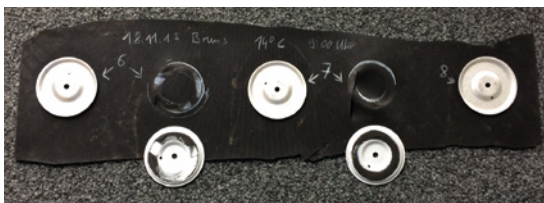
To do this, a series of test welds with different energy intensities should be carried out on a separate piece of HERTALAN® EPDM-membrane. The results should be assessed manually and with a simple visual inspection.



Further calibration should be carried out if the temperature changes by $\pm 5\text{ }^{\circ}\text{C}$.

DOCUMENTATION

Only if the device setting used is documented is it possible to prove that the weld was carried out in accordance with the installation instructions. The day, time and device setting, as well a picture of the tests, must be recorded.

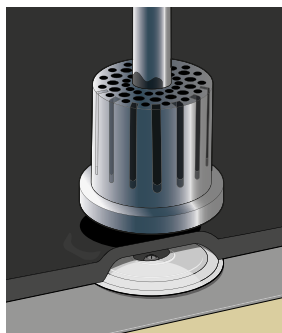


4.4 WELDING HERTALAN® EPDM-MEMBRANES

Position the RhinoBond® induction device precisely over a fastening plate on the HERTALAN® EPDM-membrane.

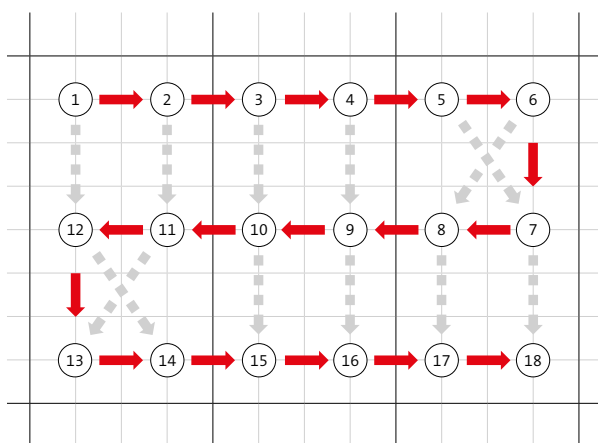
Switch the RhinoBond® induction device on. Induction causes the fastening plate to heat up to around 280 °C. After 5 seconds, the device emits a beeping sound and the welding process is complete.



Place the induction device on the next fastening plate and immediately position the magnetic cooling rod on the EPDM-membrane over the fastening plate that was just welded so that the HERTALAN® EPDM-membrane is pressed firmly onto the molten coating. The cooling and the pressure of the magnet strengthens the bond. The magnetic cooling rods should remain on the fastening plates for at least 45 seconds.

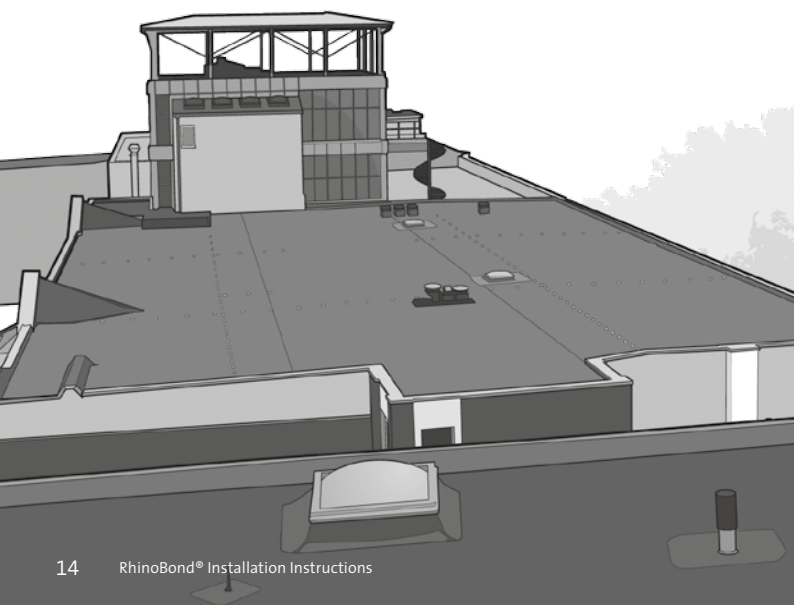


Repeat this process until all of the RhinoBond® fastening plates are bonded with the HERTALAN® EPDM-membrane. Use the entire set of 6 magnetic cooling rods for this. A schematic representation of the ideal rotation of the cooling rods can be found overleaf.

