fischer

Catalogue



fischer USA Catalogue

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Foreword

Dear partners,

We are fastening pioneers in the construction industry, and you, dear customers, are our most important source of inspiration. Your needs, concerns and projects are at the heart of our new developments and processes. Whether it is digitalisation, robotics or sustainability, we are always leading the way. Our joint success drives us to shape the future of construction with our solutions.

We have over 75 years of innovative power and technological expertise to draw on. Starting with a patented plastic expansion plug in 1958, our company continued to develop and now offers products, system solutions and services for the entire building supply chain. Our extensive portfolio includes plastic plugs, steel anchors, chemical systems and screws in addition to drills and smart tools for your fastening projects. Product ranges designed for specific applications complete our offer and include solar fastenings, anchor channels as well as facade, installation and fire protection systems.

In addition to providing the most suitable products and systems, our comprehensive range of services offers optimal and individual support, including the development of customised solutions. From planning and implementation to documentation and subsequent monitoring of structures and facilities, we offer a 360-degree service.

We are always at your side as a strong and reliable partner, from full engineering services through to installation support, successful project completion and structural health monitoring. Our engineers, application engineers and staff in the field provide individual and professional support. We're never far away thanks to our 52 subsidiaries around the globe. With a diverse range of online and in-person training sessions provided by our fischer Academy, you can always stay up to date with the latest products, applications and current regulations.

Our digital offer meanwhile comprises BIM (Building Information Modelling) services and digital inventory scanning tools. There's also a range of useful apps that offer advice on selecting and using our products in addition to our FiXperience design software for carrying out structural calculations with our fixing systems. Discover the world of automated construction with our BauBot construction robot and increase your maintenance efficiency with our Construction Monitoring sensor innovation for digitally monitoring and documenting your buildings.

We look forward to talking to you and continuing to work closely with you in future. We hope you enjoy discovering and using our products and services.

Alexander Bässler



Speaker of the Board of Directors at the fischer Group of Companies



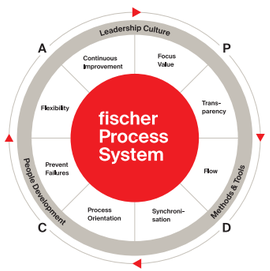
“Whoever chooses fischer receives more than a range of safe products. The aim is to always develop the best solutions for our customers across the globe.”

Besides the innovative products, this predominantly concerns support that is focused on the customer, and services designed to improve customer benefit.

A brand and its promise to perform.

Continuous improvement

With the fischer ProcessSystem (fPS) we ensure that we are adapting and optimising our processes in line with customer requirements in a flexible manner and on a continuous basis.



Safety that connects. Decisive quality

We don’t make any compromises when it comes to the safety of our products. A whole host of our products are distinguished by comprehensive, up-to-date and international approvals. The fischer product range is well-positioned in all sectors of fixing technology – Steel, Nylon and Chemical fixings. In awardwinning quality which continues to impress both professional clients and private customers with equal measure.

ICC ES ESR-1990 See ICC-ES Evaluation Report at www.icc-es.org

ETA CE

International approvals characterise many of our products.





Always on the pulse of time

At fischer, innovation is more than just the sum of the patents. We are open to new things and are prepared for change – always with the aim of offering our customers the greatest possible benefits. Over the years, our own development and production sites have been developing numerous fixing solutions for the most wide-ranging applications. Be it new production procedures or materials, such as renewable raw materials: We are carrying out the research for your safety and will continue to do so in the future. This gives us such great flexibility that we can even develop tailor-made customer solutions. This power to innovate has seen fischer become a market leader in anchor technology and the fixing industry.

Our service to you

We are a reliable partner, one that will stand at your side and address your individual requirements with advice and action:

- Our products range from chemical systems to steel anchors through to plastic anchors.
- Competence and innovation through own research, development and production.
- Global presence and active sales service in over 100 countries.
- Qualified technical consulting for economical and compliant fastening solutions. Also on-site at the construction site requested.
- Training sessions, some with accreditation, at your premises or at the fischer academy.
- Design and construction software for demanding applications.

We take responsibility

Our active environment management policy means that we are helping to maintain an intact environment for our generation and for those that follow. The environment management policy at the Tumlingen site has been certified in line with DIN EN ISO 14001.
It fills us with particular pride that in 2020 we have received the most important and largest award in Europe in the field of sustainability: the German Sustainability Award - category large companies.
This was in recognition of our holistic approach and the strategic anchoring of our sustainability management.
With our greenline products we have launched the first range of fixings on the market that is based on renewable raw materials to more than 50%.



Deutscher Nachhaltigkeitspreis 2020 SIEGER Großunternehmen
German Sustainability Award

PLUS X AWARD 2022 Ausgezeichnet für Nachhaltigkeit
Plus X Award – Sustainability

Lean & Green Management Award 2022
Lean & Green Management Award

GREEN BRAND Germany 2025 / 2026 Company fischer
German Green Brand Award

BIOBASED 50 - 85% DIN Geprüft 8C029 · 8C048
GreenLine assortment based on 50% regrowing raw materials

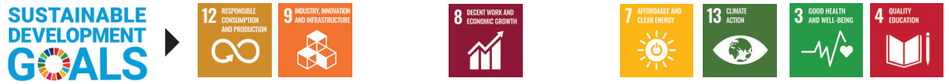
KLIMASCHUTZ UNTERNEHMEN DIE KLIMASCHUTZ- UND ENERGIE-EFFIZIENZGRUPPE DER DEUTSCHEN WIRTSCHAFT
Climate Protection Company

fischer strategy for sustainability.



2030 strategy

T	I	G	E	R
Technology	Innovation	Globalisation	Ecology	Responsibility
fPS		Customer	Corporate philosophy	
· Digitisation · New materials · Production processes	· Products · Business models · Processes	· Market and customer · Users · Profitable growth	· Resources · Energy · Emissions	· Training & education · Employees · Regional added value



Strategy and integrity

For fischer, sustainability means ensuring the future viability of the company! The sustainability strategy is integrated into the corporate strategy. TIGER is the roof foil and the eye-catcher for the Strategy 2030 and the fischer strategy for sustainability. The strategy orientation pursues the goals of combining crisis security, competitiveness and climate protection. The acronym TIGER stands for the specific central sustainability pillars of the company:

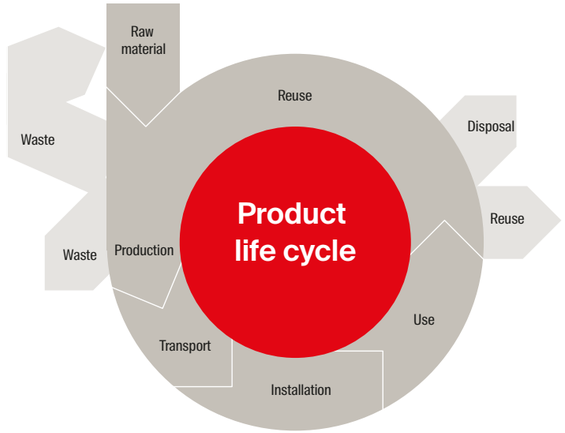
Technology - Innovation - Globalization - Ecology - Responsibility. At the same time, TIGER provides an overview of the company's key strategic challenges in direct connection with the relevant SDGs. As a manufacturing company, the focus is on decoupling resource consumption from growth. In this context, the greatest potential lies in innovative strength and technological progress.



**"Sustainability unites the aspects of environmental protection, technology and innovation with economic success and social responsibility.
At the fischer group of companies, we see the interplay of these aspects as a challenge encouraging us to live, work, and do business in harmony with nature."**

Professor E.h. (Tongji-Univ.), Dr.-Ing. E.h., Senator E.h. E.h.,
Dottore Magistrale ad honorem, Dipl.-Ing. (FH)
Klaus Fischer





Product responsibility

We, at fischer are exercising our product responsibility throughout the entire product life-cycle: sustainable and durable raw materials, waste management and waste recycling in the production, sustainable packaging, efficient transportation, user-friendly and time-efficient installation and product use, and reuse of the products.
Our products are analysed in detail throughout the entire product life cycle in value analysis workshops as part of efficiency projects, to check where and in which components we can reduce the use of raw materials or replace them entirely. We also investigate where valuable energy can be saved in manufacturing process steps and transport. By doing so, we at fischer are exercising our product responsibility throughout the entire life cycle.





Taking the next step

The construction sector is responsible for over 35% of the EU's total waste generation. The buildings and construction sector accounted for 36% of final energy use and 39% of energy and process-related carbon dioxide (CO_2) emissions in 2018, 11% of which resulted from manufacturing building materials and products such as steel, cement, and glass. We believe, that sustainability in the construction industry can only be achieved by preservation and restoration of the existing substance by new and innovative technologies and construction products.

The new fischer assortment reflects to the biggest challenge of the construction industry, namely to the rehabilitation and preservation of existing structures. We underline our commitment for a sustainable construction industry and enlighten our corporate sustainability philosophy from a new, different perspective. fischer not only focuses on the abovementioned product sustainability aspects, but the products, through their function, also contribute indirectly to a sustainable construction industry. The structural retrofitting products and strengthening solutions extend the service life of exiting civil engineering structures leading to significant CO_2 reduction.





Why structural strengthening?

What drives structural strengthening?

Civil engineering structures serve our daily lives, and their structural safety is of particular importance. Buildings, bridges, tunnels present our built environment, and they surround us, wherever we are. The need for structural strengthening is commonly driven by the following reasons:

In case the **function** of existing buildings is **changed** e.g. a residential building is used further as an office building, the structural analysis should verify the structural safety under the increased live-loads and reveal the need for structural strengthening.

The **traffic intensity** and **traffic loads** are increasing on existing bridges over time. Open-source statistics on the condition of existing bridges verify the urgent need for the strengthening or retrofitting works worldwide.

Existing high-rise buildings are often upgraded by **additional floors.** This is mainly driven by the shortage on ground space, particularly in major cities. The additional floors exert the existing building skeleton to additional loads and the load-bearing capacity must be verified or achieved by means of strengthening works.





Design deficiencies, poor execution quality or **bad material quality** often present the reason for structural strengthening. Some examples include concreting using the wrong concrete strength class, installing incorrect rebar diameters, having a lack of steel reinforcement, or making false assumptions in the structural design.

The engineering structures are designed to withstand mechanical, chemical, physical, biological, thermal and fire attacks throughout their service life. This is ensured by considering a vast number of aspects in the design & execution. Nonetheless, there might be several factors leading to accelerated **material deterioration processes** e.g., concrete and steel corrosion, which needs to be addressed with adequate strengthening or retrofitting methods.

Over time, the **building codes** are getting more stringent and more sophisticated. For example, the increasing seismic activity in different regions provokes the adaptation of appropriate and safe regulations. There are currently thousands of buildings being assessed in post-earthquake zones to evaluate their structural safety and millions of engineering structures are being pro-actively strengthened to avoid the severe consequences of further earthquakes from happening again.

Wall or slab openings are often made at a later stage of the construction phase. Depending on their dimensions, these might **change the static system** of the building, making strengthening works necessary.



Principals of structural strengthening

There exist several state-of-the-art structural strengthening techniques in the engineering practice. The main goal of strengthening is to improve the performance of existing engineering structures. A distinction can be made between restorative strengthening and strengthening that increases the resistance of the structure.

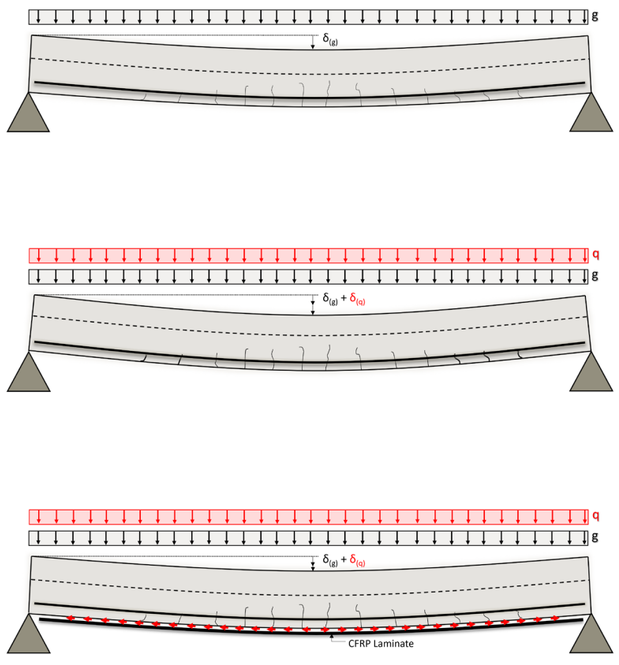
Restorative strengthening assumes a loss of the structural resistance compared to the intended performance of the structure, caused by e.g. steel corrosion. The primary aim of the strengthening is to restore the initially intended structural performance by e.g. replacing the corrosion-affected rebars, adding embedded rebars or by applying externally bonded steel or carbon fibre strengthening materials. As a result of the strengthening, the required global structural safety of the structure can be ensured.

