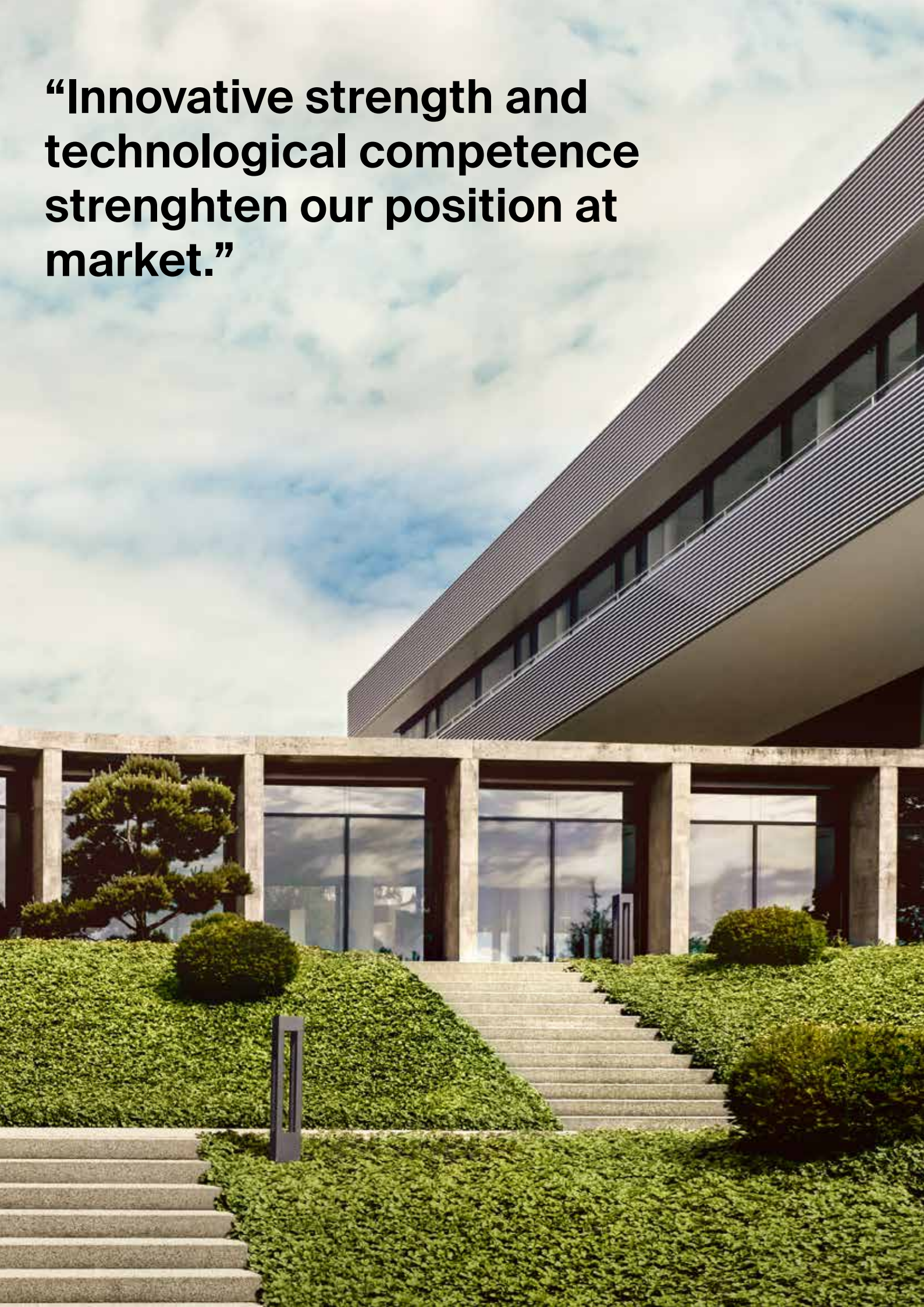






**“Innovative strength and technological competence strengthen our position at market.”**



# Foreword

## Dear fischer customers and partners,

with groundbreaking innovations and the best quality, fischer has been setting the standard for efficiency and reliability in construction for decades. Our passion for new things and our demand for perfection drive us, day after day. In doing so, we draw on over 75 years of technological expertise and tireless inventiveness.

But our true inspiration is you, our valued customers. Your satisfaction is the engine that drives us. Our self-image therefore includes offering you the best from a single source with our unique products, system solutions and services. With our innovations, we develop practical and customized solutions for your daily challenges. Time and again, this also involves breaking new ground - be it in digitization, robotics or sustainability. We regularly expand our portfolio in these areas and are pioneers in the industry with many new products.

In addition to our wide range of plastic plugs, steel anchors, chemical fixing systems and screws, we offer system solutions perfectly tailored to your applications. These include in particular our anchor channels, our solar fixing systems and our facade, installation and fire protection systems. We also offer drills, smart tools and much more for your fixing project.

In addition to our products, we are particularly committed to supporting you with a comprehensive range of services for all your projects. With our 50 national subsidiaries, we are at your side worldwide. Our BIM solutions and engineering services, as well as our FIXperience design software, also ensure perfect support for your project planning. As a world first, we also offer you our BauBot construction robot for automated drilling, cleaning and marking of boreholes, as well as for installing our fixing solutions in floors, ceilings and walls.

Our sensor solution fischer Construction Monitoring also allows you to monitor the pretensioning forces in installed fixings anytime and anywhere. Digital services, such as our plug finder apps, also simplify the selection and use of our products. And with a wide range of e-learning courses, live online seminars and face-to-face training at our fischer Academy, you can always stay up to date.

As a strong and reliable partner in fixing technology, we are always and everywhere at your side. We hope you enjoy reading our new fixing catalog and using our products and services!

Andreas Voll

Chairman of the Management Board  
of fischer group of companies  
fischer Catalogue Fixing Systems

**Andreas Voll**

Chairman of the Management Board  
of 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

The fischer ProzessSystem (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. Thus we are glad having been awarded with the 1. place “Excellence in Operations” within the challenging contest “Factory of the Year”.



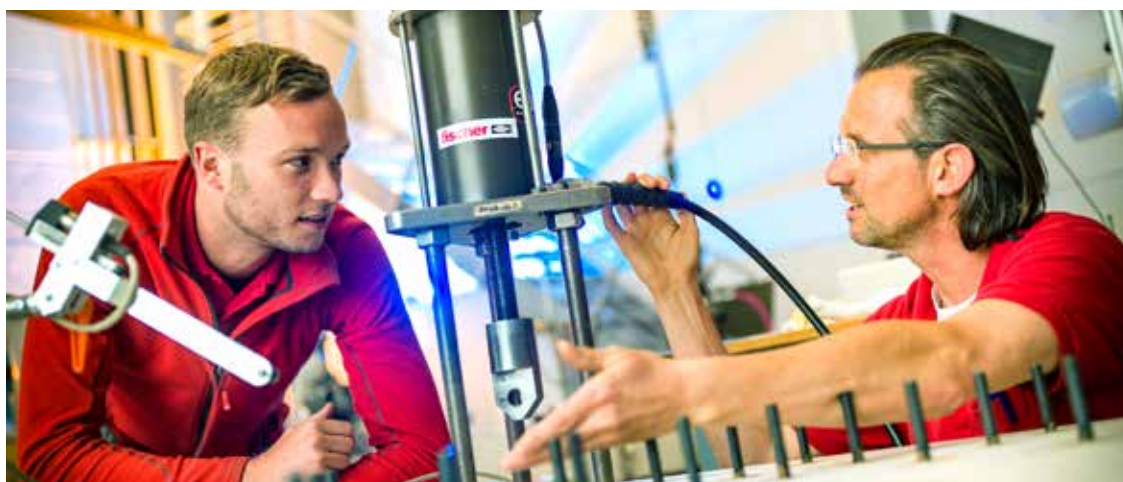
Award 2015  
Excellence in  
Operations

### 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 award-winning quality which continues to impress both professional clients and private customers with equal measure.



International approvals characterise many of our products.







### Always on the pulse of time

At fischer, innovation is more than just a 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 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%.



Greenline assortment based on 50% regrowing raw materials



German Sustainability Award



# Milestone of fischer Greater China



| Reference List of Structural Fixing |        |          |          |      |         |          |          |      |         |
|-------------------------------------|--------|----------|----------|------|---------|----------|----------|------|---------|
| No.                                 | Anchor | Material | Quantity | Unit | Remarks | Material | Quantity | Unit | Remarks |
| 001                                 | Anchor | Steel    | 100      | kg   | Anchor  | Steel    | 100      | kg   | Anchor  |
| 002                                 | Anchor | Steel    | 100      | kg   | Anchor  | Steel    | 100      | kg   | Anchor  |

The First Steel Anchors Posting on CDB BD-AF 001&002



Opening of fischer Automotive Systems (Taicang) Co., Ltd. New Plant

1997

2005

2008

2018



fischer (Taicang) Fixings Co., Ltd. Established



fischer Automotive Systems (Taicang) Co., Ltd. Established

## fischer Group of Companies

The fischer Group of Companies, headquartered in Waldachtal in Germany's northern Black Forest, generated sales of 1.16 billion euro in 2023 with a worldwide staff of 5,900 employees. The family-owned company operates 52 subsidiaries across the globe and exports to approximately 120 countries. It includes the five divisions: fischer fixing systems, fischer Automotive, fischertechnik, fischer Consulting and fischer Electronic Solutions.







Regional Competence Center Asia (RCCA) Established in China

2019



Cast-in Channel Production Line Completed

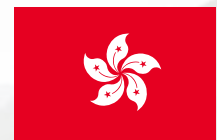
2021



fischer In-house Channel Production Line Completed

2023

**fischer** 



fischer Hong Kong Limited Established

## Company Divisions



### Fixing Systems

fischer fixing systems is the technological market leader in key areas of fixing technology. fischer offers products that deliver technical perfection to a wide range of customers, from do-it-yourselfers to tradespeople to key account partners.



### Automotive

fischer Automotive manufactures high-quality parts for vehicle interiors. The company is highly competent in the plastics processing segment and is an important partner for the automotive industry. Its range of products includes air vents, cup holders, trays and multi-function components.



### fischertechnik

With its construction kits, fischertechnik is active in both the toymaking and the educational sector. fischertechnik is one of the last remaining toy makers to exclusively develop and produce in Germany.



### Consulting

fischer Consulting evolved from the competence developed in the company itself, which includes the fischer ProcessSystem with its central aim of permanent improvement for the ultimate benefit of the customer. fischer Consulting advises small and medium-sized businesses, government agencies and major companies on their path towards lean and efficient processes.



### Electronic Solutions

fischer Electronic Solutions develops and manufactures electronic solutions including product and system developments based on the latest technology as well as custom production orders processed in the company's own production facilities. As an experienced provider of development and production services for custom systems such as multi-touch solutions made of glass and the corresponding controller units, fischer Electronic Solutions forms the perfect link between the customer and the final product.



# 1

## High performance steel anchors

|                                     |    |                                                                                     |
|-------------------------------------|----|-------------------------------------------------------------------------------------|
| Bolt anchor FAZ II Plus             | 10 |    |
| Bolt anchor FBN II                  | 15 |    |
| High performance anchor FH II       | 19 |    |
| High performance anchor FH II-I     | 24 |    |
| Concrete screw UltraCut FBS II 8-14 | 26 |   |
| Concrete screw UltraCut FBS II 6    | 35 |  |
| Hammerset anchor EA II              | 39 |  |
| Nail anchor FNA II                  | 43 |  |
| Nail anchor FNA II RB               | 47 |  |

# 2

## Chemical fixings

|                             |    |                                                                                     |
|-----------------------------|----|-------------------------------------------------------------------------------------|
| Epoxy mortar FIS EB II      | 50 |  |
| Injection mortar FIS V Plus | 52 |  |

# 3

## Cast-in Channels

|                         |    |                                                                                     |
|-------------------------|----|-------------------------------------------------------------------------------------|
| Cast-in Channel FES-H   | 57 |  |
| Cast-in Channel FES-H-S | 62 |  |
| Channel bolt FBC        | 65 |  |
| Channel bolt FBC-N      | 69 |  |
| Channel bolt FBC-S      | 71 |  |

# 4

## FireStop Assortment

|                                  |    |                                                                                       |
|----------------------------------|----|---------------------------------------------------------------------------------------|
| Intumescent Acoustic Mastic FIAM | 74 |  |
| Fire Rated Silicone Sealant FFRS | 77 |  |
| FireStop Compound FFSC           | 80 |  |
| Intumescent Pipe Wraps FiPW      | 82 |  |
| Intumescent Graphite Mastic FIGM | 84 |  |
| Fire Collar FFC                  | 86 |  |
| Intumescent Putty Pad FiPP       | 88 |  |



# 5

## Application & Reference

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Facade Application

92



M&E Application

93



Subway Application

94



Airport Application

95



Bridge Application

96



Road Application

97



Reference

98

# Bolt anchor FAZ II Plus

For highest demands. Powerful and flexible.



Balcony railings



Conveyor belt

## Applications

- Steel constructions
- Guard rails
- Consoles
- Lifts
- Lifting platforms
- Conveyor belts
- Pumps
- Cable trays
- Façades
- Timber constructions

## Advantages

- Quick and easier assembly without the need for drill hole cleaning (M8-M16) according external report.
- With the new assessment (ETA), the tensile strengths increase decisively. As a result, fewer fixing points and anchors are required.
- The new ETA confirms the use of the FAZ II Plus for dynamic loads for diameters M16-M24.
- 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).

- The FAZ II Plus allows the absorption of high seismic loads of performance category C1 and C2 for diameters M10-M24.
- The first bolt anchor M6 with ETA evaluation option 1 ensures a safe and approved anchorage.

## Certificates



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



M8-M20

## Building materials

Approved for:

- Concrete C20/25 to C50/60, cracked and non-cracked

Also suitable for:

- Concrete C12/15 (classification available)
- Concrete C80/95 (classification available)
- Steel fiber concrete (classification available)
- Solid sand-lime brick (classification available)

## Versions

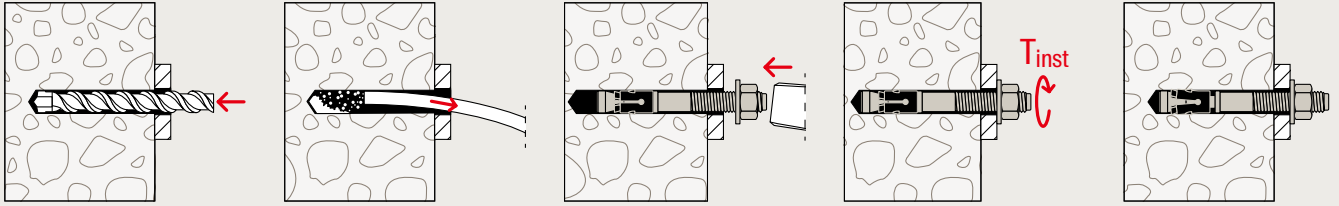
- Galvanised steel
- Stainless steel R
- Highly corrosion-resistant steel HCR

## Functioning

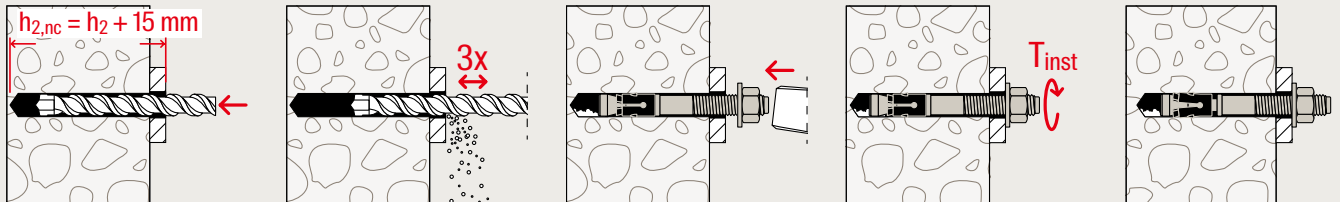
- The FAZ II Plus is suitable for pre-positioned and push-through installation and is also ideal for stand-off installation thanks to the long thread.
- The anchor is set in line with the approval once the preset installation torque is achieved.
- In the case of series installation, we recommend using the FABS or FA-ST II anchor bolt setting tools.
- In case of seismic demands, the annular gap can be filled using the filling disc FFD.
- For dynamic loads, an additional „dynamic set“ is used, which is filled with injection mortar (compressive strength  $\geq 50 \text{ N/mm}^2$  e.g.: FIS V Plus, FIS EM Plus, FIS HB or FIS SB) after installation.



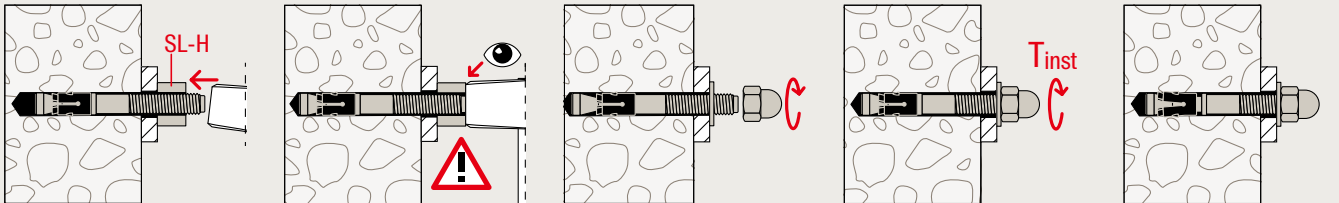
### Push-through installation with hexagon nut



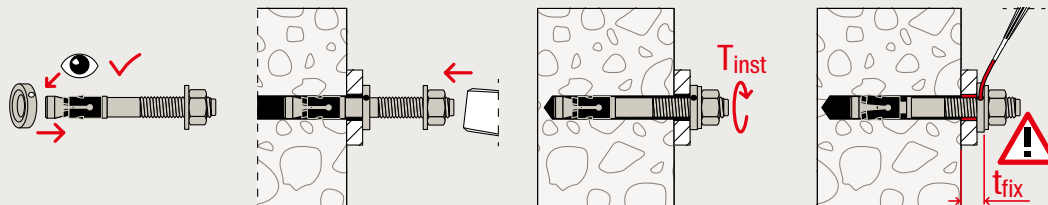
### Without borehole cleaning



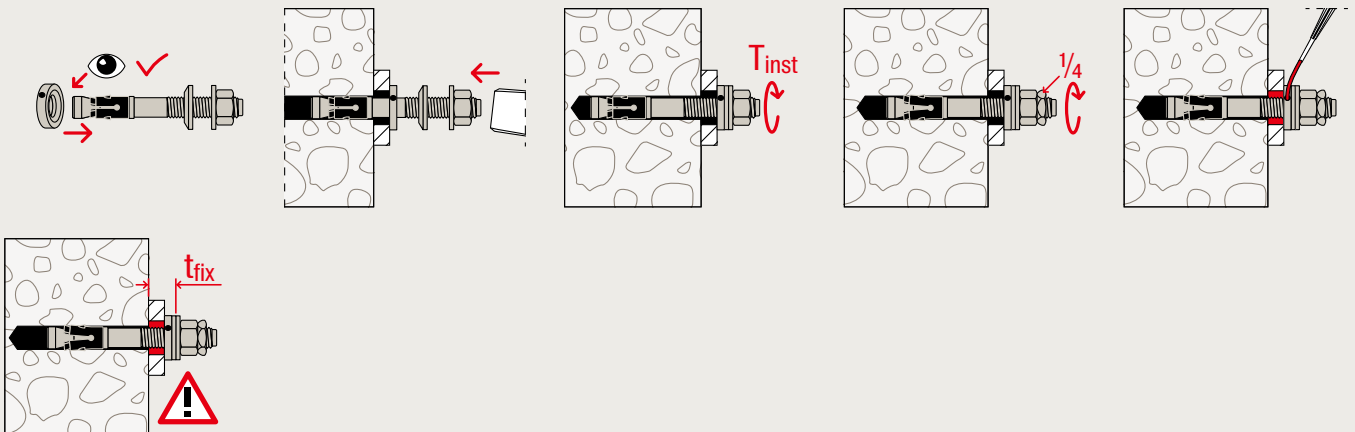
### Push-through installation of the cup nut version with setting gauge



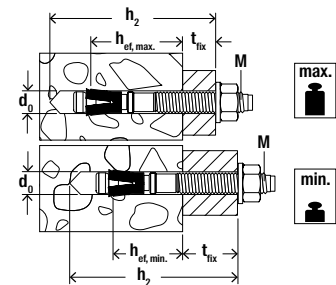
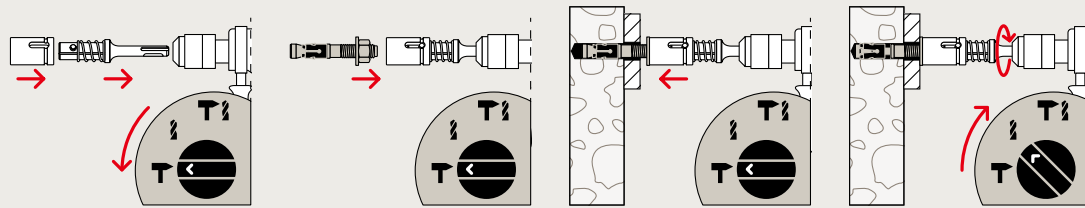
### With backfill disc for seismic application



### Installation with dynamic set



## Installation with setting tool



## Technical data

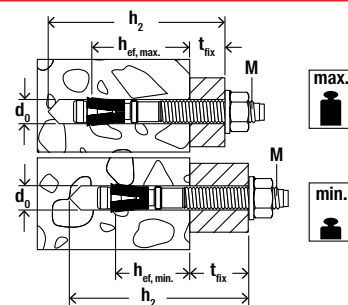
## Bolt anchor FAZ II Plus



FAZ II Plus

|                    | Galvani-<br>sed steel | Stainless<br>steel | Stainless<br>steel | Ap-<br>pro-<br>val | Drill diameter         | Max. usable<br>length hef,stand./<br>hef,min. | Anchor length | Thread             | Width across nut | Sales unit |
|--------------------|-----------------------|--------------------|--------------------|--------------------|------------------------|-----------------------------------------------|---------------|--------------------|------------------|------------|
|                    | Item no.              | Item no.           | Item no.           | ETA                | d <sub>0</sub><br>[mm] | t <sub>fix</sub><br>[mm]                      | L<br>[mm]     | Ø x length<br>[mm] | SW<br>[mm]       | [pcs]      |
| Item               | gvz                   | R                  | A4(1.4401)*        |                    |                        |                                               |               |                    |                  |            |
| FAZ II Plus 6/10   | 564572                | 564607             | –                  | ●                  | 6                      | 10 / -                                        | 65            | M6 x 25            | 10               | 50         |
| FAZ II Plus 6/20   | 564573                | 564608             | –                  | ●                  | 6                      | 20 / -                                        | 75            | M6 x 35            | 10               | 50         |
| FAZ II Plus 8/10   | 564574                | 564609             | –                  | ●                  | 8                      | 10 / 20                                       | 75            | M8 x 38            | 13               | 50         |
| FAZ II Plus 8/10   | –                     | –                  | 560762             | ●                  | 8                      | 10 / 20                                       | 75            | M8 x 38            | 13               | 10         |
| FAZ II Plus 8/30   | 564575                | 564610             | –                  | ●                  | 8                      | 30 / 40                                       | 95            | M8 x 58            | 13               | 50         |
| FAZ II Plus 8/30   | –                     | –                  | 560763             | ●                  | 8                      | 30 / 40                                       | 95            | M8 x 58            | 13               | 10         |
| FAZ II Plus 8/50   | 564576                | 564611             | –                  | ●                  | 8                      | 50 / 60                                       | 115           | M8 x 78            | 13               | 50         |
| FAZ II Plus 8/50   | –                     | –                  | 560764             | ●                  | 8                      | 50 / 60                                       | 115           | M8 x 78            | 13               | 10         |
| FAZ II Plus 8/100  | 564577                | –                  | –                  | ●                  | 8                      | 100 / 110                                     | 165           | M8 x 128           | 13               | 25         |
| FAZ II Plus 8/160  | 564578                | –                  | –                  | ●                  | 8                      | 160 / 170                                     | 225           | M8 x 100           | 13               | 20         |
| FAZ II Plus 10/10  | 564579                | 564612             | –                  | ●                  | 10                     | 10 / 30                                       | 95            | M10 x 53           | 17               | 50         |
| FAZ II Plus 10/10  | –                     | –                  | 560765             | ●                  | 10                     | 10 / 30                                       | 95            | M10 x 53           | 17               | 10         |
| FAZ II Plus 10/20  | 564580                | –                  | –                  | ●                  | 10                     | 20 / 40                                       | 105           | M10 x 63           | 17               | 25         |
| FAZ II Plus 10/20  | –                     | 564613             | 560766             | ●                  | 10                     | 20 / 40                                       | 105           | M10 x 63           | 17               | 50         |
| FAZ II Plus 10/30  | 564581                | –                  | –                  | ●                  | 10                     | 30 / 50                                       | 115           | M10 x 73           | 17               | 25         |
| FAZ II Plus 10/30  | –                     | 564614             | –                  | ●                  | 10                     | 30 / 50                                       | 115           | M10 x 73           | 17               | 50         |
| FAZ II Plus 10/30  | –                     | –                  | 560767             | ●                  | 10                     | 30 / 50                                       | 115           | M10 x 73           | 17               | 10         |
| FAZ II Plus 10/50  | 564582                | 564615             | 560768             | ●                  | 10                     | 50 / 70                                       | 135           | M10 x 93           | 17               | 20         |
| FAZ II Plus 10/70  | –                     | 564616             | –                  | ●                  | 10                     | 70 / 90                                       | 155           | M10 x 113          | 17               | 20         |
| FAZ II Plus 10/80  | 564583                | –                  | –                  | ●                  | 10                     | 80 / 100                                      | 165           | M10 x 123          | 17               | 20         |
| FAZ II Plus 10/100 | 564584                | –                  | –                  | ●                  | 10                     | 100 / 120                                     | 185           | M10 x 143          | 17               | 20         |
| FAZ II Plus 10/100 | –                     | 564617             | –                  | ●                  | 10                     | 100 / 120                                     | 185           | M10 x 100          | 17               | 20         |
| FAZ II Plus 10/160 | 564585                | –                  | –                  | ●                  | 10                     | 160 / 180                                     | 245           | M10 x 193          | 17               | 20         |
| FAZ II Plus 10/160 | –                     | 564618             | –                  | ●                  | 10                     | 160 / 180                                     | 245           | M10 x 100          | 17               | 20         |
| FAZ II Plus 12/10  | 564586                | 564619             | –                  | ●                  | 12                     | 10 / 30                                       | 110           | M12 x 61           | 19               | 20         |
| FAZ II Plus 12/10  | –                     | –                  | 560769             | ●                  | 12                     | 10 / 30                                       | 110           | M12 x 61           | 19               | 10         |
| FAZ II Plus 12/20  | 564587                | 564620             | 560770             | ●                  | 12                     | 20 / 40                                       | 120           | M12 x 71           | 19               | 20         |
| FAZ II Plus 12/30  | 564588                | 564621             | –                  | ●                  | 12                     | 30 / 50                                       | 130           | M12 x 81           | 19               | 20         |
| FAZ II Plus 12/30  | –                     | –                  | 560771             | ●                  | 12                     | 30 / 50                                       | 130           | M12 x 81           | 19               | 10         |





## Technical data

### Bolt anchor FAZ II Plus

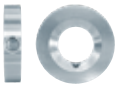


FAZ II Plus

|                    | Galvani-<br>sed steel | Stainless<br>steel | Stainless<br>steel | Ap-<br>pro-<br>val | Drill diameter         | Max. usable<br>length hef,stand./<br>hef,min. | Anchor length | Thread             | Width across nut | Sales unit |
|--------------------|-----------------------|--------------------|--------------------|--------------------|------------------------|-----------------------------------------------|---------------|--------------------|------------------|------------|
|                    | Item no.              | Item no.           | Item no.           | ETA                | d <sub>0</sub><br>[mm] | t <sub>fix</sub><br>[mm]                      | L<br>[mm]     | Ø x length<br>[mm] | SW<br>[mm]       | [pcs]      |
| Item               | gvz                   | R                  | A4(1.4401)*        |                    |                        |                                               |               |                    |                  |            |
| FAZ II Plus 12/50  | 564589                | 564622             | 560772             | ●                  | 12                     | 50 / 70                                       | 150           | M12 x 101          | 19               | 20         |
| FAZ II Plus 12/60  | -                     | 564623             | -                  | ●                  | 12                     | 60 / 80                                       | 160           | M12 x 111          | 19               | 20         |
| FAZ II Plus 12/80  | 564590                | -                  | -                  | ●                  | 12                     | 80 / 100                                      | 180           | M12 x 131          | 19               | 20         |
| FAZ II Plus 12/100 | 564591                | 564624             | -                  | ●                  | 12                     | 100 / 120                                     | 200           | M12 x 151          | 19               | 20         |
| FAZ II Plus 12/160 | 564592                | -                  | -                  | ●                  | 12                     | 160 / 180                                     | 260           | M12 x 186          | 19               | 10         |
| FAZ II Plus 12/160 | -                     | 564625             | -                  | ●                  | 12                     | 160 / 180                                     | 260           | M12 x 100          | 19               | 20         |
| FAZ II Plus 12/200 | 564593                | -                  | -                  | ●                  | 12                     | 200 / 220                                     | 300           | M12 x 186          | 19               | 10         |
| FAZ II Plus 16/5   | 564594                | -                  | -                  | ●                  | 16                     | 5 / 25                                        | 128           | M16 x 64           | 24               | 10         |
| FAZ II Plus 16/5   | -                     | 564626             | -                  | ●                  | 16                     | 5 / 25                                        | 128           | M16 x 64           | 24               | 20         |
| FAZ II Plus 16/25  | 564595                | -                  | 560773             | ●                  | 16                     | 25 / 45                                       | 148           | M16 x 84           | 24               | 10         |
| FAZ II Plus 16/25  | -                     | 564627             | -                  | ●                  | 16                     | 25 / 45                                       | 148           | M16 x 84           | 24               | 20         |
| FAZ II Plus 16/50  | 564596                | -                  | 568035             | ●                  | 16                     | 50 / 70                                       | 173           | M16 x 109          | 24               | 10         |
| FAZ II Plus 16/50  | -                     | 564628             | -                  | ●                  | 16                     | 50 / 70                                       | 173           | M16 x 109          | 24               | 20         |
| FAZ II Plus 16/60  | -                     | 564629             | -                  | ●                  | 16                     | 60 / 80                                       | 183           | M16 x 119          | 24               | 20         |
| FAZ II Plus 16/100 | 564597                | 564630             | -                  | ●                  | 16                     | 100 / 120                                     | 223           | M16 x 159          | 24               | 10         |
| FAZ II Plus 16/160 | 564598                | -                  | -                  | ●                  | 16                     | 160 / 180                                     | 283           | M16 x 189          | 24               | 10         |
| FAZ II Plus 16/200 | 564599                | -                  | -                  | ●                  | 16                     | 200 / 220                                     | 323           | M16 x 189          | 24               | 10         |
| FAZ II Plus 16/250 | 564600                | -                  | -                  | ●                  | 16                     | 250 / 270                                     | 373           | M16 x 100          | 24               | 10         |
| FAZ II Plus 16/300 | 564601                | -                  | -                  | ●                  | 16                     | 300 / 320                                     | 423           | M16 x 100          | 24               | 10         |
| FAZ II Plus 20/30  | 564602                | -                  | -                  | ●                  | 20                     | 30 / -                                        | 172           | M20 x 54           | 30               | 5          |
| FAZ II Plus 20/30  | -                     | 564631             | -                  | ●                  | 20                     | 30 / -                                        | 172           | M20 x 54           | 30               | 4          |
| FAZ II Plus 20/60  | 564603                | -                  | -                  | ●                  | 20                     | 60 / -                                        | 202           | M20 x 84           | 30               | 5          |
| FAZ II Plus 20/60  | -                     | 564632             | -                  | ●                  | 20                     | 60 / -                                        | 202           | M20 x 84           | 30               | 4          |
| FAZ II Plus 20/160 | 564604                | -                  | -                  | ●                  | 20                     | 160 / -                                       | 302           | M20 x 100          | 30               | 5          |
| FAZ II Plus 24/30  | 564605                | -                  | -                  | ●                  | 24                     | 30 / -                                        | 205           | M24 x 58           | 36               | 5          |
| FAZ II Plus 24/30  | -                     | 564633             | -                  | ●                  | 24                     | 30 / -                                        | 205           | M24 x 58           | 36               | 4          |
| FAZ II Plus 24/60  | 564606                | -                  | -                  | ●                  | 24                     | 60 / -                                        | 235           | M24 x 88           | 36               | 5          |
| FAZ II Plus 24/60  | -                     | 564634             | -                  | ●                  | 24                     | 60 / -                                        | 235           | M24 x 88           | 36               | 4          |

\*Only for FAZ II

## Accessories

| Accessories                                                                                                                                                                                                                                                                                                                            |          |                                |                         |                                            |                                      |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------------|-------------------------|--------------------------------------------|--------------------------------------|---------------------|
|     |          |                                |                         |                                            |                                      |                     |
| Filling disc FFD                                                                                                                                                                                                                                                                                                                       | FABS     | FA-ST II                       |                         | FA-ST II Set                               |                                      |                     |
| Item                                                                                                                                                                                                                                                                                                                                   | Item no. | Internal diameter<br>D<br>[mm] | External-Ø<br>d<br>[mm] | Match                                      | Contents                             | Sales unit<br>[pcs] |
| FFD 26 x 12 x 6                                                                                                                                                                                                                                                                                                                        | 538458   | 12                             | 26                      | FAZ II Plus M8/M10                         |                                      | 4                   |
| FFD 26x12x6 R                                                                                                                                                                                                                                                                                                                          | 541986   | 12                             | 26                      | FAZ II Plus M8/M10 R                       |                                      | 4                   |
| FFD 30 x 14 x 6                                                                                                                                                                                                                                                                                                                        | 538459   | 14                             | 30                      | FAZ II Plus M12                            |                                      | 4                   |
| FFD 30x14x6 R                                                                                                                                                                                                                                                                                                                          | 541987   | 14                             | 30                      | FAZ II Plus M12 R                          |                                      | 4                   |
| FFD 38 x 19 x 7                                                                                                                                                                                                                                                                                                                        | 538460   | 19                             | 38                      | FAZ II Plus M16                            |                                      | 4                   |
| FFD 38x19x7 R                                                                                                                                                                                                                                                                                                                          | 541988   | 19                             | 40                      | FAZ II Plus M16 R                          |                                      | 4                   |
| FFD 46 x 23 x 8                                                                                                                                                                                                                                                                                                                        | 538461   | 23                             | 46                      | FAZ II Plus M20                            |                                      | 4                   |
| FFD 46x23x8 R                                                                                                                                                                                                                                                                                                                          | 541989   | 23                             | 50                      | FAZ II Plus M20 R                          |                                      | 4                   |
| FFD 54 x 28 x 10                                                                                                                                                                                                                                                                                                                       | 538462   | 28                             | 54                      | FAZ II Plus M24                            |                                      | 4                   |
| FFD 54x28x10 R                                                                                                                                                                                                                                                                                                                         | 541990   | 28                             | 55                      | FAZ II Plus M24 R                          |                                      | 4                   |
| FABS                                                                                                                                                                                                                                                                                                                                   | 077937   | –                              | –                       | FAZ II Plus for diameter from M6 up to M12 |                                      | 1                   |
| FA-ST II M10                                                                                                                                                                                                                                                                                                                           | 558790   | –                              | –                       | FAZ II M10, FBZ M10, FBN II M10, EXA M10   | SDS Adapter; Socket SW17             | 1                   |
| FA-ST II M12                                                                                                                                                                                                                                                                                                                           | 558791   | –                              | –                       | FAZ II M12, FBZ M12, FBN II M12, EXA M12   | SDS Adapter; Socket SW19             | 1                   |
| FA-ST II M16                                                                                                                                                                                                                                                                                                                           | 558792   | –                              | –                       | FAZ II M16, FBZ M16, FBN II M16, EXA M16   | SDS Adapter; Socket SW24             | 1                   |
| FA-ST II Set                                                                                                                                                                                                                                                                                                                           | 558789   | –                              | –                       | –                                          | SDS Adapter; Socket SW17, SW19, SW24 | 1                   |

## Accessories Dynamic set

| Accessories Dynamic set                                                            |          |                         |                   |                                                    |                   |                     |
|------------------------------------------------------------------------------------|----------|-------------------------|-------------------|----------------------------------------------------|-------------------|---------------------|
|  |          |                         |                   |                                                    |                   |                     |
| Dynamic set                                                                        |          |                         |                   |                                                    |                   |                     |
| Item                                                                               | Item no. | External-Ø<br>d<br>[mm] | Thickness<br>[mm] | Min. fixture thickness<br>t <sub>fix</sub><br>[mm] | Match             | Sales unit<br>[pcs] |
| Dynamic set M16                                                                    | 568785   | 38                      | 11                | 15                                                 | FAZ II Plus M16   | 10                  |
| Dynamic set M20                                                                    | 568786   | 46                      | 13                | 20                                                 | FAZ II Plus M20   | 10                  |
| Dynamic set M24                                                                    | 568787   | 54                      | 17                | 24                                                 | FAZ II Plus M24   | 10                  |
| Dynamic set M16 R                                                                  | 568788   | 40                      | 11                | 15                                                 | FAZ II Plus M16 R | 10                  |
| Dynamic set M20 R                                                                  | 568789   | 50                      | 13                | 20                                                 | FAZ II Plus M20 R | 10                  |
| Dynamic set M24 R                                                                  | 568790   | 55                      | 17                | 24                                                 | FAZ II Plus M24 R | 10                  |



# Bolt anchor FBN II

The cost-efficient fixing for flexible use in non-cracked concrete.



Column bases



Stormwater overflow tank manholes

1

## Applications

- Steel constructions
- Guard rails
- Consoles
- Ladders
- Cable trays
- Machines
- Staircases
- Gates
- Façades

## Advantages

- The standard anchorage depth achieves the maximum load-bearing capacities.
- The reduced anchorage depth reduces the drill hole depth. This minimises the amount of time needed for installation whilst increasing flexibility.
- Additional short version "K" with short anchoring depth.
- The long thread balances component tolerances and allows for stand-off installations, thus increasing flexibility.
- Few hammer blows and the minimal torque slippage allow for a noticeably simpler installation.
- The drive-in pin protects the thread from damage, and thus ensures a faster installation and dismantling of the attachment.
- The larger washer included with the FBN II GS creates a larger supporting surface and, as such, allows for the fixing of wood constructions.
- When using hollow drills with suction is no drill hole cleaning required.
- New ETA assessment for hot-dip galvanised version for variable working life in outdoor areas.

