

re-plate

Strengthening of reinforced concrete

Description

re-plate is a prestressing steel made of memory-steel in the form of a lamina. The product is an efficient and easy to install strengthening system especially for the retrofit of buildings. The material is prestretched by re-fer in the factory to a permanent deformation, pre-punched and delivered to the construction site as rolled laminate. The lamina is then mechanically anchored at both ends in the

concrete base using Hilti direct fastening. To activate re-plate or prestress it, the memory-steel is heated to $>200\text{ }^{\circ}\text{C}$ by an infrared radiant heater of re-fer. The ready-applied lamina acts as a prestressed, external tension strap without bond.

Remark: In case corrosion protection is required max. activating temperature is $165\text{ }^{\circ}\text{C}$.

Uses

Increase of load capacity

- > in the event of increases in the payload or traffic load
- > for the conversion of buildings
- > for changes to the load-bearing system
- > for damaged structural parts

Increase of usability

- > by reduction of deflection
- > by closing or reducing cracks

Seismic strengthening

- > thanks to enormous ductility

Advantages

Simple prestressing of existing reinforced concrete beams and plates

- > very good corrosion resistance (CRC 1)
- > meets requirements against stress corrosion cracking
- > easy handling, fast application
- > simple and efficient prestressing
- > low overall height
- > easy to transport
- > lamina crossings possible

Product data



| Dimension | Cross-section | Maximal stress $f_{s,ud}^*$ | Anchorage $F_{s,ud}$ | Relaxation |
|------------|---------------------|-----------------------------|----------------------|------------------------|
| 120/1.5 mm | 180 mm ² | 580 N/mm ² | 105 kN | 15% after t_{∞} |

* Design value at anchorage failure

| | Heating temperature | Prestressing force $F_{p,0}$ | Prestressing $\sigma_{p,0}$ |
|---|---------------------|------------------------------|-----------------------------|
| Heating by gas burner: | 300 - 350°C | 75.5 kN | 420 N/mm ² |
| Heating by infrared transmitter: | 165°C | 54.0 kN ** | 300 N/mm ² |

- in case of flammable material close to the heated zones
- in case of corrosion protection on the re-plate

** a reduced prestress can be obtained with lower heating temperatures

General designation

re-plate

Appearance

Stainless steel laminae, matt

Form of delivery

Cut to length and pre-punched according to parts list for mechanical end anchoring

Storage

Dry, up to max. $+50\text{ }^{\circ}\text{C}$



Informationen

Condition of the substrate

re-plate reinforcement is for reinforced concrete and concrete structures. The substrate must be able to take loads. Any protrusions (concrete brows, etc.), plaster or insulation in area of the reinforcing tapes must be removed beforehand.

Fire protection

re-plate can be protected with various Sika fire protection mortars. For a high degree of reinforcement and dual safety in the event of failure <1 of re-plate under the action of heat, object-specific fire protection measures are required. Depending on the field of application, the easily applicable fire protection system can be dimensioned based on the valid Sika product documentation.

Application re-plate

Handling and installation are carried out in accordance with the application instructions of re-fer. All necessary processing materials and equipment can be purchased from re-fer. Upon request, re-fer provides all processing equipment with application technicians on a rental basis.

Fire protection measures:



Indoor plaster-based application:
SikaCem Pyrocoat® «Fire protection spray plaster»
 Indoor cement-based application *
SikaCrete®-213F «Fire protection spray mortar»

*Further mortars from the Sika Monotop® series are available for outdoor applications.

Notes

All technical values in this product data sheet are subject to the re-fer quality assurance. Current measured values may deviate from the product specifications.

For dimensioning, re-fer provides engineering support and advice. For further information please visit us at www.re-fer.eu (references, technical data sheets, application and safety regulations, tender texts, test reports and publications) or contact our technical service directly.

The information in this product data sheet is valid for the corresponding product delivered by re-fer AG Switzerland and re-fer GmbH Germany. Please note that the data may differ in other countries and please refer to the local product data sheet abroad. The information and data in this technical data sheet are intended to ensure that the product is intended for normal use and is based on our knowledge and experience. However, they do not release the user from the obligation to check the suitability and use of the product on his own responsibility.

Product specifications are subject to change without notice. In all other respects, our terms and conditions of sale and delivery shall apply. The latest product data sheet shall apply, which should be requested from us.

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