Due to additional loads, the performance of the structures or structural members needs to be increased over their intended service life. Reasons for that include among others the increasing seismic activity and the thereof resulting more stringent building codes, the increased live loads on bridges and buildings. The structure is not necessarily damaged at the time of the strengthening works, hence the global safety of the structure can only be maintained by upgrading its initial structural performance by adequate **strengthening.**

Expected structural behaviour

Strengthening explained simply.

Reinforced concrete structural members, already under their dead-load, display a certain deflection (δ_g) with anticipated hairline cracks, which should be kept under < 0,3 mm, thus fulfilling the requirements at the Serviceability Limit State (SLS). This is almost always the condition of the structural member at the time of the strengthening application. Due to additional live loads and the thereof resulting further deformation (δ_q), the post-installed strengthening materials (CFRP reinforcement, CF fabric, Steel Plates, etc.) are engaged and they contribute to the overall resistance of the cross-section. An adequate and slip-free load-transfer between the member to be strengthened and the strengthening material must be ensured, whether it be mechanical or adhesive. Our strengthening systems undergo extensive state-of-the-art product qualification processes to ensure their ultimate safety. Even though our assortment meets the highest requirements and even though the structural response of the strengthening applications is thoroughly researched, the design of several applications still require high experience and engineering judgment. Therefore, the design, specification and the application of the structural strengthening products should be done by experienced professionals.



Preserve more. Build less.

Retrofitting and maintenance of existing civil engineering structures have become one of the main challenges in the construction industry, due to the increased demand for more sustainability. Building reutilization, material deterioration and the introduction of more stringent building codes present a clear need to restore or increase the load-bearing capacity of these structures. Other reasons for strengthening include poor material quality, construction execution errors and design flaws.

Carbon fiber reinforced, precured laminates (CFRP laminates) and carbon fiber fabrics (CF fabrics) from fischer increase the structural safety of reinforced concrete as well as pre-stressed concrete structures and extend their service life. These economical and easy-to-install fischer solutions can be used for diverse applications like in the infrastructure sector or for building construction.

To provide ultimate safety and flexibility for design engineers, our new fischer C-Fiber Force Strengthening System comes with state-of-the-art technical assessments: European Technical Assessments for CFRP laminates in near surface mounted (NSM) and externally bonded (EB) applications (ETA-24/0281), ICC-ES Evaluation Report (ESR-4774) and GB Code Certificates.

Furthermore, the individual chemical products, such as the FRS-PC 11 concrete repair mortar, FRS-BA bonding agent and FRS-CP corrosion protection coating comply with the corresponding parts of the Europe-wide recognized standard EN 1504.



Your advantages at a glance

- Extended service life of existing structures due to increased structural resistance, crack width limitation
- Versatile solutions through combined applications of NSM and EB CFRP laminates, CF fabrics and steel plates
- Technical assessments for ultimate safety: ETA, DoPs acc. to EN1504-3;-4;-6;-7 for individual products, ICC-ES Evaluation Report, GB Code Certificates
- Interactive and user-friendly structural design with REINFORCE-FIX software including full-size, detailed documentation

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Maintain infrastructure.

The assessment of existing bridges indicates the urgent need for restorative or preventive structural strengthening measures. The main reasons for this include the constantly increasing traffic density and traffic loads, as well as deterioration processes. Typical applications on existing reinforced concrete and on pre-stressed concrete structures are flexural or shear strengthening of bridge girders, the extension of bridge superstructures, tunnels, trough structures, hydraulic structures, retaining structures and beyond. The combination of the individual products of the fischer C-Fiber Force Strengthening System covers a huge variety of applications, from standard cases to individual solutions. Since infrastructure applications are often exposed to moderate and aggressive environmental conditions, we also offer the FRS-SF protection coating against UV radiation.

Approvals

ETA-24/0281 as per EAD 160086-01-0301 (EB & NSM)

EN 1504 conformity for individual products

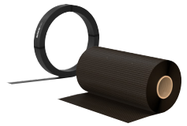
ICC-ES Evaluation Report ESR-4774 as per AC125

GB Code Certificates as per GB 50728

Flexibility convert existing buildings.

Existing buildings often need to comply with new and more stringent building codes. Due to repurposing, structural members often need to withstand higher loads. fischer's C-Fiber Force strengthening product range offers easy-to-use and economical solutions for a wide range of applications – whether it is a new wall, or ceiling opening, flexural and / or shear strengthening of reinforced concrete members.

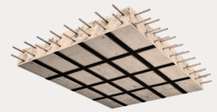
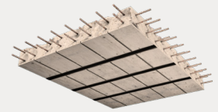
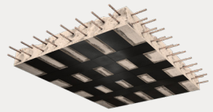
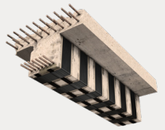
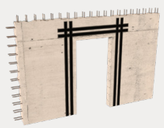
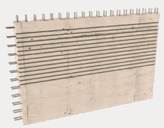
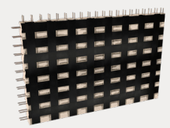
The products of the fischer C-Fiber Force Strengthening System were developed for optimized performance to provide maximum safety. For protection against fire and smoke development in indoor applications, fischer also offers a water-based FRS-FP fire protection coating. To prevent corrosion of externally applied steel stirrups that are typically used for shear strengthening, fischer provides the FRS-CP corrosion protection coating.



Learn more about the new fischer C-Fiber Force Strengthening System

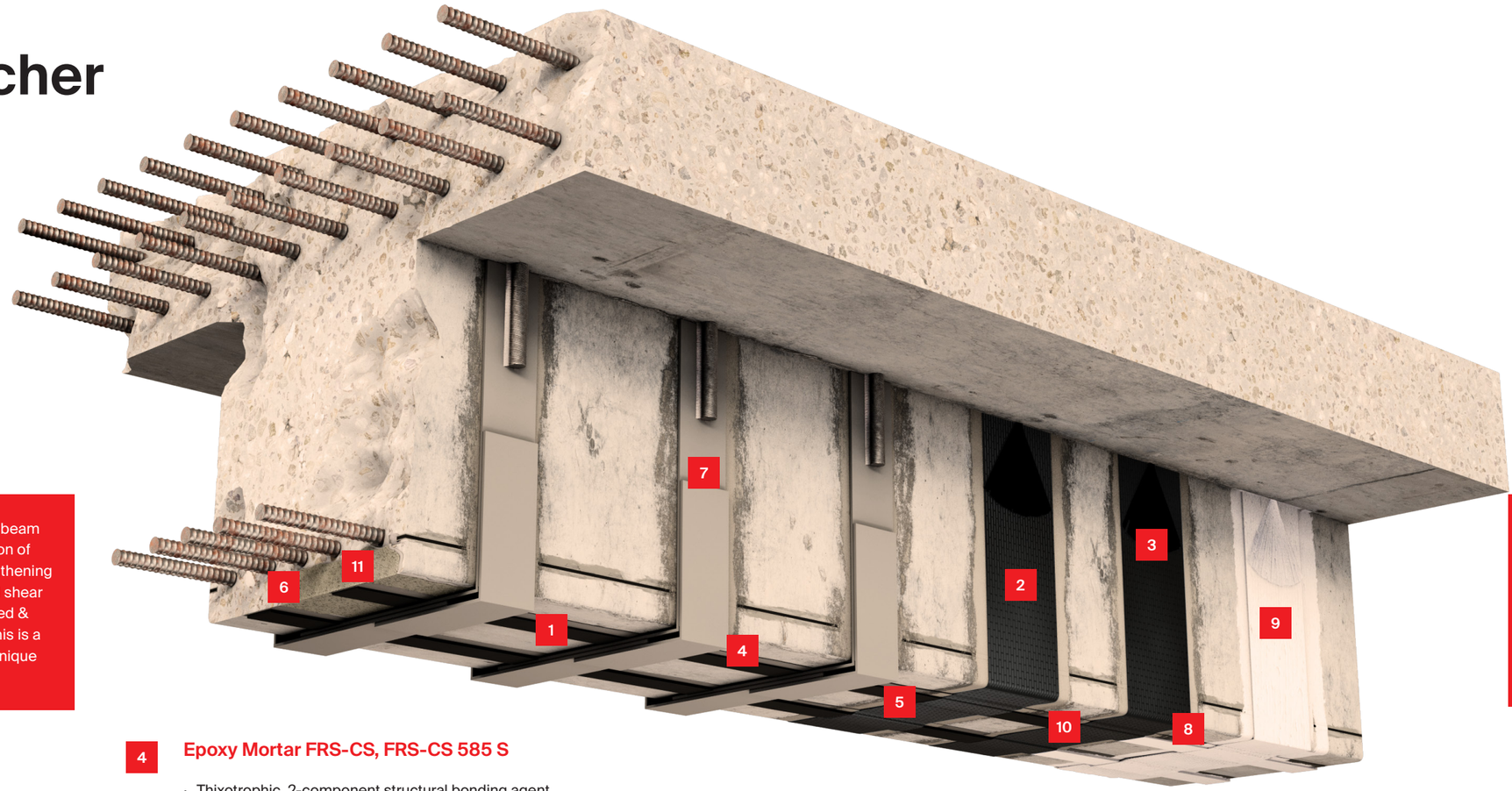


Strengthening solutions at a glance.

Strengthening System	fischer C-Fiber Force Strengthening System		
	 FRS-L-S and FRS-L-H Externally Bonded Laminate	 FRS-L-S NSM Near Surface Mounted Laminate	 FRS-W CF-Fabric
Concrete slabs 			
Flexural strengthening	●	●	●
Concrete beam 			
Flexural strengthening	●	●	●
Shear strengthening	–	–	●
Torsion	–	–	●
Concrete wall 			
Flexural strengthening	●	●	●
Concrete columns 	–	–	
Axial strengthening (confinement)	–	–	●
Advantages	· High alkali resistance (pH 13,7), water, fuel, and corrosion resistance · Laminate crossings for bi-axial strengthening · Minimal reduction of the interior height · Excellent durability (fatigue, sustained load, freeze-thaw)	· Increased aesthetics, low visibility · Combination with externally bonded CFRP laminates for bi-axial strengthening · Increased safety against external damage · High alkali resistance (pH 13,7)	· Suitable for the strengthening of convex concrete members · CF-Fabrics Crossings · Torsion strengthening · Combination with CFRP-Laminates · Suitable for aesthetic reasons because of minimal impact on the clearance profile and coverable
Assessments	CE, ICC ES ESR-4774	CE	ICC ES ESR-4774, GB

Rely on the fischer performance.

fischer knows no compromise when it comes to the performance of our products: The technical assessments for our fischer C-Fiber Force Strengthening System verify the short-term resistance as well as the durability of our products, such as water, fuel and alkaline resistance, resistance under sustained load, freeze-thaw, temperature, and fatigue. The constant quality of products is verified regularly by external audits as well as through extensive in-house quality control.



i The left-hand side of the beam shows a typical application of combined flexural strengthening with CFRP laminates and shear strengthening with bonded & anchored steel plates. This is a typical construction technique especially in Germany.

i The right-hand side of the beam shows a typical application of combined flexural strengthening with CFRP laminates and shear strengthening with end-anchored CF Fabrics. This is the preferred construction technique within the ACI440 context.

1 CFRP Laminate FRS-L-S, FRS-L-H, FRS-L-S NSM



- Carbon Fiber Reinforced Laminates for structural strengthening applications.
- EB and NSM laminates with standard >170 GPa or 24.7 × 10^6 psi i.e. (170,000 MPa or 24,700 ksi) and high tensile modulus > 200 GPa or 29.0 × 10^6 psi i.e. (200,000 MPa or 29,000 ksi) in tension.
- 12 EB and 3 NSM laminate geometries for economical design.

2 Carbon Fiber Fabric FRS-W U300 and FRS-W U600



- Unidirectional carbon fiber fabric for structural strengthening applications.
- 4 product variations: available with 300g/m^2 (8.8 oz/yd^2) or 600g/m^2 (17.7 oz/yd^2) area density and in two different roll widths
- For combined flexural, shear and torsion strengthening.

3 Spike anchor FRS-FC



- Carbon Fiber Spike Anchor.
- Increases the efficiency of load transfer between CF Fabrics and the base material.
- Typically used as end-anchorage for CF fabrics in various layouts and arrangements

4 Epoxy Mortar FRS-CS, FRS-CS 585 S



- Thixotrophic, 2-component structural bonding agent for the installation of CFRP laminates and steel plates, available as can system and injection cartridge.
- Universal repair mortar and surface levelling with layer thickness ≤ 1.18 in
- Complies with EN 1504-4, EN 1504-3, EN 1504-6

5 Saturating Resin FRS-CF



- Thixotrophic epoxy-based saturating resin for the installation of FRS-W CF fabrics and FRS-FC Spike anchor, as well as for surface levelling
- Optimal saturating characteristics in dry and wet layup installations.
- Complies with EN1504-4
- High initial strength.

6 Bonding Agent FRS-BA



- Epoxy-based bonding agent for optimal adhesion between existing concrete and subsequent concrete repair mortar.
- Corrosion protection for embedded steel rebars.
- Complies with EN 1504-7.

7 Corrosion Protection Primer FRS-CP red/grey



- 2-component, low viscosity epoxy-based corrosion protection coating for exposed steel surfaces.
- Universal corrosion primer according to DIN EN ISO 12944-2 and EN 1504-7
- Two differently pigmented colour variations available.