## Certificates



ETA-07/0211, for non-cracked concrete  
ETA-18/0101, for non-cracked concrete and variable working life for outdoor areas



INOX STAINLESS STEEL

## Building materials

Approved for:

- Concrete C20/25 to C50/60, non-cracked

Also suitable for:

- Concrete C12/15
- Natural stone with dense structure

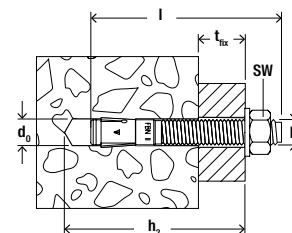
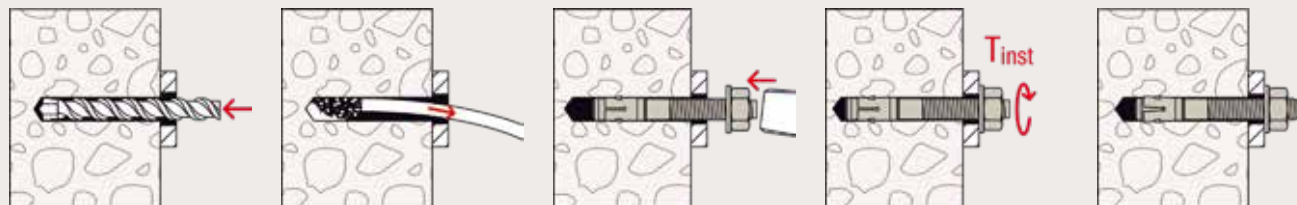
## Versions

- Zinc-plated steel
- Stainless steel R
- Hot-dip galvanised steel (with variable working life for outdoor areas)

## Functioning

- The FBN II is suitable for pre-positioned and push-through installation; also suitable for stand-off installation under certain conditions.
- Prior to installation, place the hexagon nut in the optimal position (the drive-in pin projects by approx. 3 mm out of the hexagon nut).
- When applying the torque, the cone bolt is pulled into the expansion clip and expands it against the drill hole wall.
- The head embossing offers a simple control of the anchoring.
- In the case of series installation, we recommend using the FABS bolt anchor setting tool.

## Installation FBN II



## Technical data

## Bolt anchor FBN II

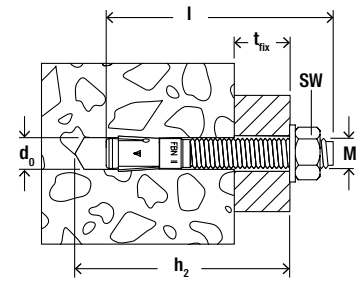


## FBN II

|               | Zinc-plated steel      | Stainless steel        | Hot-dip galvanised steel | Approval | Drill hole diameter    | Min. drill hole depth for through fixings | Anchor length | Max. usable length hef,max./ hef,min. | Thread             | Width across nut | Sales unit |
|---------------|------------------------|------------------------|--------------------------|----------|------------------------|-------------------------------------------|---------------|---------------------------------------|--------------------|------------------|------------|
|               | Item No.               | Item No.               | Item No.                 |          | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                    | l<br>[mm]     | t <sub>fix</sub><br>[mm]              | Ø x length<br>[mm] | SW<br>[mm]       | [pcs]      |
| Item          | gvz                    | R                      | hdg                      | ETA      |                        |                                           |               |                                       |                    |                  |            |
| FBN II 6/5    | 505526 <sup>1)2)</sup> | —                      | —                        | ●        | 6                      | 45                                        | 50            | 5/-                                   | M 6 x 12           | 10               | 100        |
| FBN II 6/10   | 505527 <sup>1)2)</sup> | 505532 <sup>1)2)</sup> | —                        | ●        | 6                      | 50                                        | 55            | 10/-                                  | M 6 x 17           | 10               | 100        |
| FBN II 6/30   | 505528 <sup>1)2)</sup> | 505535 <sup>1)2)</sup> | —                        | ●        | 6                      | 70                                        | 75            | 30/-                                  | M 6 x 35           | 10               | 100        |
| FBN II 8/5    | 040662                 | —                      | —                        | ●        | 8                      | 61                                        | 65            | 5/15                                  | M 8 x 34           | 13               | 50         |
| FBN II 8/10   | 040664                 | 507555                 | —                        | ●        | 8                      | 66                                        | 70            | 10/20                                 | M 8 x 39           | 13               | 50         |
| FBN II 8/10   | —                      | —                      | 507575                   | ●        | 8                      | 66                                        | 71            | 10/20                                 | M 8 x 39           | 13               | 50         |
| FBN II 8/20   | 040669                 | —                      | —                        | ●        | 8                      | 76                                        | 80            | 20/30                                 | M 8 x 49           | 13               | 50         |
| FBN II 8/30   | 040700                 | 507556                 | —                        | ●        | 8                      | 86                                        | 90            | 30/40                                 | M 8 x 59           | 13               | 50         |
| FBN II 8/30   | —                      | —                      | 507576                   | ●        | 8                      | 86                                        | 91            | 30/40                                 | M 8 x 59           | 13               | 50         |
| FBN II 8/50   | 040771                 | 507557                 | —                        | ●        | 8                      | 106                                       | 110           | 50/60                                 | M 8 x 79           | 13               | 50         |
| FBN II 8/50   | —                      | —                      | 507577                   | ●        | 8                      | 106                                       | 111           | 50/60                                 | M 8 x 79           | 13               | 50         |
| FBN II 8/70   | 040777                 | —                      | —                        | ●        | 8                      | 126                                       | 130           | 70/80                                 | M 8 x 99           | 13               | 20         |
| FBN II 8/70   | —                      | —                      | 507578                   | ●        | 8                      | 126                                       | 131           | 70/80                                 | M 8 x 99           | 13               | 20         |
| FBN II 8/100  | 040783                 | —                      | —                        | ●        | 8                      | 156                                       | 160           | 100/110                               | M 8 x 129          | 13               | 20         |
| FBN II 10/10  | 040827                 | 507558                 | —                        | ●        | 10                     | 78                                        | 85            | 10/20                                 | M 10 x 46          | 17               | 50         |
| FBN II 10/10  | —                      | —                      | 507579                   | ●        | 10                     | 78                                        | 86            | 10/20                                 | M 10 x 46          | 17               | 50         |
| FBN II 10/20  | 040851                 | 507559                 | —                        | ●        | 10                     | 88                                        | 95            | 20/30                                 | M 10 x 56          | 17               | 50         |
| FBN II 10/30  | 040854                 | 507560                 | —                        | ●        | 10                     | 98                                        | 105           | 30/40                                 | M 10 x 66          | 17               | 50         |
| FBN II 10/30  | —                      | —                      | 507580                   | ●        | 10                     | 98                                        | 106           | 30/40                                 | M 10 x 66          | 17               | 50         |
| FBN II 10/50  | 040855                 | 507561                 | —                        | ●        | 10                     | 118                                       | 125           | 50/60                                 | M 10 x 86          | 17               | 20         |
| FBN II 10/50  | —                      | —                      | 507582                   | ●        | 10                     | 118                                       | 126           | 50/60                                 | M 10 x 86          | 17               | 20         |
| FBN II 10/70  | 040931                 | —                      | —                        | ●        | 10                     | 138                                       | 145           | 70/80                                 | M 10 x 106         | 17               | 20         |
| FBN II 10/100 | 040943                 | 507562                 | —                        | ●        | 10                     | 168                                       | 175           | 100/110                               | M 10 x 136         | 17               | 20         |
| FBN II 10/100 | —                      | —                      | 507583                   | ●        | 10                     | 168                                       | 176           | 100/110                               | M 10 x 136         | 17               | 20         |
| FBN II 10/140 | 040944                 | —                      | —                        | ●        | 10                     | 208                                       | 215           | 140/150                               | M 10 x 176         | 17               | 20         |

1) Use restricted to anchoring of structural components which are statically indeterminate.

2) Nut and washer not pre-assembled/supplied loose.



## Technical data

### Bolt anchor FBN II



#### FBN II

|               | Zinc-plated steel | Stainless steel | Hot-dip galvanised steel | Approval | Drill hole diameter | Min. drill hole depth for through fixings | Anchor length | Max. usable length hef, max./ hef, min. | Thread     | Width across nut | Sales unit |
|---------------|-------------------|-----------------|--------------------------|----------|---------------------|-------------------------------------------|---------------|-----------------------------------------|------------|------------------|------------|
|               | Item No.          | Item No.        | Item No.                 |          | d <sub>0</sub>      | h <sub>2</sub>                            | l             | t <sub>fix</sub>                        | Ø x length | SW               |            |
| Item          | gvz               | R               | hdg                      | ETA      | [mm]                | [mm]                                      | [mm]          | [mm]                                    | [mm]       | [mm]             | [pcs]      |
| FBN II 10/160 | 040945            | —               | —                        | ●        | 10                  | 228                                       | 235           | 160/170                                 | M 10 x 196 | 17               | 20         |
| FBN II 12/10  | 040950            | 507563          | —                        | ●        | 12                  | 95                                        | 104           | 10/25                                   | M 12 x 59  | 19               | 20         |
| FBN II 12/10  | —                 | —               | 507589                   | ●        | 12                  | 95                                        | 106           | 10/25                                   | M 12 x 59  | 19               | 20         |
| FBN II 12/20  | 044558            | 507564          | —                        | ●        | 12                  | 105                                       | 114           | 20/35                                   | M 12 x 69  | 19               | 20         |
| FBN II 12/30  | 045263            | 507565          | —                        | ●        | 12                  | 115                                       | 124           | 30/45                                   | M 12 x 79  | 19               | 20         |
| FBN II 12/30  | —                 | —               | 507591                   | ●        | 12                  | 115                                       | 126           | 30/45                                   | M 12 x 79  | 19               | 20         |
| FBN II 12/50  | 045264            | 507566          | —                        | ●        | 12                  | 135                                       | 144           | 50/65                                   | M 12 x 99  | 19               | 20         |
| FBN II 12/50  | —                 | —               | 507592                   | ●        | 12                  | 135                                       | 146           | 50/65                                   | M 12 x 99  | 19               | 20         |
| FBN II 12/80  | 045265            | —               | —                        | ●        | 12                  | 165                                       | 174           | 80/95                                   | M 12 x 129 | 19               | 20         |
| FBN II 12/100 | 045266            | 507567          | —                        | ●        | 12                  | 185                                       | 194           | 100/115                                 | M 12 x 149 | 19               | 20         |
| FBN II 12/100 | —                 | —               | 507596                   | ●        | 12                  | 185                                       | 196           | 100/115                                 | M 12 x 149 | 19               | 20         |
| FBN II 12/120 | 045267            | —               | —                        | ●        | 12                  | 205                                       | 214           | 120/135                                 | M 12 x 169 | 19               | 20         |
| FBN II 12/140 | 045268            | —               | —                        | ●        | 12                  | 225                                       | 234           | 140/155                                 | M 12 x 189 | 19               | 20         |
| FBN II 12/160 | 045269            | —               | —                        | ●        | 12                  | 245                                       | 254           | 160/175                                 | M 12 x 189 | 19               | 20         |
| FBN II 16/10  | —                 | 507568          | —                        | ●        | 16                  | 114                                       | 128           | 10/25                                   | M 16 x 74  | 24               | 10         |
| FBN II 16/25  | —                 | —               | 507598                   | ●        | 16                  | 129                                       | 145           | 25/40                                   | M 16 x 89  | 24               | 10         |
| FBN II 16/25  | 045564            | 507569          | —                        | ●        | 16                  | 129                                       | 143           | 25/40                                   | M 16 x 89  | 24               | 10         |
| FBN II 16/50  | —                 | —               | 507553                   | ●        | 16                  | 154                                       | 170           | 50/65                                   | M 16 x 105 | 24               | 10         |
| FBN II 16/50  | 045565            | 507570          | —                        | ●        | 16                  | 154                                       | 168           | 50/65                                   | M 16 x 105 | 24               | 10         |
| FBN II 16/80  | 045566            | —               | —                        | ●        | 16                  | 184                                       | 198           | 80/95                                   | M 16 x 144 | 24               | 10         |
| FBN II 16/100 | 045567            | —               | —                        | ●        | 16                  | 204                                       | 218           | 100/115                                 | M 16 x 164 | 24               | 10         |
| FBN II 16/100 | —                 | —               | 507554                   | ●        | 16                  | 204                                       | 220           | 100/115                                 | M 16 x 164 | 24               | 10         |
| FBN II 16/140 | 045568            | —               | —                        | ●        | 16                  | 244                                       | 258           | 140/155                                 | M 16 x 184 | 24               | 10         |
| FBN II 16/160 | 045569            | —               | —                        | ●        | 16                  | 264                                       | 278           | 160/175                                 | M 16 x 184 | 24               | 10         |
| FBN II 16/200 | 045570            | —               | —                        | ●        | 16                  | 304                                       | 318           | 200/215                                 | M 16 x 184 | 24               | 10         |
| FBN II 20/30  | 045573            | 507571          | 508015                   | ●        | 20                  | 165                                       | 187           | 30/55                                   | M 20 x 90  | 30               | 10         |
| FBN II 20/60  | 045574            | 507572          | —                        | ●        | 20                  | 195                                       | 217           | 60/85                                   | M 20 x 90  | 30               | 10         |
| FBN II 20/80  | 045575            | 547590          | —                        | ●        | 20                  | 215                                       | 237           | 80/105                                  | M 20 x 90  | 30               | 10         |
| FBN II 20/120 | 045576            | —               | —                        | ●        | 20                  | 255                                       | 277           | 120/145                                 | M 20 x 90  | 30               | 10         |

1) Use restricted to anchoring of structural components which are statically indeterminate.

2) Nut and washer not pre-assembled/supplied loose.



Accessories

Bolt anchor setting tool

1



|                 | Item No. | Contents                             | Matching anchor type                                                     | Sales unit [pcs] |
|-----------------|----------|--------------------------------------|--------------------------------------------------------------------------|------------------|
| Item            |          |                                      |                                                                          |                  |
| FABS            | 077937   | —                                    | FAZ II, FBZ, FBN II for diameter from M6 - M12                           | 1                |
| FA-ST II Set    | 558789   | SDS adapter; socket SW17, SW19, SW24 | FAZ II M10/M12/M16, FBZ M10/M12/M16, FBN II M10/M12/M16, EXA M10/M12/M16 | 1                |
| FA-ST II M10    | 558790   | SDS adapter; socket SW17             | FAZ II M10, FBZ M10, FBN II M10, EXA M10                                 | 1                |
| FA-ST II M12    | 558791   | SDS adapter; socket SW19             | FAZ II M12, FBZ M12, FBN II M12, EXA M12                                 | 1                |
| FA-ST II M16    | 558792   | SDS adapter; socket SW24             | FAZ II M16, FBZ M16, FBN II M16, EXA M16                                 | 1                |
| FA-ST II spring | 558793   | Replacement spring                   | FA-ST II M10/M12/M16                                                     | 5                |

# High performance anchor FH II

Strong, secure and aesthetic anchoring.



Steel girders



Banisters

1

## Applications

- Guard rails
- Staircases
- Consoles
- Steel constructions
- Ladders
- Cable trays
- Machines
- Gates
- Façades
- Gratings

## Advantages

- The international approvals guarantee maximum safety and the best performance. These approvals even cover use in earthquake zones (seismic C1 and C2).
- The anchor is designed with different head styles for fixing points with aesthetic design.
- The design between the bolt and the sleeve ensures high shear load-bearing

capacity. Thus, fewer fixing points are required.

- The optimised geometry minimises the energy required for installation and thus allows for fast installation.
- The use of hollow drills is included in the approval.

## Certificates



ETA-07/0025, for cracked concrete



from M10



Fire resistance classification R120



ICC ESR-2691



INOX STAINLESS STEEL



M8 - M20



## Building materials

- Concrete C20/25, cracked and non-cracked

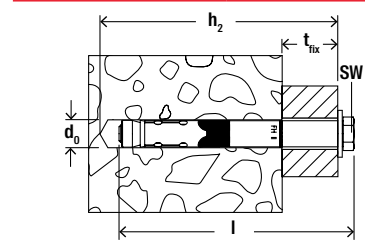
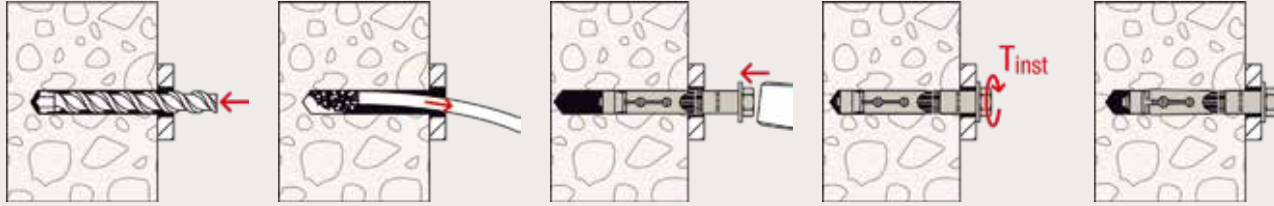
## Versions

- Zinc-plated steel
- Stainless steel R

## Functioning

- The FH II is suitable for push-through installation.
- When the torque is applied, the cone is pulled into the expansion sleeve which is forced against the drill hole wall.
- The black plastic ring prevents rotation when tightening the anchor and acts as a crumple zone to take the torque slip-page, so that the fixture of pulled onto the substrate.
- Alternative head designs for flexible design solutions:  
Hexagon head (type S), countersunk head (type SK), bolt version with nut and washer (type B) and cap nut (type H).

## Installation FH II



## Technical data

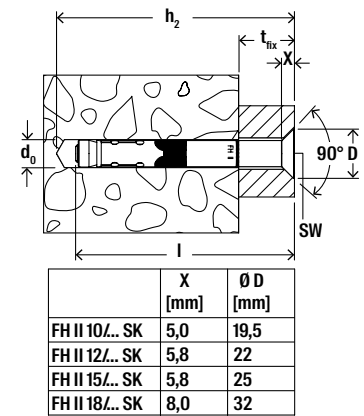
## High performance anchor FH II-S



FH II-S with hexagonal head

|               | Zinc-plated steel | Stainless steel | Approval |     | Seis-mic-Ap-proval | Drill hole diameter | Min. drill hole depth for through fixings | Anchor length | Max. fixture thickness | Thread | Width across nut | Sales unit |
|---------------|-------------------|-----------------|----------|-----|--------------------|---------------------|-------------------------------------------|---------------|------------------------|--------|------------------|------------|
|               | Item No.          | Item No.        |          |     |                    | $d_0$<br>[mm]       | $h_2$<br>[mm]                             | $l$<br>[mm]   | $t_{fix}$<br>[mm]      | M      | SW<br>[mm]       | [pcs]      |
| Item          | gvz               | R               | ETA      | ICC |                    |                     |                                           |               |                        |        |                  |            |
| FH II 10/10 S | 503133            | —               | ●        | —   | —                  | 10                  | 65                                        | 70            | 10                     | M 6    | 10               | 50         |
| FH II 10/10 S | —                 | 510923          | ●        | —   | —                  | 10                  | 65                                        | 69            | 10                     | M 6    | 10               | 50         |
| FH II 10/25 S | 503134            | —               | ●        | —   | —                  | 10                  | 80                                        | 75            | 25                     | M 6    | 10               | 50         |
| FH II 10/25 S | —                 | 510924          | ●        | —   | —                  | 10                  | 80                                        | 84            | 25                     | M 6    | 10               | 50         |
| FH II 10/50 S | 503135            | —               | ●        | —   | —                  | 10                  | 105                                       | 110           | 50                     | M 6    | 10               | 50         |
| FH II 12/10 S | 044884            | —               | ●        | ●   | C1 / C2            | 12                  | 90                                        | 90            | 10                     | M 8    | 13               | 50         |
| FH II 12/10 S | —                 | 510925          | ●        | ●   | C1 / C2            | 12                  | 90                                        | 90            | 10                     | M 8    | 13               | 50         |
| FH II 12/25 S | 044885            | —               | ●        | ●   | C1 / C2            | 12                  | 105                                       | 105           | 25                     | M 8    | 13               | 50         |
| FH II 12/25 S | —                 | 510926          | ●        | ●   | C1 / C2            | 12                  | 105                                       | 105           | 25                     | M 8    | 13               | 20         |
| FH II 12/50 S | 044886            | —               | ●        | ●   | C1 / C2            | 12                  | 130                                       | 130           | 50                     | M 8    | 13               | 25         |
| FH II 15/10 S | 044887            | —               | ●        | ●   | C1 / C2            | 15                  | 100                                       | 106           | 10                     | M 10   | 17               | 25         |
| FH II 15/10 S | —                 | 510927          | ●        | ●   | C1 / C2            | 15                  | 100                                       | 107           | 10                     | M 10   | 17               | 50         |
| FH II 15/25 S | 044888            | —               | ●        | ●   | C1 / C2            | 15                  | 115                                       | 121           | 25                     | M 10   | 17               | 25         |
| FH II 15/25 S | —                 | 510928          | ●        | ●   | C1 / C2            | 15                  | 115                                       | 122           | 25                     | M 10   | 17               | 20         |
| FH II 15/50 S | 044889            | —               | ●        | ●   | C1 / C2            | 15                  | 140                                       | 146           | 50                     | M 10   | 17               | 25         |
| FH II 18/10 S | 046847            | —               | ●        | ●   | C1 / C2            | 18                  | 115                                       | 118           | 10                     | M 12   | 19               | 20         |
| FH II 18/25 S | 044894            | —               | ●        | ●   | C1 / C2            | 18                  | 130                                       | 132           | 25                     | M 12   | 19               | 20         |
| FH II 18/25 S | —                 | 510929          | ●        | ●   | C1 / C2            | 18                  | 130                                       | 133           | 25                     | M 12   | 19               | 10         |
| FH II 18/50 S | 044896            | —               | ●        | ●   | C1 / C2            | 18                  | 155                                       | 157           | 50                     | M 12   | 19               | 20         |
| FH II 24/25 S | 044898            | —               | ●        | ●   | C1 / C2            | 24                  | 150                                       | 160           | 25                     | M 16   | 24               | 10         |
| FH II 24/25 S | —                 | 502711          | ●        | ●   | C1 / C2            | 24                  | 150                                       | 160           | 25                     | M 16   | 24               | 8          |
| FH II 24/50 S | 044900            | —               | ●        | ●   | C1 / C2            | 24                  | 175                                       | 185           | 50                     | M 16   | 24               | 10         |
| FH II 28/30 S | 044901            | —               | ●        | ●   | C1 / C2            | 28                  | 185                                       | 192           | 30                     | M 20   | 30               | 4          |
| FH II 28/60 S | 044902            | —               | ●        | ●   | C1 / C2            | 28                  | 215                                       | 222           | 60                     | M 20   | 30               | 4          |
| FH II 32/30 S | 044903            | —               | ●        | ●   | C1 / C2            | 32                  | 210                                       | 215           | 30                     | M 24   | 36               | 4          |
| FH II 32/60 S | 044904            | —               | ●        | ●   | C1 / C2            | 32                  | 240                                       | 245           | 60                     | M 24   | 36               | 4          |





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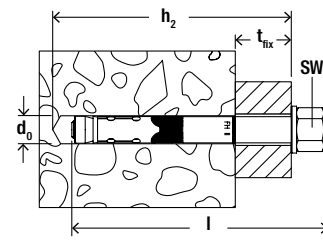
## Technical data

### High performance anchor FH II-SK



FH II-SK with countersunk head

|                | Zinc-plated steel | Stainless steel | Approval |     | Seis-mic-Ap-proval | Drill hole diameter    | Min. drill hole depth for through fixings | Anchor length | Max. fixture thickness   | Thread | Width across nut (hexagon socket) | Sales unit |
|----------------|-------------------|-----------------|----------|-----|--------------------|------------------------|-------------------------------------------|---------------|--------------------------|--------|-----------------------------------|------------|
|                | Item No.          | Item No.        |          |     |                    | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                    | l<br>[mm]     | t <sub>fix</sub><br>[mm] | M      | SW<br>[mm]                        | [pcs]      |
| Item           | gvz               | R               | ETA      | ICC |                    |                        |                                           |               |                          |        |                                   |            |
| FH II 10/15 SK | 503136            | —               | ●        | —   | —                  | 10                     | 70                                        | 65            | 15                       | M 6    | 4                                 | 50         |
| FH II 10/25 SK | 503137            | —               | ●        | —   | —                  | 10                     | 80                                        | 75            | 25                       | M 6    | 4                                 | 50         |
| FH II 10/50 SK | 503138            | —               | ●        | —   | —                  | 10                     | 105                                       | 100           | 50                       | M 6    | 4                                 | 50         |
| FH II 12/15 SK | 044917            | 510931          | ●        | —   | C1 / C2            | 12                     | 95                                        | 90            | 15                       | M 8    | 5                                 | 25         |
| FH II 12/25 SK | 044918            | —               | ●        | —   | C1 / C2            | 12                     | 105                                       | 100           | 25                       | M 8    | 5                                 | 25         |
| FH II 12/30 SK | —                 | 510932          | ●        | —   | C1 / C2            | 12                     | 110                                       | 105           | 30                       | M 8    | 5                                 | 25         |
| FH II 12/50 SK | 044919            | 510933          | ●        | —   | C1 / C2            | 12                     | 130                                       | 125           | 50                       | M 8    | 5                                 | 25         |
| FH II 15/15 SK | 044920            | 510934          | ●        | ●   | C1 / C2            | 15                     | 105                                       | 100           | 15                       | M 10   | 6                                 | 25         |
| FH II 15/25 SK | 044921            | —               | ●        | ●   | C1 / C2            | 15                     | 115                                       | 110           | 25                       | M 10   | 6                                 | 25         |
| FH II 15/50 SK | 044922            | —               | ●        | ●   | C1 / C2            | 15                     | 140                                       | 135           | 50                       | M 10   | 6                                 | 25         |
| FH II 18/15 SK | 044923            | —               | ●        | ●   | C1 / C2            | 18                     | 120                                       | 115           | 15                       | M 12   | 8                                 | 20         |
| FH II 18/25 SK | 044924            | —               | ●        | ●   | C1 / C2            | 18                     | 130                                       | 125           | 25                       | M 12   | 8                                 | 20         |
| FH II 18/30 SK | —                 | 510935          | ●        | ●   | C1 / C2            | 18                     | 135                                       | 130           | 30                       | M 12   | 8                                 | 20         |
| FH II 18/50 SK | 044925            | —               | ●        | ●   | C1 / C2            | 18                     | 155                                       | 150           | 50                       | M 12   | 8                                 | 20         |



## 1

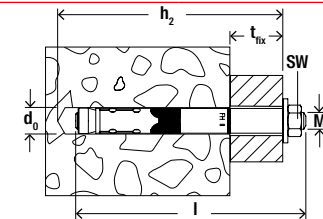
## Technical data

## High performance anchor FH II-H



FH II-H with cap nut

|               | Zinc-plated steel | Approval |     | Seismic-Approval | Drill hole diameter    | Min. drill hole depth for through fixings | Anchor length | Max. fixture thickness   | Thread | Width across nut | Sales unit |
|---------------|-------------------|----------|-----|------------------|------------------------|-------------------------------------------|---------------|--------------------------|--------|------------------|------------|
|               | Item No.          |          |     |                  | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                    | l<br>[mm]     | t <sub>fix</sub><br>[mm] | M      | SW<br>[mm]       | [pcs]      |
| Item          | gvz               | ETA      | ICC |                  |                        |                                           |               |                          |        |                  |            |
| FH II 10/10 H | 503139            | ●        | —   | —                | 10                     | 65                                        | 75            | 10                       | M 6    | 13               | 50         |
| FH II 10/25 H | 503140            | ●        | —   | —                | 10                     | 80                                        | 90            | 25                       | M 6    | 13               | 50         |
| FH II 10/50 H | 503141            | ●        | —   | —                | 10                     | 105                                       | 115           | 50                       | M 6    | 13               | 50         |
| FH II 12/10 H | 044905            | ●        | —   | C1 / C2          | 12                     | 90                                        | 100           | 10                       | M 8    | 17               | 50         |
| FH II 12/25 H | 044906            | ●        | —   | C1 / C2          | 12                     | 105                                       | 115           | 25                       | M 8    | 17               | 50         |
| FH II 12/50 H | 044907            | ●        | —   | C1 / C2          | 12                     | 130                                       | 140           | 50                       | M 8    | 17               | 25         |
| FH II 15/10 H | 044908            | ●        | ●   | C1 / C2          | 15                     | 100                                       | 115           | 10                       | M 10   | 17               | 25         |
| FH II 15/25 H | 044909            | ●        | ●   | C1 / C2          | 15                     | 115                                       | 130           | 25                       | M 10   | 17               | 25         |
| FH II 15/50 H | 044910            | ●        | ●   | C1 / C2          | 15                     | 140                                       | 155           | 50                       | M 10   | 17               | 25         |
| FH II 18/25 H | 044915            | ●        | ●   | C1 / C2          | 18                     | 130                                       | 145           | 25                       | M 12   | 19               | 20         |
| FH II 18/50 H | 044916            | ●        | ●   | C1 / C2          | 18                     | 155                                       | 170           | 50                       | M 12   | 19               | 20         |



## Technical data

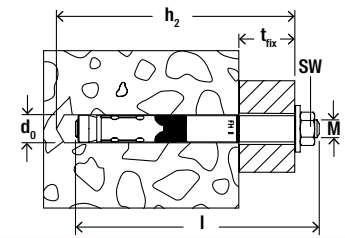
## High performance anchor FH II-B



FH II-B with hexagon nut and threaded bolt

|                | Zinc-plated steel | Approval |     | Seismic-Approval | Drill hole diameter    | Min. drill hole depth for through fixings | Anchor length | Max. fixture thickness   | Thread | Width across nut | Sales unit |
|----------------|-------------------|----------|-----|------------------|------------------------|-------------------------------------------|---------------|--------------------------|--------|------------------|------------|
|                | Item No.          |          |     |                  | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                    | l<br>[mm]     | t <sub>fix</sub><br>[mm] | M      | SW<br>[mm]       | [pcs]      |
| Item           | gvz               | ETA      | ICC |                  |                        |                                           |               |                          |        |                  |            |
| FH II 10/10 B  | 503142            | ●        | —   | —                | 10                     | 65                                        | 70            | 10                       | M 6    | 10               | 50         |
| FH II 10/25 B  | 503143            | ●        | —   | —                | 10                     | 80                                        | 75            | 25                       | M 6    | 10               | 50         |
| FH II 10/50 B  | 503144            | ●        | —   | —                | 10                     | 105                                       | 110           | 50                       | M 6    | 10               | 50         |
| FH II 12/10 B  | 048773            | ●        | ●   | C1 / C2          | 12                     | 90                                        | 95            | 10                       | M 8    | 13               | 50         |
| FH II 12/100 B | 046832            | ●        | ●   | C1 / C2          | 12                     | 180                                       | 185           | 100                      | M 8    | 13               | 25         |
| FH II 12/25 B  | 048774            | ●        | ●   | C1 / C2          | 12                     | 105                                       | 110           | 25                       | M 8    | 13               | 50         |
| FH II 12/50 B  | 048775            | ●        | ●   | C1 / C2          | 12                     | 130                                       | 135           | 50                       | M 8    | 13               | 25         |
| FH II 15/10 B  | 048776            | ●        | ●   | C1 / C2          | 15                     | 100                                       | 110           | 10                       | M 10   | 17               | 25         |

1) Delivery time on request.



## Technical data

### High performance anchor FH II-B



FH II-B with hexagon nut and threaded bolt

|                | Zinc-plated steel    | Approval |     | Seismic-Approval | Drill hole diameter | Min. drill hole depth for through fixings | Anchor length | Max. fixture thickness | Thread | Width across nut | Sales unit |
|----------------|----------------------|----------|-----|------------------|---------------------|-------------------------------------------|---------------|------------------------|--------|------------------|------------|
|                | Item No.             |          |     |                  | $d_0$<br>[mm]       | $h_2$<br>[mm]                             | $l$<br>[mm]   | $t_{fix}$<br>[mm]      | M      | SW<br>[mm]       | [pcs]      |
| Item           | gvz                  | ETA      | ICC |                  |                     |                                           |               |                        |        |                  |            |
| FH II 15/100 B | 046835               | ●        | ●   | C1 / C2          | 15                  | 190                                       | 200           | 100                    | M 10   | 17               | 20         |
| FH II 15/25 B  | 048777               | ●        | ●   | C1 / C2          | 15                  | 115                                       | 125           | 25                     | M 10   | 17               | 25         |
| FH II 15/50 B  | 048778               | ●        | ●   | C1 / C2          | 15                  | 140                                       | 150           | 50                     | M 10   | 17               | 25         |
| FH II 18/100 B | 046841               | ●        | ●   | C1 / C2          | 18                  | 205                                       | 215           | 100                    | M 12   | 19               | 10         |
| FH II 18/25 B  | 048779               | ●        | ●   | C1 / C2          | 18                  | 130                                       | 140           | 25                     | M 12   | 19               | 20         |
| FH II 18/50 B  | 048780               | ●        | ●   | C1 / C2          | 18                  | 155                                       | 165           | 50                     | M 12   | 19               | 20         |
| FH II 24/100 B | 046842               | ●        | ●   | C1 / C2          | 24                  | 225                                       | 242           | 100                    | M 16   | 24               | 5          |
| FH II 24/25 B  | 048886               | ●        | ●   | C1 / C2          | 24                  | 150                                       | 167           | 25                     | M 16   | 24               | 10         |
| FH II 24/50 B  | 048887               | ●        | ●   | C1 / C2          | 24                  | 175                                       | 192           | 50                     | M 16   | 24               | 10         |
| FH II 28/100 B | 506630 <sup>1)</sup> | ●        | ●   | —                | 28                  | 255                                       | 271           | 100                    | M 20   | 30               | 4          |
| FH II 28/30 B  | 047547               | ●        | ●   | C1 / C2          | 28                  | 185                                       | 199           | 30                     | M 20   | 30               | 4          |
| FH II 28/60 B  | 047548               | ●        | ●   | C1 / C2          | 28                  | 215                                       | 229           | 60                     | M 20   | 30               | 4          |
| FH II 32/30 B  | 047549               | ●        | ●   | C1 / C2          | 32                  | 210                                       | 231           | 30                     | M 24   | 36               | 4          |
| FH II 32/60 B  | 047550               | ●        | ●   | C1 / C2          | 32                  | 240                                       | 261           | 60                     | M 24   | 36               | 4          |

1) Delivery time on request.



# High performance anchor FH II-I

Strong, secure and aesthetic with internal thread for the removal option of the attachment.



Stadium seating



Air conditioning units

## Applications

- Steel constructions
- Guard rails
- Consoles
- Ladders
- Cable trays
- Machines
- Staircases
- Pipeline routes
- Ventilation systems
- Sprinkler systems

## Advantages

- The international approvals guarantee maximum safety and the best performance.
- The internal threaded anchor allows the removal of the attachment and the fixing point can be reused.
- The design between the bolt and the sleeve ensures high shear load-bearing capacity. Thus, fewer fixing points are

required.

- The optimised geometry intelligently reduces the energy required for assembly.
- The approval regulates the use of hollow drills.

## Certificates



ETA-07/0025, for cracked concrete



Fire resistance classification R120



INOX STAINLESS STEEL



M8 - M12

## Building materials

Approved for:

- Concrete C20/25 to C50/60, cracked and non-cracked

Also suitable for:

- Concrete C12/15
- Natural stone with dense structure

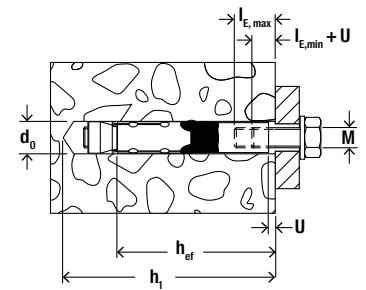
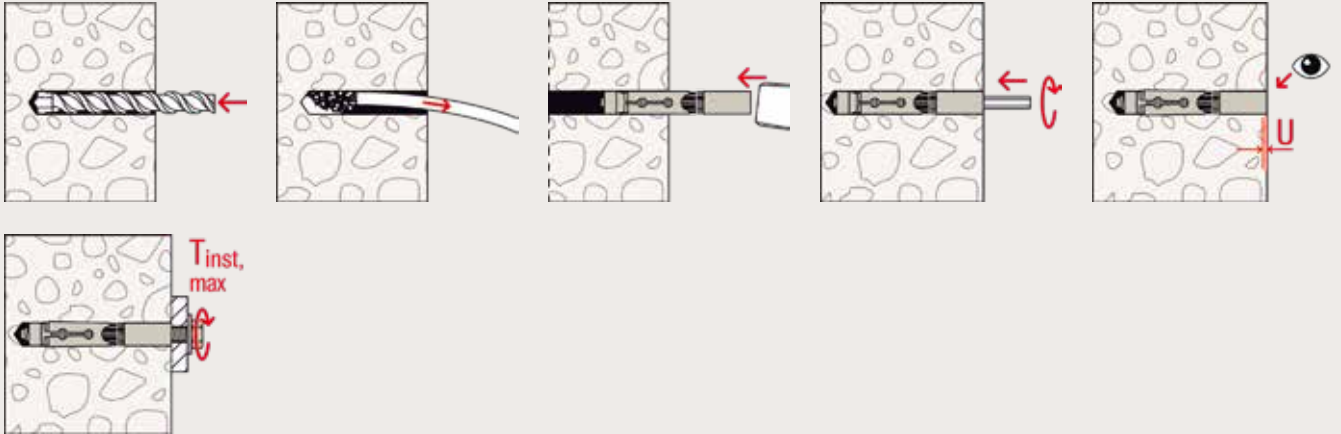
## Versions

- Zinc-plated steel
- Stainless steel R

## Functioning

- The FH II-I is suitable for pre-positioned installation.
- When a hexagon wrench is used for installation, the internal thread bolt starts to rotate. This pulls the cone into the expansion sleeve and expands it against the drill-hole wall. At the same time, the anchor is tightened through compression of the black plastic ring. A gap U to the concrete surface is created (see image 4).
- The anchor is set according to the approval when the gap U is 3-5 mm. Alternatively, an installation torque of  $T_{inst}$  can also be applied.

