

Product data sheet re-bar R18

«for statically and dynamically loaded elements»



Product data

The Ø18 mm re-bar R18 round bar is end anchored on the existing steel element by bolts. In exceptional cases, local welding of the end anchorage is possible.

Activation/prestressing is done with a gas burner. During heating, a heat shield is placed between re-bar R18 and the existing steel structure.

Product	Cross-section	Max. tensile stress	Max. tensile force	Elongation at break
re-bar R18	254.5 mm ²	750 N/mm ²	190.8 kN	15 %

Product	Heating temperature	Prestress	Prestressing force	Relaxation
re-bar R18	Gas 300 - 350 °C	380 N/mm ²	96.7 kN	15 % t _∞

The re-bar R18 is delivered to site in a maximum bar length of 5.2 m. A special M19.5 thread is rolled onto the bars at both ends. The R18 C coupling is used to join the bars on site



Material:

memory®-steel is similar to a 1.4003 alloy according to DIN EN 10088 (corrosion resistance class I).

Storage/transport:

re-bar R18 needs to be stored and transported in a dry and safe environment. The material must be protected from direct sunlight and temperatures above +40°C.

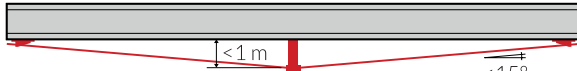


Additional products

Strengthening with re-bar R18 can be done with one or several bars («single», «double», «quadruple»). They can be applied parallel to the steel beam or with a central cant.



End anchorage bolted to the steel beam flange



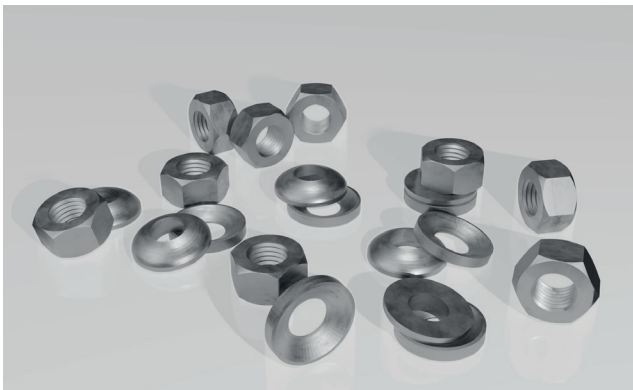
Deflection support clamped

R18 end anchorage

The end anchorage base plate is adapted to the structure and bolted to the existing steel profile. Special applications or structures with extra profiles are possible. R18 nuts with washers are supplied to fix re-bar R18. The washers (spherical disc + conical seat) allow misalignment angle of up to 3°.



R18 «Single, Double and Quadruple» end anchorages bolted



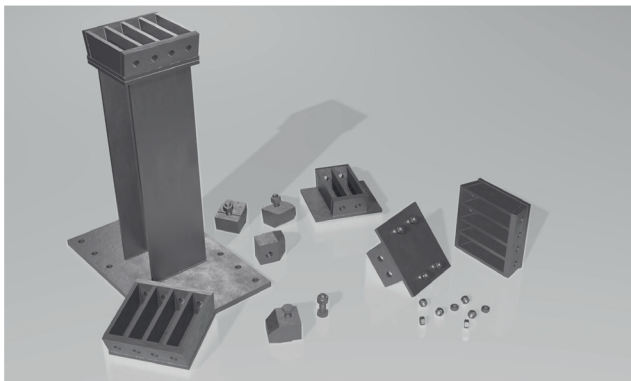
R18 Nuts and washers with misalignment angle of up to 3°

The standard end anchorages are designed for the following steel profiles:

Steel profile	IPE	PEA	INP	HEA	HEB	HEM
«Single»	270 – 750	270 – 600	300 – 550	140 – 1000	140 – 1000	140 – 1000
«Double»	350 – 750	300 – 600	360 – 550	140 – 1000	140 – 1000	140 – 1000
«Quadruple»	750			260 – 1000	260 – 1000	260 – 1000

R18 deflection support

To increase the moment from prestressing, a deflection support can be installed in the centre of the beam. To prevent cross-sectional weakening of the steel beam at that point, the R18 deflection supports are clamped. The supports are designed for a maximum cant of 1 m. With the washers and the base incline of the bracket, misalignment of 15° is possible.



Lindapter girder clamps can be used. Application guideline of the system supplier must be complied. The technical support of re-fer helps you with the design.

Information

Condition of the substrate

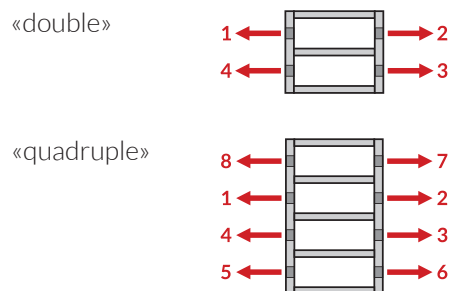
The steel substrate must be able to transfer the load. Damaged spots, patches of rust, coatings etc. shall be removed and restored in advance. A corrosion protection coating can be applied on the steel structure.

The re-fer engineering support assists with special applications. The engineer must check if reinforcing ribs need to be attached for the force transmission. The application and prestressing shall be made under dead load of the structure if possible.

Activation of re-bar R18

When activating/heating by a gas burner, a 30 mm temporary attached protective layer (mineral wool) shall protect the existing steel structure from elevated temperatures. The heating process using the «double» and «quadruple» strengthening type of re-bar R18 must be alternating. All rods are then heated according to the adjoining schematic figure because the fixing is designed for a one-sided prestressing force.

Heating process with deflection support:



Sika Corrosion protection



For severely exposed structures in environments with a high chloride concentration an additional corrosion protection should always be considered and applied. All components of the strengthening system are coated with a corrosion protection according to the re-fer «technical bulletin corrosion protection re-bar R18». The R18 end anchorage, deflection support and the re-bar R18 rods are already threaded and coated with a base layer in the factory. Further work steps must be done according to the technical bulletin after the installation on site.

SikaCor® EG Phosphat	Priming coat	2-pack, low-solvent high-solid epoxy zinc phosphate primer coat
SikaCor® Zinc ZS	Priming coat	2-pack, low-solvent epoxy zinc-rich primer coat
SikaCor® EG-1	Intermediate coat	2-pack, low-solvent, micaceous iron oxide epoxy intermediate coat
SikaCor® EG-4	Cover coat (in DB colour shades)	2-pack acrylic polyurethane topcoat containing micaceous iron oxide pigments
SikaCor® EG-5	Cover coat (RAL- and NCS color shades)	Visually appealing 2-pack acrylic polyurethane topcoat
Sikaflex® PRO-3	Joint sealant	Though polyurethane sealant with high mechanical and chemical resistance

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 design purpose, re-fer provides engineering support and advice. For further information please visit us at www.re-fer.eu (references, technical data sheets, brochure, tender texts, test reports and publications can be downloaded or are available upon request) 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. 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 considered 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.

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