8 UV Protection Coating FRS-SF



- UV protection coating for CFRP laminates and CF fabrics.
- Good weather-ability and high durability against environmental exposure.

9 Fire Protection Coating FRS-FP



- Water-based coating against smoke development.
- Class A characteristics according to ASTM E84, in combination with CFRP laminates and CF Fabrics.

10 Cleaning Agent FRS-CA



- Universal non-dissolving cleaning agent for the CFRP laminate and contaminated tools.
- High cleaning performance.
- Fast cleaning with aerosol can due high spray power.

11 Epoxy Repair Mortar FRS-PC 11



- For reprofiling, surface levelling and increasing concrete cover with layer thickness up to 1.18 in thickness.
- Thixotrophic, 3 component universal epoxy-based concrete repair mortar.
- Suitable for overhead applications.
- Requirement class R4 according to EN 1504-3.
- Low chloride ion content, excellent shrinkage behaviour.

For the reliable fixing of pipes ventilation systems and cable systems.

The technical requirements placed upon building services, engineering, and thus on fixing systems are increasing. fischer installation systems provide safe, cost-effective mounting and fixing elements for diverse applications in building services engineering. Fixing solutions made from zinc-plated, hot-dip galvanised and stainless steel are suitable for light, medium-weight and heavy piping systems.

The product range consists of mounting channel systems, pipe clamps, fix points, sliding elements, ventilation fixings, fixings for steel construction elements, and an extensive range of accessories. Suitability certificates as per VdS, FM and UL as well as fire protection and sound protection reports guarantee added safety.

»A strong partner for innovative and flexible systems – always on your side with our all-around service.«



Integrated solutions from the fixing and installation system specialists:

- Fixing technologies and installation systems from fischer experts from a single source
- Consulting hotline with technical experts for competent and quick support
- Training and professional expertise from fischer technicians
- Personal, highly qualified advising on the construction site



Construction site support:

- Continuous support throughout the entire term of construction
- Delivery of pre-assembled, multiple fixations and mounting channels cut to length to shorten assembly time
- "Just in time" site delivery
- Detailed preparation with static proofs based on assembly and workshop planning
- Provision of construction site containers (material containers) for optimal supply on site



Planning phase:

- Support from the draft to the finished installation
- Custom planning of the fixing concept, in consideration of structural circumstances and fire protection requirements
- Preparation of professional texts for the service specifications
- Processing of 2D and 3D design plans
- Cost calculations for fixing technology
- Fast and flexible BIM integration with MagiCAD

fischer channel systems.
For modular, simple construction of heavy installations.



fischer massive channel system FMS:

- Efficient fixing solution for heavy-duty installations
- Weight-optimised profile geometries to reduce material costs
- Simple assembly without cutting and welding
- Hot dip galvanised for additional corrosion protection



fischer universal channel system FUS:

- The push-through system for quick and efficient installation
- Galvanised, hot-dip galvanised, and stainless-steel ranges available
- Suitable for medium-duty applications
- With or without fire protection requirements



fischer light channel system FLS:

- Pre-assembled design elements for fast assembly
- Quick and efficient fixing
- For lightweight pipes, ventilation ducts or cable racks
- With or without fire protection requirements



Connectors



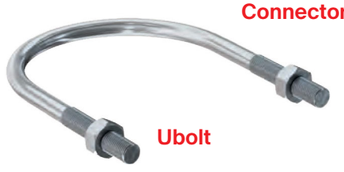
Sprinkler Clamps



Refrigeration Clamps



Pipe Clamps



Ubolt



Cantilever Arms



Channel System



Threaded Rod Accessories



Beam Clamps

Product solutions with example.



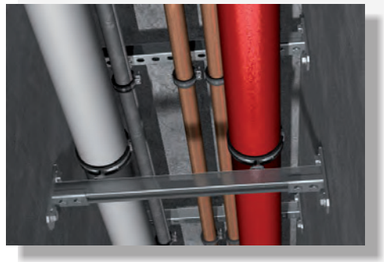
Installation shaft with FUS channel system

- Through the distinctive interlocking of the channels for the channel nuts FCN Clix P or PFCN, the FUSchannel system provides a secure grip for handling high shear loads.
- Also the first choice for pipe line routes due to the greater stability.



Cantilevers for different load ranges

- With centred load (load case 1), the load rangeof the brackets is between 0.33 kN (33 kg) and7.5 kN (750 kg)
- Lightweight cantilevers in the FLS system: ALKMedium cantilevers in the FUS system: FCAMassive cantilevers in the FUS system: FCAM



Telescopic flanging for flexible wall connection

- Through its design, the telescope flange for connection to the MS channel is ideal for use in confined installation spaces, such as narrow corridors or installation ducts and shafts.
- MS installation system: TSF telescope flange



Fix points and sliding components

- Sound insulation requirements for fix points: FSFP anchor point For all standard cases: FFPS fix point with FFPK Fixing ensures controlled movement in one direction: Sliding elements (see instructions on this under Elongation).
- See chapter on anchors and sliding elements.



Refrigerant pipe clamp with integrated steel bracket

- Different requirements for insulating layer thicknesses and the prevention of condensation are the basic requirements for a refrigerant pipe clamp.
- The KFT refrigerant pipe clamp allows neat bonding for insulating layer thicknesses of up to 30 mm, 40 mm or 60 mm.

fischer USA Catalogue

Product solutions with example.



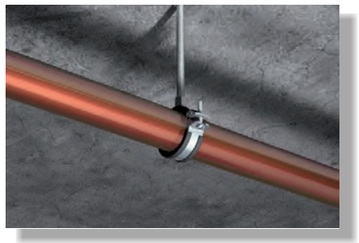
Sprinkler loop with VdS and FM approval

- Sprinkler systems are created according to the requirements of property insurers. The association of property insurers, VdS and FM global, testing products and give approvals for installation in water extinguishing systems.The FRSL and FRSP sprinkler clamp are approved sprinkler loops.
- See also Mounting sprinkler installations.

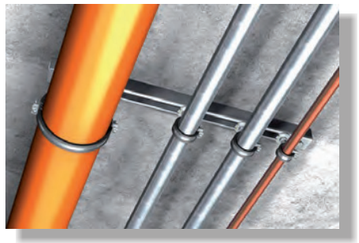


Channel connection - which loads are relevant?

- In the design of supports or similar components for mounting pipe installations, the load of the connecting element, such as a hammer-head screw (e. g. FHS Clix S) or channel nut (e. g. FCN Clix P) is decisive for the connection with a angle bracket, for example. The load information is shown for one element, but can be doubled when using two elements. (see example left side).



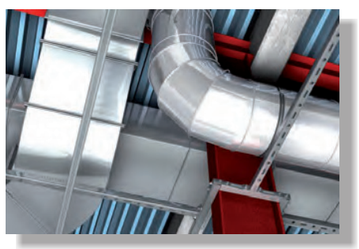
Single pipe fixing



Multiple suspended pipelines



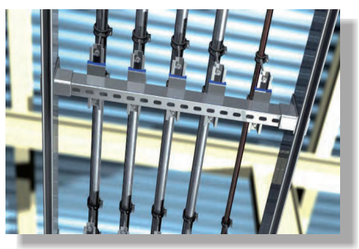
3D-Fram racks



Air duct installation



Cable trays and electrical equipment



Installation grid for production facilities

Epoxy mortar FIS EM Plus

The powerful injection mortar for rebar connections and cracked concrete.

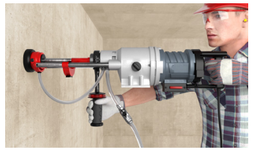


Rail fastening, noise barriers and railings.





Seismic application and concrete to concrete connections.





Diamond-drilled boreholes, WRL and underwater applications





Applications

- Post-installed rebar connections
- Jointers for concrete layers
- Rim beam anchorings
- Seismic applications
- Anchorings in diamond-drilled or in waterfilled drill holes
- Heavy steel constructions
- Silo installations
- Tall shelving
- Sound barriers
- Temporary or removable fixings
- Anchorings in sealing surfaces according to WRL (Water Ressources Law)

Advantages

- The ETA assessment guarantees a service life of 100 years. The expert report of IEA Stuttgart even confirms a working life up to 120 years and thus underlines the reliability and durability of the FIS EM Plus.
- With the threaded rod, the loads to be applied can be designed variably by selecting the anchorage depth. The mortar is approved for diamond drilled and water-filled drillholes as well as seismic applications and thus offers safety under extreme conditions.
- In combination with the fischer anchor rods, the system offers an approval-compliant solution for anchoring dynamic loads.
- In combination with the fischer anchor rods and the matching filling set, the system offers an approval-compliant solution for anchoring dynamic loads.
- For practical use on the building site, FIS EM Plus can be processed at low temperatures down to 23° F.
- 36 months shelf life provides flexibility of storage.
- Approved for Seismic Application
- Cracked and Uncracked Concrete from 2500 psi to 8500 psi.
- Installation temperature range 23° F to 104° F.
- Service life 120 Years by IEA Stuttgart.
- Threaded Rod Diameter from 3/8" to 1-1/4", Rebar from #3 to #11.
- Two Static Mixers Provided with Each Cartridge .
- Approved for Diamond Drilled Holes.
- Water Filled Drilled Holes approved.
- Low VOC.

Certificates / Features

- 120 Years Service life
- Seismic — Approved for Seismic Zones A to F according to the ICC ESR
- without roughening — Diamond drilling
- Installation Temp. range 23°F to 104°F
- Steel Fiber Concrete — Steel fibre reinforced concrete
- Underwater application
- Post-in-stalled rebar con-nections
- WRL — Anchorages in WRL sealing surfaces
- Glued anchorings in wood
- Dynamic
- Texas Department of Transportation
- ICC ES ESR-1990 See ICC-ES Evaluation Report at www.icc-es.org — ICC-ES for cracked and uncracked concrete, post-installed rebar connection

Building materials

Approved for anchorings in:

- Concrete 2500 psi to 8500 psi, cracked and non-cracked
- Sealing surfaces according WRL (Water Ressouces Law)
- Glued laminated or solid timber of spruce (Picea abies), fir (Abies alba) or pine (Pinus sylvestris)

Also suitable for:

- Natural stone with dense structure

Functioning

- The epoxy mortar FIS EM Plus combined with the Fischer Threaded Rods, is suitable for pre-positioned and push-through installation and with the internal threaded anchor RG M I for pre-positioned installation.
- Resin and hardener are stored in two separate chambers and are not mixed and activated until extrusion through the static mixer.
- The mortar is injected bubble-free from the drill hole base.
- The mortar bonds the entire surface of the anchor with the drill hole wall and seals off the drill hole.

Curing times

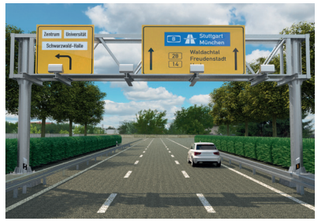
FIS EM Plus Temperature in anchoring base [°F]	Maximum processing time t_{work} [min.]	Minimum curing time [1] t_{cure} [hrs.]
+23 – +32	240	200
> +32 – +41	150	90
> +41 – +50	120	40
> +50 – +68	30	18
> +68 – +86	14	10
> +86 – +104	7	5

1) In wet concrete or water filled holes the curing times must be doubled.

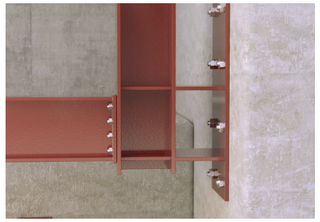
Superbond-system FSB

The concrete all-rounder





Bridges for traffic signs



Steel girders

Applications

- Heavy steel constructions
- Silo installations
- Tall shelving
- Sound barriers
- Guard rails
- Staircases
- Reinforcing steel (only FIS SB)
- Overhead installations
- Water-filled drill holes
- Diamond drilled holes

Advantages

- The Superbond system is a combined capsule and injection system for cracked and non-cracked concrete. The injection mortar FIS SB and resin capsule RSB perform the same as each other at the same anchorage depth. This gives the installer maximum flexibility.
- Variable anchorage depths enable ideal adaptation to the load to be applied, and thus ensure an optimised installation time and use of materials.
- Maximum application temperatures of up to 302 °F open up new areas of use for bonded anchors.
- Superbond is even approved for installation at frosty temperatures of -22 °F.
- The approval-compliant use for seismic applications (performance category C1, C2) as well as in waterfilled and diamond drill holes ensures safety even in extreme conditions.
- 12 months shelf life provides flexibility of storage.
- Approved for Seismic Application.
- Cracked and Uncracked Concrete from 2500 psi to 8500 psi.
- Installation even at frosty temperature -22° F.
- Service life 100 years.
- Threaded Rod Diameter from 3/8" to 1-1/4", Rebar from #3 to #10.
- Two Static Mixers Provided with Each Cartridge.
- Approved for Diamond Drilled Holes.
- Water Filled Drilled Holes approved.