## Installation FH II-I



## Technical data

## High performance anchor FH II-I



FH II-I

|                | Zinc plated, steel grade 8.8 | Stainless steel | Approval | Drill hole diameter | Min. drill hole depth for pre-positioned installation | Anchor length | Thread | Min. bolt penetration | Max. bolt penetration | Sales unit |
|----------------|------------------------------|-----------------|----------|---------------------|-------------------------------------------------------|---------------|--------|-----------------------|-----------------------|------------|
| Item           | Item No. gvz                 | Item No. R      | ETA      | $d_0$ [mm]          | $h_1$ [mm]                                            | $l$ [mm]      | M      | $l_{E,min}$ [mm]      | $l_{E,max}$ [mm]      | [pcs]      |
| FH II 12/M6 I  | 520358                       | 520360          | ●        | 12                  | 85                                                    | 77.5          | M 6    | 11 + U                | 25                    | 25         |
| FH II 12/M8 I  | 520359                       | 520361          | ●        | 12                  | 85                                                    | 77.5          | M 8    | 13 + U                | 25                    | 25         |
| FH II 15/M10 I | 519014                       | 519018          | ●        | 15                  | 95                                                    | 90            | M 10   | 10 + U                | 25                    | 25         |
| FH II 15/M12 I | 519015                       | 519019          | ●        | 15                  | 95                                                    | 90            | M 12   | 12 + U                | 25                    | 20         |

## Technical data

## Setting tool FH II-I



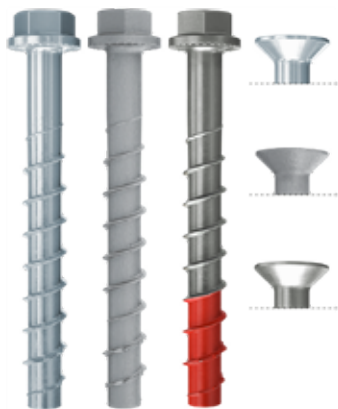
Setting tool FH II-I

| Item                        | Item No. | Matching anchor type           | Sales unit [pcs] |
|-----------------------------|----------|--------------------------------|------------------|
| Setting tool FH II-I M6-M10 | 532780   | FH II 12/M6 I, FH II 15/M 10 I | 10               |
| Setting tool FH II-I M8-M12 | 532781   | FH II 12/M8 I, FH II 15/M 12 I | 10               |

# Concrete screw UltraCut FBS II 8-14

The high-performance concrete screw for absolute installation ease.

1



Banisters



Inclined supports

## Applications

- Guard rails
- Consoles/base plates
- Metal profiles
- Steel constructions
- Façades
- Protection barriers
- Results/beam anchors
- Shuttering props (only FBS II zinc-plated steel)
- Temporary anchoring, e.g. of building site equipment (only FBS II zinc-plated steel)
- Concrete-concrete connections (e.g. strengthening of bridges, parking garages or renovation of buildings)

## Advantages

- Unique saw-tooth geometry cuts quickly into the building material.
- The concrete screw FBS II 8-10 in zinc-plated steel and stainless steel R has an ETA for masonry brick (EN771-1), solid sand-lime brick (EN771-2) and perforated sand-lime brick (EN771-2) for a flexible use in different substrates.
- The performance categories seismic C1 and C2 ensure that the strictest of safety standards and earthquake specifications

can be fulfilled.

- The high coating quality of the FBS II CP is proved through the salt spray chamber test over 2,000h.
- For the zinc-plated steel version the checking gauge allows for reuse covered by the approval.
- The specially hardened red tip of the stainless steel R version provides faster and more secure installation.

## Certificates



ETA-17/0740, in cracked concrete  
ETA-15/0352, in concrete  
ETA-20/0134, in masonry  
ETA-20/0321, for strengthening of existing concrete structures by concrete overlay



## Building materials

Approved for:

- Concrete C20/25 to C50/60, cracked and non-cracked
- Applies only for Ø 8 - Ø 10: Strengthening of existing concrete structures with top layer concrete
- Masonry brick (EN771-1), solid sand-lime brick (EN771-2) and perforated sand-lime brick (EN771-2)

Also suitable for:

- Concrete C12/15
- Solid building materials
- Masonry with dense structure

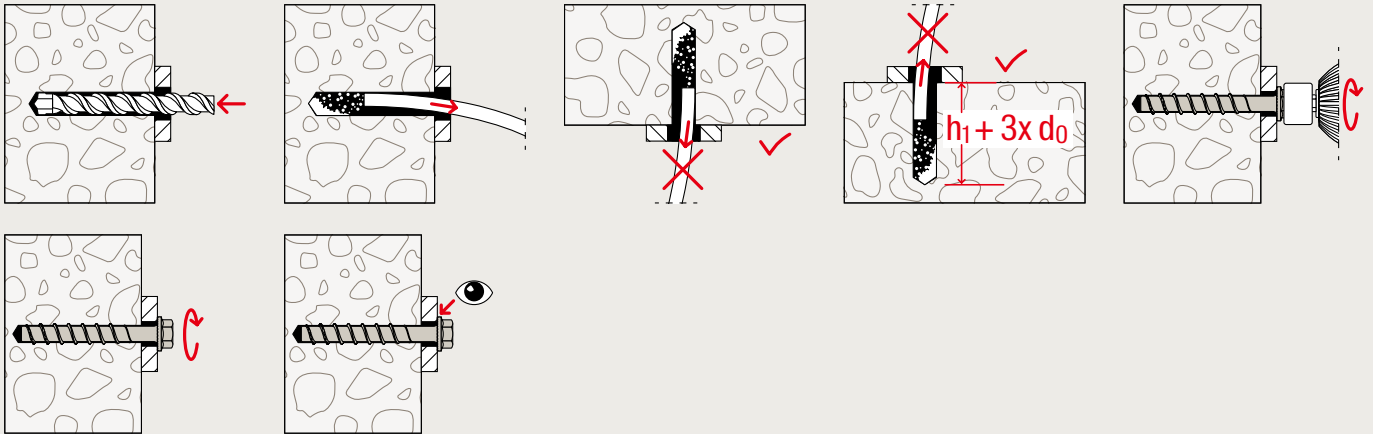
## Versions

- Zinc-plated steel
- Stainless steel R
- Corrosion protection coating (CP)

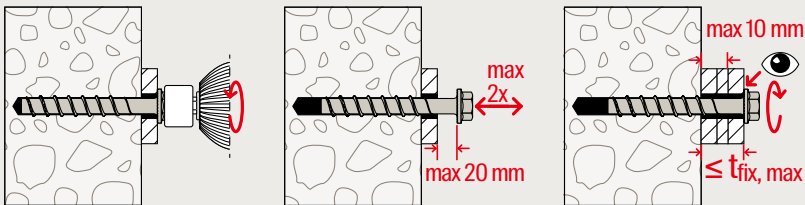
## Functioning

- The UltraCut FBSII is recommended for the push-through installation.
- Drill holes do not need to be cleaned during vertical installation (ceiling and floor). For floor fixings the hole must be drilled 3xdrill hole diameter deeper.
- The approved adjustment for the concrete screws allows the screw to be unscrewed twice for a total length of 20 mm, to place maximum 10 mm packing below the base plates or to align the attached part.
- The screw is installed correctly when the screw head sits flush on the fixture (visual setting control).
- For the installation of restructuring of existing concrete structures by concrete overlay, the setting tool SC-ST can be used for a faster installation.

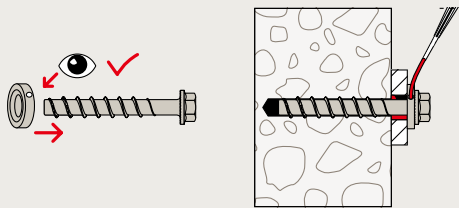
## Installation UltraCut FBS II in concrete



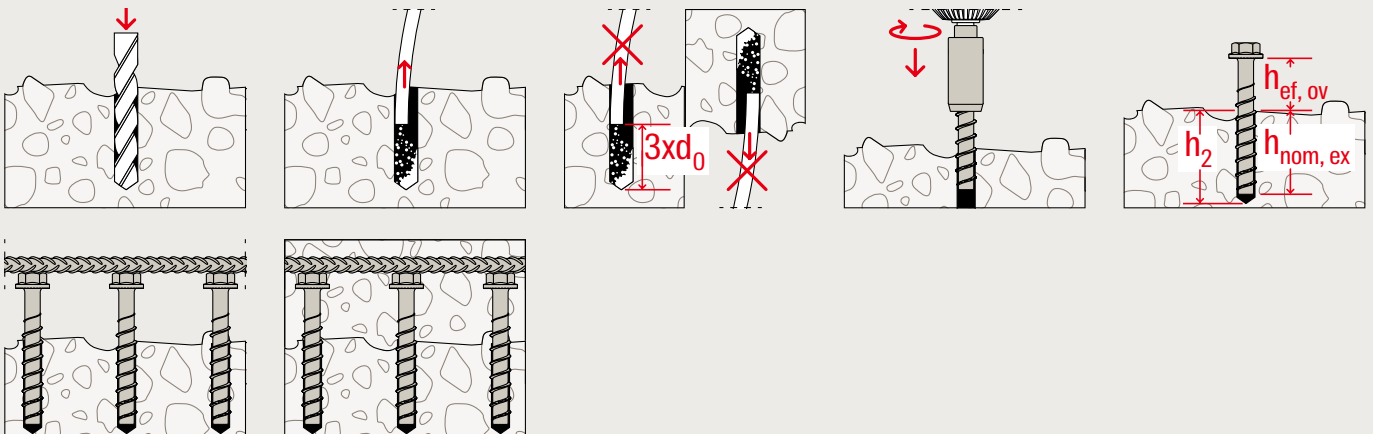
## Fixture adjustment



## Annular gap filling for seismic applications

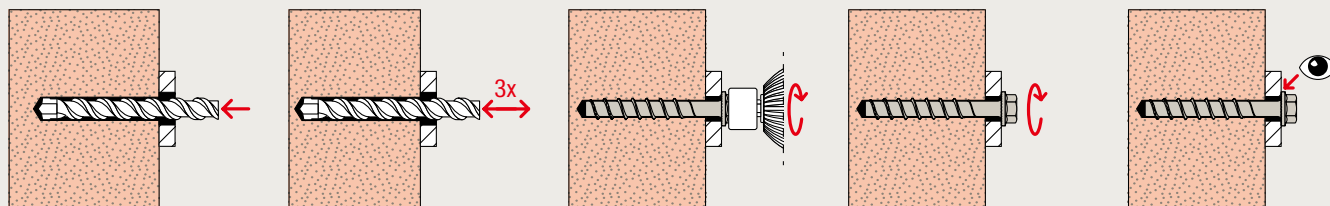


## Installation UltraCut FBS II (concrete-concrete connection)

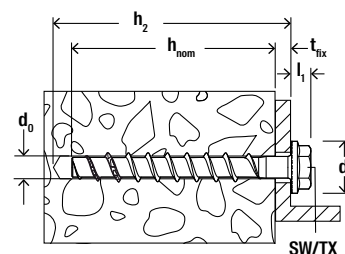
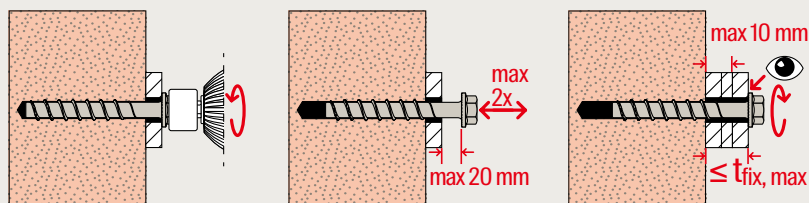




## Installation UltraCut FBS II in masonry



## Fixture adjustment



## Technical data

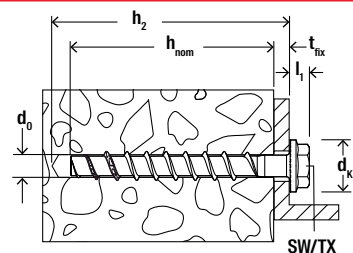
## Concrete screw UltraCut FBS II US



FBS II US

FBS II US CP

|                              | Galvani-<br>sized steel | Corrosion<br>protection<br>coating | Approval |      | Drill diameter         | Screw dimen-<br>sion                    | Screw-in depth<br>with fixture<br>thickness  | Screw-in depth<br>with fixture<br>thickness  | Screw-in depth<br>with fixture<br>thickness  | Drive        | Sales unit |
|------------------------------|-------------------------|------------------------------------|----------|------|------------------------|-----------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|--------------|------------|
|                              | Item no.                | Item no.                           | ETA      | DIBt | d <sub>0</sub><br>[mm] | d <sub>s</sub> x l <sub>s</sub><br>[mm] | h <sub>nom1</sub> / t <sub>fix</sub><br>[mm] | h <sub>nom2</sub> / t <sub>fix</sub><br>[mm] | h <sub>nom3</sub> / t <sub>fix</sub><br>[mm] |              | [pcs]      |
| Item                         | gvz                     | cp                                 |          |      |                        |                                         |                                              |                                              |                                              |              |            |
| FBS II 8x55 5/- US TX        | 536851                  | 557781                             | ●        | ●    | 8                      | 10.0 x 55                               | 50 / 5                                       | –                                            | –                                            | TX40 / SW 13 | 50         |
| FBS II 8x70 20/5 US TX       | 536852                  | 557782                             | ●        | ●    | 8                      | 10.0 x 70                               | 50 / 20                                      | -                                            | 65 / 5                                       | TX40 / SW 13 | 50         |
| FBS II 8x80 30/15 US TX      | 536853                  | –                                  | ●        | ●    | 8                      | 10.0 x 80                               | 50 / 30                                      | -                                            | 65 / 15                                      | TX40 / SW 13 | 50         |
| FBS II 8x80 30/15 US TX      | –                       | 557783                             | ●        | ●    | 8                      | 10.0 x 80                               | 50 / 30                                      | –                                            | 65 / 65                                      | TX40 / SW 13 | 50         |
| FBS II 8x90 40/25 US TX      | 536854                  | 557784                             | ●        | ●    | 8                      | 10.0 x 90                               | 50 / 40                                      | -                                            | 65 / 55                                      | TX40 / SW 13 | 50         |
| FBS II 8x100 50/35 US TX     | 536855                  | 557785                             | ●        | ●    | 8                      | 10.0 x 100                              | 50 / 50                                      | -                                            | 65 / 35                                      | TX40 / SW 13 | 50         |
| FBS II 8x110 60/45 US TX     | 536856                  | –                                  | ●        | ●    | 8                      | 10.0 x 110                              | 50 / 60                                      | -                                            | 65 / 75                                      | TX40 / SW 13 | 50         |
| FBS II 8x130 80/65 US TX     | 536857                  | –                                  | ●        | ●    | 8                      | 10.0 x 130                              | 50 / 80                                      | -                                            | –                                            | TX40 / SW 13 | 50         |
| FBS II 8x150 100/85 US TX    | 558219                  | –                                  | ●        | ●    | 8                      | 10.0 x 150                              | 50 / 100                                     | –                                            | 65 / 85                                      | TX40 / SW 13 | 50         |
| FBS II 8x170 120/105 US TX   | 558220                  | –                                  | ●        | ●    | 8                      | 10.0 x 170                              | 50 / 120                                     | –                                            | 65 / 105                                     | TX40 / SW 13 | 50         |
| FBS II 8x190 140/125 US TX   | 558221                  | –                                  | ●        | ●    | 8                      | 10.0 x 190                              | 50 / 140                                     | –                                            | 65 / 125                                     | TX40 / SW 13 | 20         |
| FBS II 10x60 5/-/- US        | 536858                  | 557786                             | ●        | ●    | 10                     | 12.0 x 60                               | 55 / 5                                       | –                                            | –                                            | SW 15        | 50         |
| FBS II 10x70 15/5/- US       | 536859                  | 557787                             | ●        | ●    | 10                     | 12.0 x 70                               | 55 / 15                                      | 65 / 5                                       | –                                            | SW 15        | 50         |
| FBS II 10x80 25/15/- US      | 536860                  | 557788                             | ●        | ●    | 10                     | 12.0 x 80                               | 55 / 25                                      | 65 / 65                                      | –                                            | SW 15        | 50         |
| FBS II 10x90 35/25/5 US      | 536861                  | 557789                             | ●        | ●    | 10                     | 12.0 x 90                               | 55 / 35                                      | 65 / 55                                      | 85 / 5                                       | SW 15        | 50         |
| FBS II 10x100 45/35/15 US    | 536862                  | 557790                             | ●        | ●    | 10                     | 12.0 x 100                              | 55 / 45                                      | 65 / 35                                      | 85 / 15                                      | SW 15        | 50         |
| FBS II 10x120 65/55/35 US    | 536863                  | 557791                             | ●        | ●    | 10                     | 12.0 x 120                              | 55 / 65                                      | 65 / 25                                      | 85 / 35                                      | SW 15        | 50         |
| FBS II 10x140 85/75/55 US    | 536864                  | 557792                             | ●        | ●    | 10                     | 12.0 x 140                              | 55 / 85                                      | 65 / 45                                      | 85 / 55                                      | SW 15        | 50         |
| FBS II 10x160 105/95/75 US   | 536865                  | 557793                             | ●        | ●    | 10                     | 12.0 x 160                              | 55 / 105                                     | 65 / 15                                      | 85 / 75                                      | SW 15        | 50         |
| FBS II 10x200 145/135/115 US | 536866                  | –                                  | ●        | ●    | 10                     | 12.0 x 200                              | 55 / 145                                     | 65 / 135                                     | 85 / 115                                     | SW 15        | 20         |



## Technical data

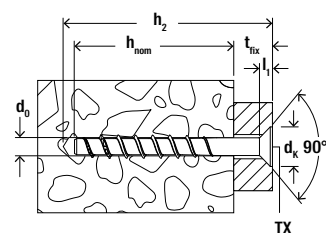
## Concrete screw UltraCut FBS II US



FBS II US

FBS II US CP

| Item                         | Galvani-<br>sed steel | Corrosion<br>protection<br>coating | Approval |      | Drill diameter | Screw dimen-<br>sion     | Screw-in depth<br>with fixture<br>thickness | Screw-in depth<br>with fixture<br>thickness | Screw-in depth<br>with fixture<br>thickness | Drive | Sales unit |
|------------------------------|-----------------------|------------------------------------|----------|------|----------------|--------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|-------|------------|
|                              | Item no.<br>gvz       | Item no.<br>cp                     | ETA      | DIBt | $d_0$<br>[mm]  | $d_s \times l_s$<br>[mm] | $h_{nom1} / t_{fix}$<br>[mm]                | $h_{nom2} / t_{fix}$<br>[mm]                | $h_{nom3} / t_{fix}$<br>[mm]                |       | [pcs]      |
| FBS II 10x230 175/165/145 US | 536867                | –                                  | ●        | ●    | 10             | 12.0 x 230               | 55 / 175                                    | 65 / 165                                    | 85 / 145                                    | SW 15 | 20         |
| FBS II 10x260 205/195/175 US | 536868                | –                                  | ●        | ●    | 10             | 12.0 x 260               | 55 / 205                                    | 65 / 95                                     | 85 / 175                                    | SW 15 | 20         |
| FBS II 10x280 225/215/195 US | 558222                | –                                  | ●        | ●    | 10             | 12.0 x 280               | 55 / 225                                    | 65 / 215                                    | 85 / 195                                    | SW 15 | 20         |
| FBS II 12x70 10/-/- US       | 536869                | –                                  | ●        | ●    | 12             | 14.0 x 70                | 60 / 10                                     | –                                           | –                                           | SW 17 | 20         |
| FBS II 12x85 25/10/- US      | 536870                | 557794                             | ●        | ●    | 12             | 14.0 x 85                | 60 / 25                                     | 75 / 10                                     | –                                           | SW 17 | 20         |
| FBS II 12x110 50/35/10 US    | 536871                | 557795                             | ●        | ●    | 12             | 14.0 x 110               | 60 / 50                                     | 75 / 35                                     | 100 / 10                                    | SW 17 | 20         |
| FBS II 12x130 70/55/30 US    | 536872                | –                                  | ●        | ●    | 12             | 14.0 x 130               | 60 / 70                                     | 75 / 55                                     | 100 / 30                                    | SW 17 | 20         |
| FBS II 12x150 90/75/50 US    | 536873                | –                                  | ●        | ●    | 12             | 14.0 x 150               | 60 / 90                                     | 75 / 75                                     | 100 / 50                                    | SW 17 | 20         |
| FBS II 12x170 110/95/70 US   | 558223                | –                                  | ●        | ●    | 12             | 14.0 x 170               | 60 / 110                                    | 75 / 95                                     | 100 / 70                                    | SW 17 | 20         |
| FBS II 12x190 130/115/90 US  | 558224                | –                                  | ●        | ●    | 12             | 14.0 x 190               | 60 / 130                                    | 75 / 115                                    | 100 / 90                                    | SW 17 | 20         |
| FBS II 12x210 150/135/110 US | 558225                | –                                  | ●        | ●    | 12             | 14.0 x 210               | 60 / 150                                    | 75 / 135                                    | 100 / 110                                   | SW 17 | 20         |
| FBS II 14x75 10/-/- US       | 536874                | 557796                             | ●        | ●    | 14             | 16.0 x 75                | 65 / 10                                     | –                                           | –                                           | SW 21 | 20         |
| FBS II 14x95 30/10/- US      | 536875                | 557797                             | ●        | ●    | 14             | 16.0 x 95                | 65 / 30                                     | 85 / 10                                     | –                                           | SW 21 | 20         |
| FBS II 14x100 35/15/- US     | 536876                | 557798                             | ●        | ●    | 14             | 16.0 x 100               | 65 / 35                                     | 85 / 15                                     | –                                           | SW 21 | 20         |
| FBS II 14x125 60/40/10 US    | 536877                | 557799                             | ●        | ●    | 14             | 16.0 x 125               | 65 / 60                                     | 85 / 40                                     | 85 / 5                                      | SW 21 | 10         |
| FBS II 14x150 85/65/35 US    | 536878                | –                                  | ●        | ●    | 14             | 16.0 x 150               | 65 / 85                                     | 85 / 65                                     | 115 / 35                                    | SW 21 | 10         |
| FBS II 14x180 115/85/65 US   | 558226                | –                                  | ●        | ●    | 14             | 16.0 x 180               | 65 / 115                                    | 85 / 95                                     | 115 / 65                                    | SW 21 | 10         |
| FBS II 14x210 145/125/95 US  | 558227                | –                                  | ●        | ●    | 14             | 16.0 x 210               | 65 / 145                                    | 85 / 125                                    | 115 / 95                                    | SW 21 | 10         |
| FBS II 14x240 175/155/125 US | 558228                | –                                  | ●        | ●    | 14             | 16.0 x 240               | 65 / 175                                    | 85 / 155                                    | 115 / 125                                   | SW 21 | 10         |



## Technical data

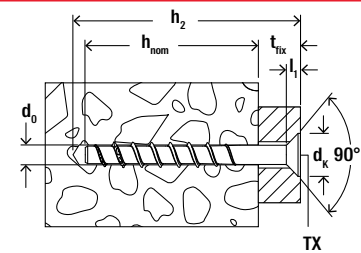
## Concrete screw UltraCut FBS II SK



FBS II SK

FBS II SK CP

| Item                 | Galvani-<br>sed steel | Corrosion<br>protection<br>coating | Approval |      | Drill diameter | Screw dimen-<br>sion     | Screw-in depth<br>with fixture<br>thickness | Screw-in depth<br>with fixture<br>thickness | Screw-in depth<br>with fixture<br>thickness | Drive | Sales unit |
|----------------------|-----------------------|------------------------------------|----------|------|----------------|--------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|-------|------------|
|                      | Item no.<br>gvz       | Item no.<br>cp                     | ETA      | DIBt | $d_0$<br>[mm]  | $d_s \times l_s$<br>[mm] | $h_{nom1} / t_{fix}$<br>[mm]                | $h_{nom2} / t_{fix}$<br>[mm]                | $h_{nom3} / t_{fix}$<br>[mm]                |       | [pcs]      |
| FBS II 8x60 10/- SK  | 536880                | 557800                             | ●        | ●    | 8              | 10.0 x 60                | 50 / 10                                     | –                                           | –                                           | TX40  | 50         |
| FBS II 8x80 30/15 SK | 536881                | –                                  | ●        | ●    | 8              | 10.0 x 80                | 50 / 30                                     | –                                           | 65 / 15                                     | TX40  | 50         |
| FBS II 8x80 30/15 SK | –                     | 557801                             | ●        | ●    | 8              | 10.0 x 80                | 50 / 30                                     | 65 / 65                                     | 65 / 15                                     | TX40  | 50         |



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## Technical data

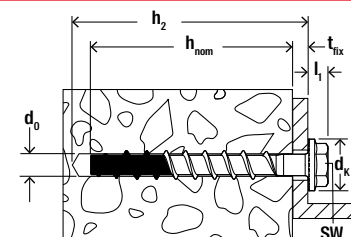
## Concrete screw UltraCut FBS II SK



FBS II SK

FBS II SK CP

| Item                        | Galvani-<br>sed steel | Corrosion<br>protection<br>coating | Approval |      | Drill diameter         | Screw dimen-<br>sion                    | Screw-in depth<br>with fixture<br>thickness  | Screw-in depth<br>with fixture<br>thickness  | Screw-in depth<br>with fixture<br>thickness  | Drive | Sales unit |
|-----------------------------|-----------------------|------------------------------------|----------|------|------------------------|-----------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|-------|------------|
|                             | Item no.<br>gvz       | Item no.<br>cp                     | ETA      | DIBt | d <sub>0</sub><br>[mm] | d <sub>s</sub> x l <sub>s</sub><br>[mm] | h <sub>nom1</sub> / t <sub>fix</sub><br>[mm] | h <sub>nom2</sub> / t <sub>fix</sub><br>[mm] | h <sub>nom3</sub> / t <sub>fix</sub><br>[mm] |       | [pcs]      |
| FBS II 8x90 40/25 SK        | 536882                | –                                  | ●        | ●    | 8                      | 10.0 x 90                               | 50 / 40                                      | –                                            | 65 / 25                                      | TX40  | 50         |
| FBS II 8x90 40/25 SK        | –                     | 557802                             | ●        | ●    | 8                      | 10.0 x 90                               | 50 / 40                                      | 65 / 55                                      | 65 / 25                                      | TX40  | 50         |
| FBS II 8x100 50/35 SK       | 558229                | –                                  | ●        | ●    | 8                      | 10.0 x 100                              | 50 / 50                                      | –                                            | 65 / 35                                      | TX40  | 50         |
| FBS II 8x110 60/45 SK       | 558230                | –                                  | ●        | ●    | 8                      | 10.0 x 110                              | 50 / 60                                      | –                                            | 65 / 45                                      | TX40  | 50         |
| FBS II 8x120 70/55 SK       | 558231                | –                                  | ●        | ●    | 8                      | 10.0 x 120                              | 50 / 70                                      | –                                            | 65 / 55                                      | TX40  | 50         |
| FBS II 8x140 90/75 SK       | 558232                | –                                  | ●        | ●    | 8                      | 10.0 x 140                              | 50 / 90                                      | –                                            | 65 / 75                                      | TX40  | 50         |
| FBS II 8x160 110/95 SK      | 558233                | –                                  | ●        | ●    | 8                      | 10.0 x 160                              | 50 / 110                                     | –                                            | 65 / 95                                      | TX40  | 50         |
| FBS II 8x180 130/115 SK     | 558234                | –                                  | ●        | ●    | 8                      | 10.0 x 180                              | 50 / 130                                     | –                                            | 65 / 115                                     | TX40  | 20         |
| FBS II 8x200 150/135 SK     | 558235                | –                                  | ●        | ●    | 8                      | 10.0 x 200                              | 50 / 150                                     | –                                            | 65 / 135                                     | TX40  | 20         |
| FBS II 10x65 10/-/- SK      | 536884                | 557803                             | ●        | ●    | 10                     | 12.0 x 65                               | 55 / 10                                      | –                                            | –                                            | TX50  | 50         |
| FBS II 10x80 25/15/- SK     | 536885                | 557804                             | ●        | ●    | 10                     | 12.0 x 80                               | 55 / 25                                      | 65 / 15                                      | –                                            | TX50  | 50         |
| FBS II 10x95 40/30/10 SK    | 536886                | –                                  | ●        | ●    | 10                     | 12.0 x 95                               | 55 / 40                                      | 65 / 30                                      | 85 / 10                                      | TX50  | 50         |
| FBS II 10x100 45/35/15 SK   | 536887                | 557805                             | ●        | ●    | 10                     | 12.0 x 100                              | 55 / 45                                      | 65 / 35                                      | 85 / 15                                      | TX50  | 50         |
| FBS II 10x120 65/55/35 SK   | 536888                | –                                  | ●        | ●    | 10                     | 12.0 x 120                              | 55 / 65                                      | 65 / 55                                      | 85 / 35                                      | TX50  | 50         |
| FBS II 10x140 85/75/55 SK   | 558236                | –                                  | ●        | ●    | 10                     | 12.0 x 140                              | 55 / 85                                      | 65 / 75                                      | 85 / 55                                      | TX50  | 50         |
| FBS II 10x160 105/95/75 SK  | 558237                | –                                  | ●        | ●    | 10                     | 12.0 x 160                              | 55 / 105                                     | 65 / 95                                      | 85 / 75                                      | TX50  | 50         |
| FBS II 10x180 125/115/95 SK | 558238                | –                                  | ●        | ●    | 10                     | 12.0 x 180                              | 55 / 125                                     | 65 / 115                                     | 85 / 95                                      | TX50  | 20         |



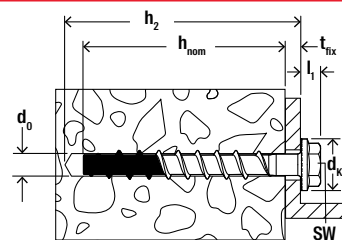
## Technical data

## Concrete screw UltraCut FBS II US R



FBS II US R

| Item                 | Item no. | Ap-<br>pro-<br>val | Drill diameter         | Min. drill hole<br>depth for<br>through fixings | Screw dimen-<br>sion                    | Screw-in depth<br>with fixture<br>thickness  | Screw-in depth<br>with fixture<br>thickness  | Screw-in depth<br>with fixture<br>thickness  | Drive | Sales unit |
|----------------------|----------|--------------------|------------------------|-------------------------------------------------|-----------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|-------|------------|
|                      |          | ETA                | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                          | d <sub>s</sub> x l <sub>s</sub><br>[mm] | h <sub>nom1</sub> / t <sub>fix</sub><br>[mm] | h <sub>nom2</sub> / t <sub>fix</sub><br>[mm] | h <sub>nom3</sub> / t <sub>fix</sub><br>[mm] |       | [pcs]      |
| FBS II 8x60 10/- US  | 543565   | ●                  | 8                      | 70                                              | 10.0 x 60                               | 50 / 10                                      | –                                            | –                                            | SW 13 | 50         |
| FBS II 8x70 20/5 US  | 543566   | ●                  | 8                      | 80                                              | 10.0 x 70                               | 50 / 20                                      | –                                            | 65 / 5                                       | SW 13 | 50         |
| FBS II 8x80 30/15 US | 543567   | ●                  | 8                      | 90                                              | 10.0 x 80                               | 50 / 30                                      | –                                            | 65 / 15                                      | SW 13 | 50         |
| FBS II 8x90 40/25 US | 543568   | ●                  | 8                      | 100                                             | 10.0 x 90                               | 50 / 40                                      | –                                            | 65 / 25                                      | SW 13 | 50         |



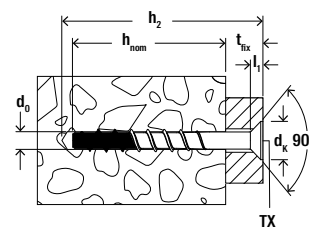
## Technical data

## Concrete screw UltraCut FBS II US R



FBS II US R

| Item                       | Item no. | Ap-<br>pro-<br>val<br>ETA | Drill diameter<br>$d_0$<br>[mm] | Min. drill hole<br>depth for<br>through fixings<br>$h_2$<br>[mm] | Screw dimen-<br>sion<br>$d_s \times l_s$<br>[mm] | Screw-in depth<br>with fixture<br>thickness<br>$h_{nom1} / t_{fix}$<br>[mm] | Screw-in depth<br>with fixture<br>thickness<br>$h_{nom2} / t_{fix}$<br>[mm] | Screw-in depth<br>with fixture<br>thickness<br>$h_{nom3} / t_{fix}$<br>[mm] | Drive | Sales unit<br>[pcs] |
|----------------------------|----------|---------------------------|---------------------------------|------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------|---------------------|
| FBS II 8x100 50/35 US      | 558239   | ●                         | 8                               | 110                                                              | 10.0 x 100                                       | 50 / 50                                                                     | –                                                                           | 65 / 35                                                                     | SW 13 | 50                  |
| FBS II 8x120 70/55 US      | 558240   | ●                         | 8                               | 130                                                              | 10.0 x 120                                       | 50 / 70                                                                     | –                                                                           | 65 / 55                                                                     | SW 13 | 50                  |
| FBS II 8x140 90/75 US      | 558241   | ●                         | 8                               | 150                                                              | 10.0 x 140                                       | 50 / 90                                                                     | –                                                                           | 65 / 75                                                                     | SW 13 | 50                  |
| FBS II 8x160 110/95 US     | 558242   | ●                         | 8                               | 170                                                              | 10.0 x 160                                       | 50 / 110                                                                    | –                                                                           | 65 / 95                                                                     | SW 13 | 50                  |
| FBS II 10x60 5/-/- US      | 543569   | ●                         | 10                              | 70                                                               | 12.0 x 60                                        | 55 / 5                                                                      | –                                                                           | –                                                                           | SW 15 | 50                  |
| FBS II 10x70 15/5/- US     | 543570   | ●                         | 10                              | 80                                                               | 12.0 x 70                                        | 55 / 15                                                                     | 65 / 5                                                                      | –                                                                           | SW 15 | 50                  |
| FBS II 10x80 25/15/- US    | 543571   | ●                         | 10                              | 90                                                               | 12.0 x 80                                        | 55 / 25                                                                     | 65 / 15                                                                     | –                                                                           | SW 15 | 50                  |
| FBS II 10x90 35/25/5 US    | 543572   | ●                         | 10                              | 100                                                              | 12.0 x 90                                        | 55 / 35                                                                     | 65 / 25                                                                     | 85 / 5                                                                      | SW 15 | 50                  |
| FBS II 10x100 45/35/15 US  | 543573   | ●                         | 10                              | 110                                                              | 12.0 x 100                                       | 55 / 45                                                                     | 65 / 35                                                                     | 85 / 15                                                                     | SW 15 | 50                  |
| FBS II 10x120 65/55/35 US  | 543574   | ●                         | 10                              | 130                                                              | 12.0 x 120                                       | 55 / 65                                                                     | 65 / 55                                                                     | 85 / 35                                                                     | SW 15 | 50                  |
| FBS II 10x140 85/75/55 US  | 558243   | ●                         | 10                              | 150                                                              | 12.0 x 140                                       | 55 / 85                                                                     | 65 / 75                                                                     | 85 / 55                                                                     | SW 15 | 50                  |
| FBS II 10x160 105/95/75 US | 558244   | ●                         | 10                              | 170                                                              | 12.0 x 160                                       | 55 / 105                                                                    | 65 / 95                                                                     | 85 / 75                                                                     | SW 15 | 50                  |
| FBS II 12x70 10/-/- US     | 543575   | ●                         | 12                              | 80                                                               | 14.0 x 70                                        | 55 / 85                                                                     | –                                                                           | –                                                                           | SW 17 | 20                  |
| FBS II 12x85 25/10/- US    | 543576   | ●                         | 12                              | 95                                                               | 14.0 x 85                                        | 60 / 25                                                                     | 75 / 10                                                                     | –                                                                           | SW 17 | 20                  |
| FBS II 12x110 50/35/10 US  | 543577   | ●                         | 12                              | 120                                                              | 14.0 x 110                                       | 60 / 50                                                                     | 75 / 35                                                                     | 100 / 10                                                                    | SW 17 | 20                  |
| FBS II 12x130 70/55/30 US  | 543578   | ●                         | 12                              | 140                                                              | 14.0 x 130                                       | 60 / 70                                                                     | 75 / 55                                                                     | 100 / 30                                                                    | SW 17 | 20                  |
| FBS II 12x160 100/85/60 US | 558245   | ●                         | 12                              | 170                                                              | 14.0 x 160                                       | 60 / 100                                                                    | 75 / 95                                                                     | 100 / 60                                                                    | SW 17 | 20                  |



## Technical data

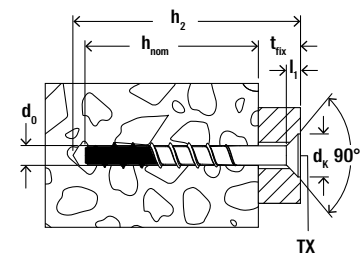
## Concrete screw UltraCut FBS II SK R



FBS II SK R

| Item                    | Item no. | Ap-<br>pro-<br>val<br>ETA | Drill diameter<br>$d_0$<br>[mm] | Min. drill hole<br>depth for<br>through fixings<br>$h_2$<br>[mm] | Screw dimen-<br>sion<br>$d_s \times l_s$<br>[mm] | Screw-in depth<br>with fixture<br>thickness<br>$h_{nom1} / t_{fix}$<br>[mm] | Screw-in depth<br>with fixture<br>thickness<br>$h_{nom2} / t_{fix}$<br>[mm] | Screw-in depth<br>with fixture<br>thickness<br>$h_{nom3} / t_{fix}$<br>[mm] | Drive | Sales unit<br>[pcs] |
|-------------------------|----------|---------------------------|---------------------------------|------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------|---------------------|
| FBS II 8x60 10/- SK     | 543579   | ●                         | 8                               | 70                                                               | 10.0 x 60                                        | 50 / 10                                                                     | –                                                                           | –                                                                           | TX40  | 50                  |
| FBS II 8x80 30/15 SK    | 543580   | ●                         | 8                               | 90                                                               | 10.0 x 80                                        | 50 / 30                                                                     | –                                                                           | 65 / 15                                                                     | TX40  | 50                  |
| FBS II 8x90 40/25 SK    | 543581   | ●                         | 8                               | 100                                                              | 10.0 x 90                                        | 50 / 40                                                                     | –                                                                           | 65 / 25                                                                     | TX40  | 50                  |
| FBS II 8x100 50/35 SK   | 558246   | ●                         | 8                               | 110                                                              | 10.0 x 100                                       | 50 / 50                                                                     | –                                                                           | 65 / 35                                                                     | TX40  | 50                  |
| FBS II 10x65 10/-/- SK  | 543582   | ●                         | 10                              | 75                                                               | 12.0 x 65                                        | 50 / 10                                                                     | –                                                                           | –                                                                           | TX50  | 50                  |
| FBS II 10x80 25/15/- SK | 543583   | ●                         | 10                              | 90                                                               | 12.0 x 80                                        | 55 / 25                                                                     | 65 / 15                                                                     | 65 / 65                                                                     | TX50  | 50                  |