4.5 IDEAL ROTATION OF THE MAGNETS



-  MOVEMENT SEQUENCE FOR OPERATOR
-  ROTATION OF THE MAGNETS



4.6 EXAMPLES OF INSTALLATION DEPTHS / FIXING LENGTHS

FIXING LENGTH DEPENDING ON APPLICATION

STRUCTURE HEIGHT	SHEET STEEL	WOOD	CONCRETE
80 mm	102 mm	127 mm	127 mm
100 mm	127 mm	127 mm	127 mm
120 mm	152 mm	152 mm	152 mm
120 mm*	125 mm	125 mm	125 mm
140 mm	178 mm	178 mm	178 mm
140 mm*	152 mm	152 mm	152 mm
160 mm	178 mm	203 mm	203 mm
160 mm*	178 mm	178 mm	178 mm

* TreadSafe

4.7 APPLICATIONS

Tested and approved roof structures according to hard roof coverings compliant with DIN V ENV 1187 with EASY COVER FR / EASY COVER for RhinoBond®:

ROOF MEMBRANE / PRODUCT	NEW BUILD / RENOVATION
EASY COVER FR - 1.2 - 1.5 mm	new build
EASY COVER FR - 1.2 - 1.5 mm	new build
EASY COVER FR - 1.2 - 1.5 mm	new build
EASY COVER FR - 1.2 - 1.5 mm	new build
EASY COVER 1.2 - 1.5 mm	new build / renovations
EASY COVER 1.2 - 1.5 mm	new build / renovations

4.8 CHOICE OF PLATES

INSULATION	PLATES
Soft insulation (e.g. mineral wool)	TreadSafe plates
Thermal insulation boards with compressive stress > 100 kPa	normal plates
Thermal insulation boards with compressive stress < 100 kPa	TreadSafe plates

VAPOUR BARRIER	INSULATION / SURFACE	SEPARATING LAYER
no/or at least B2	EPS/B1	glass fleece A2 plus protective plate
no/or at least B2	mineral fibre A1	glass fleece A2
no/or at least B2	PIR-FA/GV/PUR	
no/or at least B2	wood	glass fleece A2
no/or at least B2	old bitumen roof	
no/or at least B2	PVC	



5. General installation instructions

- RhinoBond® induction welding can be carried out at between -10 °C and +50 °C.
- The fastening plates must be dry when the roof sheeting is unrolled.
- The correct setting depth of the plates is crucial for a high-quality weld. The plates must not be positioned too high or too low. They should be flush with the insulation.
- The screws must be set in accordance with the manufacturer's instructions with the specified installation depths.
- The check of the screws' extraction values must be documented on site by the roofer (in the case of renovation work, the extraction values must be determined before the wind suction calculation is performed).
- Membrane overlaps over the fastening plates must be avoided.
- The permanent bond between HERTALAN® EPDM-membranes and fastening plates can be released again if necessary without damaging the membranes in the process. By reactivating the induction device over the fastening plates, the coating on the plates re-liquefies and the HERTALAN® EPDM-membrane can be easily removed. The membrane can easily be reused with new fastening plates for a further induction weld, for example if a flat-roof replenishment is planned later.



INSTALLATION AND DETAILING

The seam connections between the roof sheeting can be established using HERTALAN® KS137 and HERTALAN® KS 96 or the HERTALAN® EASY WELD cover strip. Membranes are fixed in place in the perimeter areas using HERTALAN® KS 205 or HERTALAN® KS 137.

For waterproofing details, suitable pre-formed accessories should be used.



Please read the general installation instructions for HERTALAN®.



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