Certificates

ETA-12/0258, for cracked concrete
ETA-13/0651, for post-installed rebar connection
ETA-19/0501, for concrete under fatigue cyclic loading

Fire resistance classification R120

ESR-3572
See ICC-ES Evaluation Report at www.icc-es.org

Texas Department of Transportation

SEISMIC

Building materials

Approved for anchorings in:
- Concrete 2500 psi to 8500 psi, cracked and non-cracked

Also suitable for:
- Natural stone with dense structure

Functioning

- Superbond is a bonded anchor system based on a vinyl ester hybrid with silane technology.
- Resin and hardener are stored in two separate chambers and are not mixed and activated until extrusion through the injection cartridge in the static mixer or destruction of the capsule during the setting procedure.
- The mortar bonds the entire surface of the fastening element with the drill hole wall and seals the drill hole.

Curing times

FIS SB Temperature in anchoring base	Maximum processing time FIS SB t_{work}	Maximum processing time FIS SB High Speed t_{work}	Minimum curing time FIS SB t_{cure}		Minimum curing time FIS SB High Speed t_{cure}	
[°F]	[min.]	[min.]	[hrs.]	[min.]	[hrs.]	[min.]
> -4 – +5	-	60	–	–	24	–
> +5 – +14	60	30	36	–	8	–
> +14 – +23	30	15	24	–	–	180
> +23 – +32	20	10	8	–	–	120
> +32 – +41	13	5	4	–	–	60
> +41 – +50	9	3	–	120	–	45
> +50 – +68	5	2	–	60	–	30
> +68 – +86	4	1	–	45	–	15
> +86 – +104	2	-	–	30	–	–

1) Minimum cartridge temperature +41°F

Injection mortar FIS V Plus

The professional all-rounder for concrete and masonry anchoring.



Seismic

120 Years Service life

ICC ESR-2786

Your advantages at a glance

- Broad system approvals for concrete, masonry and special applications.
- Service life of 100 years supports durable concrete anchoring applications.
- Approved use in water-filled drill holes provides confidence in demanding jobsite conditions.
- ICC Approval for Un-Cracked concrete
- We offer Complete system: mortar, static mixer, cleaning accessories, threaded rods and sleeves.

U.S. code positioning: ESR-2786 evaluates FIS V / FIS V Plus for uncracked normal-weight concrete, 2,500–8,500 psi, including static, wind and earthquake loading for Seismic Design Categories A and B only.

Catalogue items

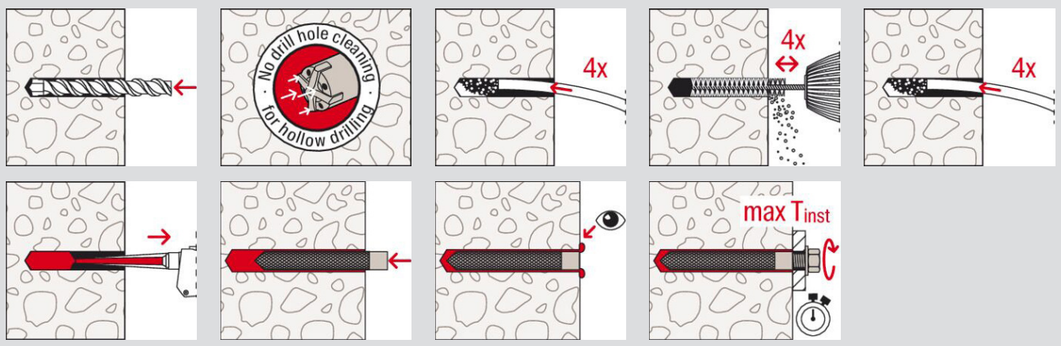
	Item No.	Content	Cataloghe Role
Item			
FIS V Plus 300 T	**563292**	300 ml / 10.14 fl oz	Retail-ready universal adhesive anchor
FIS V Plus 360 S	**558758**	360 ml / 12.2 fl oz	Professional cartridge for contractor use

Minimum cartridge temperature: 41°F / 5°C. Follow current technical documentation and manufacturer instructions for final installation.

Gelling and curing times · metric + imperial

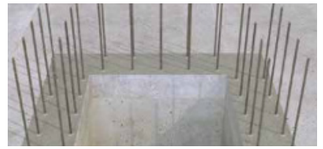
FIS V Plus			
Temperature at anchoring base	**Gelling time t_{work}**	**Minimum curing time t_{cure} 1)**	
[°C]	**min**	**h**	**min**
23°F–32°F (-5°C–0°C)	>13	24	–
>32°F–41°F (>0°C–5°C)	13	3	–
>41°F–50°F (>5°C–10°C)	9	–	90
>50°F–68°F (>10°C–20°C)	5	–	60
>68°F–86°F (>20°C–30°C)	4	–	45
>86°F–104°F (>30°C–40°C)	2	–	35

Installation in concrete with thereaded rod





Threaded rod in concrete



Post-installed rebar reference



Solid masonry



Perforated masonry + sleeve

Approvals and scope for U.S. catalogue wording

ICC-ES ESR-2786

- U.S. code-facing claim: uncracked normal-weight concrete, 2,500–8,500 psi, static/wind/earthquake loads, Seismic Design Categories A and B only.

ETA Masonry

- Masonry values and sleeves should be positioned under ETA documentation and verified by project-specific design.

ETA Concrete

- Global technical scope includes cracked/non-cracked concrete and post-installed rebar references under ETA documentation.

C-FIX Design

- Use fischer C-FIX / FiXperience for the final design check including edge distance, spacing, embedment and concrete condition.

Representative permissible loads · FIS V Plus with FIS A threaded rod

Concrete reference: C20/25 normal concrete; selected maximum listed embedment depth; FIS A class 5.8; values shown as kN / lb. For U.S. permitted design, verify through current ICC ESR and project calculations.

Rod	Nearest U.S. size	h_{ef}	Cracked Concrete N-Tension / V- Shear	Non-cracked Concrete N-Tension / V- Shear
M8	**5/16 in.**	160 / 6.30	9.0 kN / 2,023 lb	9.0 kN / 2,023 lb
			6.3 kN / 1,416 lb	6.3 kN / 1,416 lb
M10	**3/8 in.**	200 / 7.87	13.8 kN / 3,102 lb	13.8 kN / 3,102 lb
			9.7 kN / 2,181 lb	9.7 kN / 2,181 lb
M12	**1/2 in.**	240 / 9.45	20.5 kN / 4,609 lb	20.5 kN / 4,609 lb
			14.3 kN / 3,215 lb	14.3 kN / 3,215 lb
M16	**5/8 in.**	320 / 12.60	37.6 kN / 8,453 lb	37.6 kN / 8,453 lb
			26.9 kN / 6,047 lb	26.9 kN / 6,047 lb
M20	**3/4 in.**	400 / 15.75	58.6 kN / 13,174 lb	58.6 kN / 13,174 lb
			42.3 kN / 9,509 lb	42.3 kN / 9,509 lb
M24	**1 in.**	480 / 18.90	84.3 kN / 18,951 lb	84.3 kN / 18,951 lb
			60.6 kN / 13,623 lb	60.6 kN / 13,623 lb
M30	**1-1/4 in.**	600 / 23.62	121.2 kN / 27,247 lb	133.8 kN / 30,079 lb
			96.0 kN / 21,582 lb	96.0 kN / 21,582 lb

Value proposition for U.S. customers

A universal chemical anchor platform that gives U.S. contractors a practical bridge between retail adhesive anchors and premium specification systems: ICC-backed concrete positioning, broad ETA system coverage, jobsite-friendly curing profile and complete accessory compatibility.

Universal mortar FIS V Zero

Zero hazard hybrid injection mortar for concrete, masonry and rebar connections



The universal mortar without hazardous substance labelling.

Value proposition for US customers

- Free of labelling-required hazardous substances for safer handling on job sites and in occupied spaces.
- ETA-approved for anchoring in concrete and masonry, post-installed rebar connections and water-filled drill holes.
- Wide installation temperature window from -10 to 40 °C for year-round jobsite use.
- Used cartridges can be disposed of in residual waste, avoiding cost-intensive hazardous-waste handling.
- Cartridge packaging uses more than 50% post-consumer recycled plastic with a recycled paper label.

Approved application scope

- Concrete, solid masonry, aerated concrete, perforated brickwork and water-filled drill holes. Use with compatible fischer system components.

Approvals and recognition

- ETA 0/0572 cracked concrete
- ETA-20/0574 post-installed rebar
- ETA-21/0267 masonry and aerated concrete
- CE
- Nordic Swan Ecolabel

Typical applications

Fixings in inhabited rooms

· Non-labelled formulation supports safe use where user protection and indoor handling matter.

Steel constructions

· Reliable bonded anchoring for steel attachments, brackets, railings and structural details.

Rebar connections

· Post-installed rebar applications complete the system range for concrete construction.

Curing time guide

Temperature at anchoring base.
Minimum curing times double in wet concrete or water-filled holes.
Minimum cartridge temperature: +5 °C / +41 °F.

Anchoring base temp	Approx. temp	Max. processing time	Min. curing time
-10 to -5 °C	14 to 23 °F	6 hr	72 hr
> -5 to 0 °C	>23 to 32 °F	2 hr	24 hr
> 0 to +5 °C	>32 to 41 °F	45 min	12 hr
> +5 to +10 °C	>41 to 50 °F	20 min	6 hr
> +10 to +15 °C	>50 to 59 °F	8 min	3 hr
> +15 to +20 °C	>59 to 68 °F	5 min	2 hr
> +20 to +25 °C	>68 to 77 °F	3 min	1 hr
> +25 to +30 °C	>77 to 86 °F	2 min	45 min
> +30 to +40 °C	>86 to 104 °F	1 min	30 min

Performance features at a glance

- **Special formulation**
  Revolutionary formula for safe application: Through the replacement of dibenzoyl peroxide and other substances classified as environmentally hazardous, sensitising and eye-irritating hazardous substances, the FIS V Zero does not require any labelling of hazardous substances nor the corresponding safety data sheet.
- **Water-filled drill holes**
  Can be used in all weather conditions: FIS V Zero can be easily installed in water-filled drill holes in concrete according to ETA and can therefore be used under all building conditions.
- **Recycling Advantage**
  Optimized and recycled packaging: The first fischer cartridge, that consists of more than 50% post-consumer recyclates (PCR) and a recycled label.
- **Installation temperatures**
  Well prepared for every season: The possible installation temperatures of -10 to 40 °C allow the universal use of FIS V Zero all year round. In addition, an internal expert report confirms installation temperatures of up to -15 °C.
- **Highest work safety**
  Maximum user protection in every situation: Thanks to its non-labelled ingredients, the FIS V Zero offers its users maximum protection during processing and achieves the lowest emission class with the A+ rating.
- **Post-installed rebar connections**
  Maximum safety for rebar: Post-installed rebar connections complete the range of possible applications of FIS V Zero and make the injection mortar the perfect choice on the construction site.
- **Maximum nature protection**
  Innovative ingredients for more nature protection: Significantly reduced environmental risk, even with improper disposal thanks to the innovative

fischer Drill Bits USA

Fractional hammer drill and hollow drill assortment for anchor-critical applications

Precision drilling is the first step toward reliable anchoring. Focused USA fractional range for concrete, reinforced concrete, solid brick, sand-lime brick and low-dust anchoring workflows.



SDS+
SDS Plus II 2-Cutter

High drilling speed, clean hole geometry

- **Optimized for cordless drills.**
- **Power Breaker geometry supports fast progress.**
- **PGM-certified precision for secure anchor applications.**



SDS+
Quattric II 4-Cutter

Premium SDS Plus for reinforced concrete

- **Four-cutter design with reinforcement chamfers.**
- **Power Shoulder and spiral geometry support speed and life.**
- **Wear mark identifies the PGM wear limit**



SDS Max
SDS Max II / IV

Professional deep-hole hammer drilling

- **SDS Max shank for power transmission.**
- **SDS Max IV helps prevent jamming in reinforcement.**
- **Core-reinforced flute supports low-vibration drilling.**



FHD
FHD Hollow Drill Bit

Low-dust drilling + hole cleaning in one step

- **Immediate extraction supports cleaner work areas.**
- **Drilling and hole cleaning in a single step saves time.**
- **SDS Plus and SDS Max options depending on size.**

Why this assortment matters for USA anchoring workflows

Anchor-critical holes	Reinforced concrete	Field productivity	Low-dust option
PGM precision supports secure anchor applications.	**4-cutter options reduce jamming at reinforcement hits.**	**Optimized geometries support fast drilling progress.**	**FHD drills and cleans the hole in one step.**

Selection guide - USA catalogue positioning

Product family	Holder	Cutters	Best-fit field use	USA range
SDS Plus II 2-Cutter	**SDS Plus**	2	Fast drilling for concrete, solid brick and sand-lime brick; optimized for cordless drills	3/16 - 1 in
Quattric II 4-Cutter	**SDS Plus**	4	Premium SDS Plus option for reinforced concrete and reinforcement hits	1/4 - 1 1/4 in
SDS Max II / IV	**SDS Max**	2 / 4	Deep holes and higher energy hammer drilling; SDS Max IV for reinforced concrete	1/2 - 1 1/2 in
FHD Hollow Drill	**SDS Plus / SDS Max**	2 / 4	Low-dust drilling plus drill-hole cleaning in one step for anchoring workflows	7/16 - 1 3/8 in
FH II-I	**Internal thread**	12-15 mm	M6-M12	gvz + A4 stainless; supplied with hex key
Metric drill bits are also available. **Please contact sales@fischerus.com to know more.**			Source basis: fischer Drill Bits Catalogue 11/2022; USA fractional assortment and stock indication based on current internal comparison list.	