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## Technical data

### Concrete screw UltraCut FBS II SK R



FBS II SK R

|                           |          | Ap-<br>pro-<br>val | Drill diameter         | Min. drill hole<br>depth for<br>through fixings | Screw dimen-<br>sion                    | Screw-in depth<br>with fixture<br>thickness  | Screw-in depth<br>with fixture<br>thickness  | Screw-in depth<br>with fixture<br>thickness  | Drive | Sales unit |
|---------------------------|----------|--------------------|------------------------|-------------------------------------------------|-----------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|-------|------------|
|                           | Item no. | ETA                | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                          | d <sub>s</sub> x l <sub>s</sub><br>[mm] | h <sub>nom1</sub> / t <sub>fix</sub><br>[mm] | h <sub>nom2</sub> / t <sub>fix</sub><br>[mm] | h <sub>nom3</sub> / t <sub>fix</sub><br>[mm] |       | [pcs]      |
| Item                      |          |                    |                        |                                                 |                                         |                                              |                                              |                                              |       |            |
| FBS II 10x95 40/30/10 SK  | 543584   | ●                  | 10                     | 105                                             | 12.0 x 95                               | 55 / 40                                      | 65 / 30                                      | 85 / 10                                      | TX50  | 50         |
| FBS II 10x100 45/35/15 SK | 543585   | ●                  | 10                     | 110                                             | 12.0 x 100                              | 55 / 45                                      | 65 / 35                                      | 85 / 15                                      | TX50  | 50         |
| FBS II 10x120 65/55/35 SK | 543586   | ●                  | 10                     | 130                                             | 12.0 x 120                              | 55 / 65                                      | 65 / 55                                      | 85 / 35                                      | TX50  | 50         |

## Accessories UltraCut FBS II

### Accessories UltraCut FBS II

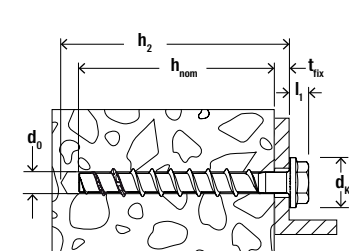


| FUP                     | Nut SW   |          |      | Nut 1/2" - 1/4"                | FMB II TX    | FPB ProfiBit TX 50 5/16"          | SC-ST |                         |
|-------------------------|----------|----------|------|--------------------------------|--------------|-----------------------------------|-------|-------------------------|
|                         |          | Approval |      |                                |              |                                   |       |                         |
|                         | Item no. | ETA      | DIBt | Internal diameter<br>D<br>[mm] | Drive        | Match                             |       | Sales unit<br><br>[pcs] |
| Item                    |          |          |      |                                |              |                                   |       |                         |
| FUP 8                   | 537200   | ●        | –    | 9.9                            | –            | FBS II 8                          |       | 1                       |
| FUP 10                  | 537201   | ●        | ●    | –                              | –            | FBS II 10                         |       | 1                       |
| FUP 12                  | 537202   | ●        | ●    | 13.0                           | –            | FBS II 12                         |       | 1                       |
| FUP 14                  | 537203   | ●        | ●    | 15.0                           | –            | FBS II 14                         |       | 1                       |
| Socket 1/2" size 10     | 538577   | –        | –    | –                              | 1/2" / SW10  | FBS II 6                          |       | 1                       |
| Socket 1/2" size 13     | 538578   | –        | –    | –                              | 1/2" / SW13  | FBS II 8                          |       | 1                       |
| Socket 1/2" size 15     | 538579   | –        | –    | –                              | 1/2" / SW15  | FBS II 10                         |       | 1                       |
| Socket 1/2" size 17     | 538580   | –        | –    | –                              | 1/2" / SW17  | FBS II 12                         |       | 1                       |
| Socket 1/2" size 21     | 538581   | –        | –    | –                              | 1/2" / SW21  | FBS II 14                         |       | 1                       |
| Socket 1/2" to 1/4"     | 553928   | –        | –    | –                              | 1/2" / 1/4"  | FBS II 6 / FBS II 8 / FBS II 8 SK |       | 1                       |
| Socket 1/2" to 5/16"    | 538576   | –        | –    | –                              | 1/2" - 5/16" | FBS II 10 / FBS II 10 SK          |       | 1                       |
| Socket 1/2" - TX50      | 553929   | –        | –    | –                              | 1/2" / TX50  | FBS II 10 SK                      |       | 1                       |
| FMB II TX30 Bit W5      | 564314   | –        | –    | –                              | TX30         | –                                 |       | 1                       |
| FMB II TX40 Bit W5      | 564315   | –        | –    | –                              | TX40         | –                                 |       | 1                       |
| FPB ProfiBit TX50 5/16" | 557844   | –        | –    | –                              | TX50         | FBS II 10 SK                      |       | 1                       |
| SC-ST 8 setting tool    | 557872   | –        | –    | –                              | –            | FBS II 8                          |       | 1                       |
| SC-ST 10 setting tool   | 557874   | –        | –    | –                              | –            | FBS II 10                         |       | 1                       |

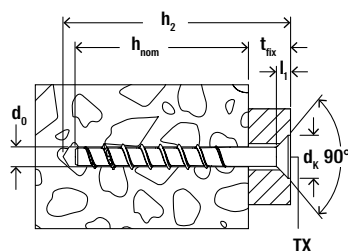
## Accessories UltraCut FBS II

| Accessories UltraCut FBS II                                                       |                                                                                   |                                                                                   |                                                                                   |                           |                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------|---------------------|
|  |  |  |  |                           |                     |
| Verfüllscheibe FFD                                                                | FSW 10                                                                            | FSW 10                                                                            | Washer U                                                                          |                           |                     |
| Item                                                                              | Item no.                                                                          | Internal diameter<br>D<br>[mm]                                                    | External-Ø<br>d<br>[mm]                                                           | Match                     | Sales unit<br>[pcs] |
| FFD 22 x 9 x 6                                                                    | 547515                                                                            | 9.0                                                                               | 22                                                                                | FBS II 6                  | 4                   |
| FFD 26x12x6 R                                                                     | 541986                                                                            | 12.0                                                                              | 26                                                                                | FBS II 8 R / FBS II 10 R  | 4                   |
| FFD 30x14x6 R                                                                     | 541987                                                                            | 14.0                                                                              | 30                                                                                | FBS II 10 R / FBS II 12 R | 4                   |
| FFD 26 x 12 x 6                                                                   | 538458                                                                            | 12.0                                                                              | 26                                                                                | FBS II 8                  | 4                   |
| FFD 30 x 14 x 6                                                                   | 538459                                                                            | 14.0                                                                              | 30                                                                                | FBS II 10 / FBS II 12     | 4                   |
| FFD 38 x 19 x 7                                                                   | 538460                                                                            | 19.0                                                                              | 38                                                                                | FBS II 14                 | 4                   |
| Adjusting washer FSW 10                                                           | 557276                                                                            | 17.5                                                                              | 44                                                                                | FBS II 10 US              | 40                  |
| Washer for FBS 10                                                                 | 520471                                                                            | 13.5                                                                              | 44                                                                                | FBS II 10 US              | 50                  |

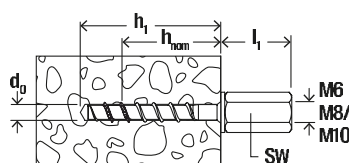
## Installation data - concrete C20/25 - C50/60



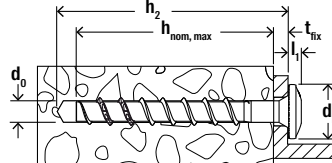
Type US



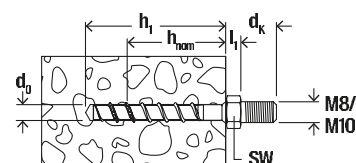
Type SK



Type I



Type P / Type LP



Type M8 / M10

| UltraCut                                                                           |      | FBS II 8           |      | FBS II 10         |                | FBS II 6  |           |           |      | FBS II M8/M10 | FBS II 6 I, M8/M10, M6 |
|------------------------------------------------------------------------------------|------|--------------------|------|-------------------|----------------|-----------|-----------|-----------|------|---------------|------------------------|
|                                                                                    |      | SK                 | SK R | SK                | SK R           | SK        | P         | LP        | US   |               |                        |
| $l_1$                                                                              | [mm] | 6,0                | 7,0  | 7,0               | 7,0            | 6,0       | 3,9       | 3,6       | 6,2  | 3,6/5         | 15/16                  |
| $d_k$                                                                              | [mm] | 20,0               | 23,0 | 23,0              | 25,0           | 13,5      | 14,4      | 17,5      | 17,0 | 37,0/32       | -                      |
| Concrete screw UltraCut FBS II 6-14 gvz / R                                        |      |                    |      |                   |                |           |           |           |      |               |                        |
| Drill hole diameter                                                                |      | $d_0$              | [mm] | 6                 | 8              | 10        | 12        | 14        |      |               |                        |
| Nominal screw-in depth                                                             |      | $h_{nom 1}$        | [mm] | 25 - 55           | 50             | 55        | 60        | 65        |      |               |                        |
|                                                                                    |      | $h_{nom 2}$        | [mm] | 25 - 55           | -              | 65        | 75        | 85        |      |               |                        |
|                                                                                    |      | $h_{nom 3}$        | [mm] | 25 - 55           | 65             | 85        | 100       | 115       |      |               |                        |
| Drill hole depth (push-trough installation)                                        |      | $h_2 \geq$         | [mm] | $l + 10$          | $l + 10$       | $l + 10$  | $l + 10$  | $l + 15$  |      |               |                        |
| Clearance hole diameter                                                            |      | $d_f$              | [mm] | $\leq 8$          | 10,6 - 12      | 12,8 - 14 | 14,8 - 16 | 16,9 - 18 |      |               |                        |
| Maximum torque for installation with impact screw driver in concrete <sup>3)</sup> |      | $t_{imp, max gvz}$ | [Nm] | 450 <sup>1)</sup> | 600            | 650       | 650       | 650       |      |               |                        |
|                                                                                    |      | $t_{imp, max R}$   | [Nm] | -                 | 450            | 450       | 650       | -         |      |               |                        |
| Width across flat                                                                  |      | SW                 |      | $10^{2)}$         | 13             | 15        | 17        | 21        |      |               |                        |
| Drive                                                                              |      | TX                 |      | T30               | T40 (SK u. US) | T50 (SK)  | -         | -         |      |               |                        |

1) Screw-in depth &lt; 35 mm 80 Nm

2) SW 13 for FBS II ... M10 and FBS II ... M8/M10 I

3) The values apply to concrete strength of approx. 40 N/mm<sup>2</sup>, for other concrete strength classes the values may differ. The conversion of nominal output into effective tightening torque varies from machine to machine - always therefore use torque control.

Installation data

| Concrete screw UltraCut FBS II 8-10  |                                    |                             |           |                       |           |
|--------------------------------------|------------------------------------|-----------------------------|-----------|-----------------------|-----------|
| Building material                    | Compressive strength class [N/mm²] | max. T <sub>inst</sub> [Nm] |           | h <sub>nom</sub> [mm] |           |
|                                      |                                    | FBS II 8                    | FBS II 10 | FBS II 8              | FBS II 10 |
| Solid clay brick (EN771-1)           | ≥ 16                               | 20                          | 20        | 50                    | 55        |
| Solid sand-lime brick (EN771-2)      | ≥ 12                               | 20                          | 20        | 50                    | 55        |
| Perforated sand-lime brick (EN771-2) | ≥ 12                               | 4                           | 8         | 50                    | 55        |
| Aerated concrete (EN771-4)*          | ≥ 6                                | 5                           | 5         | 65                    | 85        |

\* Not regulated in ETA-20/0134, only a recommendation.

# Concrete screw UltraCut FBS II 6

The high-performance concrete screw for absolute installation ease.



Suspended air-conditioners



Light, suspended pipelines

1

## Applications

- Pipeline routes
- Suspension for individual pipes
- Suspended mounting rails
- Prestressed concrete hollow core ceilings
- Cable trays
- Ventilation ducts
- Perforated tapes
- Air conditioning units

## Advantages

- The first concrete screw with diameter 6 with variable embedment depth offers a flexible adaption of the embedment depth to the loads.
- The concrete screw FBS II 6 has an ETA assesment for masonry brick (EN771-1), solid sand-lime brick (EN771-2) and perforated sand-lime brick (EN771-2) for a flexible use in different substrates.
- The ETA assessment includes the use in cracked and non-cracked concrete for highest safety requirements.
- The first 6 mm diameter concrete screw with an ETA for the C1 seismic performance category for additional safety standards.
- Different head designs offer a maximum of flexibility and a perfect adaptation to the application.
- The UltraCut FBS II 6 is approved for multiple use of non-load bearing systems and thereby ideal for the installation of pipe routes, cable trays and prestressed hollow concrete ceilings.

## Certificates



ETA-15/0352, in concrete  
ETA-20/0134, in masonry  
ETA-18/0242, for use in  
concrete for redundant non-  
structural systems



## Building materials

Approved for:

- Concrete C20/25 to C50/60, cracked and non-cracked
- Prestressed hollow concrete ceilings C30/37 to C50/60 for the multiple use of non-load bearing systems
- Masonry brick (EN771-1), solid sand-lime brick (EN771-2) and perforated sand-lime brick (EN771-2)

Also suitable for:

- Concrete C12/15
- Solid building materials
- Masonry with dense structure

## Versions

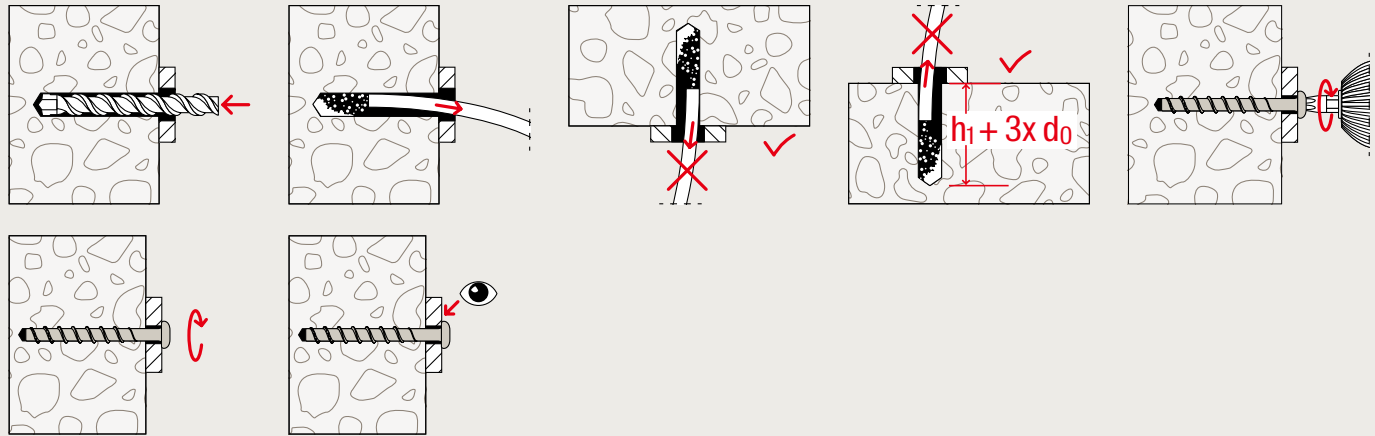
- Zinc-plated steel

## Functioning

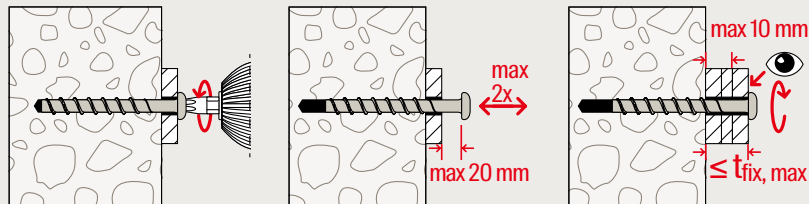
- The UltraCut FBS II is recommended for the push-through / pre-positioned installation.
- Drill holes do not need to be cleaned during vertical installation (ceiling and floor). For floor fixings the hole must be drilled 3x drill hole diameter deeper.
- The approved adjustment for the concrete screws allows the screw to be unscrewed twice for a total length of 20 mm, to place maximum 10 mm packing below the base plates or to align the attached part, and then to tighten the screw again.
- The screw is installed correctly when the screw head sits flush on the fixture (visual setting control).



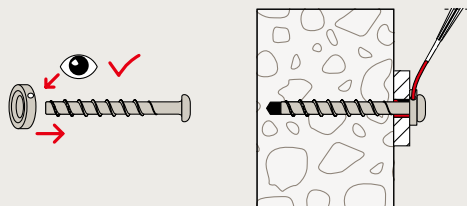
## Installation UltraCut FBS II 6 in concrete



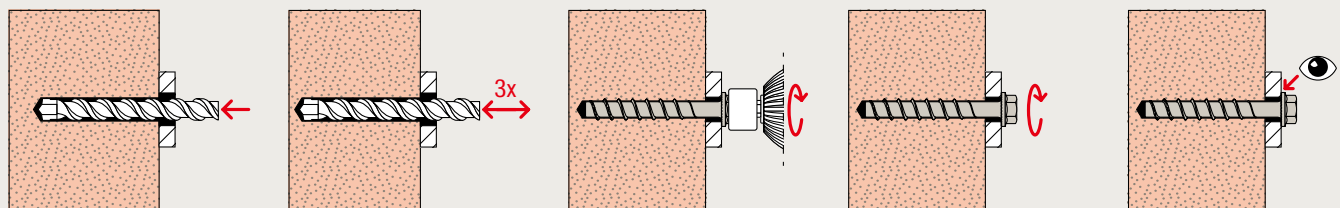
## Fixture adjustment



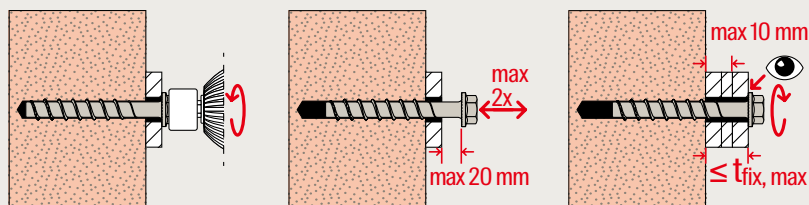
## Annular gap filling for seismic applications

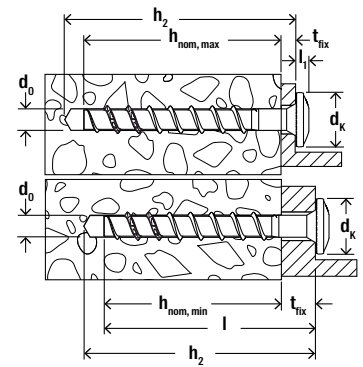


## Installation UltraCut FBS II in masonry



## Fixture adjustment





## Technical data

### Concrete screw UltraCut FBS II 6

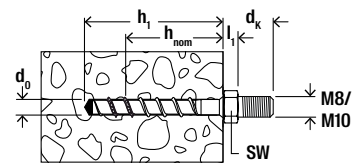
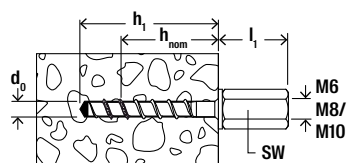


UltraCut FBS II 6 P panhead

UltraCut FBS II 6 SK counter-sunk head

UltraCut FBS II 6 US hexagonal head with molded washer

| Item                     | Item no. | Approval |      | Drill diameter         | Min. drill hole depth for through fixings | Screw length           | Head-Ø                 | Screw-in depth Multiple fixing ETA-18/0242 | Screw-in depth Single point fixing ETA-15/0352 | Usable length                                       | Drive | Sales unit |
|--------------------------|----------|----------|------|------------------------|-------------------------------------------|------------------------|------------------------|--------------------------------------------|------------------------------------------------|-----------------------------------------------------|-------|------------|
|                          |          | ETA      | DIBt | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                    | l <sub>s</sub><br>[mm] | d <sub>k</sub><br>[mm] | [mm]                                       | [mm]                                           | t <sub>fix,min</sub> - t <sub>fix,max</sub><br>[mm] |       | [pcs]      |
| FBS II 6 x 30/5 P        | 546377   | ●        | ●    | 6                      | 40                                        | 30                     | 14.4                   | 25                                         | –                                              | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 40/5 P        | 546378   | ●        | ●    | 6                      | 50                                        | 40                     | 14.4                   | 25 - 35                                    | –                                              | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 40/5 P K (2)  | 567289   | ●        | ●    | 6                      | 50                                        | 40                     | 14.4                   | 25 - 35                                    | –                                              | Screw length - h <sub>nom</sub>                     | TX30  | 1          |
| FBS II 6 x 40/5 LP       | 546379   | ●        | ●    | 6                      | 50                                        | 40                     | 17.5                   | 25 - 35                                    | –                                              | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 60/5 P        | 546380   | ●        | ●    | 6                      | 70                                        | 60                     | 14.4                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 60/5 P E      | 561394   | ●        | ●    | 6                      | 70                                        | 60                     | 14.4                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 1          |
| FBS II 6 x 80/25 P       | 546381   | ●        | ●    | 6                      | 90                                        | 80                     | 14.4                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 30/5 SK       | 546382   | ●        | ●    | 6                      | 40                                        | 30                     | 13.5                   | 25                                         | –                                              | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 40/5 SK       | 546383   | ●        | ●    | 6                      | 50                                        | 40                     | 13.5                   | 25 - 35                                    | –                                              | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 60/5 SK       | 546384   | ●        | ●    | 6                      | 70                                        | 60                     | 13.5                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 60/5 SK K (2) | 567290   | ●        | ●    | 6                      | 70                                        | 60                     | 13.5                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 1          |
| FBS II 6 x 80/25 SK      | 546385   | ●        | ●    | 6                      | 90                                        | 80                     | 13.5                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 100/45 SK     | 546386   | ●        | ●    | 6                      | 110                                       | 100                    | 13.5                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 120/65 SK     | 546387   | ●        | ●    | 6                      | 130                                       | 120                    | 13.5                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 140/85 SK     | 546388   | ●        | ●    | 6                      | 150                                       | 140                    | 13.5                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 160/105 SK    | 546389   | ●        | ●    | 6                      | 170                                       | 160                    | 13.5                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | TX30  | 100        |
| FBS II 6 x 40/5 US       | 558601   | ●        | ●    | 6                      | 50                                        | 40                     | 17.0                   | 25 - 35                                    | –                                              | Screw length - h <sub>nom</sub>                     | SW 13 | 100        |
| FBS II 6 x 40/5 US       | 546390   | ●        | ●    | 6                      | 50                                        | 40                     | 17.0                   | 25 - 35                                    | –                                              | Screw length - h <sub>nom</sub>                     | SW 10 | 100        |
| FBS II 6 x 60/5 US       | 558602   | ●        | ●    | 6                      | 70                                        | 60                     | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 13 | 100        |
| FBS II 6 x 60/5 US       | 546391   | ●        | ●    | 6                      | 70                                        | 60                     | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 10 | 100        |
| FBS II 6 x 80/25 US      | 558603   | ●        | ●    | 6                      | 90                                        | 80                     | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 13 | 100        |
| FBS II 6 x 80/25 US      | 546392   | ●        | ●    | 6                      | 90                                        | 80                     | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 10 | 100        |
| FBS II 6 x 100/45 US     | 558604   | ●        | ●    | 6                      | 110                                       | 100                    | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 13 | 100        |
| FBS II 6 x 100/45 US     | 546393   | ●        | ●    | 6                      | 110                                       | 100                    | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 10 | 100        |
| FBS II 6 x 100/45 US E   | 554072   | ●        | ●    | 6                      | 110                                       | 100                    | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 10 | 1          |
| FBS II 6 x 120/65 US     | 558605   | ●        | ●    | 6                      | 130                                       | 120                    | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 13 | 100        |
| FBS II 6 x 120/65 US     | 546394   | ●        | ●    | 6                      | 130                                       | 120                    | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 10 | 100        |
| FBS II 6 x 60/5 US E     | 554071   | ●        | ●    | 6                      | –                                         | 60                     | 17.0                   | 25 - 55                                    | 40 - 55                                        | Screw length - h <sub>nom</sub>                     | SW 10 | 1          |



## Technical data

1

### Concrete screw UltraCut FBS II 6 M8/M10



UltraCut FBS II M8/M10  
outside thread

UltraCut FBS II M6, M8/M10 I  
internal thread

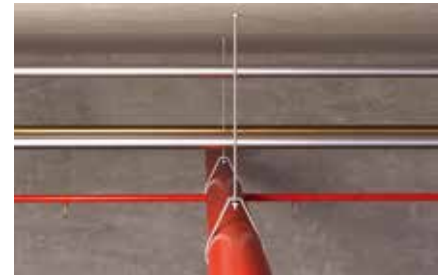
| Item                   | Item no. | Approval |      | Drill diameter<br>$d_0$<br>[mm] | Min. drill hole<br>depth for<br>pre-positioned<br>installation<br>$h_1$<br>[mm] | Screw length<br>$l_s$<br>[mm] | Screw-in depth<br>Multiple fixing<br>ETA-18/0242<br>[mm] | Screw-in depth<br>Single point fixing<br>ETA-15/0352<br>[mm] | Drive | Sales unit<br>[pcs] |
|------------------------|----------|----------|------|---------------------------------|---------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------|--------------------------------------------------------------|-------|---------------------|
|                        |          | ETA      | DIBt |                                 |                                                                                 |                               |                                                          |                                                              |       |                     |
| FBS II 6 x 25 M8/19    | 546395   | ●        | ●    | 6                               | 35                                                                              | 25                            | 25                                                       | –                                                            | SW 10 | 100                 |
| FBS II 6 x 35 M8/19    | 546396   | ●        | ●    | 6                               | 45                                                                              | 35                            | 35                                                       | –                                                            | SW 10 | 100                 |
| FBS II 6 x 55 M8/19    | 546397   | ●        | ●    | 6                               | 65                                                                              | 55                            | 55                                                       | 55                                                           | SW 10 | 100                 |
| FBS II 6 x 35 M10/21   | 546398   | ●        | ●    | 6                               | 45                                                                              | 35                            | 35                                                       | –                                                            | SW 13 | 100                 |
| FBS II 6 x 55 M10/21   | 546399   | ●        | ●    | 6                               | 65                                                                              | 55                            | 55                                                       | 55                                                           | SW 13 | 100                 |
| FBS II 6x35 M6 I       | 554065   | ●        | ●    | 6                               | 45                                                                              | 35                            | –                                                        | –                                                            | SW 13 | 100                 |
| FBS II 6x55 M6 I       | 554066   | ●        | ●    | 6                               | 65                                                                              | 55                            | –                                                        | 55                                                           | SW 13 | 100                 |
| FBS II 6 x 35 M8/M10 I | 546400   | ●        | ●    | 6                               | 45                                                                              | 35                            | –                                                        | –                                                            | SW 13 | 100                 |
| FBS II 6 x 55 M8/M10 I | 546401   | ●        | ●    | 6                               | 65                                                                              | 55                            | –                                                        | 55                                                           | SW 13 | 100                 |

# Hammerset anchor EA II

The internally threaded anchor with rim for simple hammerset installation.



Pipelines



Sprinklers

## Applications

- Pipelines and ventilation ducts
- Sprinkler systems
- Cable conduits and wires
- Gratings
- Steel constructions
- Machines
- Consoles
- Shuttering props
- Diamond or core drilling devices (EA II M12 D)

## Advantages

- The embossed rim prevents the anchor sleeve from slipping, thus ensuring a trouble-free hammerset installation.
- The metric internal thread means that it is possible to use standard screws or threaded rods for the ideal adaptation to suit the intended use.
- The EMS machine setting tool allows for effortless installation, particularly in the case of series installations.
- The embossing that is applied when

- expanding with the EHS Plus setting tool offers a simple control of the anchoring and provides increased safety.
- Fixing point at  $h_{ef}$  25 mm prevents anchor of falling out of the drill hole before being expanded.
- The black fixing point prevents the anchor from falling out of the drill hole during overhead installation.

## Certificates



ETA-07/0135, for non-cracked concrete  
ETA-07/0142, for non-structural applications in concrete



Fire resistance classification R120



from M10



INOX STAINLESS STEEL



from M8

## Building materials

Approved for:

- Concrete C20/25 to C50/60, cracked, for the multiple fixings of non-load-bearing systems
- Concrete C20/25 to C50/60, non-cracked

Also suitable for:

- Concrete C12/15
- Natural stone with dense structure

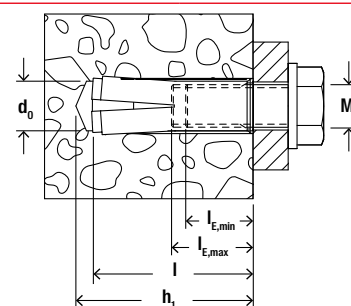
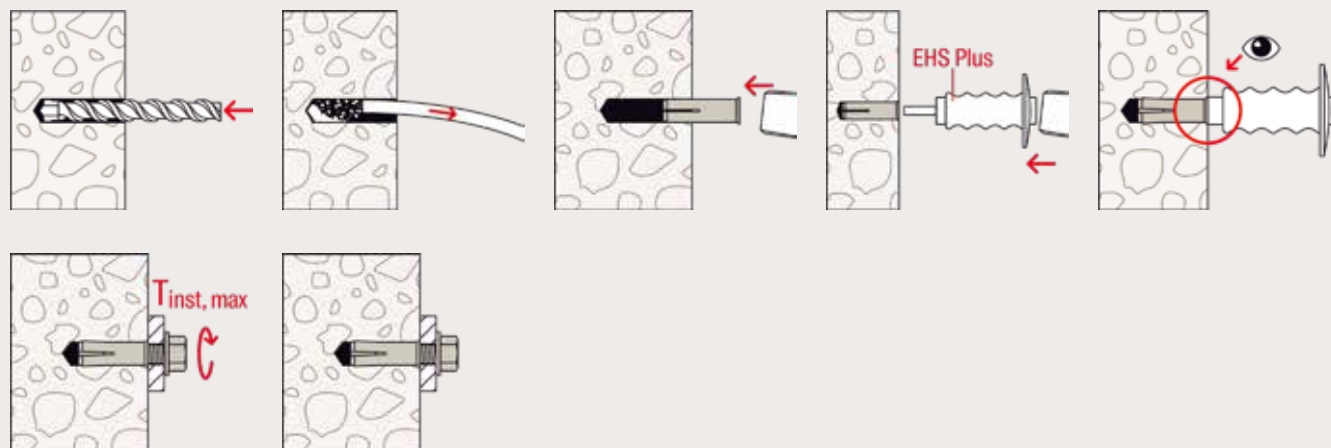
## Versions

- Zinc-plated steel
- Stainless steel R

## Functioning

- The EA II is suitable for pre-positioned installation.
- Position the hammerset anchor in the drill hole and drive in flush to the surface of the anchor base using the hammer.
- The sleeve is then expanded by driving in the internal bolt with the EHS Plus setting tool (alternative: EMS machine setting tool), and expanded against the drill hole wall.
- The setting tools must sit on the rim of the anchor to ensure correct expansion.
- Use the special EA II M12 x 50 D / EA M 12 x 50 N D with thicker sleeve for fixing diamond and core drilling devices.

## Installation EA II



## Technical data

### Hammerset anchor EA II



EA II with reduced anchorage depth  $h_1$  25 mm and a black fixing point which prevents the anchor from falling out of the drill hole



EA II not suitable for diamond drilling appliances and diamond saws

|                 | Zinc-plated steel | Stainless steel | Approval | Drill hole diameter | Min. drill hole depth for pre-positioned installation | Anchor length | Internal thread | Min. bolt penetration | Max. bolt penetration | Sales unit |
|-----------------|-------------------|-----------------|----------|---------------------|-------------------------------------------------------|---------------|-----------------|-----------------------|-----------------------|------------|
|                 | Item No.          | Item No.        |          | $d_0$<br>[mm]       | $h_1$<br>[mm]                                         | $l$<br>[mm]   | M               | $l_{E,min}$<br>[mm]   | $l_{E,max}$<br>[mm]   | [pcs]      |
| Item            | gvz               | R               | ETA      |                     |                                                       |               |                 |                       |                       |            |
| EA II M 6 x 25  | 532230            | —               | ●        | 8                   | 27                                                    | 25            | M 6             | 6                     | 14                    | 100        |
| EA II M 6 x 30  | 048264            | 048410          | ●        | 8                   | 32                                                    | 30            | M 6             | 6                     | 14                    | 100        |
| EA II M 8 x 25  | 532231            | —               | ●        | 10                  | 27                                                    | 25            | M 8             | 8                     | 14                    | 100        |
| EA II M 8 x 30  | 048284            | 048411          | ●        | 10                  | 33                                                    | 30            | M 8             | 8                     | 14                    | 100        |
| EA II M 8 x 40  | 048323            | 048412          | ●        | 10                  | 43                                                    | 40            | M 8             | 8                     | 14                    | 50         |
| EA II M 10 x 25 | 532232            | —               | ●        | 12                  | 27                                                    | 25            | M 10            | 10                    | 14                    | 50         |
| EA II M 10 x 30 | 048332            | —               | ●        | 12                  | 33                                                    | 30            | M 10            | 10                    | 14                    | 50         |
| EA II M 10 x 40 | 048339            | 048414          | ●        | 12                  | 43                                                    | 40            | M 10            | 10                    | 17                    | 50         |
| EA II M 12 x 25 | 532233            | —               | ●        | 15                  | 27                                                    | 25            | M 12            | 12                    | 14                    | 25         |
| EA II M 12 x 50 | 048406            | 048415          | ●        | 15                  | 54                                                    | 50            | M 12            | 12                    | 22                    | 25         |
| EA II M 16 x 65 | 048408            | 048416          | ●        | 20                  | 70                                                    | 65            | M 16            | 16                    | 28                    | 20         |
| EA II M 20 x 80 | 048409            | 048417          | ●        | 25                  | 85                                                    | 80            | M 20            | 20                    | 34                    | 10         |



## Technical data

### Hammer-set anchor EA II D



EA II M 12 x 50 D suitable for diamond drilling appliances and diamond saws

Hammer-set anchor EA M 12 x 50 N D. Suitable for diamond drilling machines and diamond saws.

|                   | Zinc-plated steel | Approval | Drill hole diameter    | Min. drill hole depth  | Anchor length | Internal thread | Min. bolt penetration      | Max. bolt penetration      | Sales unit |
|-------------------|-------------------|----------|------------------------|------------------------|---------------|-----------------|----------------------------|----------------------------|------------|
|                   | Item No.          |          | d <sub>0</sub><br>[mm] | h <sub>1</sub><br>[mm] | l<br>[mm]     | M               | l <sub>E,min</sub><br>[mm] | l <sub>E,max</sub><br>[mm] | [pcs]      |
| Item              | gvz               | ETA      |                        |                        |               |                 |                            |                            |            |
| EA M 12 x 50 N D  | 500872            | —        | 16                     | 54                     | 50            | M 12            | 12                         | 22                         | 50         |
| EA II M 12 x 50 D | 048407            | ●        | 16                     | 54                     | 50            | M 12            | 12                         | 22                         | 25         |

## Technical data

### Stop drill EBB



EBB

|             | Item No. | Tool holder | Drill hole diameter    | Drill hole depth       | Match           | Sales unit |
|-------------|----------|-------------|------------------------|------------------------|-----------------|------------|
|             |          |             | d <sub>0</sub><br>[mm] | h <sub>0</sub><br>[mm] |                 | [pcs]      |
| Item        |          |             |                        |                        |                 |            |
| EBB 8 x 25  | 532607   | SDS plus    | 8                      | 27                     | EA II M 6 x 25  | 1          |
| EBB 10 x 25 | 532608   | SDS plus    | 10                     | 27                     | EA II M 8 x 25  | 1          |
| EBB 12 x 25 | 532609   | SDS plus    | 12                     | 27                     | EA II M 10 x 25 | 1          |
| EBB 15 x 25 | 532610   | SDS plus    | 15                     | 27                     | EA II M 12 x 25 | 1          |

## Technical data

### Machine setting tool EMS



EMS

|                  | Item No.             | Tool holder | Match                                                | Sales unit |
|------------------|----------------------|-------------|------------------------------------------------------|------------|
|                  |                      |             |                                                      | [pcs]      |
| Item             |                      |             |                                                      |            |
| EMS M 6 x 25/30  | 048065               | SDS plus    | EA II M 6 x 25, EA II M 6 x 30                       | 1          |
| EMS M 8 x 25/30  | 048066               | SDS plus    | EA II M 8 x 25, EA II M 8 x 30                       | 1          |
| EMS M 8 x 40     | 048067               | SDS plus    | EA II M 8 x 40                                       | 1          |
| EMS M 10 x 25/30 | 048068               | SDS plus    | EA II M 10 x 25, EA II M 10 x 30                     | 1          |
| EMS M 10 x 40    | 048070               | SDS plus    | EA II M 10 x 40                                      | 1          |
| EMS M 12 x 50    | 048071               | SDS plus    | EA II M 12 x 50 D, EA II M 12 x 50, EA M 12 x 50 N D | 1          |
| EMS M 16 x 65    | 048072 <sup>1)</sup> | SDS max     | EA II M 16 x 65                                      | 1          |
| EMS M 20 x 80    | 048073 <sup>1)</sup> | SDS max     | EA II M 20 x 80                                      | 1          |

1) Delivery time on request.

Technical data

Setting tool EMS Plus



EHS Plus with hand impact protection for your safety and embossing tool

EA-ST

1

|                       | Item No. | Match                              | Sales unit<br>[pcs] |
|-----------------------|----------|------------------------------------|---------------------|
| Item                  |          |                                    |                     |
| EHS M 6 x 25/30 Plus  | 044630   | EA II M 6 x 25, EA II M 6 x 30     | 1                   |
| EHS M 8 x 25/30 Plus  | 044631   | EA II M 8 x 25, EA II M 8 x 30     | 1                   |
| EHS M 8 x 40 Plus     | 044632   | EA II M 8 x 40                     | 1                   |
| EHS M 10 x 25/30 Plus | 048487   | EA II M 10 x 25, EA II M 10 x 30   | 1                   |
| EHS M 12 x 25 Plus    | 532568   | EA II M 12 x 25                    | 1                   |
| EHS M 10 x 40 Plus    | 044633   | EA II M 10 x 40                    | 1                   |
| EHS M 12 x 50 Plus    | 044634   | EA II M 12 x 50, EA II M 12 x 50 D | 1                   |
| EHS M 16 x 65 Plus    | 044635   | EA II M 16 x 65                    | 1                   |
| EHS M 20 x 80 Plus    | 044636   | EA II M 20 x 80                    | 1                   |
| EA-ST 12              | 504585   | EA M 12 x 50 N D                   | 1                   |

# Nail anchor FNA II

The installation-friendly hammer-set anchor for multiple fixings.



Suspended ceilings



Fire protection boards

## Applications

- Fire protection plates
- Fire protection boards
- Ventilation systems
- Wire and nonious hangers
- Mounting rails
- Metal clamps
- Substructures made of wood and metal

## Advantages

- The special active principle allows for a simple hammer-set installation and, therefore, a short processing time.
- The extremely short anchor depth prevents reinforcement hits, and creates the conditions for a trouble-free installation.
- The optimised expansion clip ensures hold when placing in the drill hole, and

prevents it falling out during overhead installations.

- The massive shaft cross-section guarantees a high load-bearing capacity, thus offering an extremely high level of safety.
- A range of head shapes allows for the fixing of wide-ranging fixtures, and for the ideal adaptation to suit the intended use.

## Certificates



ETA-16/0175, for non-structural applications in concrete



Fire resistance classification R120



RWS



ZTV



INOX STAINLESS STEEL



from M8

## Building materials

Approved for:

- Concrete C12/15 to C50/60, cracked, for multiple fixings of non-structural applications

Also suitable for:

- Solid sand-lime brick
- Natural stone with dense structure
- Prestressed hollow-core concrete slabs

## Versions

- Zinc-plated steel
- Stainless steel
- Highly corrosion-resistant steel

## Functioning

- The FNA II with nail head is suitable for push-through installation. The FNA II M6 is suitable for pre-positioned and push-through installation. The FNA II OE and H are suitable for pre-positioned installation.
- The installed FNA II nail anchor expands automatically under load. The cone is pulled into the expansion clip and expands it against the drill hole wall.
- Available setting tools:  
FNA S-SBO to slip onto the drill,  
FNA S-SDS for series installation with a drilling hammer,  
FNA S-H for the manual installation of mounting rails.

## Installation FNA II



## Pre-positioned installation FNA II M6

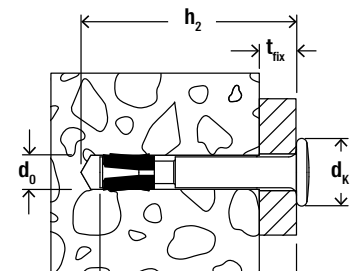


## Push-through installation FNA II M6



## Installation FNA II OE





## Technical data

### Nail anchor FNA II

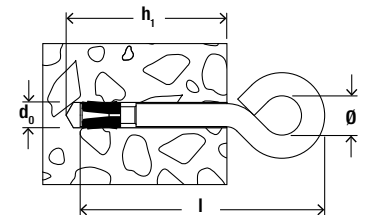


FNA II with nail head

|                   | Zinc-plated steel    | Stainless steel | Highly corrosion resistant steel | Approval | Drill hole diameter | Min. drill hole depth for through fixings | Anchor length | Max. fixture thickness | Head-Ø        | Sales unit |
|-------------------|----------------------|-----------------|----------------------------------|----------|---------------------|-------------------------------------------|---------------|------------------------|---------------|------------|
|                   | Item No.             | Item No.        | Item No.                         |          | $d_0$<br>[mm]       | $h_2$<br>[mm]                             | $l$<br>[mm]   | $t_{fix}$<br>[mm]      | $d_k$<br>[mm] | [pcs]      |
| Item              | gvz                  | R               | HCR                              | ETA      |                     |                                           |               |                        |               |            |
| FNA II 6 x 25/5   | 044121 <sup>1)</sup> | —               | —                                | ●        | 6                   | 40                                        | 37.5          | 5                      | 13.0          | 100        |
| FNA II 6 x 30/5   | 044115 <sup>1)</sup> | 044122          | —                                | ●        | 6                   | 45                                        | 42.5          | 5                      | 13.0          | 100        |
| FNA II 6 x 30/5   | —                    | —               | 044124                           | ●        | 6                   | 45                                        | 42.5          | 5                      | 13.0          | 25         |
| FNA II 6 x 30/15  | 530419               | —               | —                                | ●        | 6                   | 55                                        | 52.5          | 15                     | 13.0          | 50         |
| FNA II 6 x 30/30  | 044116               | 044123          | —                                | ●        | 6                   | 70                                        | 67.5          | 30                     | 13.0          | 50         |
| FNA II 6 x 30/30  | —                    | —               | 044125                           | ●        | 6                   | 70                                        | 67.5          | 30                     | 13.0          | 25         |
| FNA II 6 x 30/40  | —                    | 046023          | —                                | ●        | 6                   | 80                                        | 77.5          | 40                     | 13.0          | 50         |
| FNA II 6 x 30/50  | 044117               | 046024          | 500569                           | ●        | 6                   | 90                                        | 87.5          | 50                     | 13.0          | 50         |
| FNA II 6 x 30/60  | —                    | 046025          | —                                | ●        | 6                   | 100                                       | 97.5          | 60                     | 13.0          | 50         |
| FNA II 6 x 30/75  | 044118               | —               | 500573 <sup>2)</sup>             | ●        | 6                   | 115                                       | 112.5         | 75                     | 13.0          | 50         |
| FNA II 6 x 30/100 | 044119               | —               | 500574 <sup>2)</sup>             | ●        | 6                   | 140                                       | 137.5         | 100                    | 13.0          | 50         |
| FNA II 6 x 30/120 | 044120               | —               | 500575 <sup>2)</sup>             | ●        | 6                   | 160                                       | 157.5         | 120                    | 13.0          | 50         |

1) With hexagon below the nail head for anti-rotation lock of hole and wire hangers (for example) and centring for optional setting tool FNA II S.

2) Delivery time on request.



## Technical data

### Nail anchor FNA II-H / FNA II-OE



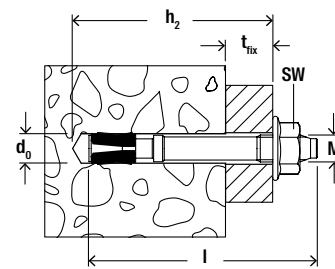
FNA II-H with hook



FNA II-OE with eye

|                  |          | Approval | Drill hole diameter | Anchor length | Min. drill hole depth | Inner diameter of the hook/eye | Sales unit |
|------------------|----------|----------|---------------------|---------------|-----------------------|--------------------------------|------------|
|                  | Item No. |          | $d_0$<br>[mm]       | $l$<br>[mm]   | $h_1$<br>[mm]         | [Ø mm]                         | [pcs]      |
| Item             |          | ETA      |                     |               |                       |                                |            |
| FNA II 6 x 25 H  | 044126   | —        | 6                   | 54            | 35                    | 10                             | 50         |
| FNA II 6 x 25 OE | 044127   | ●        | 6                   | 54            | 35                    | 10                             | 50         |





1

## Technical data

### Nail anchor FNA II M6



FNA II M6 with thread and flange nut

|                       | Zinc-plated steel    | Stainless steel      | Highly corrosion resistant steel | Approval | Drill hole diameter    | Min. drill hole depth for through fixings | Anchor length | Max. fixture thickness   | Thread | Width across nut | Sales unit |
|-----------------------|----------------------|----------------------|----------------------------------|----------|------------------------|-------------------------------------------|---------------|--------------------------|--------|------------------|------------|
|                       | Item No.             | Item No.             | Item No.                         |          | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                    | l<br>[mm]     | t <sub>fix</sub><br>[mm] | M      | SW<br>[mm]       | [pcs]      |
| Item                  | gvz                  | R                    | HCR                              | ETA      |                        |                                           |               |                          |        |                  |            |
| FNA II 6 x 25 M6/5    | 044111               | —                    | —                                | ●        | 6                      | 40                                        | 45            | 5                        | M 6    | 10               | 100        |
| FNA II 6 x 30 M6/5    | 044109               | —                    | —                                | ●        | 6                      | 45                                        | 50            | 5                        | M 6    | 10               | 100        |
| FNA II 6 x 30 M6/5    | —                    | 044112 <sup>2)</sup> | —                                | ●        | 6                      | 45                                        | 50            | 5                        | M 6    | 10               | 50         |
| FNA II 6 x 30 M6/5    | —                    | —                    | 044113 <sup>2)</sup>             | ●        | 6                      | 45                                        | 50            | 5                        | M 6    | 10               | 25         |
| FNA II 6 x 30 M6 x 41 | 044110 <sup>1)</sup> | —                    | —                                | ●        | 6                      | 40                                        | 41            | —                        | M 6    | 10               | 100        |
| FNA II 6 x 30 M6/10   | 046022               | —                    | —                                | ●        | 6                      | 45                                        | 55            | 10                       | M 6    | 10               | 100        |
| FNA II 6 x 30 M8/5    | 044114               | —                    | —                                | ●        | 6                      | 45                                        | 51            | 5                        | M 8    | 13               | 50         |

1) without nut; e.g. for fixing of pipe clamps

2) with nut and washer (no flange nut)

## Technical data

### Setting tools for FNA II



FNA II S-SDS



FNA II S-SBO



FNA II S-H

| Item         | Item No. | fits anchor                      |                                                                                                                                      | Sales unit |
|--------------|----------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------|
| FNA II S-SDS | 061547   | for all FNA II with nail head    | The ideal setting tool for the serial installation with SDS-plus adapter for driving in FNA II with nail head using a hammer drill.  | 1          |
| FNA II S-SBO | 061548   | for all FNA II with nail head    | For a power saving and fast installation to be placed on the drill.                                                                  | 1          |
| FNA S-H      | 095990   | for FNA II with metric thread M6 | E.g. for the fixing of installation of mounting rails. Chuck with outer diameter of 15 mm for the installation of FNA II M6 by hand. | 1          |

# Nail anchor FNA II RB

The easy-to-assemble fixing solution for removable fire protection panel.



Fire protection boards



Fire protection boards

1

## Applications

- Fixing of fire protection panel in tunnel construction.
- For fixing of one and more layers of fire protection panel of all manufacturers e.g. Aestuver and Promat.

## Advantages

- Easy removal of fire protection panel without damage.
- Reusability of removed fire protection panel.
- Secure fixing, particularly when exposed to vibration, wind and pushing/pulling effects.

- Easy-to-assemble solution.
- Low anchoring depth (30 mm).
- Convenient assembly without torque-controlled setting tool.
- Approved system which has proven itself one million times over.
- Large range of anchor lengths possible.

## Certificates



ETA-16/0175, for non-structural applications in concrete



Fire resistance classification R120



RWS



ZTV



INOX STAINLESS STEEL



from M8

## Building materials

- Concrete C12/15 to C50/60, cracked and non-cracked, for multiple fixings of non-structural applications

## Versions

- Stainless steel R
- Highly corrosion-resistant steel HCR

## Functioning

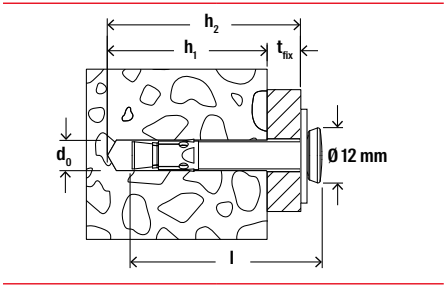
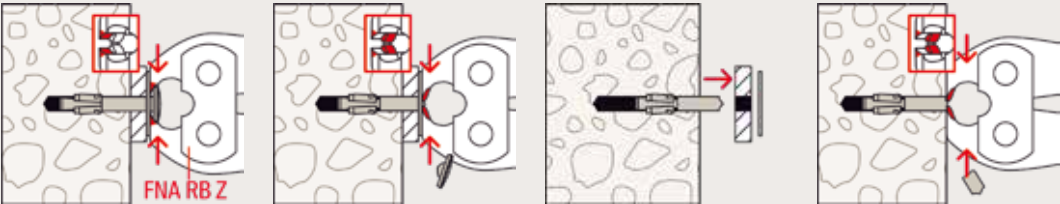
- Nail anchor with low anchoring depth.
- The washer increases the pull through forces significantly and provides the damage of the panel during dismantling.
- Mounting: Drill, hammer in, and you're done!
- Easy pinching off of nail head thanks to special 2-stage pliers.
- For a fast assembly process, we recommend the fischer compressed air setting device (item no. 093731).

Installation FNA II RB

1



Deinstallation



Technical data

Nail anchor FNA II RB



| FNA II RB          |                      |          |                        |                                           |                                                       |                         |               |                          |            |
|--------------------|----------------------|----------|------------------------|-------------------------------------------|-------------------------------------------------------|-------------------------|---------------|--------------------------|------------|
|                    | Stainless steel      | Approval | Drill hole diameter    | Min. drill hole depth for through fixings | Min. drill hole depth for pre-positioned installation | Anchorage depth         | Anchor length | Max. usable length       | Sales unit |
|                    | Item No.             |          | d <sub>0</sub><br>[mm] | h <sub>2</sub><br>[mm]                    | h <sub>1</sub><br>[mm]                                | h <sub>ef</sub><br>[mm] | l<br>[mm]     | t <sub>fix</sub><br>[mm] | [pcs]      |
| Item               | R                    | ETA      |                        |                                           |                                                       |                         |               |                          |            |
| FNA II 6 x30/30 RB | 530798 <sup>1)</sup> | ●        | 6                      | 66                                        | 36                                                    | 30                      | 68            | 30                       | 200        |
| FNA II 6 x30/30 RB | 530674 <sup>1)</sup> | ●        | 6                      | 66                                        | 36                                                    | 30                      | 68            | 30                       | 50         |

1) delivery on request

## Technical data

Washer (FNA II RB)



Washer 30/1,5/7,5

|                   | Stainless steel | Highly corrosion resistant steel | Internal diameter | External-Ø | Thickness | Sales unit |
|-------------------|-----------------|----------------------------------|-------------------|------------|-----------|------------|
|                   | Item No.        | Item No.                         | D<br>[mm]         | d<br>[mm]  | S<br>[mm] | [pcs]      |
| Item              | R               | HCR                              |                   |            |           |            |
| Washer 30/1,5/7,5 | 531161          | 531162                           | 7,5               | 30         | 1.5       | 100        |

## Technical data

2-stage plier (FNA II RB)



FNA RB Z 2-stage plier

|          | Item No. | Adapted for                    | Sales unit<br>[pcs] |
|----------|----------|--------------------------------|---------------------|
| Item     |          |                                |                     |
| FNA RB Z | 531142   | Plier for removal of FNA II RB | 1                   |

## Technical data

Air compressed setting tool (FNA II)



Air compressed setting tool

|                             | Item No. | Match                  | Required for                              | Sales unit<br>[pcs] |
|-----------------------------|----------|------------------------|-------------------------------------------|---------------------|
| Item                        |          |                        |                                           |                     |
| Air compressed setting tool | 093731   | for FNA II + FNA II RB | —                                         | 1                   |
| Drop in element             | 093729   | —                      | Air compressed setting tool Art No. 93731 | 1                   |
| Stop ring                   | 093730   | —                      | Air compressed setting tool Art No. 93731 | 1                   |
| Fitting                     | 093732   | —                      | Air compressed setting tool Art No. 93731 | 1                   |

# Epoxy mortar FIS EB II

The Epoxy mortar for standard applications in concrete.

1



Post-installed rebar connections



Tall shelving

## Applications

- Heavy steel constructions
- Consoles
- Silo installations
- Tall shelving
- Post-installed rebar connections

## Advantages

- The injection mortar FIS EB II has ETA assessments for anchorings in cracked concrete and for post-installed rebar connections.
- Due to the seismic approval for performance category C1 and C2, the FIS EB II can be safely used in earthquake regions.
- FIS EB II is the reliable system for fixing heavy loads indoors and outdoors.
- Due to the variable anchoring depths, the epoxy resin mortar is very versatile.
- The long processing time of FIS EB II is particularly suitable for applications in large and deep drillholes.

## Certificates



ETA-21/0469, for cracked concrete  
ETA-21/0470, for post-installed rebar connections



## Building materials

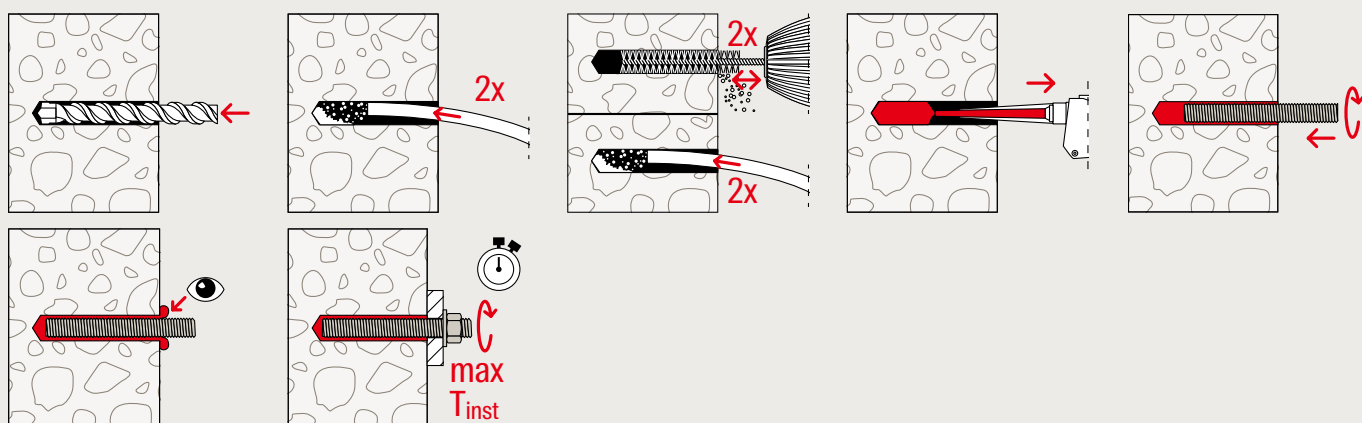
- Approved for anchorings in:
- Concrete C20/25 to C50/60, cracked and non-cracked

## Functioning

- The epoxy mortar FIS EB II in combination with the threaded rod FIS A and RG M is suitable for pre-positioned and push-through 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 threaded rod with the drill hole wall and seals off the drill hole.
- The threaded rod is set manually by slightly rotating it until it reaches the drill hole base.
- During push-through installation, the annular gap between the threaded rod and the attachment is filled with FIS EB II.



## Installation FIS EB II



## Technical data

### Epoxy mortar FIS EB II



| Item                      | Item no. | Ap-<br>pro-<br>val<br>ETA | Languages on the<br>cartridge | Scale unit | Contents<br>[ml] | Contents                                                    | Sales unit<br>[pcs] |
|---------------------------|----------|---------------------------|-------------------------------|------------|------------------|-------------------------------------------------------------|---------------------|
| FIS EB II 390 S           | 561560   | •                         | EN, ZH                        | 190        | 390              | 1 x cartridge 390ml, 2x FIS MR Plus                         | 1                   |
| FIS EB II 390 S           | 562630   | •                         | TR, RU, KO                    | 190        | 390              | 1 x cartridge 390ml, 2x FIS MR Plus                         | 1                   |
| FIS EB II 585 S           | 562632   | •                         | EN, ES, PT                    | 270        | 585              | 1 x cartridge 585ml, 2x FIS UMR                             | 1                   |
| FIS EB II 390 S in bucket | 563265   | •                         | EN, ES, PT                    | 190        | 390              | 20 x cartridge 390ml, 20 x FIS MR Plus                      | 1                   |
| FIS UMR                   | 520593   | –                         | –                             | –          | –                | 10 x static mixer FIS UMR for 585 ml and 1500 ml cartridges | 10                  |
| FIS MR Plus               | 545853   | –                         | –                             | –          | –                | 10 x static mixer FIS MR Plus for 390 cartridges            | 10                  |

## Processing and curing times

| FIS EB II<br>Temperatures at anchoring base<br>[°C] | Maximum processing time<br>$t_{work}$<br>[min.] | Minimum curing time<br>$t_{cure}$<br>[hrs.] |
|-----------------------------------------------------|-------------------------------------------------|---------------------------------------------|
| +5 – +10                                            | 180                                             | 96                                          |
| > +10 – +15                                         | 90                                              | 60                                          |
| > +15 – +20                                         | 60                                              | 36                                          |
| > +20 – +30                                         | 30                                              | 24                                          |
| > +30 – +40                                         | 15                                              | 12                                          |

# Injection mortar FIS V Plus

The powerful universal mortar for concrete and masonry.

2



Rescue ladders



Steel constructions

## Applications

- Steelwork constructions
- Timber constructions
- Guard rails
- Façades
- Staircases
- Steel brackets
- Machines
- Masts
- Awnings
- Canopies
- Gates
- Consoles
- Pipelines
- Gratings
- Satellite antennas

## Advantages

- The FIS V Plus injection mortar has numerous system approvals, such as in cracked and non-cracked concrete, masonry and for special applications.
- The ETA assessment for a service life of 100 years offers permanent safety for all applications.
- The approved use in water-filled drill holes enables a wide range of applications, even under harsh environmental conditions.
- FIS VW Plus High Speed has a significantly shorter curing time than FISV Plus, thus also ensuring swift work progress even at low temperatures.
- Due to the possible installation temperature of -10° to 40°C the universal mortar can be applied all year long.
- FIS VS Plus Low Speed with extended gelling time prevents premature curing of the mortar at higher temperatures and is ideally suited to large drill hole depths.
- The extensive range of accessories is ideally suited to the FIS V Plus injection mortar family, increases the great flexibility of the system and thus allows for a broad range of applications.

## Certificates



ETA-20/0729, in masonry  
ETA-20/0603, in concrete  
ETA-20/0728, for post-installed rebar connections



## Building materials

Approved for anchorings in:

- Concrete C20/25 to C50/60, cracked and non-cracked
- Hollow blocks made from lightweight concrete
- Hollow blocks made from concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Solid sand-lime brick
- Aerated concrete
- Solid brick

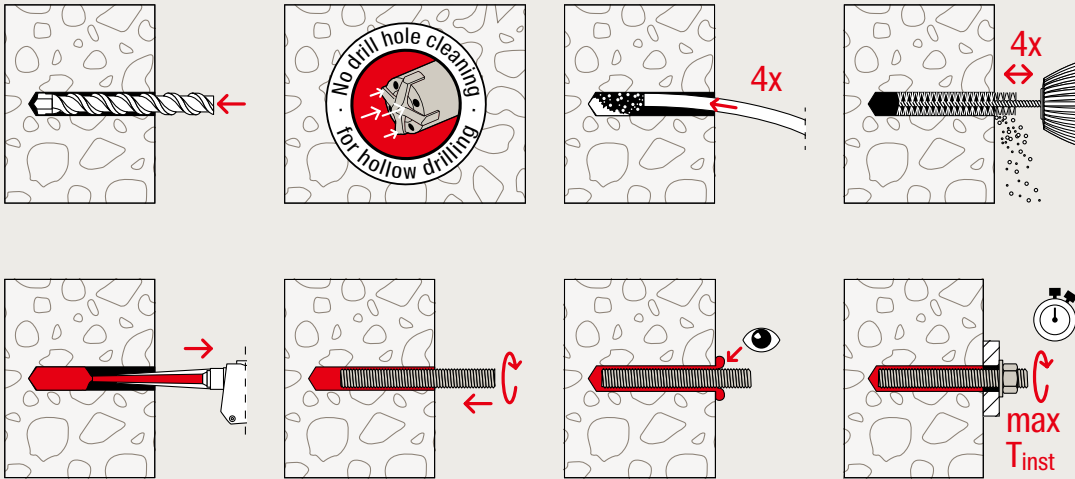
Approved for:

- Rebar connections
- Remedial wall tie VBS 8
- Weather facing reconstruction system FWS II
- Stand-off installation TherMax

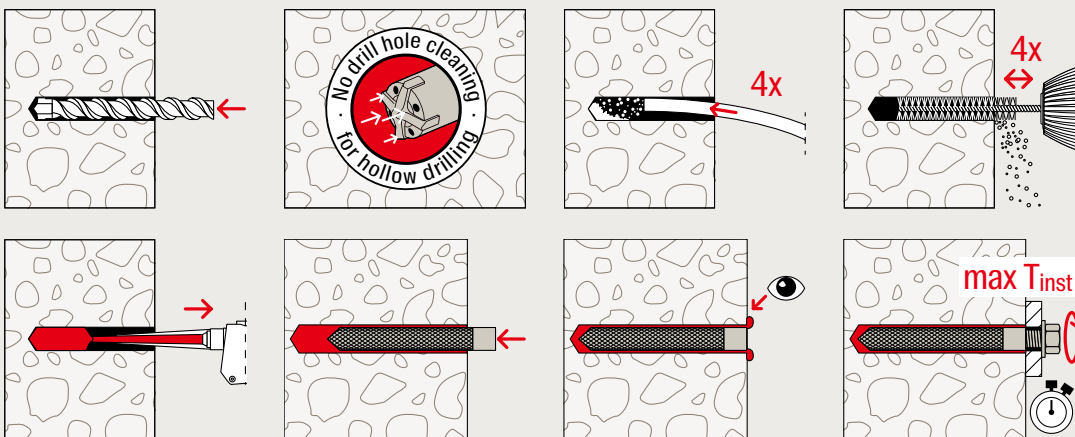
## Functioning

- FIS V Plus is a 2-component injection mortar based on a vinyl ester hybrid concept.
- Resin and hardener are stored in two separate chambers and are not mixed and activated until extrusion through the static mixer.
- The mortar is extruded bubble free from the drill hole base.
- The mortar bonds the entire surface of the anchor with the drill hole wall and seals the drill hole.
- The injection cartridges are quick and easy to use with the fischer dispensers.
- Partially used cartridges can be reused by changing the static mixer.

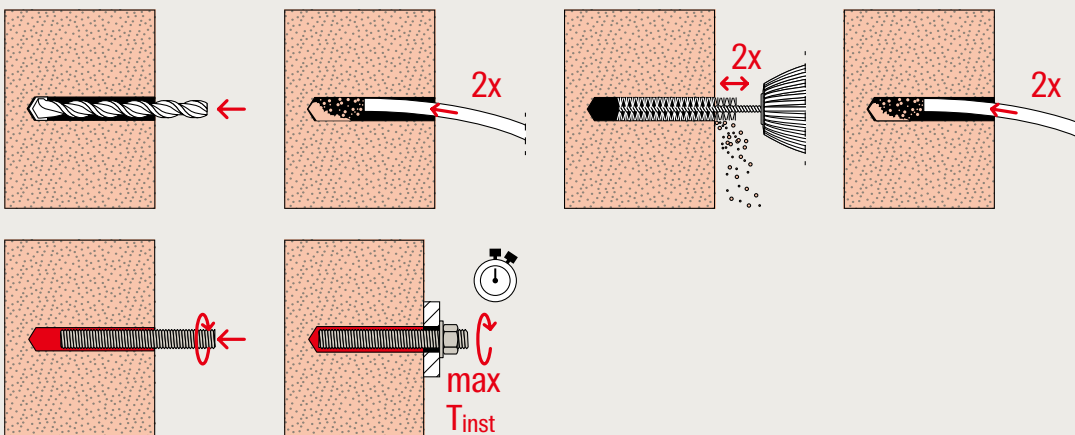
### Installation in concrete with FIS V Plus and FIS A / RG M



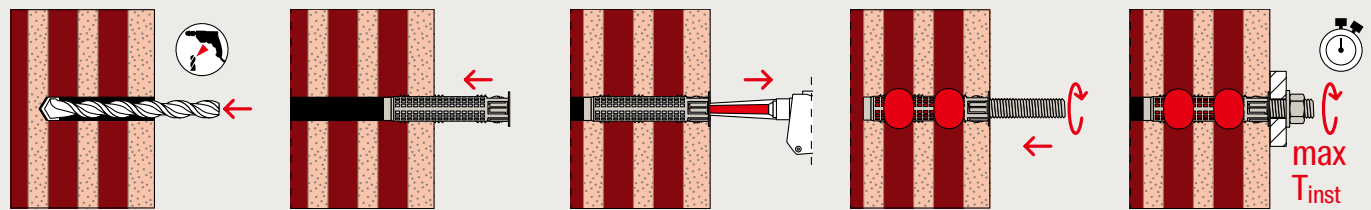
### Installation in concrete with FIS V Plus and RG M I



### Installation in solid brick with FIS V Plus and FIS A

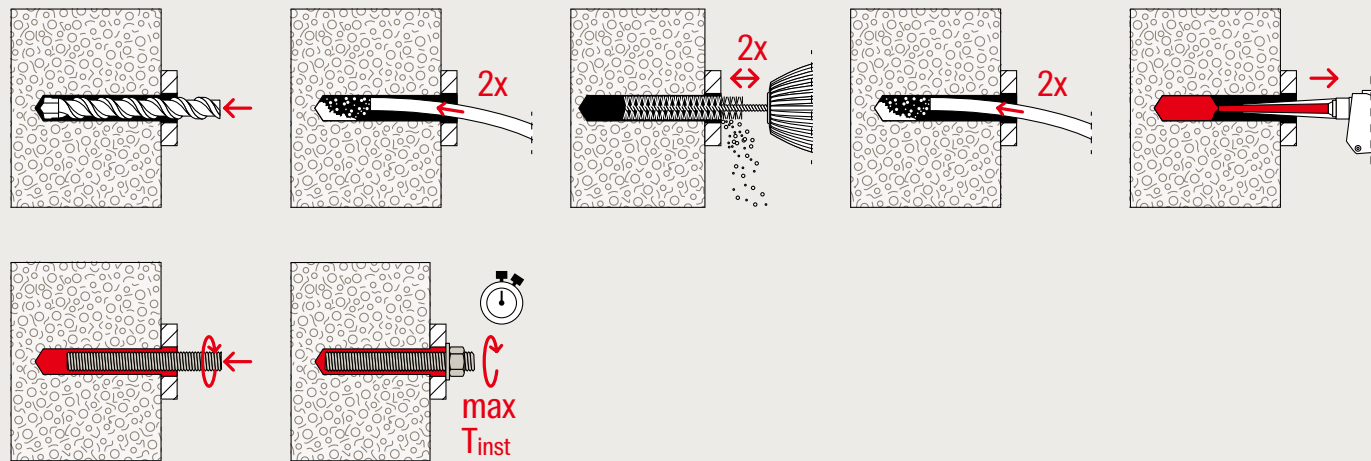


Installation in hollow blocks with FIS V Plus and FIS HK + FIS A

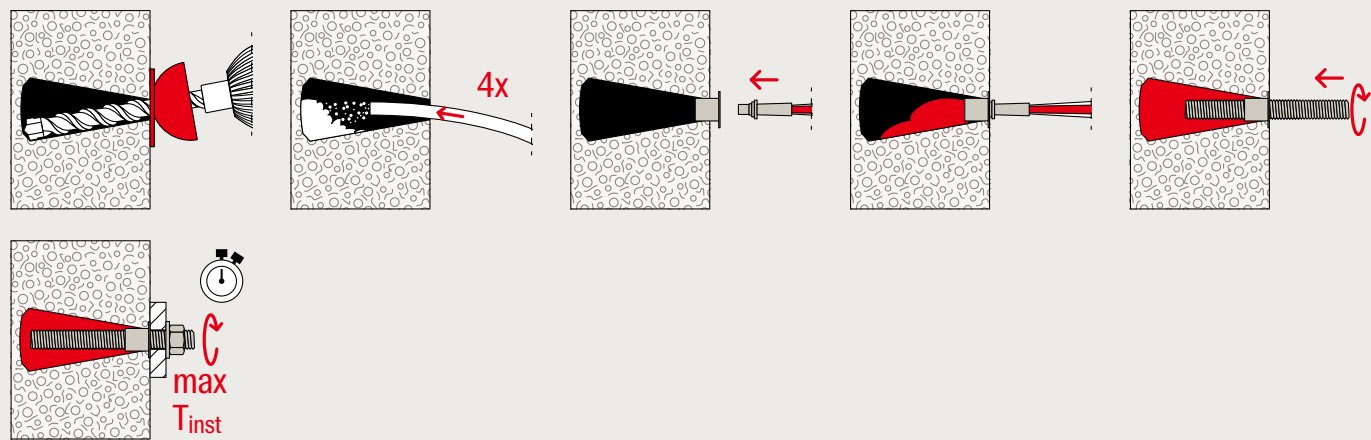


2

Installation in aerated concrete with FIS V Plus and FIS A / RG M



Installation in undercut drill hole in aerated concrete with FIS V Plus and FIS A / RG M



Technical data

| Injection mortar FIS VS Plus                                                       |          |          |      |     |                            |                                    |                     |
|------------------------------------------------------------------------------------|----------|----------|------|-----|----------------------------|------------------------------------|---------------------|
|  |          |          |      |     |                            |                                    |                     |
| FIS VS Plus 360 S                                                                  |          |          |      |     |                            |                                    |                     |
| Item                                                                               | Item no. | Approval |      |     | Languages on the cartridge | Contents                           | Sales unit<br>[pcs] |
|                                                                                    |          | ETA      | DIBt | ICC |                            |                                    |                     |
| FIS VS Plus 360 S                                                                  | 558750   | ●        | ●    | ●   | EN, ES, PT                 | 1 cartridge 360ml, 2 x FIS MR Plus | 1                   |
| FIS VS Plus 360 S                                                                  | 558749   | ●        | ●    | ●   | ZH, JA, KO                 | 1 cartridge 360ml, 2 x FIS MR Plus | 1                   |
| FIS VS Plus 360 S                                                                  | 561057   | ●        | ●    | ●   | PL, EN, UK                 | 1 cartridge 360ml, 2 x FIS MR Plus | 1                   |

## Technical data

### Injection mortar FIS V Plus HWK G



FIS V Plus 360 S HWK G

| Item                     | Item no. | Approval |      |     | Languages on the cartridge | Contents                              | Sales unit<br>[pcs] |
|--------------------------|----------|----------|------|-----|----------------------------|---------------------------------------|---------------------|
|                          |          | ETA      | DIBt | ICC |                            |                                       |                     |
| FIS V Plus 360 S HWK big | 558748   | ●        | ●    | ●   | AR, ZH, EN                 | 20 cartridges 360ml, 40 x FIS MR Plus | 1                   |
| FIS V Plus 360 S HWK big | 558756   | ●        | ●    | ●   | DE                         | 20 cartridges 360ml, 40 x FIS MR Plus | 1                   |
| FIS V Plus 360 S HWK big | 558757   | ●        | ●    | ●   | DE, FR, NL                 | 20 cartridges 360ml, 40 x FIS MR Plus | 1                   |
| FIS V Plus 360 S HWK big | 560637   | ●        | ●    | ●   | EN, FR, AR                 | 20 cartridges 360ml, 40 x FIS MR Plus | 1                   |

## Technical data

### Injection mortar FIS V Plus



FIS V Plus 360 S

| Item              | Item no. | Approval |      |     | Languages on the cartridge | Contents                             | Sales unit<br>[pcs] |
|-------------------|----------|----------|------|-----|----------------------------|--------------------------------------|---------------------|
|                   |          | ETA      | DIBt | ICC |                            |                                      |                     |
| FIS V Plus 360 S  | 558743   | ●        | ●    | ●   | EN                         | 20 cartridges 360ml, 40x FIS MR Plus | 20                  |
| FIS V Plus 360 S  | 558751   | ●        | ●    | ●   | AR, ZH, EN                 | 20 cartridges 360ml, 20x FIS MR Plus | 1                   |
| FIS V Plus 360 S  | 558763   | ●        | ●    | ●   | DE, FR, NL                 | 20 cartridges 360ml, 20x FIS MR Plus | 1                   |
| FIS V Plus 360 S  | 558772   | ●        | ●    | ●   | RU, UK, KK                 | 20 cartridges 360ml, 40x FIS MR Plus | 1                   |
| FIS V Plus 360 S  | 560636   | ●        | ●    | ●   | EN, FR, AR                 | 20 cartridges 360ml, 20x FIS MR Plus | 1                   |
| FIS VS Plus 360 S | 562601   | ●        | ●    | ●   | IT, PL, RO                 | 20 cartridges 360ml, 20x FIS MR Plus | 1                   |
| FIS VS Plus 360 S | 562603   | ●        | ●    | ●   | EN, ES, PT                 | 20 cartridges 360ml, 40x FIS MR Plus | 1                   |

## Technical data

### Injection mortar FIS V Plus



Thermosafe case FIS V Plus

| Item                        | Item no. | Approval |      |     | Contents                                                                                                                    | Sales unit<br>[pcs] |
|-----------------------------|----------|----------|------|-----|-----------------------------------------------------------------------------------------------------------------------------|---------------------|
|                             |          | ETA      | DIBt | ICC |                                                                                                                             |                     |
| FIS V Plus 360 S Thermosafe | 558950   | ●        | ●    | ●   | 6 x cartridges 360 ml,<br>12 x static mixer FIS MR Plus,<br>1 x brush set, 1 x blow-out pump,<br>1 x dispenser FIS DM S Pro | 1                   |



Curing times

| FIS VW Plus High Speed<br>FIS V Plus<br>FIS VS Plus Low Speed |                                           |                      |                                 |                                                     |        |            |        |                       |        |
|---------------------------------------------------------------|-------------------------------------------|----------------------|---------------------------------|-----------------------------------------------------|--------|------------|--------|-----------------------|--------|
| Temperature at anchoring base<br>[°C]                         | Maximum processing time t <sub>work</sub> |                      |                                 | Minimum curing time t <sub>cure</sub> <sup>1)</sup> |        |            |        |                       |        |
|                                                               | FIS VW Plus High Speed<br>[min.]          | FIS V Plus<br>[min.] | FIS VS Plus Low Speed<br>[min.] | FIS VW Plus High Speed                              |        | FIS V Plus |        | FIS VS Plus Low Speed |        |
|                                                               |                                           |                      |                                 | [hrs.]                                              | [min.] | [hrs.]     | [min.] | [hrs.]                | [min.] |
| -10 – -5 <sup>2)</sup>                                        | –                                         | –                    | –                               | 12                                                  | –      | –          | –      | –                     | –      |
| > -5 – 0 <sup>2)</sup>                                        | 5                                         | –                    | –                               | 3                                                   | –      | 24         | –      | –                     | –      |
| > 0 – +5 <sup>2)</sup>                                        | 5                                         | 13                   | –                               | 3                                                   | –      | 3          | –      | 6                     | –      |
| > +5 – +10                                                    | 3                                         | 9                    | 20                              | –                                                   | 50     | –          | 90     | 3                     | –      |
| > +10 – +20                                                   | 1                                         | 5                    | 10                              | –                                                   | 50     | –          | 60     | 2                     | –      |
| > +20 – +30                                                   | –                                         | 4                    | 6                               | –                                                   | –      | –          | 45     | –                     | 60     |
| > +30 – +40                                                   | –                                         | 2                    | 4                               | –                                                   | –      | –          | 35     | –                     | 30     |

1) In wet concrete or water filled holes the curing times must be doubled.  
2) Minimal cartridge temperature +5 °C

# Cast-in Channel FES-H

Hot rolled for excellent strength and safety.



Power plant



Unitised curtain wall

## Applications

- Suitable for all types of buildings or structures
- Façades
- Prefabricated elements
- Railways
- Metro tunnels and stations
- Industrial applications

## Advantages

- Hot-rolled Cast-in Channels combining excellent load capacity with high safety and flexibility.
- All directional load capacity.
- Fundamental load capacity in longitudinal direction in combination with channel

bolts FBC-N.