USA Fractional Assortment Details

Total length and workable length shown separately; USA stock length options are marked in the right column.

Family	Dia.	Total length (in)	Workable length (in)	USA stock total
SDS Plus II 2-Cutter	3/16	4 1/2, 6 1/2, 8 1/2, 12 1/2, 14	2, 4, 6, 10, 12	-
	1/4	4 1/2, 6 1/2, 8 1/2, 14	2, 4, 6, 12	-
	5/16	6 1/2, 12 1/2	4, 10	-
	3/8	6 1/2, 8 1/2, 10 1/2, 12 1/2, 18, 24	4, 6, 8, 10, 16, 22	8 1/2, 12 1/2
	7/16	6 1/2, 10 1/2, 12 1/2, 18	4, 8, 10, 16	10 1/2, 18
	1/2	6 1/2, 10 1/2, 12 1/2, 18, 24	4, 8, 10, 16, 22	12 1/2, 18
	9/16	6 1/4, 10 1/4, 12 1/4, 18	4, 8, 10, 16	12 1/4, 18
	5/8	6 1/4, 8 1/4, 12 1/4, 18, 24	4, 6, 10, 16, 22	12 1/4, 18
	3/4	8, 10, 12, 18, 24	6, 8, 10, 16, 22	12, 18, 24
	7/8	8, 10, 12, 18	6, 8, 10, 16	18
	1	8, 10, 12, 18	6, 8, 10, 16	12, 18
Quattric II SDS Plus 4-Cutter	1/4	6 1/2	4	-
	5/16	6 1/2	4	-
	3/8	6 1/2, 12 1/2	4, 10	-
	1/2	6 1/4, 12 1/4	4, 10	-
	5/8	8 1/4, 12 1/4	6, 10	-
	3/4	12, 18	10, 16	-
	7/8	12	10	-
	1	12	10	-
	1 1/8	18	16	-
	1 1/4	18	16	-

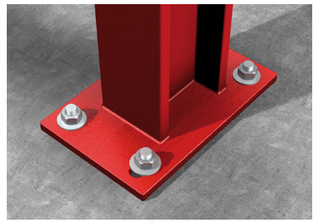
Family	Dia.	Total length (in)	Workable length (in)	USA stock total
SDS Max II 2-Cutter	1/2	13, 21	8, 16	-
SDS Max IV 4-Cutter	5/8	13, 36	8, 31	-
	3/4	13, 21, 36	8, 16, 31	-
	7/8	13	8	-
	1	13, 21, 36	8, 16, 31	36
	1 1/8	17, 21	12, 16	21
	1 1/4	23, 36	18, 31	36
	1 1/2	23	18	-
FHD Dustless Kits - SDS Plus	7/16	13	7 7/8	-
	1/2	13	7 7/8	-
	9/16	14	9 1/2	-
	5/8	14	9 1/2	-
	3/4	14	9 1/2	-
FHD Max Dustless Kits - SDS Max	5/8	23 1/2	15 3/4	-
	3/4	23 1/2	15 3/4	-
	7/8	23 1/2	15 3/4	-
	1	25 1/4	17 1/2	-
	1 1/8	35	27 1/2	-
	1 3/8	35	27 1/2	-

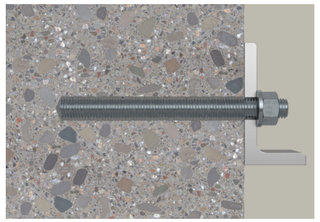
Notes: Workable length equals usable drilling depth from the USA assortment list. Verify final SKU labels, packaging and current availability before publication. Editable draft catalogue page - for internal review.

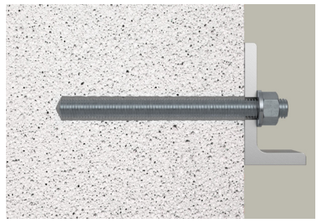
Fractional Threaded Rod ASTM F1554 Grade 55

Reliable, High-Strength Anchoring with fischer Injection Mortars









The fischer threaded rod is made from zinc-plated, steel grade 55. The threaded rod is a system component for the various fischer injection mortars. Together with the injection mortars, the fischer threaded rods are suitable and approved for all subsurfaces. A thorough cleaning of the drill hole is recommended for the maximum load-bearing capacity of the system. The system, made from zinc-plated threaded rods in conjunction with fischer injection mortars, is suitable and approved for fixings in dry interiors.

Product Overview

fischer fractional threaded rods are manufactured in accordance with ASTM F1554 Grade 55 for structural anchoring into concrete foundations. Fully threaded rods supplied complete with compatible nut and washer assemblies. Electro Zinc Plated for interior applications.

Applications

- Structural steel base plate anchorage
- Equipment anchorage to concrete
- Light pole and highway sign supports
- Precast and cast-in-place foundations
- General structural applications

Standards & Specifications

- ASTM F1554 – Grade 55
- Thread Type: UNC (Unified National Coarse)
- Thread Class: 2A
- Nuts: ASTM A563 Grade A
- Washers: ASTM F436 Type 1
- Finish: Electro Zinc Plated

Representative permissible loads · FIS V Plus with FIS A threaded rod

Item No.	Diameter	Length	Pcs / Poly bag
577332	3/8“	3"	10
572870	3/8“	4 3/8"	10
572871	3/8“	5 1/8"	10
580578	3/8“	6"	10
577333	3/8“	8"	10
577334	3/8“	12"	10
577335	1/2“	3 1/8"	10
572872	1/2“	4 1/2"	10
572875	1/2“	6 1/2"	10
577336	1/2“	7"	10
572876	1/2“	8"	10
577337	1/2“	8 1/2"	10
580800	1/2“	10"	10
572877	5/8“	6"	10
581481	5/8“	7 5/8"	10
572878	5/8“	8"	10
577338	5/8“	9"	10
577339	5/8“	12"	10
577340	5/8“	14"	10
577341	5/8“	17"	10

Item No.	Diameter	Length	Pcs / Poly bag
572879	3/4“	6"	5
572880	3/4“	8"	5
581482	3/4“	9 5/8"	5
572881	3/4“	10"	5
577342	3/4“	11"	5
577343	3/4“	12"	5
577344	3/4“	14"	5
577345	3/4“	17"	5
577346	3/4“	19"	5
577347	3/4“	21"	5
577348	3/4“	25"	5
572882	7/8“	10"	5
572883	7/8“	13"	5
577349	1“	12"	5
577353	1“	14"	5
577354	1“	16"	5
577355	1“	20"	5
577356	1 1/4“	16"	5
577357	1 1/4“	22"	5

Mechanical Properties (Minimum Requirements)

Property	Requirement
Yield Strength	55 ksi
Tensile Strength	75 – 95 ksi
Elongation (2 in.)	21% minimum
Reduction of Area	30% minimum

Installation Overview

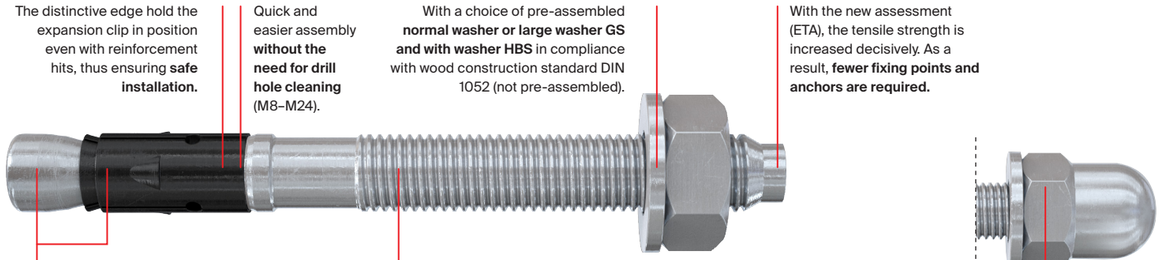
1. Drill hole to specified diameter and embedment depth.
2. Clean hole thoroughly (blow-brush-blow method).
3. Inject/ Dispense the desired adhesive in to the bore hole (with the volume specified by the manufacturer).
4. Insert rod into the bore hole per project specification.
5. Ensure proper alignment and projection above concrete surface.
6. Tighten nut and washer to specified torque after concrete/ chemical mortar has achieved required strength.

Technical note
Design shall comply with ACI 318 and applicable building code requirements.

FAZ II Plus

The power anchor for highest demands

The fischer FAZ II Plus is a high-performance steel anchor for heavy loads in cracked concrete. Fast installation without drill-hole cleaning (M8–M24) and high load-bearing capacity make it ideal for railings, cable trays, consoles and dynamic applications such as lifting platforms, conveyor belts and pumps.



Certificates / Features

ETA-19/0520, in concrete
ETA-20/0897, for dynamic load in concrete

aBG Z-21.1-2152

FM APPROVED

from M10

RWS 1350°

R 120

ZTV 1200°

BZS D 24-601

Value proposition for

- **Fewer fixing points:** new assessment increases tensile strengths, helping reduce the number of anchors required.
- **Fast installation:** M8-M24 assembly is possible without drill-hole cleaning, simplifying site workflow.
- **High edge performance:** cone and expansion clip interaction increases load capacity and enables minimum edge distance and axial spacing.
- **Flexible portfolio:** normal washer, GS large washer, HBS washer for timber construction and cap nut variants cover multiple use cases.

Building materials and approvals

Suitable base materials	Cracked concrete, uncracked concrete, steel fiber concrete, and solid sand-lime brick from M10.
Approvals shown	ETA, CE, ICC-ES ESR-2948, aBG steel fiber concrete, FM approved from M10.
Fire and seismic	M8-M20; seismic C2; RWS 1,350 °C; fire resistance classification R120.
Design support	Use FiXperience C-FIX for steel and bonded anchors in concrete and for FEM-based anchorage design.

Performance features at a glance

120 Jahre Nutzungsdauer

- **Service life 120 years**
  Lasts for eternity: An external independent assessment confirms the service life of anchorages up to 120 years. Thus, the FAZ II Plus outlasts a whole century and is perfectly suited for large, long-lasting construction projects (M10–M16).

Seismic C2

- **Seismic applications in earthquake zones**
  Always on the safe side with FAZ II Plus: The FAZ II Plus allows the absorption of high seismic loads of performance category C1 and C2 for diameters M10–M24 with and without the use of the filling disc FFD at installation.

Dynamic

- **Dynamic**
  Perfect alternative to injection systems for dynamic stress: The fast installation process of the FAZ II Plus provides an efficient fixing solution for dynamic applications with low load cycles with an immediately loadable fixing point.

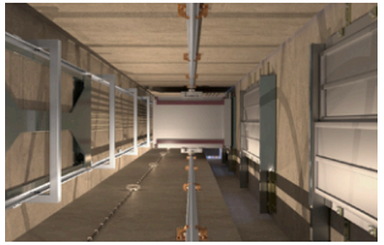
- **Installation without drill hole cleaning**
  The partner for fast installations: The ETA covers the use of hollow drills and diamond core bits. An expert opinion regulates the assembly without drill hole cleaning (M8–M24). This simplifies installation and speeds up the process for efficiency on the construction site.

Installation and system range

- Suitable for pre-positioned and push-through installation.
- Mounting in concrete can be performed without drill-hole cleaning for M8-M24.
- ETA covers hollow drills and diamond core bits; Dynamic Set is filled with injection mortar after installation.

Standard FAZ II Plus	M6-M24 with normal washer; zinc-plated, stainless steel R and HCR options are listed in the brochure.
H cap nut version	M10 and M12 for visible/sophisticated design applications.
GS large washer	Large stainless steel washer option for slotted holes outdoors.
HBS washer	Large washer according to timber construction standard DIN 1052.
K short version	Short version for compact installations; listed in M8, M10 and M12.
Accessories	FFD filling disc, FABS setting tool and FA-ST II setting tools.
Dynamic Set	Available for M16, M20 and M24; used for dynamic applications with injection mortar.

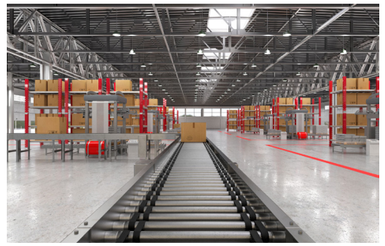
Application fields



Elevator



Lifting platform

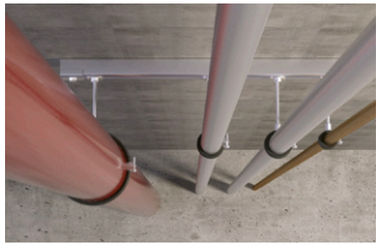


Conveyor belt



FAZ II Plus standard version with nut and washer made of galvanised steel for indoor use.

Pipeline installation



Pipe suspensions



Cable trays



FAZ II Plus made of stainless steel R for outdoor use with or without cap nut.



Cap nut version in stainless steel for outdoor use.

Railing fixings

Railing anchorages

Facade constructions

Facade substructures

Rainscreen facades

Wood constructions

Sleeper anchorages

Canopy on wall

FAZ II Plus HBS Version gvz. with large washer according to timber construction standard DIN 1052.