- Ideal prepositioned fixing solution, capable of covering on-site tolerances.
- Suitable for applications in cracked and non-cracked concrete.
- Permanently adjustable fixing solution.

## Approval



ETA-18/0862, FES with special screw FBC

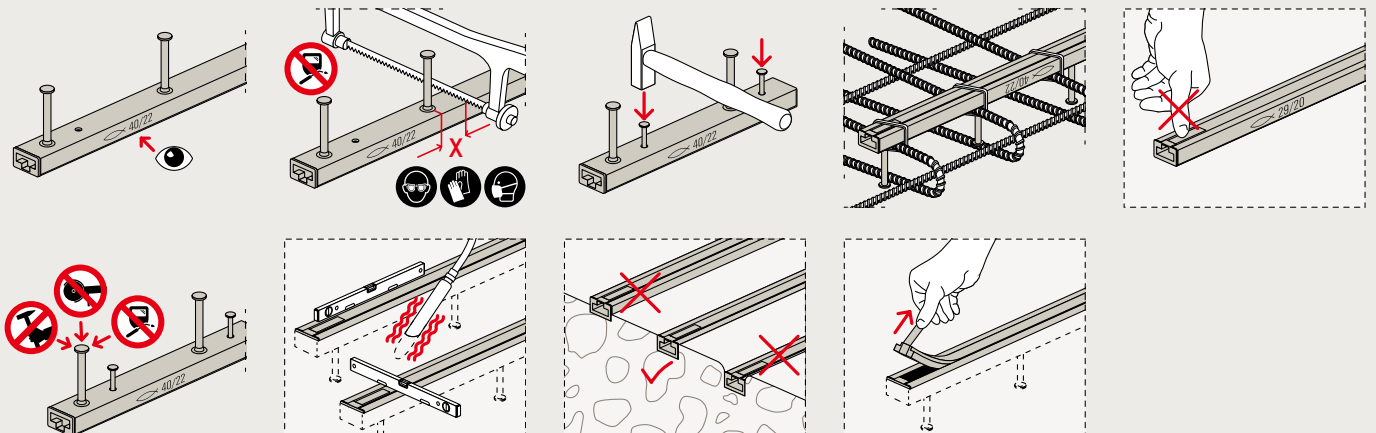
## Building materials

- Concrete C12/15 to C90/105, cracked and non-cracked.

## Functioning

- Suitable for use in combination with plain T-Bolts FBC or notching T-Bolts FBC-N.

## Installation FES



## Technical data

Profile FES-H-40/22



FES-H

|                        | Item no. | Approval<br>ETA | Length<br>l<br>[mm] | Number of anchors | Serrated | Type         | Coating            | Match     | Thread<br>M | Sales unit<br>[pcs] |
|------------------------|----------|-----------------|---------------------|-------------------|----------|--------------|--------------------|-----------|-------------|---------------------|
| Item                   |          |                 |                     |                   |          |              |                    |           |             |                     |
| FES-H-40/22-150-HDG    | 552468   | ●               | 150                 | 2                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-200-HDG    | 552469   | ●               | 200                 | 2                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-250-HDG    | 552470   | ●               | 250                 | 2                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-300-HDG    | 552421   | ●               | 300                 | 2                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-350-HDG    | 552472   | ●               | 350                 | 3                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-400-HDG    | 552473   | ●               | 400                 | 3                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-550-HDG    | 552474   | ●               | 550                 | 3                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-800-HDG    | 552475   | ●               | 800                 | 4                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-1050-HDG   | 552476   | ●               | 1,050               | 5                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-1300-HDG   | 552477   | ●               | 1,300               | 6                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-1550-HDG   | 552478   | ●               | 1,550               | 7                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-1800-HDG   | 552479   | ●               | 1,800               | 8                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-2050-HDG   | 552480   | ●               | 2,050               | 9                 | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-2300-HDG   | 552481   | ●               | 2,300               | 10                | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-3050-HDG   | 552482   | ●               | 3,050               | 13                | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-40/22-6070-HDG   | 552483   | ●               | 6,070               | 25                | No       | Round anchor | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-150-HDG  | 552507   | ●               | 150                 | 2                 | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-200-HDG  | 552508   | ●               | 200                 | 2                 | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-250-HDG  | 552509   | ●               | 250                 | 2                 | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-300-HDG  | 552510   | ●               | 300                 | 2                 | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-350-HDG  | 552511   | ●               | 350                 | 3                 | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-400-HDG  | 552512   | ●               | 400                 | 3                 | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-550-HDG  | 552513   | ●               | 550                 | 3                 | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-1050-HDG | 552514   | ●               | 1,050               | 5                 | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |
| FES-H-I-40/22-6070-HDG | 552515   | ●               | 6,070               | 25                | No       | I Anchor     | hot-dip galvanised | FBC-40/22 | M10 - M16   | 1                   |

## Technical data

Profile FES-H-50/30



FES-H

|                     |          | Approval | Length    | Number of anchors | Serrated | Type         | Coating            | Match                   | Thread                                         | Sales unit |
|---------------------|----------|----------|-----------|-------------------|----------|--------------|--------------------|-------------------------|------------------------------------------------|------------|
|                     | Item no. | ETA      | l<br>[mm] | l                 |          |              |                    |                         | M                                              | [pcs]      |
| Item                |          |          |           |                   |          |              |                    |                         |                                                |            |
| FES-H-50/30-150-HDG | 552484   | ●        | 150       | 2                 | No       | Round anchor | hot-dip galvanised | FBC-50/30 / FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1          |
| FES-H-50/30-200-HDG | 552485   | ●        | 200       | 2                 | No       | Round anchor | hot-dip galvanised | FBC-50/30 / FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1          |
| FES-H-50/30-250-HDG | 552486   | ●        | 250       | 2                 | No       | Round anchor | hot-dip galvanised | FBC-50/30 / FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1          |
| FES-H-50/30-300-HDG | 552487   | ●        | 300       | 2                 | No       | Round anchor | hot-dip galvanised | FBC-50/30 / FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1          |
| FES-H-50/30-350-HDG | 552488   | ●        | 350       | 3                 | No       | Round anchor | hot-dip galvanised | FBC-50/30 / FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1          |
| FES-H-50/30-400-HDG | 552489   | ●        | 400       | 3                 | No       | Round anchor | hot-dip galvanised | FBC-50/30 / FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1          |
| FES-H-50/30-550-HDG | 552490   | ●        | 550       | 3                 | No       | Round anchor | hot-dip galvanised | FBC-50/30 / FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1          |
| FES-H-50/30-800-HDG | 552492   | ●        | 800       | 4                 | No       | Round anchor | hot-dip galvanised | FBC-50/30 / FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1          |

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## Technical data

## Profile FES-H-50/30



FES-H

|                        | Item no. | Approval<br>ETA | Length<br>l<br>[mm] | Number of<br>anchors<br>l | Serrated | Type         | Coating            | Match                  | Thread<br>M                                    | Sales unit<br>[pcs] |
|------------------------|----------|-----------------|---------------------|---------------------------|----------|--------------|--------------------|------------------------|------------------------------------------------|---------------------|
| Item                   |          |                 |                     |                           |          |              |                    |                        |                                                |                     |
| FES-H-50/30-1050-HDG   | 552493   | ●               | 1,050               | 5                         | No       | Round anchor | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-50/30-3050-HDG   | 552494   | ●               | 3,050               | 13                        | No       | Round anchor | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-50/30-6070-HDG   | 552495   | ●               | 6,070               | 25                        | No       | Round anchor | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-150-HDG  | 552516   | ●               | 150                 | 2                         | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-200-HDG  | 552517   | ●               | 200                 | 2                         | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-250-HDG  | 552518   | ●               | 250                 | 2                         | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-300-HDG  | 552519   | ●               | 300                 | 2                         | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-350-HDG  | 552520   | ●               | 350                 | 3                         | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-400-HDG  | 552521   | ●               | 400                 | 3                         | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-550-HDG  | 552522   | ●               | 550                 | 3                         | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-1050-HDG | 552523   | ●               | 1,050               | 5                         | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |
| FES-H-I-50/30-6070-HDG | 552524   | ●               | 6,070               | 25                        | No       | I-Anchor     | hot-dip galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or M20 for FBC-N-50/30 | 1                   |



## Technical data

Profile FES-H-52/34



FES-H

|                     | Item no. | Approval<br>ETA | Length<br>l<br>[mm] | Number of<br>anchors | Serrated | Type         | Coating               | Match                  | Thread<br>M                                       | Sales unit<br>[pcs] |
|---------------------|----------|-----------------|---------------------|----------------------|----------|--------------|-----------------------|------------------------|---------------------------------------------------|---------------------|
| Item                |          |                 |                     |                      |          |              |                       |                        |                                                   |                     |
| FES-H-52/34-150-HDG | 552496   | ●               | 150                 | 2                    | No       | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1                   |
| FES-H-52/34-200-HDG | 552497   | ●               | 200                 | 2                    | No       | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1                   |
| FES-H-52/34-250-HDG | 552498   | ●               | 250                 | 2                    | No       | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1                   |
| FES-H-52/34-300-HDG | 552499   | ●               | 300                 | 2                    | No       | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1                   |
| FES-H-52/34-350-HDG | 552500   | ●               | 350                 | 3                    | No       | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1                   |
| FES-H-52/34-400-HDG | 552501   | ●               | 400                 | 3                    | No       | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1                   |
| FES-H-52/34-550-HDG | 552502   | ●               | 550                 | 3                    | No       | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1                   |
| FES-H-52/34-800-HDG | 552503   | ●               | 800                 | 4                    | No       | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1                   |

## Technical data

Profile FES-H-52/34



FES-H

|                        |        |   |       |    |    |              |                       |                        |                                                   |   |
|------------------------|--------|---|-------|----|----|--------------|-----------------------|------------------------|---------------------------------------------------|---|
| FES-H-52/34-1050-HDG   | 552504 | ● | 1,050 | 5  | No | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-52/34-3050-HDG   | 552505 | ● | 3,050 | 13 | No | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-52/34-6070-HDG   | 552506 | ● | 6,070 | 25 | No | Round anchor | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-150-HDG  | 552525 | ● | 150   | 2  | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-200-HDG  | 552526 | ● | 200   | 2  | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-250-HDG  | 552527 | ● | 250   | 2  | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-300-HDG  | 552528 | ● | 300   | 2  | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-350-HDG  | 552529 | ● | 350   | 3  | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-400-HDG  | 552530 | ● | 400   | 3  | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-550-HDG  | 552531 | ● | 550   | 3  | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-1050-HDG | 552532 | ● | 1,050 | 5  | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |
| FES-H-I-52/34-6070-HDG | 552533 | ● | 6,070 | 25 | No | I-Anchor     | hot-dip<br>galvanised | FBC-50/30, FBC-N-50/30 | M10 - M20 for FBC-50/30 or<br>M20 for FBC-N-50/30 | 1 |

# Cast-in Channel FES-H-S

Hot-rolled and serrated for optimum strength and safety.



Airports



Unitised curtain wall

## Applications

- Suitable for all types of buildings or structures
- Façades
- Prefabricated elements
- Railways
- Metro tunnels and stations
- Industrial applications

## Advantages

- Hot-rolled Cast-in Channels combining optimum load capacity with high safety and flexibility.
- All directional load capacity. Excellent loading capacity in longitudinal direction in combination with FBC-S due to the full serration of the system.
- Ideal prepositioned fixing solution, capable of covering on-site tolerances.
- Suitable for applications in cracked and non-cracked concrete.
- Permanently adjustable fixing solution.

## Approval



ETA-18/0862, FES with special screw FBC

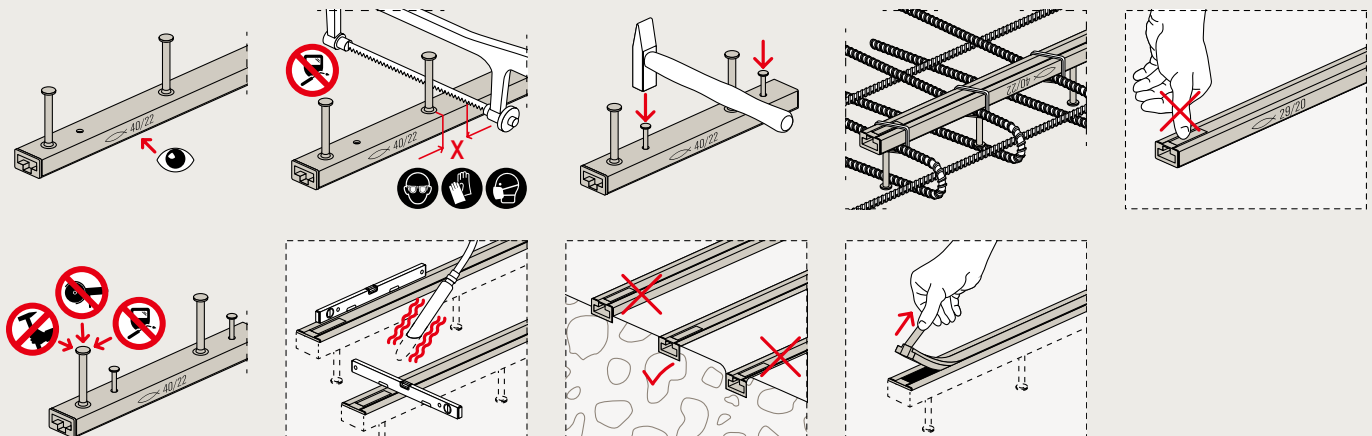
## Building materials

- Concrete C12/15 to C90/105, cracked and non-cracked.

## Functioning

- Suitable for use in combination with serrated T-Bolts FBC-S.

## Installation FES



## Technical data

Profile FES-H-S-29/20



FES-H-S

|                        |          | Approval | Length    | Number of | Serrated | Type         | Coating            | Match       | Thread | Sales unit |
|------------------------|----------|----------|-----------|-----------|----------|--------------|--------------------|-------------|--------|------------|
|                        | Item no. | ETA      | l<br>[mm] | anchors   |          |              |                    |             | M      | [pcs]      |
| Item                   |          |          |           |           |          |              |                    |             |        |            |
| FES-H-S-29/20-150-HDG  | 552446   | ●        | 150       | 2         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-200-HDG  | 552447   | ●        | 200       | 2         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-250-HDG  | 552448   | ●        | 250       | 2         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-300-HDG  | 552449   | ●        | 300       | 3         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-350-HDG  | 552450   | ●        | 350       | 3         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-400-HDG  | 552451   | ●        | 400       | 3         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-500-HDG  | 552452   | ●        | 500       | 4         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-850-HDG  | 552453   | ●        | 850       | 5         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-1050-HDG | 552454   | ●        | 1,050     | 6         | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-3050-HDG | 552455   | ●        | 3,050     | 16        | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |
| FES-H-S-29/20-6070-HDG | 552456   | ●        | 6,070     | 31        | Yes      | Round anchor | hot-dip galvanised | FBC-S-29/20 | M12    | 1          |

## Technical data

Profile FES-H-S-38/23



FES-H-S

|                        |          | Approval | Length    | Number of | Serrated | Type         | Coating            | Match       | Thread    | Sales unit |
|------------------------|----------|----------|-----------|-----------|----------|--------------|--------------------|-------------|-----------|------------|
|                        | Item no. | ETA      | l<br>[mm] | anchors   |          |              |                    |             | M         | [pcs]      |
| Item                   |          |          |           |           |          |              |                    |             |           |            |
| FES-H-S-38/23-150-HDG  | 552457   | ●        | 150       | 2         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-200-HDG  | 552458   | ●        | 200       | 2         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-250-HDG  | 552459   | ●        | 250       | 2         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-300-HDG  | 552460   | ●        | 300       | 2         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-350-HDG  | 552461   | ●        | 350       | 3         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-400-HDG  | 552462   | ●        | 400       | 3         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-550-HDG  | 552463   | ●        | 550       | 3         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-850-HDG  | 552464   | ●        | 850       | 5         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-1050-HDG | 552465   | ●        | 1,050     | 5         | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-3050-HDG | 552466   | ●        | 3,050     | 13        | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |
| FES-H-S-38/23-6070-HDG | 552467   | ●        | 6,070     | 25        | Yes      | Round anchor | hot-dip galvanised | FBC-S-38/23 | M12 - M16 | 1          |

Installation instruction – Minimum edge distances and minimum bolt spacing

- For the installation of the Cast-In Channels the required edge distances, anchor and channel bolt spacings must be respected.
- ETA values always have to be considered.
- fischer recommends the design software fixperience Channel-Fix for a safe and economical evaluation of load and on-site conditions.

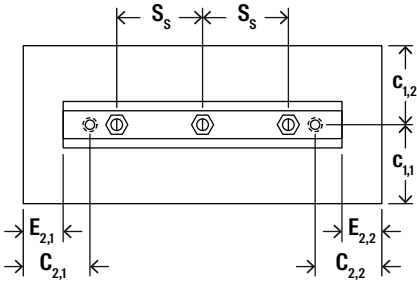
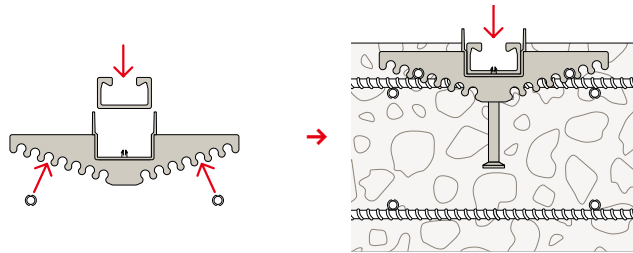


Figure: Minimum edge and bolt spacings

3

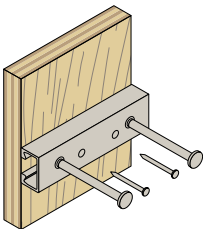
| Profile | Thread<br>M | Min. spacing<br>$S_{s,min}$<br>[mm] | Min. edge sapcing<br>$C_{1,min}$<br>[mm] | Min. edge spacing<br>$C_{2,min}$<br>[mm] | Min. end spacing<br>$E_{min}$<br>[mm] |
|---------|-------------|-------------------------------------|------------------------------------------|------------------------------------------|---------------------------------------|
| 28/15   | M8          | 40                                  | 40                                       | 40                                       | 15                                    |
| 28/15   | M10         | 50                                  | 40                                       | 40                                       | 15                                    |
| 28/15   | M12         | 60                                  | 40                                       | 40                                       | 15                                    |
| 38/17   | M10         | 50                                  | 50                                       | 50                                       | 25                                    |
| 38/17   | M12         | 60                                  | 50                                       | 50                                       | 25                                    |
| 38/17   | M16         | 80                                  | 50                                       | 50                                       | 25                                    |
| 40/25   | M12         | 60                                  | 50                                       | 50                                       | 25                                    |
| 40/25   | M16         | 80                                  | 50                                       | 50                                       | 25                                    |
| 49/30   | M12         | 60                                  | 75                                       | 75                                       | 50                                    |
| 49/30   | M16         | 80                                  | 75                                       | 75                                       | 50                                    |
| 49/30   | M20         | 100                                 | 75                                       | 75                                       | 50                                    |
| 54/33   | M12         | 60                                  | 100                                      | 100                                      | 75                                    |
| 54/33   | M16         | 80                                  | 100                                      | 100                                      | 75                                    |
| 54/33   | M20         | 100                                 | 100                                      | 100                                      | 75                                    |

Channel inward installation options.

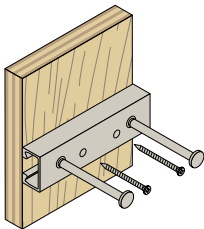


Attach the Cast-in Channel to the plastic clip

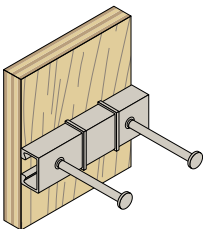
Attach the clip to the rebar



1. Nail fixing



2. Self drilling screw fixing



3. Clamp fixing

# Channel bolt FBC

Standard channel bolt strong, safe and flexible.



Pre-cast elements



Unitised curtain wall

3

## Applications

- Suitable for all types of buildings or structures
- Facçades
- Prefabricated elements
- Railways
- Metro tunnels and stations
- Industrial applications

## Advantages

- FBC bolts with smooth underside fitting to Cast-in Channels with smooth channel lips.
- High load bearing capacity combined with flexibility.
- Two directional load capacity.

- Ideal prepositioned fixing solution, capable of covering on-site tolerances.
- Suitable for applications in cracked and non-cracked concrete.
- Permanently adjustable fixing solution.

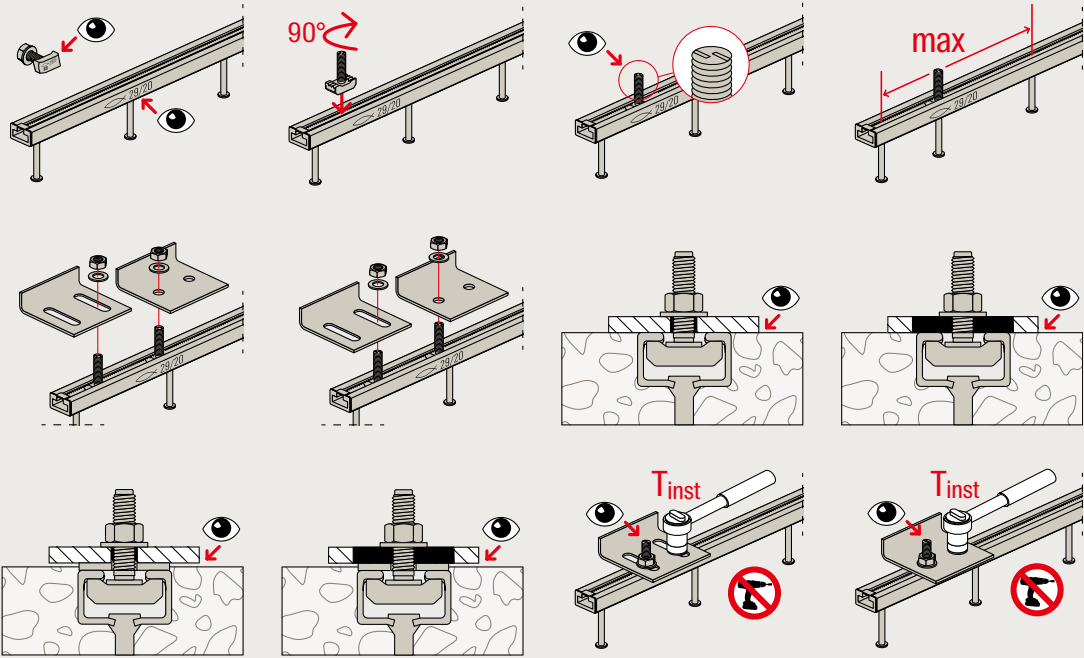
## Building materials

- Concrete C12/15 to C90/105, cracked and non-cracked.

## Functioning

- FBC channel bolts can be variably set in the planned position of Cast-in Channels.
- They are easily fixed by turning them 90° clockwise and then applying the specified torque moment.
- Suitable for use in combination with hot-rolled and cold-rolled fischer Cast-in Channels FES-C, FES-H and FES-H-S.

Installation FBC



Technical data

Channel bolt FBC-28/15

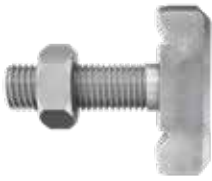


| Bolt FBC                 |          |        |                     |                 |                    |             |                     |
|--------------------------|----------|--------|---------------------|-----------------|--------------------|-------------|---------------------|
|                          | Item no. | Thread | Length<br>l<br>[mm] | Material        | Coating            | Match       | Sales unit<br>[pcs] |
| Item                     |          |        |                     |                 |                    |             |                     |
| FBC-28/15-M8x40-8.8-HDG  | 552600   | M8     | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-C-28/15 | 270                 |
| FBC-28/15-M10x40-8.8-HDG | 552604   | M10    | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-C-28/15 | 240                 |
| FBC-28/15-M12x30-8.8-HDG | 552605   | M12    | 30                  | Steel grade 8.8 | hot-dip galvanised | FES-C-28/15 | 210                 |
| FBC-28/15-M12x40-8.8-HDG | 552606   | M12    | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-C-28/15 | 180                 |
| FBC-28/15-M12x60-8.8-HDG | 552607   | M12    | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-C-28/15 | 180                 |
| FBC-28/15-M12x80-8.8-HDG | 552609   | M12    | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-C-28/15 | 150                 |



## Technical data

## Channel bolt FBC-38/17



Bolt FBC

|                          | Item no. | Thread<br>M | Length<br>l<br>[mm] | Material        | Coating            | Match       | Sales unit<br>[pcs] |
|--------------------------|----------|-------------|---------------------|-----------------|--------------------|-------------|---------------------|
| Item                     |          |             |                     |                 |                    |             |                     |
| FBC-38/17-M10x30-8.8-HDG | 552610   | M10         | 30                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 240                 |
| FBC-38/17-M10x40-8.8-HDG | 552613   | M10         | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 240                 |
| FBC-38/17-M10x60-8.8-HDG | 552616   | M10         | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 210                 |
| FBC-38/17-M10x80-8.8-HDG | 552619   | M10         | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 210                 |
| FBC-38/17-M12x40-8.8-HDG | 552622   | M12         | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 180                 |
| FBC-38/17-M12x60-8.8-HDG | 552623   | M12         | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 180                 |
| FBC-38/17-M12x80-8.8-HDG | 552624   | M12         | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 150                 |
| FBC-38/17-M16x50-8.8-HDG | 552625   | M16         | 50                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 90                  |
| FBC-38/17-M16x80-8.8-HDG | 552626   | M16         | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-C-38/17 | 60                  |

## Technical data

## Channel bolt FBC-40/22



Bolt FBC

|                           | Item no. | Thread<br>M | Length<br>l<br>[mm] | Material        | Coating            | Match                    | Sales unit<br>[pcs] |
|---------------------------|----------|-------------|---------------------|-----------------|--------------------|--------------------------|---------------------|
| Item                      |          |             |                     |                 |                    |                          |                     |
| FBC-40/22-M12x40-8.8-HDG  | 552627   | M12         | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 180                 |
| FBC-40/22-M12x50-8.8-HDG  | 552628   | M12         | 50                  | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 180                 |
| FBC-40/22-M12x60-8.8-HDG  | 552629   | M12         | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 150                 |
| FBC-40/22-M12x80-8.8-HDG  | 552630   | M12         | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 120                 |
| FBC-40/22-M12x100-8.8-HDG | 552637   | M12         | 100                 | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 120                 |
| FBC-40/22-M16x50-8.8-HDG  | 552650   | M16         | 50                  | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 60                  |
| FBC-40/22-M16x60-8.8-HDG  | 552655   | M16         | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 60                  |
| FBC-40/22-M16x80-8.8-HDG  | 552656   | M16         | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 60                  |
| FBC-40/22-M16x100-8.8-HDG | 552657   | M16         | 100                 | Steel grade 8.8 | hot-dip galvanised | FES-H-40/22, FES-C-40/25 | 60                  |

## Technical data

Channel bolt FBC-50/30



Bolt FBC

| Item                      | Item no. | Thread | Length    | Material        | Coating            | Match                                              | Sales unit |
|---------------------------|----------|--------|-----------|-----------------|--------------------|----------------------------------------------------|------------|
|                           |          | M      | l<br>[mm] |                 |                    |                                                    | [pcs]      |
| FBC-50/30-M12x40-8.8-HDG  | 552658   | M12    | 40        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 180        |
| FBC-50/30-M12x50-8.8-HDG  | 552659   | M12    | 50        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 150        |
| FBC-50/30-M12x60-8.8-HDG  | 552661   | M12    | 60        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 150        |
| FBC-50/30-M12x80-8.8-HDG  | 552663   | M12    | 80        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 150        |
| FBC-50/30-M12x100-8.8-HDG | 552667   | M16    | 100       | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 120        |
| FBC-50/30-M16x50-8.8-HDG  | 552669   | M16    | 50        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 60         |
| FBC-50/30-M16x60-8.8-HDG  | 552671   | M16    | 60        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 60         |
| FBC-50/30-M16x80-8.8-HDG  | 552673   | M16    | 80        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 60         |
| FBC-50/30-M16x100-8.8-HDG | 552675   | M16    | 100       | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 60         |
| FBC-50/30-M16x125-8.8-HDG | 552676   | M16    | 125       | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 60         |
| FBC-50/30-M20x60-8.8-HDG  | 552677   | M20    | 60        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 30         |
| FBC-50/30-M20x80-8.8-HDG  | 552678   | M20    | 80        | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 30         |
| FBC-50/30-M20x100-8.8-HDG | 552679   | M20    | 100       | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 30         |
| FBC-50/30-M20x125-8.8-HDG | 552684   | M20    | 125       | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 30         |
| FBC-50/30-M20x200-8.8-HDG | 552686   | M20    | 200       | Steel grade 8.8 | hot-dip galvanised | FES-C-49/30, FES-H-50/30, FES-H-52/34, FES-C-54/33 | 30         |

Required installation torque  $T_{inst}$ 

| Standard channel bold FBC |        |                      |                           |
|---------------------------|--------|----------------------|---------------------------|
| Profile                   | Thread | General (A)          | Steel – steel contact (B) |
|                           | M      | $T_{inst,g}$<br>[Nm] | $T_{inst,s}$<br>[Nm]      |
| FBC-40/22                 | M10    | 15                   | 30                        |
|                           | M12    | 25                   | 45                        |
|                           | M16    | 50                   | 100                       |
| FBC-50/30                 | M10    | 15                   | 30                        |
|                           | M12    | 25                   | 45                        |
|                           | M16    | 60                   | 100                       |
|                           | M20    | 75                   | 230                       |

# Channel bolt FBC-N

Notched channel bolt for excellent strength and safety.



Railway tunnels



Unitised curtain wall

3

## Applications

- Suitable for all types of buildings or structures
- Facçades
- Prefabricated elements
- Railways
- Metro tunnels and stations
- Industrial applications

## Advantages

- FBC-N bolts with notched underside perfectly fitting to hot-rolled Cast-in channel lips.
- Thus giving excellent load capacity with high safety.
- All directional load capacity.
- Plus fundamental load capacity in

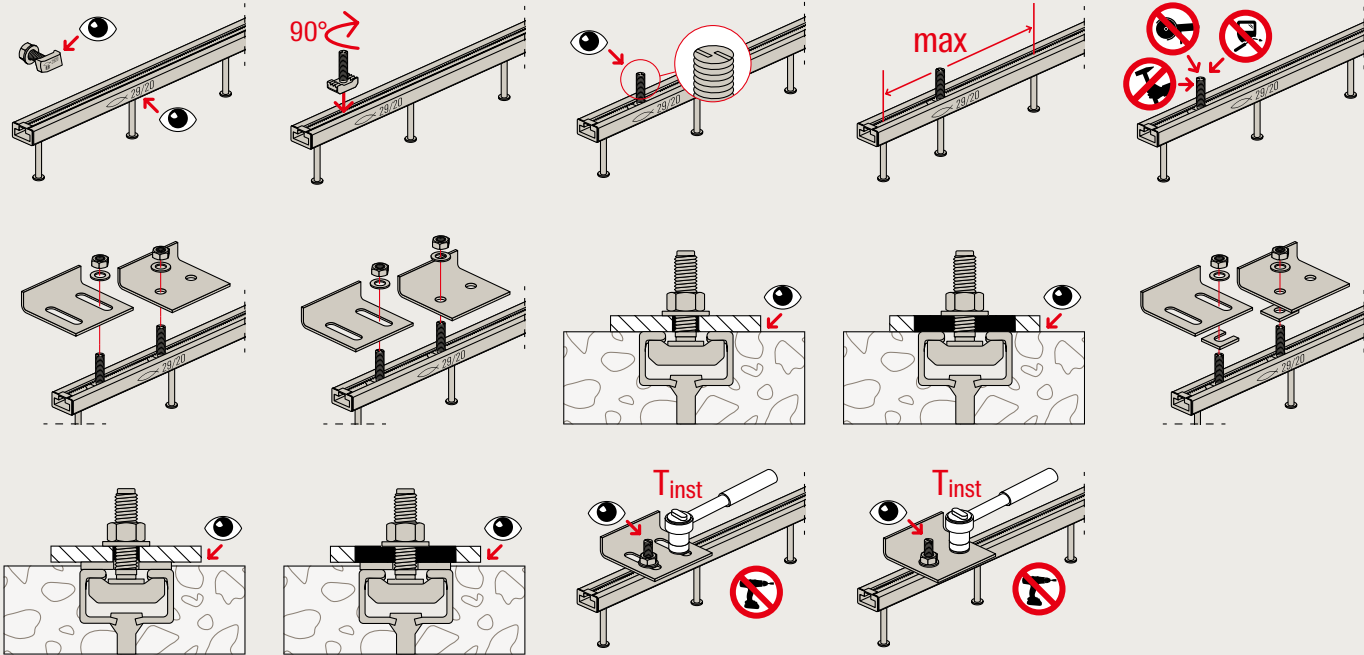
longitudinal direction.

- Ideal prepositioned fixing solution, capable of covering on-site tolerances.
- Suitable for applications in cracked and non-cracked concrete.
- Permanently adjustable fixing solution.

## Functioning

- FBC-N channel bolts can be variably set in the planned position of Cast-in Channels.
- They are easily fixed by turning them 90° clockwise and then applying the specified torque moment.
- Suitable for use in combination with hot rolled Cast-in Channels fischer FES-H.

Installation FBC



Technical data

Channel bolt FBC-N



Bolt FBC N

| Item                        | Item no. | Thread<br>M | Length<br>l<br>[mm] | Material        | Coating            | Match                    | Sales unit<br>[pcs] |
|-----------------------------|----------|-------------|---------------------|-----------------|--------------------|--------------------------|---------------------|
| FBC-N-50/30-M20x60-8.8-HDG  | 552689   | M20         | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-H-50/30, FES-H-52/34 | 30                  |
| FBC-N-50/30-M20x80-8.8-HDG  | 552690   | M20         | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-H-50/30, FES-H-52/34 | 30                  |
| FBC-N-50/30-M20x100-8.8-HDG | 552691   | M20         | 100                 | Steel grade 8.8 | hot-dip galvanised | FES-H-50/30, FES-H-52/34 | 30                  |
| FBC-N-50/30-M20x125-8.8-HDG | 552693   | M20         | 125                 | Steel grade 8.8 | hot-dip galvanised | FES-H-50/30, FES-H-52/34 | 30                  |
| FBC-N-50/30-M20x200-8.8-HDG | 552699   | M20         | 200                 | Steel grade 8.8 | hot-dip galvanised | FES-H-50/30, FES-H-52/34 | 30                  |

Required installation torque  $T_{inst}$

| Channel bolt FBC-N |             |                                     |                                                   |
|--------------------|-------------|-------------------------------------|---------------------------------------------------|
| Profile            | Thread<br>M | General (A)<br>$T_{inst,g}$<br>[Nm] | Steel – steel contact (B)<br>$T_{inst,s}$<br>[Nm] |
| FBC-N-50/30        | M20         | –                                   | 400                                               |

# Channel bolt FBC-S

Serrated channel bolt for optimum strength and safety.



Pre-cast elements



Unitised curtain wall

3

## Applications

- Suitable for all types of buildings or structures
- Facçades
- Prefabricated elements
- Railways
- Metro tunnels and stations
- Industrial applications

## Advantages

- FBC-S bolts with serrated underside perfectly interlock with channels with serrated lips.
- Thus giving optimum load capacity with high safety.
- All directional load capacity.
- Plus optimum load capacity in longitudinal direction in combination with FES-H-S

- due to the full serration of the system.
- Ideal prepositioned fixing solution, capable of covering on-site tolerances.
- Suitable for applications in cracked and non-cracked concrete.
- Permanently adjustable fixing solution.

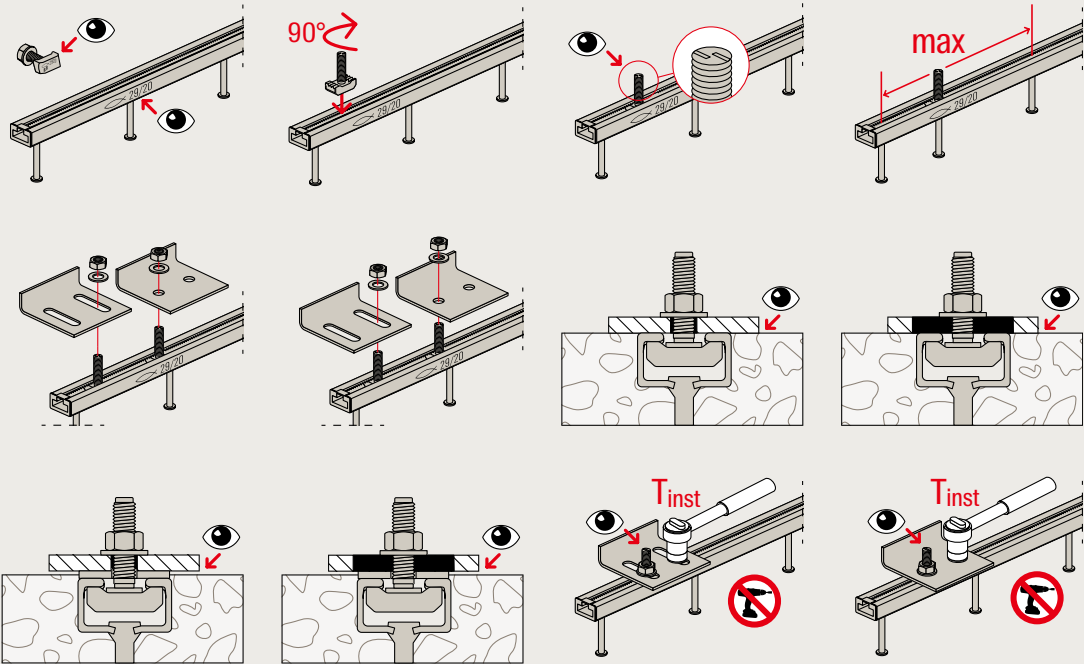
## Building materials

- Concrete C12/15 to C90/105, cracked and non-cracked.

## Functioning

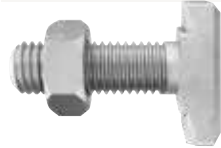
- FBC-S channel bolts can be variably set in the planned position of Cast-in Channels.
- They are easily fixed by turning them 90° clockwise and then applying the specified torque moment.
- Suitable for use in combination with hot-rolled and serrated Cast-in Channels fischer FES-H-S.