Dynamic Elevators, lifting platforms and conveyor belts. FAZ II Plus with dynamic loads applies to M16-M24.	**MEP / services** Pipe suspensions and cable trays in concrete ceilings or slabs.	**Railing / balcony** Railing anchorages and balcony railings, including thin/slim concrete member design examples.
Facade Facade substructures and rainscreen facade applications using GS large washer option.	**Wood construction** Sleeper anchorages and canopy-on-wall details using HBS washer according to DIN 1052.	**Indoor / outdoor** Galvanised steel standard version for indoor use; stainless steel R for outdoor use, with or without cap nut.

FAZ II Plus - Loads

Design values for cyclic fatigue loading of a single anchor in cracked or non-cracked normal concrete of strength class C20/25.
For the design the complete current assessment ETA-20/0897 of 20.12.2022 has to be considered.

Anchor / material					Cracked concrete				Non-cracked concrete			
Type	Material surface	Effective anchorage depth h_eff	Minimum member thickness h_min	Installation torque T_inst	Permissible tension	Permissible shear	Minimum spacing s_min	Edge distance c_min	Permissible tension	Permissible shear	Minimum spacing s_min	Edge distance c_min
		in	in	ft·lbf	lbf	lbf	in	in	lbf	lbf	in	in
FAZ II Plus 6	gvz	1,6	3,1	5,9	157	967	1,4	1,6	1,124	967	1,4	1,6
	gvz	3,1	4,7	5,9	157	967	1,4	1,6	1,124	967	1,4	1,6
	R	1,6	3,1	5,9	157	1,124	1,4	1,6	1,124	1,124	1,4	1,6
	R	3,1	4,7	5,9	157	1,124	1,4	1,6	1,124	1,124	1,4	1,6
FAZ II Plus 8	gvz	1,4	3,1	14,8	585	1,911	1,4	1,6	1,079	2,091	1,6	1,6
	gvz	3,5	5,5	14,8	854	2,091	1,4	1,6	1,506	2,091	1,6	1,6
	R	1,4	3,1	14,8	585	1,911	1,4	1,6	1,079	2,271	1,6	1,6
	R	3,5	5,5	14,8	854	2,271	1,4	1,6	1,506	2,271	1,6	1,6
FAZ II Plus 10	gvz	1,6	3,1	33,2	922	2,428	1,6	1,8	1,326	3,372	1,6	1,8
	gvz	3,9	5,9	33,2	1,394	3,372	1,6	1,8	2,136	3,372	1,6	1,8
	R	1,6	3,1	33,2	922	2,428	1,6	1,8	1,326	3,395	1,6	1,8
	R	3,9	5,9	33,2	1,394	3,395	1,6	1,8	2,136	3,395	1,6	1,8
FAZ II Plus 12	gvz	2,0	3,9	44,3	1,304	4,047	2,0	2,2	1,866	4,743	2,0	2,2
	gvz	4,9	7,5	44,3	2,136	4,743	2,0	2,2	2,360	4,743	2,0	2,2
	R	2,0	3,9	44,3	1,304	4,047	2,0	2,2	1,866	5,418	2,0	2,2
	R	4,9	7,5	44,3	2,136	5,418	2,0	2,2	2,360	5,418	2,0	2,2
FAZ II Plus 16	gvz	2,6	5,5	81,1	1,933	6,182	2,6	2,6	2,765	8,790	2,6	2,6
	gvz	6,3	9,4	81,1	2,900	8,790	2,6	2,6	4,136	8,790	2,6	2,6
	R	2,6	5,5	81,1	1,933	6,182	2,6	2,6	2,765	8,835	2,6	2,6
	R	6,3	9,4	81,1	2,900	9,127	2,6	2,6	4,136	9,127	2,6	2,6
FAZ II Plus 20	gvz	3,9	6,3	147,5	3,687	10,656	3,7	3,3	5,261	10,656	3,7	3,7
	gvz	7,1	10,6	147,5	3,687	10,656	3,7	3,3	5,261	10,656	3,7	3,7
	R	3,9	6,3	147,5	3,687	11,802	3,7	3,3	5,261	13,871	3,7	3,7
	R	7,1	10,6	147,5	3,687	13,871	3,7	3,3	5,261	13,871	3,7	3,7
FAZ II Plus 24	gvz	4,9	7,9	199,1	5,148	16,478	3,9	3,9	7,351	16,478	3,9	5,3
	R	4,9	7,9	199,1	5,148	16,478	3,9	3,9	7,351	20,300	3,9	5,3

1) Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of γL = 1.4 are considered. As a single anchor counts e.g. an anchor with a spacing s ≥ 3 x h_eff and an edge distance c ≥ 1.5 x h_eff. Accurate data see ETA.
2) Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).
3) In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.

FAZ II Plus Dynamic - Loads

Design values for cyclic fatigue loading of a single anchor in cracked or non-cracked normal concrete of strength class C20/25.
For the design the complete current assessment ETA-20/0897 of 20.12.2022 has to be considered.

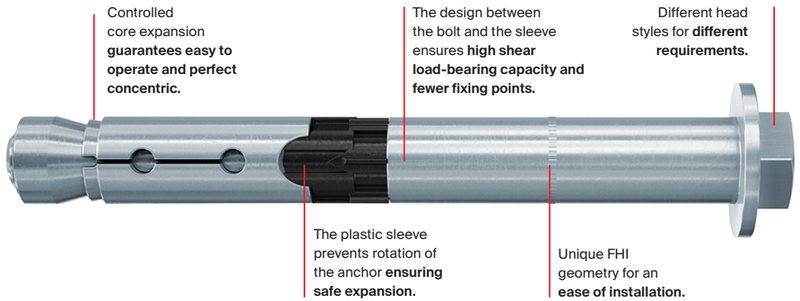
Anchor / material					Cracked concrete				Non-cracked concrete			
Type	Material surface	Effective anchorage depth h_eff	Minimum member thickness h_min	Installation torque T_inst	Design tension range ΔN_Ed,max	Design shear range ΔV_Ed,max	Minimum spacing s_min	Edge distance c_min	Design tension range ΔN_Ed,max	Design shear range ΔV_Ed,max	Minimum spacing s_min	Edge distance c_min
		in	in	ft·lbf	lbf	lbf	in	in	lbf	lbf	in	in
FAZ II Plus 16	gvz	2,559	5,512	81,1	1,349	1,057	2,559	2,559	1,439	1,057	2,559	2,559
	gvz	3,346	5,512	81,1	1,439	1,057	2,559	2,559	1,439	1,057	2,559	2,559
	gvz	6,299	9,449	81,1	1,439	1,057	2,559	2,559	1,439	1,057	2,559	2,559
	R	2,559	5,512	81,1	697	1,349	2,559	2,559	697	1,349	2,559	2,559
	R	3,346	5,512	81,1	697	1,349	2,559	2,559	697	1,349	2,559	2,559
	R	6,299	9,449	81,1	697	1,349	2,559	2,559	697	1,349	2,559	2,559
FAZ II Plus 20	gvz	3,937	6,299	147,5	1,978	1,371	3,740	3,346	1,978	1,371	3,740	3,740
	gvz	7,087	10,630	147,5	1,978	1,371	3,740	3,346	1,978	1,371	3,740	3,740
	R	3,937	6,299	147,5	1,057	2,113	3,740	3,346	1,057	2,113	3,740	3,740
	R	7,087	10,630	147,5	1,057	2,113	3,740	3,346	1,057	2,113	3,740	3,740
FAZ II Plus 24	gvz	4,921	7,874	199,1	3,305	2,136	3,937	3,937	3,305	2,136	3,937	5,315
	R	4,921	7,874	199,1	1,551	3,057	3,937	3,937	6,9	3,057	3,937	5,315

1) The design values of the cyclic fatigue loading apply for load cycles > 10^8 in accordance with design method I acc. to TR061 - for unknown static lower load. If the static lower load is known and / or for lower number of load cycles higher load values are possible. The partial safety factors as regulated in the design standard are considered. As a single anchor counts e.g. an anchor with a spacing s ≥ 3 x h_eff. Drill hole cleaning acc. to assessment.
2) For higher concrete strength classes up to C50/60 higher permissible loads may be possible. - see assessment. The concrete is assumed to be standard-reinforced.
3) In the case of combinations of tensile loads and shear loads, with reduced or minimum spacing and edge distances (anchor groups) the design must be carried out in accordance with the provisions of the complete assessment.

FH II High Performance Anchor

Strong, secure and aesthetic anchoring for demanding concrete applications

Controlled cone expansion, anti-rotation plastic sleeve, high shear load path and multiple head styles.





Certificates / Features

ETA-07/0025, in cracked concrete

M8-M20

Installation logic - FH II

1. Drill the hole to the required depth; hollow drilling is covered in the approval.
2. Insert through the fixture for push-through installation.
3. Apply installation torque; the cone is drawn into the sleeve and expands against the drill-hole wall.
4. 4 The black plastic ring prevents rotation and acts as a crumple zone during tightening.

FH II-I internal thread - flexible fixing point

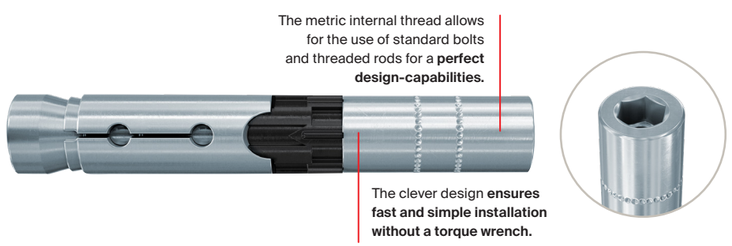
- **Pre-positioned installation** using the supplied hexagonal key.
- **Visual setting check:** approved installation is indicated by a 3-5 mm recess/gap U.
- **Attachment can be removed** flush and undamaged fixing points can be reused.

Value proposition for US customers

- High-performance sleeve anchor for cracked concrete with approved seismic C1/ C2 use from M8-M12 / from M10 as shown in the source brochure.
- Designed for high shear load-bearing capacity, helping reduce the number of fixing points in suitable designs.
- Aesthetic fixing options through hexagon head, countersunk head, bolt version, cap nut and internal-thread variants.
- Fast push-through installation; the plastic ring prevents anchor rotation and helps pull the fixture tightly to the substrate.
- Use of hollow drill bits is included in the approval, supporting lower-dust drilling and efficient installation workflows.

FH II-I internal thread - flexible fixing point

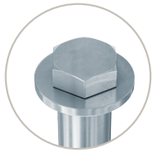
- Pre-positioned installation using the supplied hexagonal key.
- Visual setting check: approved installation is indicated by a 3-5 mm recess/gap U.
- Attachment can be removed flush and undamaged fixing points can be reused.



Metal construction

Banister

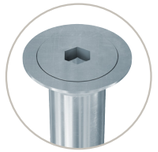




Hexagon head (Type S)
• The low profile of the screw head ensures for a discreet fixing.

Steel consoles





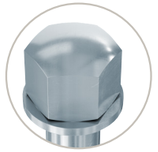
Countersunk head (Type SK)
• The countersunk head screw head allows for flush mounted fixing.





Bolt version with nut and washers (Type B)
• The practical fixing using washers and nuts allows for the anchor removal after installation if required later.

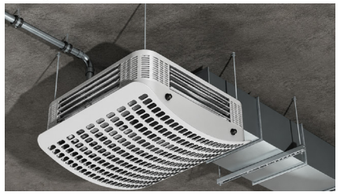




Cap nut (Type H)
• The protruding head for stable and robust fixings.

Sanitary / Register

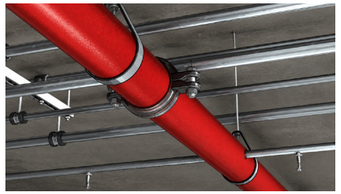
Railing





Internal thread (Type I)
• The internal threaded anchor allows the removal of the attachment and the fixing point can be re-used.

Sprinkler systems





Internal thread (Type I)
• The internal threaded anchor allows the removal of the attachment and the fixing point can be re-used.

Applications and system range FH II through-bolt + FH II-I internal-thread anchor

Primary applications

Metal construction	Banisters, railing, steel consoles, structural steelwork
MEP / services	Ventilation ducts, sprinkler systems, pipe supports, cable trays
Architectural fixings	Visible fixing points where the head style should match the design intent
Removable attachments	FH II-I for reusable fixing points or removable equipment
Outdoor / corrosion needs	Stainless steel A4 options where required by environment and approval
Concrete base material	Cracked and non-cracked concrete per applicable approval and design assessment

Variant selector

Type S	Type SK	Type B	Type H	Type I
Hexagon head	**Countersunk head**	**Bolt + nut/washer**	**Cap nut**	**Internal thread**
Discreet standard fixing for metal construction.	Flush-mounted appea-rance for visible fixings.	Attachment can be remo-ved later if needed.	Protruding robust head for stable fixing points.	Removable attachment; fixing point can be reused.

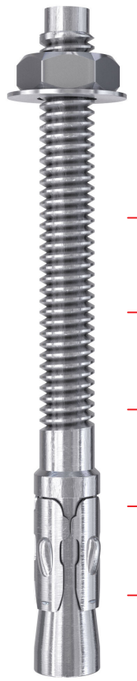
Simplified product range - catalogue positioning

Variant	Typical head	Drill dia.	Thread	Material / approval note	Sales unit
FH II-S	**Hexagon head**	10-32 mm	M6-M24	gvz + A4 stainless options; ICC note applies for selected A4 items	4-50 pcs
FH II-SK	**Countersunk**	10-18 mm	M6-M12	gvz + selected A4 stainless options	20-50 pcs
FH II-B	**Bolt + nut/washer**	10-32 mm	M6-M24	gvz; removable attachment logic	4-50 pcs
FH II-H	**Cap nut**	10-18 mm	M6-M12	gvz; robust aesthetic head	20-50 pcs
FH II-I	**Internal thread**	12-15 mm	M6-M12	gvz + A4 stainless; supplied with hex key	20-25 pcs

Design	Installation	Positioning
For project-specific values, design must follow the complete ETA/ICC assessment and C-FIX / FiXperience workflow.	Use the specified drill diameter, minimum drill-hole depth, embedment requirements and installation torque from the technical data.	Use FH II where the market needs a strong mechanical anchor with neat visible head options and fast installation.

FWA Imperial Bolt Anchor

Cost-effective wedge anchor for non-cracked concrete applications where an approved fixation is not required.



Reliable anchoring. Practical cost control. Imperial sizing for U.S. jobsites.

Push-through installation.
Efficient installation for steel plates, brackets, gates, and similar fixtures.

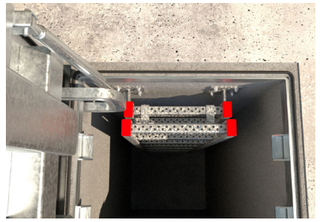
Torque-controlled expansion.
Cone bolt expands the clip against the drill hole wall as torque is applied.

Imperial thread range.
Designed around the sizing contractors expect on U.S. jobsites.

Two anchorage depths.
Standard depth for higher load capacity; reduced depth to shorten drilling time.

Use FAZ II Plus, FBS II,
or approved chemical systems where cracked concrete, seismic, life-safety, or code-approved fastening is required.





FWA is the economical choice when the application requires dependable fastening in un-cracked concrete but does not require an approved anchor system.

Where it fits

General steel-to-concrete fastening in normal, non-cracked concrete.

Why it matters

Lower installed cost through fast drilling, standard torque installation, and broad imperial sizing.

How to position it

A practical U.S. wedge anchor range for maintenance, MRO, contractor, and non-code-driven work.

Recommended use cases

- Steel constructions
- Guard rails
- Consoles / brackets
- Ladders
- Cable trays
- Machines
- Staircases
- Gates
- Façade-related attachments
- General MRO

Base material: un-cracked concrete.
For approved structural applications, use a specified fischer approved anchor system.

Use FWA when:

Concrete is non-cracked.

The fastening is not code-approved or specification-driven.

The project needs a cost-effective wedge anchor in imperial sizing.

The application is general construction, MRO, or standard steel-to-concrete fastening.

Specify another system when:

Cracked concrete, seismic, or life-safety conditions apply.

An ICC/ESR-approved anchor is required.

The job requires anchor groups, combined loading, or reduced spacing / edge distance.

The application is structural or engineering-controlled.

Technical load snapshot

Recommended loads of a single anchor in 3000 psi normal concrete.

Anchor Type	Embedment range	Torque	Recommended tension
FWA 1/4	**1 to 1-1/8 in.**	3 lbf-ft	202 to 540 lb
FWA 5/16	**1-1/4 in.**	7 lbf-ft	719 lb
FWA 3/8	**1-1/8 to 1-5/16 in.**	19 lbf-ft	472 to 944 lb
FWA 1/2	**1-3/8 to 1-7/8 in.**	30 lbf-ft	764 to 1,461 lb
FWA 5/8	**2 to 2-3/8 in.**	74 lbf-ft	1,124 to 2,158 lb
FWA 3/4	**2-1/2 to 2-3/4 in.**	148 lbf-ft	2,428 to 3,147 lb
FWA 1 in.	**3-3/4 to 3-7/8 in.**	192 lbf-ft	4,406 to 4,676 lb

Fast installation.
Imperial sizing.
Cost control.

Loads

Wedge Anchor FWA

Recommended loads of a single anchor[1] in normal concrete of strength class 3000 Psi.

Type	Material / surface[3]	Effective anchorage depth $h_{ef} \geq$ [in]	Minimum member thickness h_{min} [in]	Drill hole diameter d_0 [in]	Drill hole diameter in fixture[2] d_f [in]	Installation torque T_{inst} [lbf-ft]	Non-cracked concrete: Recommended tension (N_{rec}), shear loads (V_{rec}), minimum spacing (s_{min}) and edge distances (c_{min}) N_{rec}[3] [lb]	V_{rec}[3] [lb]	s_{min}[3] [in]	c_{min}[3] [in]
FWA 1/4	gvz	1	4	1/4	3/8	3	202	-	3	1 1/2
	gvz	1 1/8	4	1/4	3/8	3	540	315	3 1/2	1 3/4
FWA 5/16	gvz	1 1/4	4	5/16	7/16	7	719	427	3 3/4	1 7/8
FWA 3/8	gvz	1 1/8	4	3/8	1/2	19	472	-	3 1/2	1 3/4
	gvz	1 5/16	4	3/8	1/2	19	944	562	4	2
FWA 1/2	gvz	1 3/8	4	1/2	5/8	30	764	-	4 1/8	2 1/8
	gvz	1 7/8	4	1/2	5/8	30	1461	854	5 3/4	2 7/8
FWA 5/8	gvz	2	4	5/8	7/8	74	1124	-	6	3 1/8
	gvz	2 3/8	4 3/4	5/8	7/8	74	2158	1281	7 1/8	3 5/8
FWA 3/4	gvz	2 1/2	5	3/4	1	148	2428	-	7 5/8	3 7/8
	gvz	2 3/4	5 1/2	3/4	1	148	3147	1866	8 1/4	4 1/8
FWA 1"	gvz	3 3/4	7 1/2	1	1 1/4	192	4406	-	11 1/4	5 5/8
	gvz	3 7/8	7 3/4	1	1 1/4	192	4676	-	11 5/8	5 7/8

[1] The partial safety factors for material resistance as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$.
[2] For push-throught installation.
[3] As recommended loades are given in the table, combinations of tensile and shear loads, bending moments and reduced edge and axial spacings (anchor groups) can not be carried out.

Technical note
The table is for recommended loads only. Combinations of tensile and shear loads, bending moments, reduced spacing, reduced edge distance, and anchor groups must be separately evaluated.

Product range: small to mid diameters

FWA imperial variants for 1/4 in. through 1/2 in.

BU	Item No.	Description
Steel Anchors	**048934**	FWA 1/4 x 1-3/4, imperial bolt anchor
Steel Anchors	**048936**	FWA 1/4 x 2-1/4, imperial bolt anchor
Steel Anchors	**048937**	FWA 1/4 x 3, imperial bolt anchor
Steel Anchors	**048938**	FWA 1/4 x 3-1/4, imperial bolt anchor
Steel Anchors	**048939**	FWA 5/16 x 2, imperial bolt anchor
Steel Anchors	**048940**	FWA 5/16 x 2-3/4, imperial bolt anchor
Steel Anchors	**048941**	FWA 5/16 x 3-1/2, imperial bolt anchor
Steel Anchors	**048944**	FWA 3/8 x 2-1/4, imperial bolt anchor
Steel Anchors	**048945**	FWA 3/8 x 2-3/4, imperial bolt anchor
Steel Anchors	**048946**	FWA 3/8 x 3, imperial bolt anchor
Steel Anchors	**048947**	FWA 3/8 x 3-1/2, imperial bolt anchor
Steel Anchors	**048948**	FWA 3/8 x 3-3/4, imperial bolt anchor
Steel Anchors	**048949**	FWA 3/8 x 4-1/2, imperial bolt anchor
Steel Anchors	**048950**	FWA 3/8 x 5, imperial bolt anchor
Steel Anchors	**048988**	FWA 1/2 x 2-3/4, imperial bolt anchor
Steel Anchors	**048992**	FWA 1/2 x 3-3/4, imperial bolt anchor
Steel Anchors	**048993**	FWA 1/2 x 4, imperial bolt anchor
Steel Anchors	**048995**	FWA 1/2 x 4-1/4, imperial bolt anchor
Steel Anchors	**048996**	FWA 1/2 x 5-1/2, imperial bolt anchor
Steel Anchors	**049013**	FWA 1/2 x 7, imperial bolt anchor

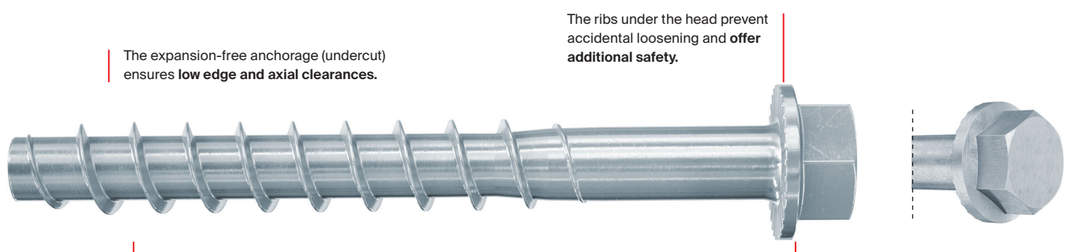
FWA imperial variants for 1/4 in. through 1/2 in.

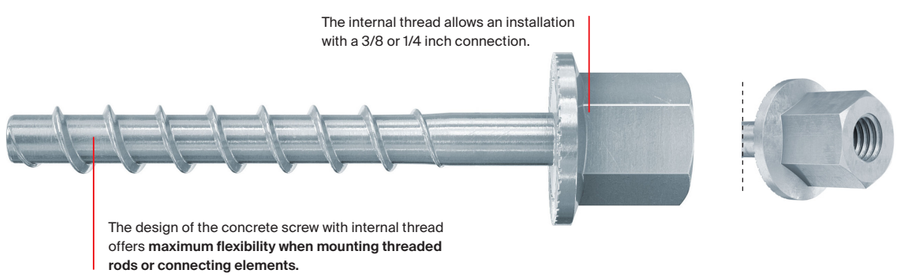
BU	Item No.	Description
Steel Anchors	**049022**	FWA 3/8 x 3-1/2, imperial bolt anchor
Steel Anchors	**049025**	FWA 3/8 x 3-3/4, imperial bolt anchor
Steel Anchors	**049026**	FWA 3/8 x 4-1/2, imperial bolt anchor
Steel Anchors	**049031**	FWA 3/8 x 5, imperial bolt anchor
Steel Anchors	**049080**	FWA 1/2 x 2-3/4, imperial bolt anchor
Steel Anchors	**049081**	FWA 1/2 x 3-3/4, imperial bolt anchor
Steel Anchors	**049084**	FWA 1/2 x 4, imperial bolt anchor
Steel Anchors	**049085**	FWA 1/2 x 4-1/4, imperial bolt anchor
Steel Anchors	**049086**	FWA 3/4 x 5-1/2, imperial bolt anchor
Steel Anchors	**049087**	FWA 3/4 x 6-1/4, imperial bolt anchor
Steel Anchors	**049088**	FWA 3/4 x 7, imperial bolt anchor
Steel Anchors	**049089**	FWA 3/4 x 8-1/2, imperial bolt anchor
Steel Anchors	**049095**	FWA 3/4 x 10, imperial bolt anchor
Steel Anchors	**049107**	FWA 3/4 x 12, imperial bolt anchor
Steel Anchors	**049120**	FWA 1 x 6, imperial bolt anchor

The fischer FWA imperial wedge anchor is a cost-effective anchor for standard fastening in non-cracked concrete where an approved fixation is not required. Imperial sizing and torque-controlled expansion make it a practical solution for U.S. jobsites.

Concrete screw FBS IN.

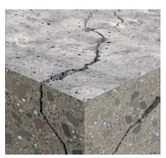
The powerful concrete screw for fast and simple installation.





Recommendations

Suitable for building materials such as:


Cracked concrete


Uncracked concrete

Certificates / Features

ICC ES ESR-5456 See ICC-ES Evaluation Report at www.icc-es.org

Experience the design of tomorrow.

Learn more about our innovative REINFORCE-FIX design software



REINFORCE-FIX

This is the new fischer design software of the next generation. It makes the structural design of strengthening applications easier and more user-friendly than ever before. And all of that free of charge.

- Interactive 3D Model
- Interactive utilization bar for the different failure modes
- Documentation with transparent calculation steps, including dynamically changing stress-strain diagrams for ULS and SLS verifications.
- Use of any number of reinforcing bars of any cross-sections in the RC cross-section
- Iterative, precise determination of the neutral axis of the cross-sections
- Realistic estimate of materials and quantities
- Continuous development to include more and more guidelines & standards

Design cases according to:

ACI 440.2R

- Flexural strengthening with CFRP laminates and CF fabrics for concrete slabs, rectangular beams and T-beams
- Shear strengthening with CF fabrics for rectangular beams and T-beams
- Combined flexural and shear strengthening

DAfStb VL

- Flexural strengthening with CFRP laminates for concrete slabs, rectangular beams and T-beams
- Shear strengthening with steel plates for rectangular beams and T-beams
- Combined flexural and shear strengthening

Feel free to contact our site engineers for further technical support in case of standard applications as well as beyond. Browse among the wide range of live and online trainings offered by the fischer Academy.