Installation FBC



Technical data

Channel bolt FBC-S-29/20



Bolt FBC S

|                            | Item no. | Thread<br>M | Length<br>l<br>[mm] | Material        | Coating            | Match         | Sales unit<br>[pcs] |
|----------------------------|----------|-------------|---------------------|-----------------|--------------------|---------------|---------------------|
| Item                       |          |             |                     |                 |                    |               |                     |
| FBC-S-29/20-M12x40-8.8-HDG | 552700   | M12         | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-29/20 | 180                 |
| FBC-S-29/20-M12x50-8.8-HDG | 552704   | M12         | 50                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-29/20 | 150                 |
| FBC-S-29/20-M12x60-8.8-HDG | 552705   | M12         | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-29/20 | 150                 |
| FBC-S-29/20-M12x80-8.8-HDG | 552711   | M12         | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-29/20 | 150                 |

Technical data

Channel bolt FBC-S-38/23



Bolt FBC S

|                            | Item no. | Thread<br>M | Length<br>l<br>[mm] | Material        | Coating            | Match         | Sales unit<br>[pcs] |
|----------------------------|----------|-------------|---------------------|-----------------|--------------------|---------------|---------------------|
| Item                       |          |             |                     |                 |                    |               |                     |
| FBC-S-38/23-M12x40-8.8-HDG | 552712   | M12         | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-38/23 | 150                 |
| FBC-S-38/23-M12x50-8.8-HDG | 552713   | M12         | 50                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-38/23 | 150                 |
| FBC-S-38/23-M12x60-8.8-HDG | 552714   | M12         | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-38/23 | 120                 |
| FBC-S-38/23-M12x80-8.8-HDG | 552718   | M12         | 80                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-38/23 | 120                 |



## Technical data

### Channel bolt FBC-S-38/23



Bolt FBC S

|                             | Item no. | Thread<br>M | Length<br>l<br>[mm] | Material        | Coating            | Match         | Sales unit<br>[pcs] |
|-----------------------------|----------|-------------|---------------------|-----------------|--------------------|---------------|---------------------|
| Item                        |          |             |                     |                 |                    |               |                     |
| FBC-S-38/23-M16x40-8.8-HDG  | 552719   | M16         | 40                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-38/23 | 60                  |
| FBC-S-38/23-M16x60-8.8-HDG  | 552720   | M16         | 60                  | Steel grade 8.8 | hot-dip galvanised | FES-H-S-38/23 | 60                  |
| FBC-S-38/23-M16x100-8.8-HDG | 552721   | M16         | 100                 | Steel grade 8.8 | hot-dip galvanised | FES-H-S-38/23 | 60                  |

## Required installation torque $T_{inst}$

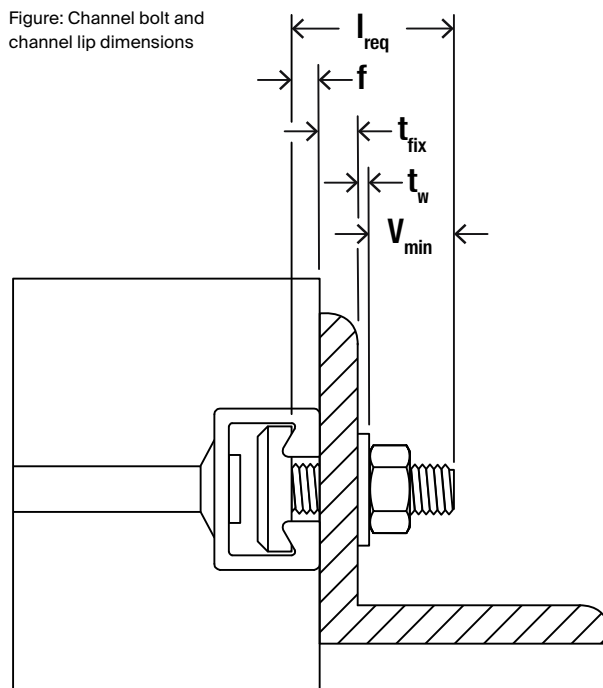
| Channel bolt FBC-S |             |                                     |                                                   |
|--------------------|-------------|-------------------------------------|---------------------------------------------------|
| Profile            | Thread<br>M | General (A)<br>$T_{inst,g}$<br>[Nm] | Steel - steel contact (B)<br>$T_{inst,s}$<br>[Nm] |
| FBC-S-29/30        | M12         | 80                                  | 80                                                |
| FBC-S-38/23        | M12         | 80                                  | 80                                                |
|                    | M16         | 100                                 | 100                                               |

## Channel bolt installation parameter

| $V_{min}$ /size     |                   |
|---------------------|-------------------|
| Channel bolt thread | $V_{min}$<br>[mm] |
| M10                 | 14.5              |
| M12                 | 117               |
| M16                 | 20.5              |
| M20                 | 26                |

| Cast-in Channel system lip thickness f |                   |
|----------------------------------------|-------------------|
| Profile                                | Thickness<br>[mm] |
| H-S-29/20                              | 5.2               |
| H-S-38/23                              | 6                 |
| H-40/22                                | 6.2               |
| H-50/30                                | 8.1               |
| H-52/34                                | 11.5              |
| C-28/15                                | 2.3               |
| C-38/17                                | 3.0               |
| C-40/25                                | 6.0               |
| C-49/30                                | 7.0               |
| C-54/33                                | 8.5               |

Figure: Channel bolt and channel lip dimensions



$l_{req}$  = required bolt length  
 $t_{fix}$  = thickness of clamped component  
 $f$  = profile lip thickness  
 $t_w$  = washer thickness  
 $V_{min}$  = nut height EN ISO 4032 + overhang approximately 5 mm (for M20: 7 mm)

# Intumescent Acoustic Mastic FiAM

Flexible fire resistant acoustic mastic



Construction joint application



Non combustible pipe application

## Applications

- Metallic pipes: 13" (325 mm)
- Cable trays: 18" x 2" (450 x 50 mm)
- Cable bunches: 4" (100 mm)
- Linear joints: flexible and rigid construction elements
- Joints between FCPS coated panel system

## Advantages

- Water based
- Low VOC
- Movement capability  $\pm 25\%$
- Excellent acoustic properties
- Approved for infinite linear gap length
- Halogen and solvent free
- Paintable and excellent slump characteristics

## Certificates



ETA-20/1065  
ETA-20/1064



EN ISO 10140  
EN 1026  
EN 1366-3  
EN 1366-4  
ASTM E 84 (UL 723)  
ASTM E 1966 (UL 2079)

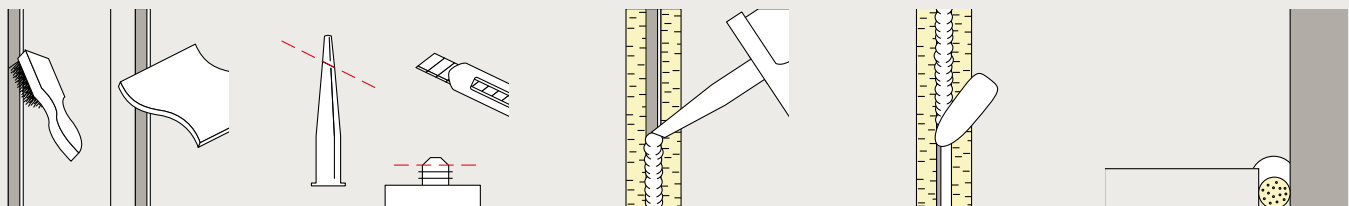
## Building materials

- Flexible wall constructions
- Rigid floor and wall constructions
- Masonry
- Concrete
- Timber
- Steel
- FCPS System

## Functioning

- FiAM is a one-part water-based acrylic emulsion.
- It has a fire resistance of up to 5 hours when used in construction joints and services in both vertical and horizontal applications.
- When exposed to fire, it reacts to form a highly insulative char that slows down heat transfer and provides a barrier to fire.
- It is suitably compatible in a variety of materials, and is utilised within the FCPS which is designed to seal large openings in fire rated floors and walls.

## Installation FiAM



## Intumescent Acoustic Mastic FIAM

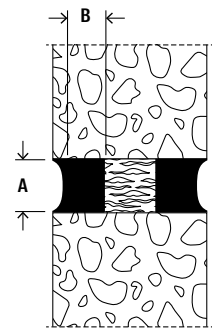
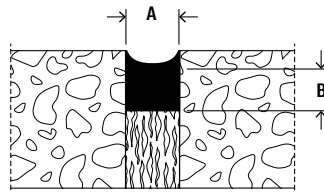
|                       |          | Ap-<br>pro-<br>val | Languages on the cartridge | Contents | Adapted for                           | Sales unit |
|-----------------------|----------|--------------------|----------------------------|----------|---------------------------------------|------------|
| Item                  | Item no. | ETA                |                            | [ml]     |                                       | [pcs]      |
| FIAM 310              | 053011   | ●                  | DE, FR, EN, IT             | 310      | –                                     | 1          |
| FIAM 310              | 538152   | ●                  | DK, FI, SE, NO             | 310      | –                                     | 1          |
| FIAM 310              | 538150   | ●                  | TR, PT, ES, NL             | 310      | –                                     | 1          |
| FIAM 310              | 538151   | ●                  | PL, SK, CZ, HU             | 310      | –                                     | 1          |
| FIAM 600              | 056006   | ●                  | –                          | 600      | –                                     | 1          |
| KPM 2 Plus            | 053117   | –                  | –                          | –        | FIAM 310, FFRS 310, UFS 310, FiGM 310 | 1          |
| Applicator gun 600 ml | 097967   | –                  | –                          | –        | FIAM 600 ml                           | 1          |

4

## Technical data

|                               |                               |
|-------------------------------|-------------------------------|
| Base material                 | Water-based acrylic           |
| Relative gravity              | approx. 1.6 g/cm <sup>3</sup> |
| Skin-forming time             | approx. 10 min at 23 °C RH    |
| Curing rate                   | approx. 1.5 mm per 24 hours   |
| Storage temperature           | + 5 °C to + 25 °C             |
| Movement capability           | ±25 %                         |
| Shelf life                    | 18 month                      |
| pH Value                      | 8 - 9.5                       |
| Acoustic performance          | 63 dB                         |
| Yield per l/m                 | depending on application      |
| Colour                        | white (grey on request)       |
| European Technical Assessment | ETA-20/1064, ETA-20/1065      |
| CE marking                    | 2531-CPR-CX010321             |

Curing rate is dependent on substrate, air humidity and weather conditions.



## Application data

| Joint width<br>A<br>[mm] | Joint depth<br>B<br>[mm] | ml per linear metres* |
|--------------------------|--------------------------|-----------------------|
| 60                       | 5                        | 300                   |
| 50                       | 5                        | 250                   |
| 30                       | 5                        | 150                   |
| 15                       | 5                        | 75                    |
| 5                        | 5                        | 25                    |

\*The consumption of the product depends on the application.

| Substrate                    | Max. joint width | Fire ratings              |                            |
|------------------------------|------------------|---------------------------|----------------------------|
|                              | [mm]             | Integrity rating<br>[min] | Insulation rating<br>[min] |
| Concrete/masonry             | 60               | 240                       | 240                        |
| Concrete or masonry/steel    | 60               | 240                       | 60                         |
| Concrete or masonry/timber   | 60               | 60                        | 60                         |
| Concrete/masonry/head detail | 60               | 240                       | 240                        |

For detailed information please refer to listed system.

| Service type size        |                                 | Fire ratings              |                            |
|--------------------------|---------------------------------|---------------------------|----------------------------|
|                          |                                 | Integrity rating<br>[min] | Insulation rating<br>[min] |
| Copper/steel/metal pipes | 35 - 159 mm diameter            | up to 240                 | up to 240                  |
| Loaded cable tray        | 450 x 50 (tray) cables to 21 mm | up to 120                 | up to 90                   |
| Single/bunched cables    | 21 - 100 mm diameter cables     | up to 120                 | up to 120                  |

# Fire Rated Silicone Sealant FFRS

Elastomeric fire resistant sealant



Construction joint application



Vertical construction joint application

4

## Applications

- General construction joints in floor to floor, wall to wall, floor to wall and head of wall up to 2.36" (60 mm)
- Internal and external applications

## Advantages

- Excellent acoustic properties
- Primerless adhesion to most substrates
- Approved for infinite linear gap length
- Halogen and solvent free
- Excellent slump characteristics
- Movement capability  $\pm 7.5\%$

## Certificates



EN ISO 10140  
EN 1026  
EN 1366-4



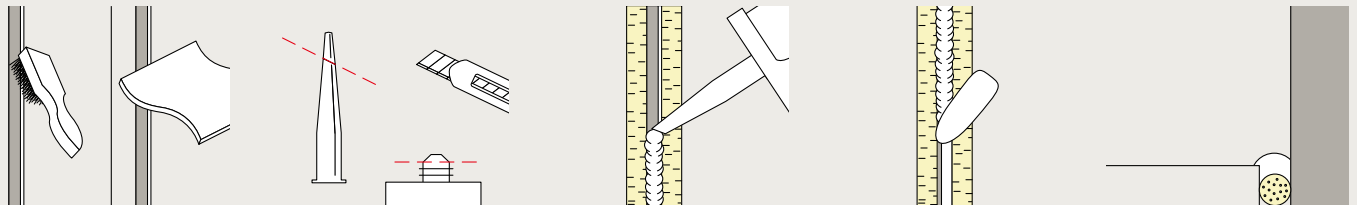
## Building materials

- Concrete
- Masonry
- Steel
- Timber

## Functioning

- FFRS is a one part silicone based sealant that can provide up to 5 hours fire resistance when used in construction joints.
- It provides primerless adhesion to a wide range of porous and non-porous substrates.

## Installation FFRS



Technical data

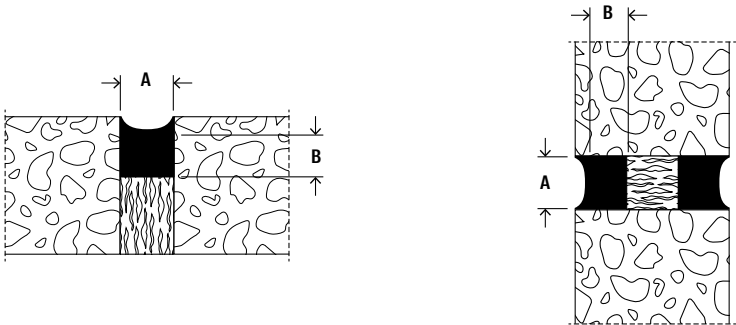
|                   |          | Ap-<br>pro-<br>val | Languages on the cartridge | Contents | Adapted for                           | Sales unit |
|-------------------|----------|--------------------|----------------------------|----------|---------------------------------------|------------|
| Item              | Item no. | ETA                |                            | [ml]     |                                       | [pcs]      |
| FFRS White 310 ml | 512374   | ●                  | DE, FR, EN, IT             | 310      | –                                     | 1          |
| FFRS White 310 ml | 538140   | ●                  | DK, FI, SE, NO             | 310      | –                                     | 1          |
| FFRS White 310 ml | 538138   | ●                  | TR, PT, ES, NL             | 310      | –                                     | 1          |
| FFRS White 310 ml | 538139   | ●                  | PL, SK, CZ, HU             | 310      | –                                     | 1          |
| KPM 2 Plus        | 053117   | –                  | –                          | –        | FIAM 310, FFRS 310, UFS 310, FIGM 310 | 1          |

4

Technical data

|                               |                                                                      |
|-------------------------------|----------------------------------------------------------------------|
| Curing system                 | Alcoxy                                                               |
| Relative gravity              | 1.17 kg/m³                                                           |
| Skin-forming time             | approx. 5 - 10 min (at 25 °C and 50% relative humidity)              |
| Tack free after               | approx. 20 min                                                       |
| Curing rate                   | approx. 2 to 3 mm per 24 hours (at 25 °C and 50 % relative humidity) |
| Shore A hardness              | 25                                                                   |
| Extrudability                 | 55 (standard MNRPS 495A 3 mm/3 bars)                                 |
| Movement capability           | ±7.5 %                                                               |
| Shelf life                    | up to 12 month                                                       |
| European Technical Assessment | ETA-20/1102                                                          |
| Colour                        | white (grey and black on request)                                    |
| Elastic recovery              | > 90 %                                                               |
| Acoustic performance          | 38 dB                                                                |

The cured sealant is unaffected by water, dilute acids and alkalis, soap and household detergents. Certain solvents may soften and swell the cured rubber on prolonged contact.



Application data

| Joint width<br>A<br>[mm] | Joint depth<br>B<br>[mm] | ml per linear metres* |
|--------------------------|--------------------------|-----------------------|
| 60                       | 5                        | 300                   |
| 50                       | 5                        | 250                   |
| 30                       | 5                        | 150                   |
| 15                       | 5                        | 75                    |
| 5                        | 5                        | 25                    |

\*The consumption of the product depends on the application.



| Substrate            | Max. joint width | Depth of sealing | Fire ratings              |                            |
|----------------------|------------------|------------------|---------------------------|----------------------------|
|                      | [mm]             | [mm]             | Integrity rating<br>[min] | Insulation rating<br>[min] |
| Masonry/masonry      | 60               | 5                | 240                       | 60                         |
| Masonry/masonry      | 12               | 6                | 240                       | 120                        |
| Masonry/masonry      | 60               | 30               | 240                       | 90                         |
| Masonry/masonry      | 60               | 5                | 240                       | 240                        |
| Masonry/masonry      | 50               | 25               | 240                       | 240                        |
| Masonry/plasterboard | 25               | 20               | 120                       | 120                        |
| Steel/masonry        | 60               | 5                | 240                       | 60                         |
| Wood/masonry         | 60               | 5                | 180                       | 180                        |

For detailed information please refer to listed system.

# FireStop Compound FFSC

Structural fire resistant seal for floors and walls

4



Mixed penetration through the floor



Mixed penetration through the floor

## Applications

- Metallic services with steel and cast iron pipes
- Non-metallic services with FIPW intumescent pipe wrap or FFC pipe collar
- Voids or cavities in floors or walls
- Cable bunches

## Advantages

- Water based
- Low VOC
- Load bearing

- Excellent acoustic properties
- Both vertical and horizontal applications
- Halogen and asbestos free

## Certificates

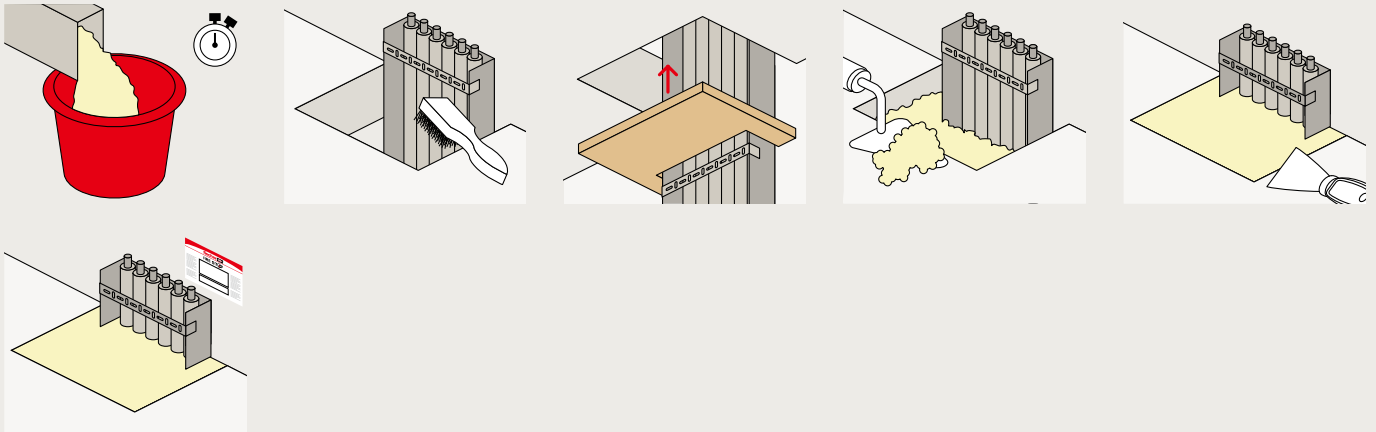


ETA-21/0678  
EN ISO 10140  
EN 1366-3  
ASTM E 814 (UL 1479)

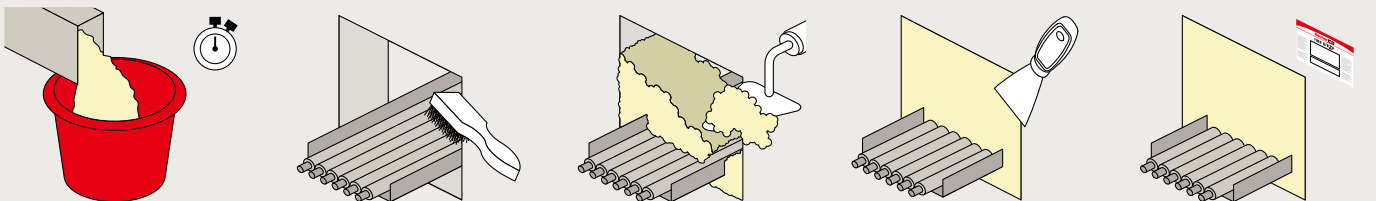
## Functioning

- FFSC is a specially formulated gypsum based compound, which when mixed with water can be trowelled or poured.
- FFSC can provide up to 4 hours integrity and insulation.
- Set within 45 min depending on ambient temperature.
- Capable of accommodating foot traffic within 72 hours.

## Installation FFSC - Floor application



## Installation FFSC - Wall application



## Technical data

| Item       | Item no. | Ap-<br>pro-<br>val<br>ETA | Content<br>[kg] | Sales unit<br>[pcs] |
|------------|----------|---------------------------|-----------------|---------------------|
| FFSC/20 kg | 533247   | ●                         | 20              | 1                   |

## Technical data

|                               |                                      |
|-------------------------------|--------------------------------------|
| Base material                 | Gypsum                               |
| Bulk density                  | 950 kg/m <sup>3</sup>                |
| Wet density                   | 1850                                 |
| Setting time                  | 20 min                               |
| Storage temperature           | + 5 °C to + 25 °C                    |
| Acoustic performance          | 59 dB                                |
| Reaction to fire (EN13501-1)  | Class F                              |
| Shelf life                    | 12 months month                      |
| European Technical Assessment | ETA-21/0678                          |
| Tensile strength              | 30 N/mm <sup>2</sup>                 |
| Thermal conductivity          | 0.57 W/mK at 50 %, 0.65 W/mK at 90 % |
| Colour                        | off white                            |

## Application data

|                | By volume<br>Powder to water ratio |
|----------------|------------------------------------|
| Pourable grade | 2.5 : 1                            |
| Trowable grade | 3 : 1                              |

\* These are approximate calculations based on 20 kg bags. The coverage does not take into account the percentage of the hole filled with services.

\*\* As a further safety margin, we would recommend that all floor seals with clear areas greater than 1,100 mm x 1,100 mm must be reinforced.

Load bearing note: the open area free of services: Thickness of seal ratios for non-reinforced seals given above allow an ample safety margin for normal foot traffic, e.g., loads of two men plus equipment with a combined weight up to 200 kg.

# Intumescent Pipe Wraps FiPW

An intumescent single or endless wrap for sealing flammable pipes

4



Combustible pipes floor application



Combustible pipe wall application

## Applications

- Non-metallic pipes
- Polyvinyl Chloride PVC
- Chlorinated Polyvinyl Chloride cPVC
- Medium-density Polyethylene MDPE
- High-density Polyethylene HDPE
- Acrylonitrile Butadiene ABS

## Advantages

- Efficient and effective for sealing of pipe openings in floors and walls
- Easy to fit
- Moisture resistant
- No mechanical fixing required
- Economical solution
- Up to 2 hours fire resistance
- Asbestos and halogen free
- Available on a roll for more flexibility in pipe diameters

## Certificates



ETA-21/1061  
EN 1366-3

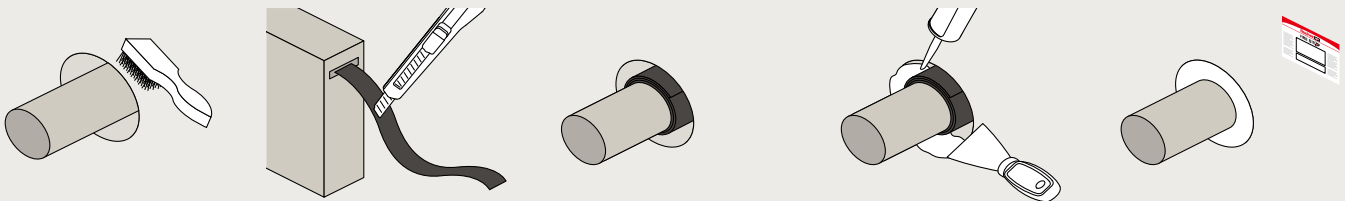
## Building materials

Test Building Materials Print

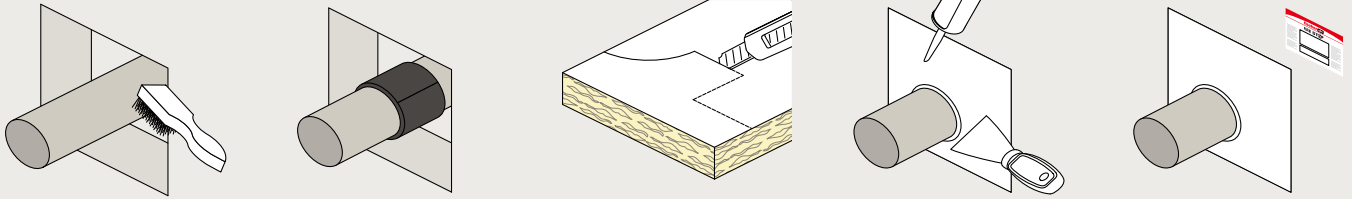
## Functioning

- FiPW is a flexible composite strip, which is composed of thermoplastic component containing intumescent graphite in a synthetic compound and enclosed in an outer polyethylene cover.
- Can also be used as a cast-in solution. For large openings, use in conjunction with FCPS or FFSC.

## Installation FiPW



## Installation FiPW with FCPS

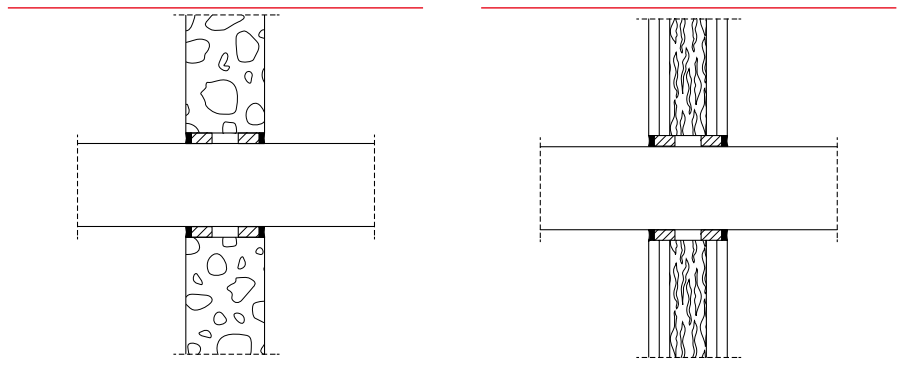


## Technical data

| Item                          | Item no. | Ap-<br>pro-<br>val<br><br>ETA | Fits pipe-Ø<br><br>[mm] | Fire rating<br><br>[hours] | Sales unit<br><br>[pcs] |
|-------------------------------|----------|-------------------------------|-------------------------|----------------------------|-------------------------|
| FiPW E / 2 mm (25 meter roll) | 539608   | ●                             | 30 - 250                | up to 2                    | 1                       |

## Technical data

|                                             |                                             |
|---------------------------------------------|---------------------------------------------|
| State                                       | solid                                       |
| Colour                                      | black inner component in outer foil carrier |
| Odour                                       | odourless                                   |
| Density                                     | 1.3 kg/m <sup>3</sup>                       |
| Expansion ratio                             | 1 : 25                                      |
| Significant expansion occurs at temperature | > 180 °C                                    |
| Storage temperature                         | + 5 °C to + 35 °C                           |
| Thickness                                   | 2 mm                                        |
| European Technical Assessment               | ETA-21/1061                                 |
| CE marking                                  | 2531-CPR-CX010326                           |



## Application data

| Configuration for up to 120 min. |           |           |                           |
|----------------------------------|-----------|-----------|---------------------------|
| Outer pipe diameter<br>[mm]      | No. wraps | Thickness | Length per stacks<br>[mm] |
| 40                               | 1         | 2         | 138                       |
| 55                               | 2         | 4         | 383                       |
| 63                               | 2         | 4         | 434                       |
| 75                               | 2         | 4         | 509                       |
| 82                               | 2         | 4         | 553                       |
| 90                               | 3         | 6         | 923                       |
| 110                              | 3         | 6         | 1112                      |
| 125                              | 4         | 8         | 1696                      |
| 160                              | 4         | 8         | 2136                      |
| 200                              | 5         | 10        | 3331                      |
| 250                              | 7         | 14        | 5846                      |

# Intumescent Graphite Mastic FiGM

High performance intumescent graphite fire resistant mastic



Electrical application



Application of metallic pipes

## Applications

- Metallic pipes: 6" (159 mm)
- Non-metallic pipes: 5" (125 mm)
- Cable bunches: 1" (21 mm)
- Insulated service: 6" (159 mm)
- Construction joints: 1" (25 mm)
- Mixed services

## Advantages

- Low VOC
- Excellent acoustic properties
- Halogen and solvent free
- Excellent slump characteristics

## Certificates



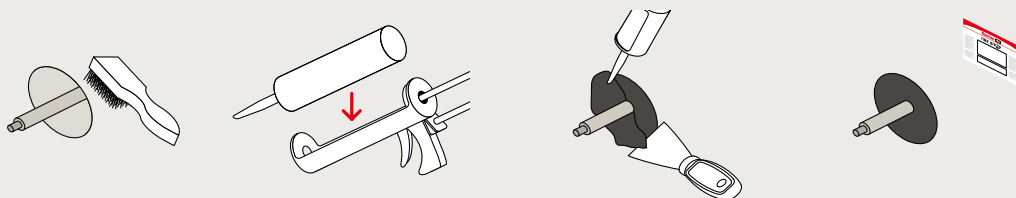
## Building materials

- Concrete
- Masonry
- Steel
- Timber

## Functioning

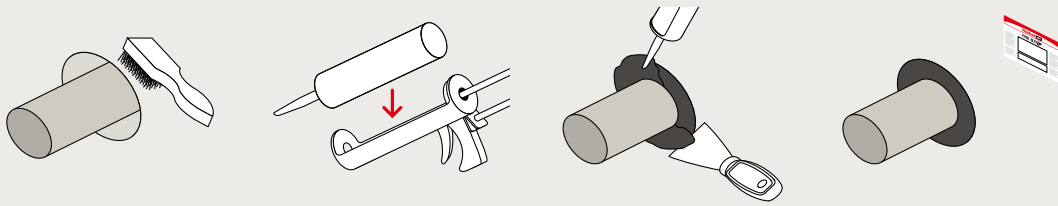
- FiGM is a one-part water-based flexible acrylic emulsion containing a high pressure intumescent graphite, which is used to seal service penetrations in both vertical and horizontal applications.
- It can expand up to 20 times its own volume and cures to form a resilient, flexible fire seal.

## Installation FiGM - Cable application

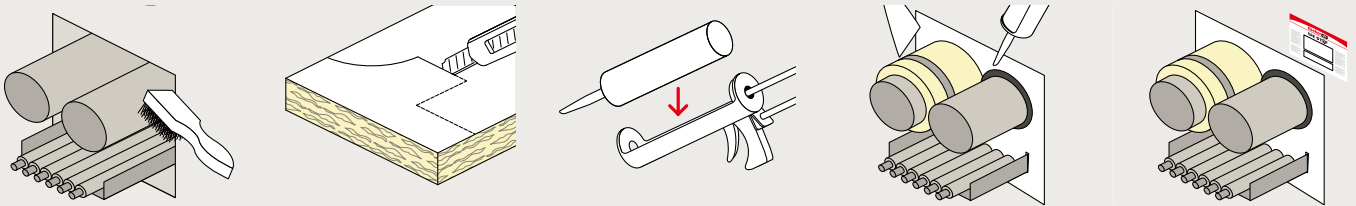




## Installation FiGM - Pipe application



## Installation FiGM - Penetration application



## Technical data

|             |          | Ap-<br>pro-<br>val | Languages on the cartridge | Contents | Adapted for                           | Sales unit |
|-------------|----------|--------------------|----------------------------|----------|---------------------------------------|------------|
| Item        | Item no. | ETA                |                            | [ml]     |                                       | [pcs]      |
| FiGM 310 ml | 508765   | ●                  | DE, FR, EN, IT             | 310      | –                                     | 1          |
| FiGM 310 ml | 538147   | ●                  | TR, PT, ES, NL             | 310      | –                                     | 1          |
| FiGM 310 ml | 538148   | ●                  | PL, SK, CZ, HU             | 310      | –                                     | 1          |
| FiGM 310 ml | 538149   | ●                  | DK, FI, SE, NO             | 310      | –                                     | 1          |
| KPM 2 Plus  | 053117   | –                  | –                          | –        | FIAM 310, FFRS 310, UFS 310, FiGM 310 | 1          |

## Technical data

|                               |                                             |
|-------------------------------|---------------------------------------------|
| Base material                 | Aqueous thixotropic paste                   |
| Density                       | approx. 1.3 g/cm <sup>3</sup>               |
| Curing rate                   | 1.7 mm per 24 hours dependent on conditions |
| Storage temperature           | + 5 °C to + 30 °C                           |
| Tack free after               | 30 min                                      |
| Curing system                 | Water-based                                 |
| UV resistance                 | good                                        |
| Expansion                     | up to 20 times                              |
| Skin-forming time             | 15 min (at 25 °C and 50% relative humidity) |
| Acoustic performance          | 64 dB                                       |
| Shelf life                    | up to 12 month                              |
| European Technical Assessment | ETA-20/1105                                 |
| CE marking                    | 2531-CPR-CX010327                           |
| Chemical and water resistant  | –                                           |
| Colour                        | black                                       |

# Fire Collar FFC

Collar for sealing a wide range of combustible pipes where passing through fire rated walls and floors



Combustible pipe floor application



Combustible pipe wall application

## Applications

- Non-metallic pipes like PVC, HDPE, MDPE, ABS of various sizes through fire rated walls and floor assemblies

## Advantages

- Easy retrofit at any time
- Water resistant
- No minimum annular service required

- Pre-fixed attachment lugs
- Fold back tag for secure fixture around pipe

## Certificates



ETA-20/1066  
EN 1366-3

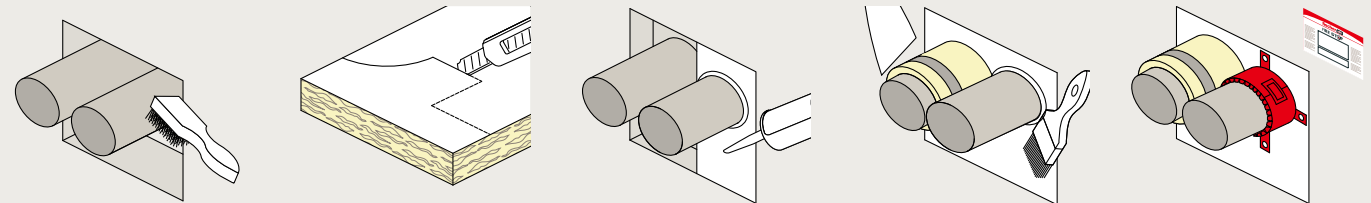
## Building materials

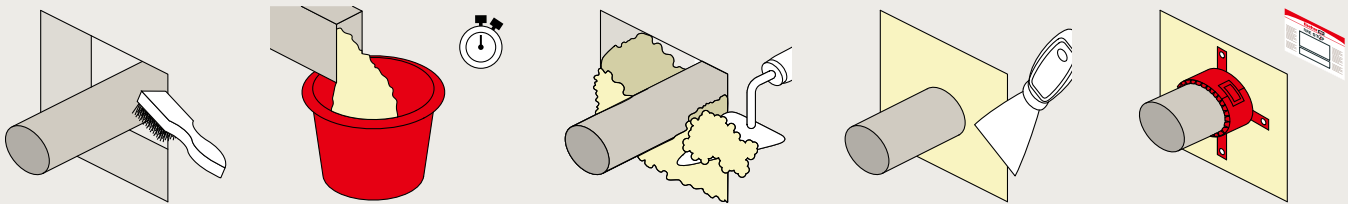
- Flexible and rigid wall constructions
- Solid concrete floors
- Hollow precast floors

## Functioning

- FFC is a powder coated cylindrical steel sleeve, which contains a heat reactive graphite-based intumescent material that expands during fire.
- Designed to be securely fitted around the pipe and held in position with a retaining bolt.
- Any gaps up to 10 mm around FFC should be backfilled with FiAM or larger annular space should be closed with FCPS or FFSC.

## Installation FFC with FCPS





Technical data

| Item        | Item no. | Ap-<br>pro-<br>val<br><br>ETA | Fits pipe-Ø<br><br>[mm] | Sales unit |
|-------------|----------|-------------------------------|-------------------------|------------|
|             |          |                               |                         | [pcs]      |
| FFC 2/30-32 | 052456   | ●                             | 30 - 250                | 1          |
| FFC 2/38-40 | 052480   | ●                             | 38 - 40                 | 1          |
| FFC 2/55    | 052481   | ●                             | 55                      | 1          |
| FFC 2/63    | 052482   | ●                             | 63                      | 1          |
| FFC 2/75    | 052483   | ●                             | 75                      | 1          |
| FFC 2/82    | 052486   | ●                             | 82                      | 1          |
| FFC 2/90    | 052487   | ●                             | 90                      | 1          |
| FFC 2/110   | 052488   | ●                             | 110                     | 1          |
| FFC 2/125   | 052489   | ●                             | 125                     | 1          |
| FFC 2/160   | 052500   | ●                             | 160                     | 1          |
| FFC 2/200   | 052501   | ●                             | 200                     | 1          |

Technical data

|                                             |                                             |
|---------------------------------------------|---------------------------------------------|
| State                                       | solid                                       |
| Odour                                       | odourless                                   |
| Fire resistance                             | up to 4 hours                               |
| Available sizes                             | > 30 mm and max up to 200 mm                |
| Significant expansion occurs at temperature | > 180 °C                                    |
| Storage temperature                         | N/a                                         |
| Shelf life                                  | N/a month                                   |
| Colour                                      | black inner component in outer foil carrier |
| European Technical Assessment               | ETA-20/1063                                 |
| CE marking                                  | 2531-CPR-CX010320                           |

# Intumescent Putty Pad FiPP

Intumescent Putty Pad FiPP

4



Internal application



External application

## Applications

- Most flexible partition assemblies
- Fire and insulation resistance
- Acoustic sealing
- Air permeability
- Plastic and metal electrical outlets

## Advantages

- Excellent acoustic properties
- Internal and external versions available
- Primerless adhesion to most substrates
- Robust detail part E handbook accepted
- No electrical conductivity
- Air permeability
- Quick and simple installation

## Certificates

EN ISO 10140  
EN 1026  
EN 1366-3

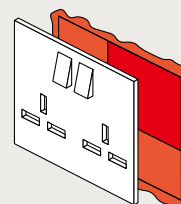
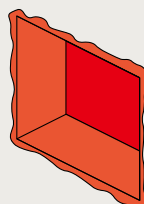
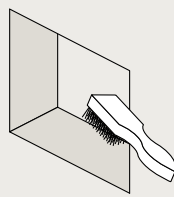
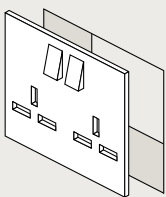
## Building materials

- Most flexible wall partitions constructed from plasterboard/gypsum board, timber and steel studs

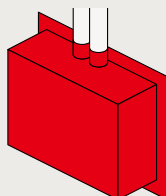
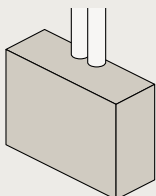
## Functioning

- Can maintain the fire resistance and insulation of flexible wall partitions, where they are penetrated by plastic or metal electrical outlets and cables.
- FiPP can also be used for upgrading the acoustic performance of flexible partitions.