Register now: **https://www.fixperience.online/**

Design software FIXPERIENCE. Safe and reliable.



FIXPERIENCE

With **FiXperience**, fischer offers easy-to-use design software in the field of fastening and system technology that enables planners and structural engineers to work quickly, flexibly and efficiently. In a world that is spinning ever faster, FiXperience brings simplicity through fast and secure calculations to complex projects, delivering comprehensive results with worldwide recognition as proof and documentation of designs. **The software has a modular structure**, so there is a solution for every application.

C-Fix the anchor desing program for the steel and bonded anchor in concrete as well as injection systems

- The Design software is self-explanatory and intuitive in handling
- Multiple Design shows most economical solutions
- Base Plate Design Included Free
- Results are shown compactly in the result overview
- Latest design standards are implemented
- The Appropriate Anchor length is calculated and displayed automatically



Intensive support. fischer advises on your construction site.

fischer field specialists

- We support our customers on site at the construction site. We advise and help to fasten everything professionally. Tensile tests and fastening tests on site provide additional safety.
- Target-oriented not only in terms of safety: Together with our customers, we work out fastening solutions on site that are effective and economical. The installation procedures are optimised taking into account the general progress of the construction site.
- The training offered for customers and their employees provides targeted support for daily applications and imparts specialised knowledge.

fischer specialists on the technical hotline

- The same applies on the phone: the engineers and technicians who answer the questions have many years of practical experience and know how to correctly assess the trade-specific requirements.
- We are reliable contacts for our customers on the phone when it comes to building materials, loads, anchor dimensions, anchoring topics, approvals or the design of connecting parts.
- Major projects require fastening know-how to a particularly high degree. On request, one of the fischer experts can become a permanent part of the construction site management team.

Your contact for technical advice

fischer US Technical Support:
engineering@fischerus.com

Experts of the Business Unit Structural Retrofitting
structuralretrofitting@fischer.de

Customized chemical formulations.

We can refine our chemical formulations upon customer inquiry.

Higher initial viscosity, reduced or increased pot-life, different color tone? Upon customer request, we are able to adjust the chemical formulation of our epoxy-based products!

We have developed our extensive product portfolio for building restoration based on our many years of experience with chemical products. The resulting products' performance meets even the highest requirements. The product range is broad and fits almost all common requirements for structural strengthening with different methods. Nevertheless, we continue to work on improving our products even further. One of our philosophies is to be very close to our customers. That is why it is important to us to respond to special customer requests, such as adapting the color of a product to the existing substrate or adjusting the pot life or viscosity to cope with special needs on the construction sites.

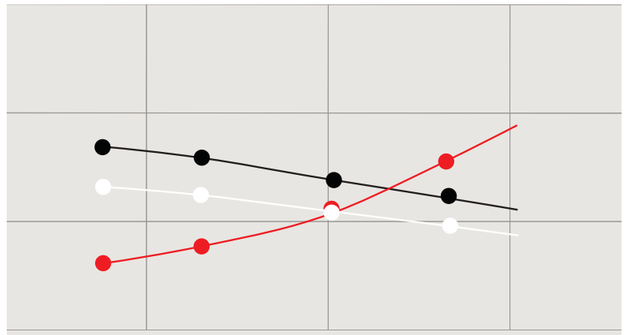
For challenging projects in particular, the requirements for the products used can be very specific and do not always have to match the market standard. It is important for planners and contractors to have a partner who supports them in their challenge and helps to ensure that the project will lead to a great success. This is where fischer always provides its customers with exceptional support and outstanding technical solutions.
Our excessive knowledge in the chemical development allows us to respond to and fulfill such customer requests. We are able to characterize mechanical, chemical and rheological properties of the adjusted chemical formulations, according to a vast number of national and international standards. The results of the experiments can be thoroughly documented and given to the customer for further evaluation and final acceptance.

Our experts are looking forward to discuss with you the technical possibilities and the economic feasibility of such requests, to provide you with the best technical solution.

Note that our products lie beyond the validity scope of the corresponding technical assessments and approvals, once the chemical formulation has been changed. The final acceptance and application of refined chemical products are therefore the duty of the responsible structural engineer.







The above figure is not related to the true characteristics of any of our products and it only serves for representative purposes.

Our testing capabilities in our chemical laboratory

- Pot-life
- Viscosity (Brookfield, Rheometer)
- Glas transition temperature (DSC, DMA)
- Hardening time at different temperatures
- Mechanical properties (compressive strength, tensile strength, adhesive tensile strength on e.g. concrete surface, flexual strength, E-Modul, etc.)
- Sustained load tests under ambient and harsh environmental conditions
- Shrinkage properties
- Infrared spectroscopy
- ...and many more!

Competent partner for structural member testing.

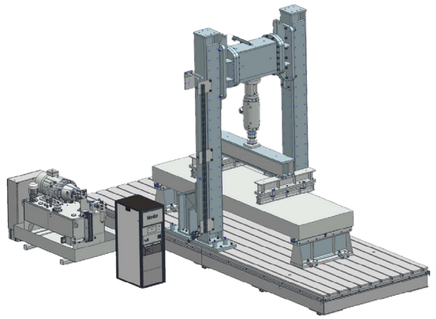
Technical support towards an engineering solution.

Large-scale structural member testing

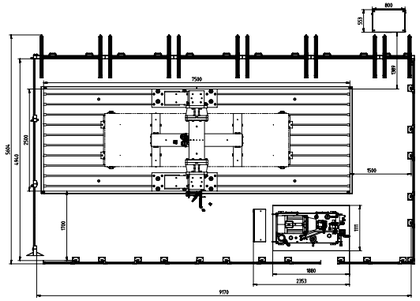
Strengthening applications beyond the scope of the technical assessments? The safe use of our structural strengthening products and the durability of our strengthening solutions are our utmost interest. Structural engineers often face multiple challenges when designing strengthening products in demanding applications and on base materials, that are neither captured in the corresponding technical assessments & approvals, nor regulated in the current design codes and guidelines. In such cases, solutions based on engineering judgement are required to ensure the safety and durability of the strengthening application. We can realize your ideas by executing structural member tests to validate the design assumptions and to verify the structural response of strengthened members under different conditions.

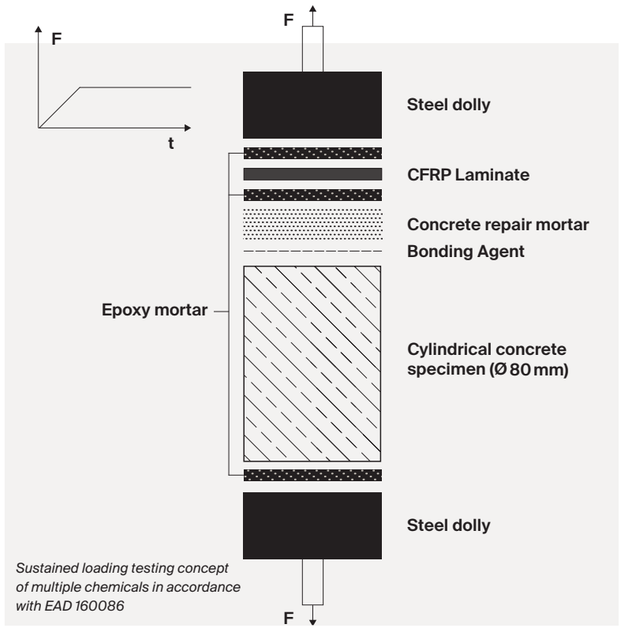
In our well-equipped testing laboratory at fischer, we can accommodate large-scale structural member tests, including short- and long-term loading tests in accordance with the current valid qualification guidelines e.g. AC125, EAD 160086, EN 1504 and even beyond upon request. We have a strong, international network of accredited test laboratories and technical experts and look forward to fulfilling your request. From the planning and preparation of the test campaign to the execution and documentation of the experiments, and the non-binding consultancy on the evaluation of the test results, our competent experts will be on your side to support your project.

If you have an inquiry for us, you are welcome to get in touch with the known fischer technical contacts in your national company or contact us via structuralretrofitting@fischer.de. We look forward to your inquiry!



Schematic of a 4-point flexural test on a clamping plate

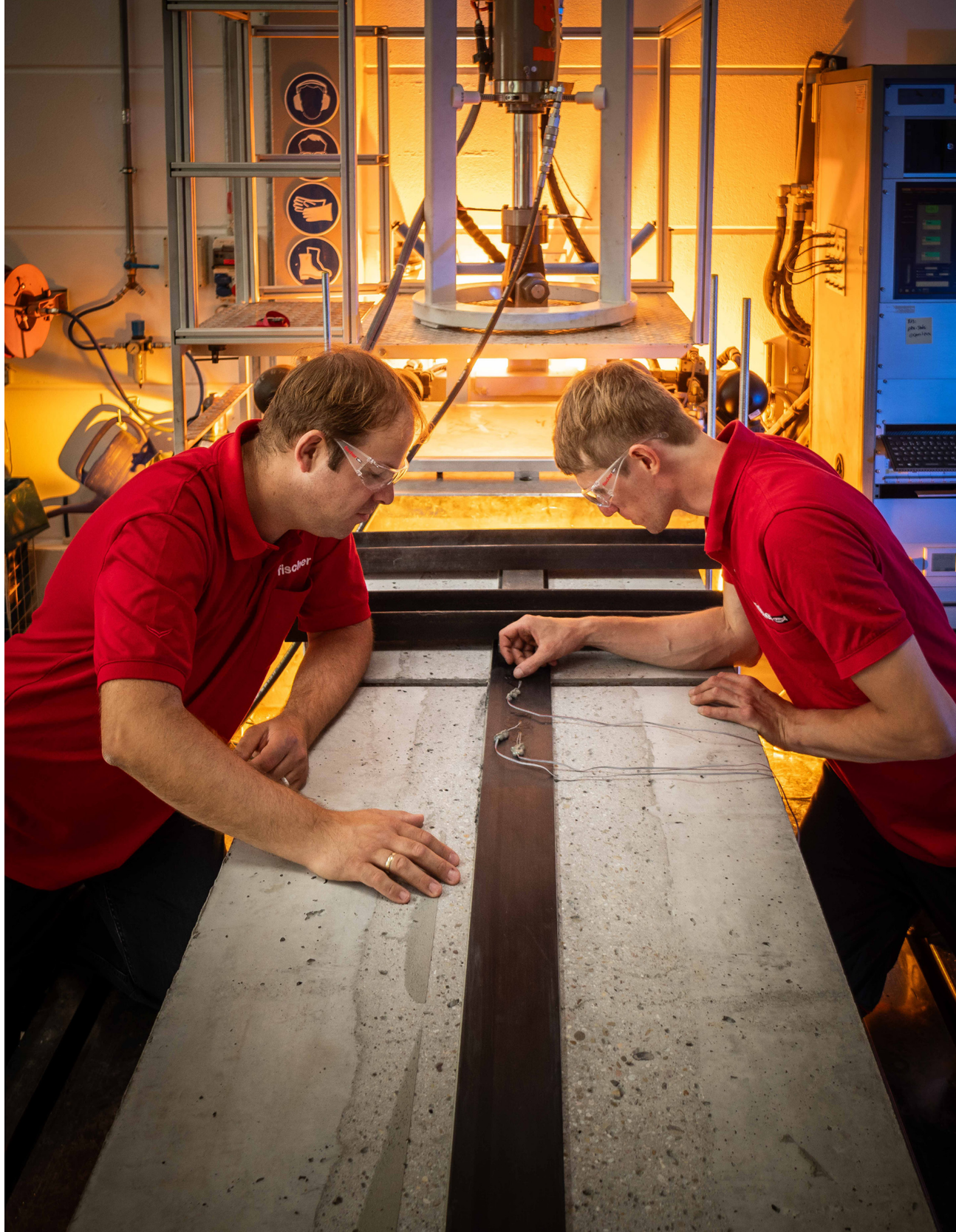




Sustained loading testing concept of multiple chemicals in accordance with EAD 160086

Our structural member testing capabilities at a glance

- Bending, tensile or compressive tests of structural members (reinforced concrete beams, light-weight concrete, pre-stressed concrete, timber, small-scaled columns etc.)
- Quasi-static loading up tp 500 kN with a one-way loading jack
- Cyclic and fatigue loading up to 250 kN using a servo-hydraulic loading jack under displacement or load control
- Maximum dimensions of the tested member: 7 meters span width between the supports, 2 meter height, 1,5 meters in width
- Displacement and crack-width measurements on up to 28 simultaneously recorded channels
- Short-term and sustained load tensile tests on any kind of base material in accordance with e.g. EAD 160086 under ambient as well as under harsh climatic conditions (elevated temperature and humidity)
- Crack-opening tests



Sales organisation:

Contact us: contact@fischerus.com

fischer stands for:

Fixing Systems
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fischer fixings LLC
1087 Elm Street, Suite 408, Manchester, NH 03101
+1-973 256-3045

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