## Installation FiPP - Internal application



## Installation FiPP - External application



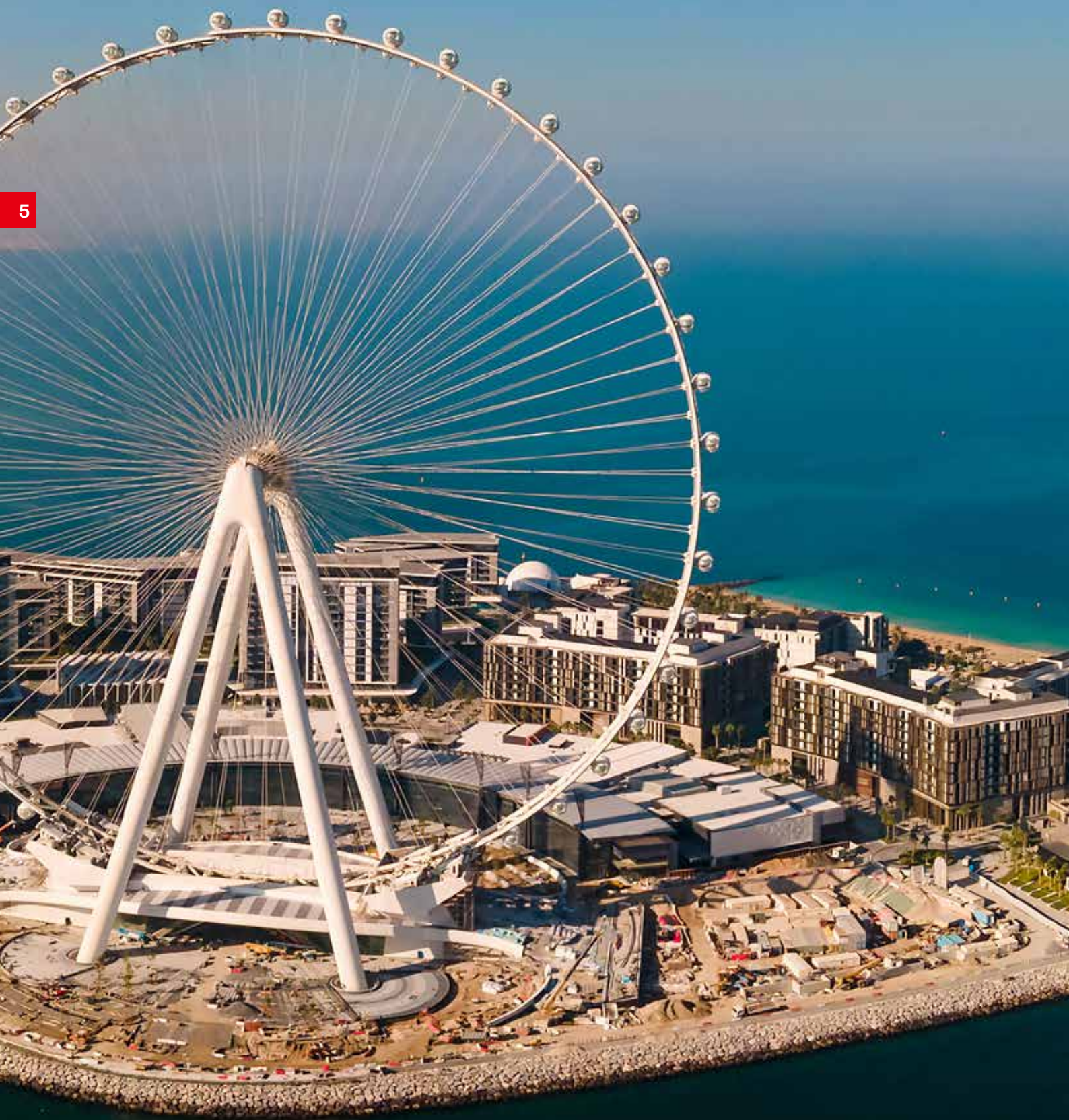
## Technical data

|          |          | Dimensions | Fire rating | Sales unit |
|----------|----------|------------|-------------|------------|
| Item     | Item no. | [mm]       | [hours]     | [pcs]      |
| FiPP/I-S | 053578   | 170 x 170  | 2           | 1          |
| FiPP/I-D | 054757   | 230 x 170  | 2           | 1          |
| FiPP/E-S | 506261   | 155 x 155  | 2           | 1          |
| FiPP/E-D | 506262   | 210 x 180  | 2           | 1          |

## Technical data

|                      |                        |
|----------------------|------------------------|
| Base material        | Drywall                |
| Specific gravity     | 1.55 kg/m <sup>3</sup> |
| Acoustic performance | 66 dB                  |
| Colour               | red                    |







# 5

## Application & Reference

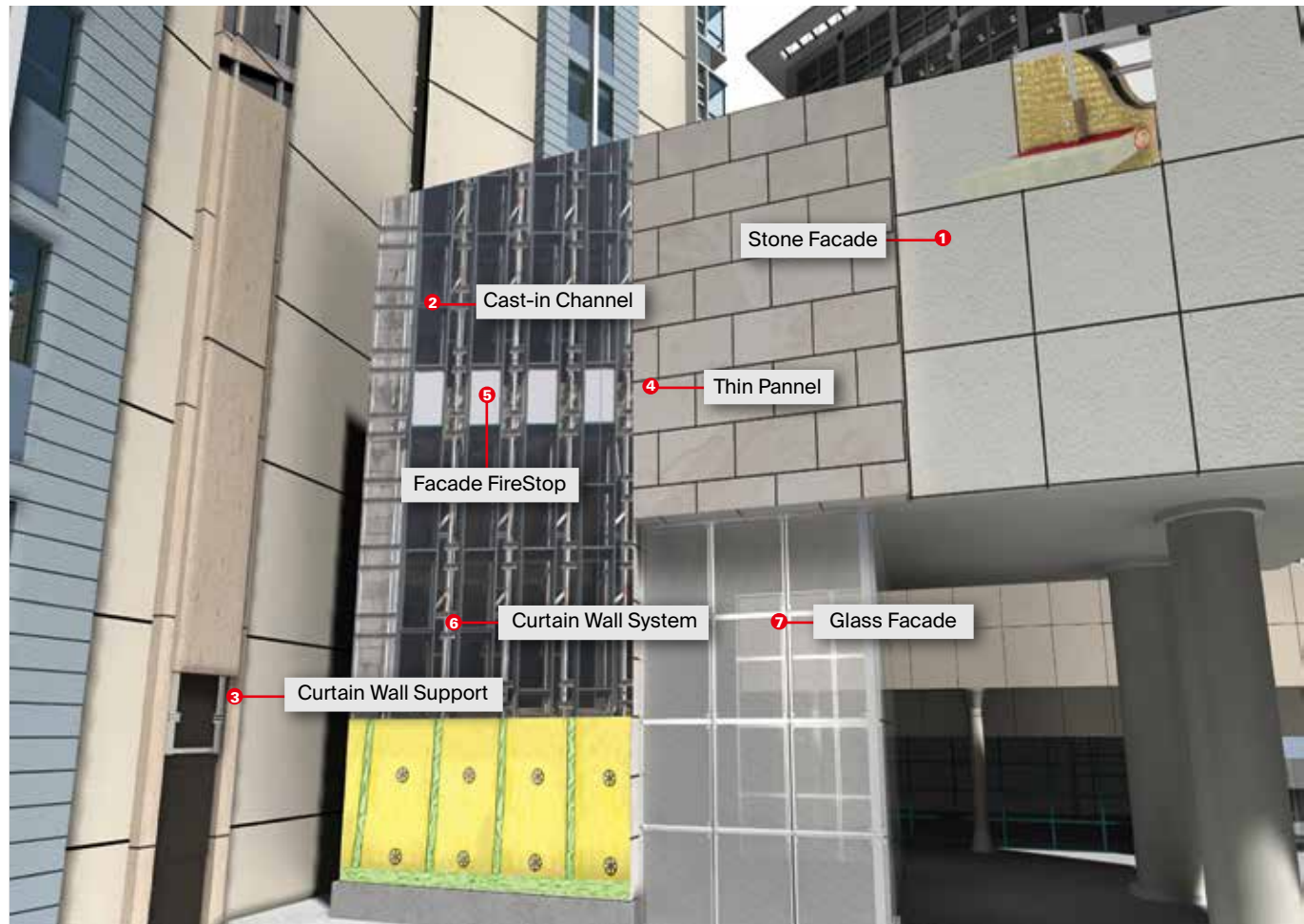
### Content

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| M&E Application     | 93 |
| Subway Application  | 94 |
| Airport Application | 95 |
| Bridge Application  | 96 |
| Road Application    | 97 |
| Reference           | 98 |

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# Facade Application



## Cladding Fixing

Zykon-Panel anchor FZP II\*

1 4 7



- Undercut anchor for stone, ceramic and glass panel

Bracket System\* 6



- Providing whole system solution
- European approval for high safety requirement



## Subframe Fixing

Bolt anchor FAZ II Plus/FAZ II 3



Page 10

- Suitable for crack concrete
- Seismic-resistance performance
- European approval (ETA) and list in CDB

Cast in Channel FES/FES II 2



Page 57

- Hot-rolled channel
- High load performance in 3 directions
- European approval



## Fire Resistance

Intumescent Acoustic Mastic FiAM 5

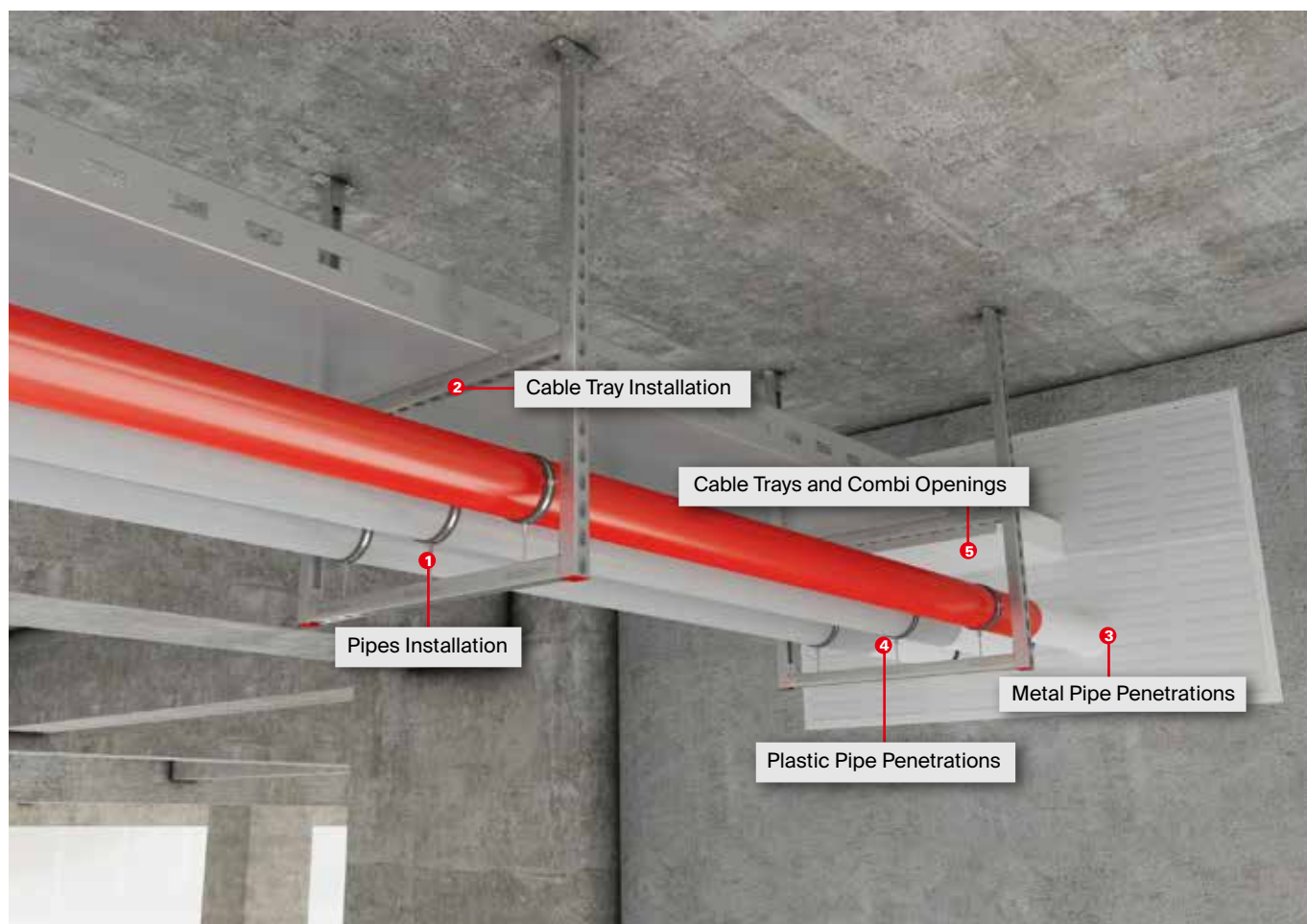


Page 74

- Movement capability  $\pm 25\%$
- Excellent acoustic properties
- European approval and UL approval

\*Please contact fishcer engineer for detailed information.

# M&E Application



## Pipes Installation ①

SaMontec System\*



- The efficient fixing solution



## Cable Tray Installation ②

SaMontec System\*



- The efficient fixing solution



## Metal Pipe Penetrations ③

Intumescent Acoustic  
Mastic FIAM



Page 74

- Movement capability  $\pm 25\%$
- Excellent acoustic properties
- European approval and UL approval



## Plastic Pipe Penetrations ④

Intumescent Graphite  
Mastic FIGM



Page 84

- Expand up to 20 times its own volume
- Excellent slump characteristics
- European approval and UL approval



## Cable Trays and Combi Openings ⑤

Intumescent Graphite  
Mastic FIGM



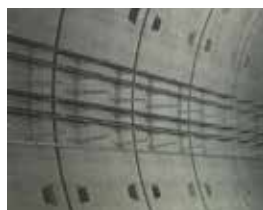
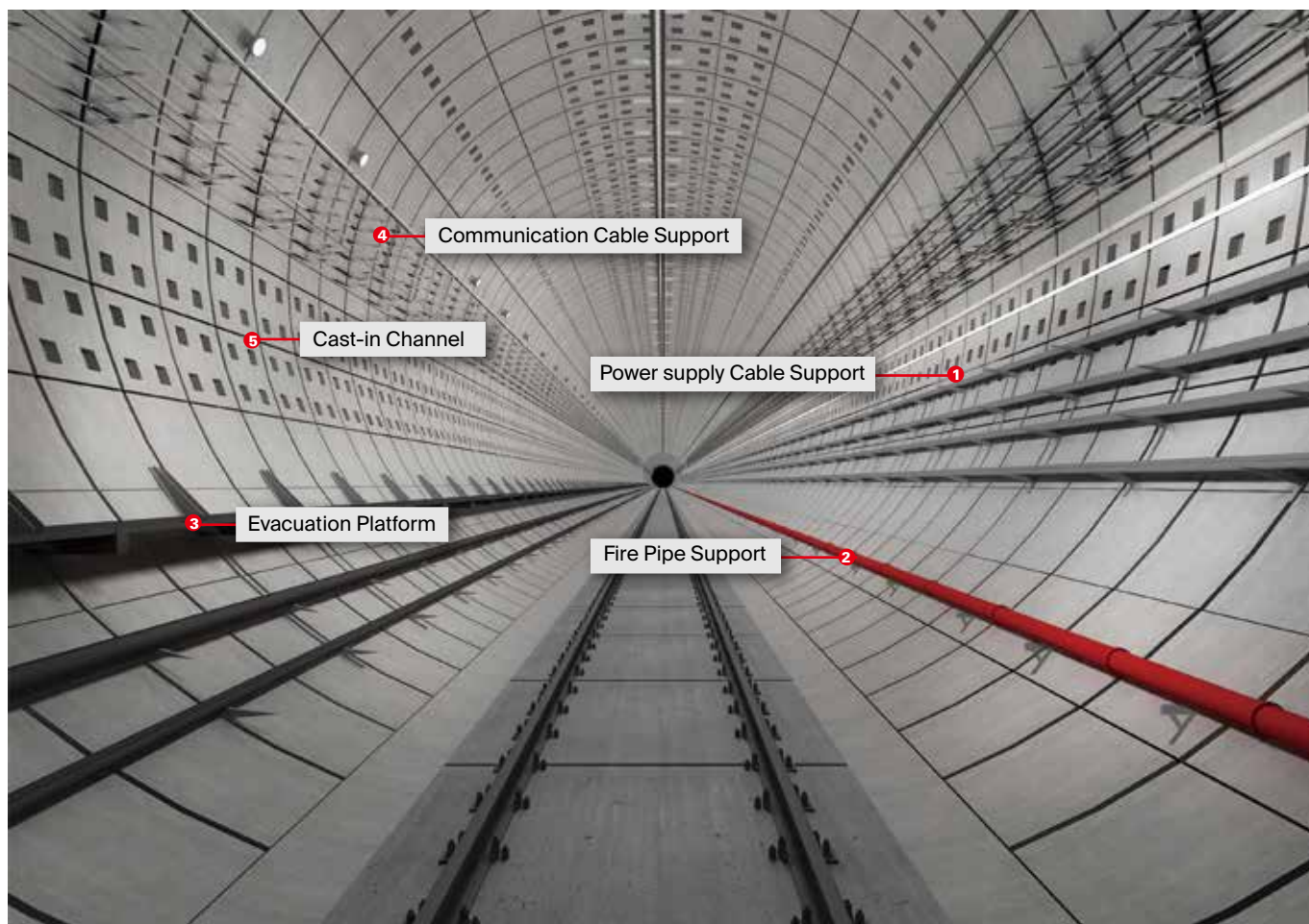
Page 84

- Expand up to 20 times its own volume
- Excellent slump characteristics
- European approval and UL approval

\*Please contact fishcer engineer for detailed information.



# Subway Application



## Power supply Cable Support ①

Bolt anchor FAZ II Plus/FAZ II



Page 10

- Suitable for crack concrete
- Seismic-resistance performance
- European approval (ETA) and list in CDB

FI Systems\*



- The efficient fixing solution



## Fire Pipe Support ②

Bolt anchor FAZ II Plus/FAZ II



Page 10

- Suitable for crack concrete
- Seismic-resistance performance
- European approval (ETA) and list in CDB



## Evacuation Platform ③

Injection mortar FIS V Plus



Page 52

- Vinyl formulation
- Quick hardening
- ETA assessment for a service life of 100 years

Epoxy mortar FIS EB II



Page 50

- Epoxy formulation
- High load performance in crack concrete and earthquake regions
- European approval for anchor and rebar connection



## Communication Cable Support ④

FI Systems\*



- The efficient fixing solution



## Cast-in Channel ⑤

Cast-in Channel FES



Page 57

- Hot-rolled channel
- High load performance in 3 directions
- European approval

\*Please contact fisher engineer for detailed information.

# Airport Application

5



## Terminals ①

SaMontec System\*



- The efficient fixing solution



## Terminals ①

Cast-in Channel FES



Page 57

- Hot-rolled channel
- High load performance in 3 directions
- European approval

Zykon-Panel anchor FZP II\*



- Undercut anchor for stone, ceramic and glass panel



## PipeLine ②

SaMontec System\*



- The efficient fixing solution

Bolt anchor FAZ II Plus/FAZ II



Page 10

- Suitable for crack concrete
- Seismic-resistance performance
- European approval (ETA) and list in CDB



## Airport Facilities ③

SaMontec System\*



- The efficient fixing solution

Bolt anchor FAZ II Plus/FAZ II



Page 10

- Suitable for crack concrete
- Seismic-resistance performance
- European approval (ETA) and list in CDB

\*Please contact fishcer engineer for detailed information.



# Bridge Application

5



## Scaffolding and Safety Systems ①

High performance anchor FH II



Page 19

- Higher shear loading
- European approval

Injection mortar FIS V Plus



Page 52

Bolt anchor FBN II



Page 15

- Different embedment-depth
- European approval(ETA)

Concrete screw UltraCut FBS II



Page 26

- Quick installation
- Reusable



## Bearings ②

Injection mortar FIS V Plus



Page 52

Epoxy mortar FIS EB II



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## Pipes and Drains ③

Injection mortar FIS V Plus



Page 52

Bolt anchor FAZ II Plus/FAZ II



Page 10

Hammerset anchor EA II



Page 39

- Steel anchor with internal thread
- Multiple fixing in crack concrete



## Service Platforms ④

Bolt anchor FAZ II Plus/FAZ II



Page 10

High performance anchor FH II



Page 19

Injection mortar FIS V Plus



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## Electrical Installations ⑤

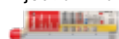
Nail anchor FNA II



Page 43

- Fire resistance anchor
- RWS 1350 °C fire resistance report
- Easy-to-assemble solution

Injection mortar FIS V Plus



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Bolt anchor FAZ II Plus/FAZ II



Page 10

Bolt anchor FBN II



Page 15

Hammerset anchor EA II



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## Bridge Edge Beam Fixing ⑥

Injection mortar FIS V Plus



Page 52

Epoxy mortar FIS EB II



Page 50



# Road Application



## Top Concrete Layer 1

Injection mortar FIS V Plus



Page 52

Epoxy mortar FIS EB II



Page 50

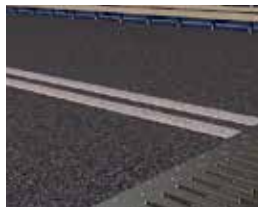


## Guard Rails 2

Injection mortar FIS V Plus



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## Expansion Joints 3

Injection mortar FIS V Plus



Page 52

Epoxy mortar FIS EB II



Page 50



## Noise and Wind Protection 4

Injection mortar FIS V Plus



Page 52

Epoxy mortar FIS EB II



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# Global References

阿爾哈姆拉塔  
Al Hamra Tower  
位置：科威特  
Location: Kuwait



紐約101沃倫街  
101 Warren Street, New York  
位置：美國  
Location: USA



愛丁堡蘇格蘭議會大樓  
Scottish Parliament, Edinburgh  
位置：蘇格蘭  
Location: Scotland



保時捷博物館  
Porsche-Museum  
位置：德國  
Location: Germany

柏林協和酒店  
Concorde Hotel, Berlin  
位置：德國  
Location: Germany



巴黎新凱旋門  
New Triumphal Arch, Paris  
位置：法國  
Location: France



133場館  
133 Houndsditch  
位置：英國  
Location: Great Britain



蘇黎世萊夫艾森銀行  
Raiffeisen Bank, Zurich  
位置：瑞士  
Location: Switzerland

海爾倫V&D商場  
V&D Heerlen  
位置：荷蘭  
Location: Netherlands



芝加哥大學  
Chicago University  
位置：美國  
Location: USA





Delta商業大廈  
Delta Holding  
位置：塞爾維亞  
Location: Republic of Serbia



瓦爾納綜合住宅區  
Residential Complex, Varna  
位置：保加利亞  
Location: Bulgaria



英美資源集團倫敦總部辦公樓  
Headquarters Office of Anglo American plc  
位置：英國  
Location: Great Britain



德國柏林歐瑞府零碳科  
EUREF-Campus  
位置：德國  
Location: Germany

“Downtown One” 商業  
住宅大廈  
Downtown One  
Commercial  
位置：阿爾巴尼亞  
Location: Albanian



伊里爾公寓樓  
Äril Residential Building  
位置：瑞典  
Location: Sweden



明尼亞波利斯公共服務大樓  
Service Centre, Minneapolis  
位置：美國  
Location: USA



奧克蘭購物中心  
Shopping Centre Complex, Auckland  
位置：新西蘭  
Location: New Zealand

柏林KINDL當代藝術中心  
KINDL-Centre for  
Contemporary Art  
位置：德國  
Location: Germany



德國哥廷根城市劇院  
Göttingen Civic Hall  
位置：德國  
Location: Germany



# Asia References

5



金茂深圳萬豪酒店  
Shenzhen JW Marriott  
位置：中國·深圳  
Location: Shenzhen  
(P.R. China)



成都鐵獅門  
Chengdu Tishman  
位置：中國·成都  
Location: Chengdu (P.R. China)



北京城市副中心  
Beijing Sub-center  
位置：中國·北京  
Location: Beijing (P.R. China)



上海興業太古匯  
Shanghai HKRI Taikoo Hui  
位置：中國·上海  
Location: Shanghai (P.R. China)



周大福金融中心  
Zhou Dafu Financial Center  
位置：中國·廣州  
Location: Guangzhou  
(P.R. China)



上海外灘SOHO  
Bund SOHO, Shanghai  
位置：中國·上海  
Location: Shanghai (P.R. China)

武漢中心大廈  
Wuhan Center  
位置：中國·武漢  
Location: Wuhan (P.R. China)



歐蒙天津基地  
Euroimmun Plant  
位置：中國·天津  
Location: Tianjin (P.R. China)



中國石油大廈  
China Petroleum Building  
位置：中國·北京  
Location: Beijing (P.R. China)



淄博陶瓷琉璃館  
Zibo Ceramic Museum  
位置：中國·淄博  
Location: Zibo (P.R. China)







江蘇省廣播電視總檯  
Jiangsu Radio and Television  
位置：中國·南京  
Location: Nanjing (P.R. China)



上海金茂大廈  
Shanghai JinMao Tower  
位置：中國·上海  
Location: Shanghai (P.R. China)



中國國家體育館  
National Stadium of China  
位置：中國·北京  
Location: Beijing (P.R. China)



廣州大劇院  
Guangzhou Opera House  
位置：中國·廣州  
Location: Guangzhou(P.R. China)



廣晟大廈  
Guangshen Mansion  
位置：中國·廣州  
Location: Guangzhou(P.R. China)



國匯中心  
China Exchange Center  
位置：中國·重慶  
Location: Chongqing (P.R. China)



國家奧林匹克新聞中心  
National Olympic Press Center, China  
位置：中國·北京  
Location: Beijing (P.R. China)



廣州圖書館  
Guangzhou New Library  
位置：中國·廣州  
Location: Guangzhou(P.R. China)



上海浦東圖書館  
Shanghai Pudong Library  
Building  
位置：中國·上海  
Location: Shanghai (P.R. China)



上海喜馬拉雅中心  
Shanghai Himalayan Centre  
位置：中國·上海  
Location: Shanghai (P.R. China)



# Asia References

5



銀川市繞城快速路機場鐵路橋  
Yinchuan City Circle  
Expressway Airport Railway  
Bridge  
位置：中國·銀川  
Location: Yinchuan  
(P.R. China)



外灘一號  
The Bund No.1  
位置：中國·上海  
Location: Shanghai  
(P.R. China)



淄博市政府智慧雲機房改造工程  
Zibo Municipal Government Server  
Room Renovation  
位置：中國·淄博  
Location: Zibo (P.R. China)



港澳大橋  
Hong Kong-Zhuhai-Macao  
Bridge  
位置：中國  
Location: P.R. China



華為生產園區  
Huawei Production Park  
位置：中國·深圳  
Location: Shenzhen  
(P.R. China)



上海恆隆港匯廣場  
Grand Gateway 66  
位置：中國·上海  
Location: Shanghai (P.R. China)



南京長江大橋  
Nanjing Yangtze River Bridge  
位置：中國·南京  
Location: Nanjing (P.R. China)



上海靜安下沉式廣場  
Jing'an Temple Sunken Plaza  
位置：中國·上海  
Location: Shanghai (P.R. China)



重慶市龍湖光年  
Longhu Lightyear Shopping  
Mall  
位置：中國·重慶  
Location: Chongqing  
(P.R. China)



合肥工業大學圖書館  
Hefei University Library  
位置：中國·合肥  
Location: Hefei (P.R. China)





海口置地東方廣場  
Haikou Land Oriental Square  
位置：中國·海口  
Location: Haikou (P.R. China)



大唐芙蓉園  
Tang Paradise  
位置：中國·西安  
Location: Xi'an (P.R. China)



山東ETC車道改造  
ETC Traffic Lane Reconstruction  
位置：中國·山東  
Location: Shandong (P.R. China)



字節跳動新總部  
ByteDance's New Headquarter  
位置：中國·北京  
Location: Beijing (P.R. China)



武漢中國銀行  
Wuhan Branch of China  
Bank  
位置：中國·武漢  
Location: Wuhan  
(P.R. China)



上海華潤時代廣場  
China Resources Times Square  
位置：中國·上海  
Location: Shanghai  
(P.R. China)



清華大學  
Tsinghua University  
位置：中國·北京  
Location: Beijing (P.R. China)



江陰長江大橋  
Jiangyin Changjiang Bridge  
位置：中國·江蘇  
Location: Jiangsu (P.R. China)



中國醫學科學院綜合樓主體  
Chinese Academy of Medi-  
cal Sciences  
位置：中國·北京  
Location: Beijing (P.R. China)



西安奧體中心  
Xi'an Olympic Sports Center  
位置：中國·西安  
Location: Xi'an (P.R. China)

# Asia References



上海越江隧道  
Shanghai Cross-River  
Tunnel  
位置：中國·上海  
Location: Shanghai  
(P.R. China)



南寧地鐵1號線  
Nanning Metro Line 1  
位置：中國·南寧  
Location: Nanning(P.R. China)



5



貴陽地鐵1號線  
Guiyang Metro Line 1  
位置：中國·貴陽  
Location: Guiyang(P.R. China)



成都地鐵18號線  
Chengdu Metro Line 18  
位置：中國·成都  
Location: Chengdu(P.R. China)



成都地鐵9號線  
Chengdu Metro Line 9  
位置：中國·成都  
Location: Chengdu  
(P.R. China)



廈門地鐵2號線  
Xiamen Metro Line 2  
位置：中國·廈門  
Location: Xiamen(P.R. China)



重慶軌道交通環線一期  
Chongqing Rail Transit Ring Line Phase I  
位置：中國·重慶  
Location: Chongqing(P.R. China)



鄭州地鐵4號線  
Zhangzhou Metro Line 4  
位置：中國·鄭州  
Location: Zhengzhou(P.R. China)



北京地鐵16號線  
Beijing Metro Line 16  
位置：中國·北京  
Location: Beijing(P.R. China)



濟南地鐵2號線  
Jinan Metro Line 2  
位置：中國·濟南  
Location: Ji'nan(P.R. China)





重慶地鐵4號線  
Chongqing Metro Line 4  
位置：中國·重慶  
Location: Chongqing(P.R. China)



蘇州地鐵1號線  
Suzhou Metro Line 1  
位置：中國·蘇州  
Location: Suzhou(P.R. China)



西安地鐵14號線  
Xi'an Metro Line 14  
位置：中國·西安  
Location: Xi'an(P.R. China)



北京新機場線  
Beijing Daxing International Airport Express  
位置：中國·北京  
Location: Beijing(P.R. China)



5



合肥地鐵4號線  
Hefei Metro Line 4  
位置：中國·合肥  
Location: Hefei(P.R. China)



成都地鐵9號線  
Chengdu Metro Line 9  
位置：中國·成都  
Location: Chengdu(P.R. China)



北京地鐵15號線  
Beijing Metro Line 15  
位置：中國·北京  
Location: Beijing(P.R. China)



濟南地鐵R2線  
Ji'nan Metro R2  
位置：中國·濟南  
Location: Ji'nan(P.R. China)



北京地鐵16號線南段  
Beijing Metro Line 16  
位置：中國·北京  
Location: Beijing(P.R. China)



成都地鐵6號線  
Chengdu Metro Line 6  
位置：中國·成都  
Location: Chengdu(P.R. China)





# Hongkong References

| Year | Project Name        | Segmentation                | Application                     | Client             |
|------|---------------------|-----------------------------|---------------------------------|--------------------|
| 2013 | 大埔污水廠               | Sewage Treatment Facilities | M&E                             | DSD                |
| 2014 | 西九高鐵地盤              | Railway                     | Façade                          | MTR                |
| 2014 | 大欖女子監獄              | Correctional Institution    | Steel Work                      | ArchSD             |
| 2015 | 堅尼地城游泳池             | Swimming Pool               | Steel Work                      | ArchSD             |
| 2015 | 尖沙咀港威大廈             | Office Building             | Façade                          | Commerical         |
| 2015 | 港鐵將軍澳站              | Transportation              | Steel Work                      | MTR                |
| 2016 | 香港房屋協會公共租用房屋        | Public Housing              | Handrails                       | Housing Society    |
| 2016 | 將軍澳 寶林商場            | Shopping Centre             | M&E                             | Commerical         |
| 2016 | MTR810A             | Transportation              | Façade                          | MTR                |
| 2017 | 蓮塘口岸南通風樓            | Transportation              | Façade                          | HyD                |
| 2017 | 香港國際機場 香港國際航空學院     | Airport                     | Facade                          | AAHK               |
| 2017 | 上環干諾道中200號信德中心      | Commerical                  | Maintenance                     | Commenical         |
| 2018 | 港珠澳大橋香港口岸人工島        | Bridges & Tunnels           | Steel Work                      | CEDD               |
| 2019 | 屯門至赤鱗角連接路 北面連接路收費廣場 | Bridges & Tunnels           | Steel Work                      | CEDD               |
| 2019 | 澳門國際機場擴建工程          | Airport                     | Steel Work                      | Macau              |
| 2019 | 沙田香港中文大學醫院          | Hospital                    | Ceiling                         | CUHK               |
| 2020 | 銅鑼灣 警官會所            | Government facilities       | Façade                          | ArchSD             |
| 2020 | 赤柱 戶外活動中心           | Recreational building       | Façade                          | Recreational       |
| 2021 | 香港國際機場第三跑道          | Airport                     | Roof decking/Ceiling/<br>Façade | HKIA               |
| 2021 | 觀塘偉業街207號           | Industrial Building         | Façade                          | Industrial         |
| 2021 | 粉嶺皇后山邨地盤第一期         | Public Housing              | Steel Work                      | Housing Department |
| 2021 | 天水圍流浮山消防局           | Government facilities       | Facade                          | ArchSD             |
| 2021 | 荃灣仁濟醫院              | Hospital                    | Steel work                      | ArchSD             |
| 2022 | 啟德體育園               | Recreational Facilities     | Façade                          | ArchSD             |

| Year | Project Name            | Segmentation                | Application                      | Client      |
|------|-------------------------|-----------------------------|----------------------------------|-------------|
| 2022 | 將軍澳 - 藍田隧道              | Bridges & Tunnels           | M&E Fixing                       | CEDD        |
| 2022 | 荃灣青山公路388號中國染廠大廈        | Commerical                  | Solar Panel                      | Commerical  |
| 2022 | 黃竹坑 海洋公園酒店              | Hotel                       | Cladding                         | Commerical  |
| 2022 | 天水圍 第107區游泳池場館及休憩用地     | Recreational Facilities     | Steel Work                       | ArchSD      |
| 2022 | 昂船洲 污水廠                 | Sewage Treatment Facilities | Concrete work                    | ArchSD      |
| 2022 | 旺角 政府合署 二期              | Government Building         | Steel work                       | ArchSD      |
| 2022 | 天水圍 天水圍游泳池              | Swimming Pool               | Maintenance                      | ArchSD      |
| 2022 | 赤鱗角 航天城 Site A3         | Airport Building            | Facade                           | HKIA        |
| 2022 | 尖沙咀 香港麗晶酒店              | Hotel                       | Steel work                       | Commercial  |
| 2022 | 屯門 嶺南大學                 | University complex          | Steel work                       | LingnanU    |
| 2022 | 啟德 新九龍內地段第6575號         | Residential                 | Façade                           | Residential |
| 2022 | 何文田 阿皆老街 CLP 重建         | Residential                 | Façade                           | Residential |
| 2022 | 大埔 大埔市地段第244號           | Residential                 | Ceiling                          | Residential |
| 2023 | 長沙灣 興華街西對出的新九龍內地段第6549號 | Residential                 | Façade                           | Residential |
| 2023 | 尖沙咀 亞士厘道21號             | Office Building             | Façade                           | Commercial  |
| 2023 | 半山 堅道73號                | Composite Building          | Façade                           | Composite   |
| 2023 | 旺角 豉油街16號               | Residential                 | Façade                           | Residential |
| 2023 | 九龍塘 香港城市大學              | University Building         | Façade /Steel work               | ArchSD      |
| 2023 | 葵涌 藍田街2-16號             | Data Centre                 | Raised floor                     | Data Centre |
| 2023 | 中九龍幹線                   | Bridges & Tunnels           | M & E fixing<br>Tunnel panelling | HyD         |
| 2023 | 淺水灣 南灣道39號              | Residential                 | Cladding                         | Residential |
| 2023 | 啟德 新九龍內地段第6576號         | Residential                 | Façade                           | Residential |
| 2023 | T2主幹路及茶果嶺隧道             | Transportation              | M&E                              | CEDD        |
| 2023 | 香港國際機場第三跑道              | Airport                     | M&E                              | HKIA        |

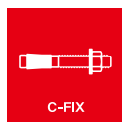




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and useable for a variety of applications. The program includes an engineering software with special application modules:



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The anchor design program for steel and bonded anchor in concrete, as well as injection systems for masonry. Now with the new FEM design tool for the realistic design of anchorages.



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To determine the injection resin volume for bonded anchors in concrete and masonry.



## WOOD-FIX

For the calculation of on-rafter insulation systems and joints in structural timber engineering.



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For the design of fixings for railings on reinforced concrete slabs and staircases.



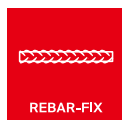
## INSTALL-FIX

For the design and dimensioning of MEP installation systems.



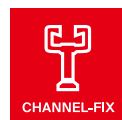
## FACADE-FIX

For the design of façade fixings with timber sub-structure.



## REBAR-FIX

For the design of post-installed rebars in reinforced concrete.



## CHANNEL-FIX

For the design of cast-in channels and inserts.



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