

**Bridge cap anchor FCC-B.**  
Approved system for  
post-installed bridge  
edge beam fixings.



# Cap anchoring in bridge constructions.



Bridge cap anchor FCC-B



FCC-B detail view



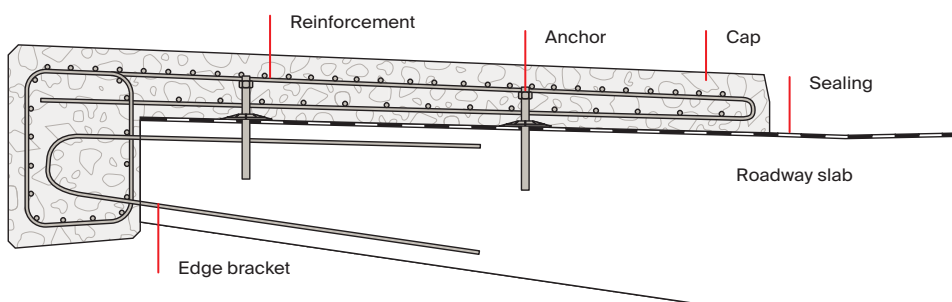
Noise barriers & guidance systems

# Materials and functioning.

## The following materials are usually used for the bridge caps:

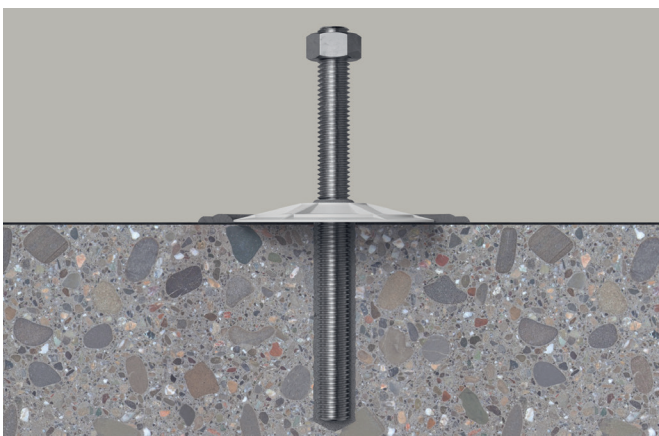
Concrete with a minimum compressive strength class C25/30, reinforcement of grade B500B and cap anchors made of stainless steel. The necessary cap anchorings can be made with the injection mortar FIS EM Plus (ETA-17/0979) or fischer Superbond FIS SB (ETA-12/0258) in combination with an anchor rod and nut. This system is used in the same way as headed bolts. As sealing element, between the cap anchor and the sealing of the roadway slab, the sealing washer FCC-SD is filled with the aid of injection mortar, to obtain a tight system.

## Anchoring the bridge cap in transverse direction of the bridge



## Functioning:

The bridge cap anchor is set by hand with a slight rotating movement down to the bottom of the drill hole in the old concrete. The injection mortar connects the anchor rod with the concrete via bond stress. The escaping excess mortar bonds with the supplied sealing washer and seals the drill hole. To connect to the concrete component, the anchoring is carried out via the hexagon nut or the head plate FCC-HP by form fit.



Bridge cap anchor FCC-B with sealing washer



Bridge cap anchor FCC-B for anchoring precast concrete elements

# Bridge cap anchor FCC-B.



## The advantages at a glance

- The fischer bridge cap anchor FCC-B is designed for anchoring in reinforced and unreinforced normal concrete of the strength class from C20/25 to maximum C50/60 according to DIN EN 206-1.
- The bridge cap anchor FCC-B is suitable for rehabilitating bridges or increasing the payload of the superstructure.
- It can be used with the fischer injection mortars FIS EM Plus or FIS SB, depending on the site conditions.
- The bond between the bridge superstructure and the cap concrete is calculated in the existing structure according to the anchor theory.
- In new buildings, on the other hand, a DIN-standardised nut or a special washer (head plate) is used to prove as a headed bolt.

## Exemplary calculation of the filling quantities for the bridge cap anchor FCC-B

| Anchor size<br>FCC-B | Drilling diameter | Drilling<br>depth<br>[mm] | Mortar quantity anchor rod |      | Mortar quantity sealing washer |      |
|----------------------|-------------------|---------------------------|----------------------------|------|--------------------------------|------|
|                      | [mm]              |                           | [scale unit]               | [ml] | [scale unit]                   | [ml] |
| 16                   | 18                | 100                       | 5                          | 10   | 8                              | 16   |
| 20                   | 22                | 100                       | 8                          | 16   | 14                             | 28   |
| 20                   | 24                | 100                       | 11                         | 22   | 14                             | 28   |
| 24                   | 28                | 100                       | 14                         | 28   | 14                             | 28   |

### Tip

The correct quantity of mortar for the bond anchor in the existing concrete can be calculated quickly and easily with the mortar calculator in the fischer Pro app.

# Performance features at a glance.

## Always on the safe side



The building authority approval of the FCC-B system guarantees tested safety for the connection of concrete components. In combination with the ETA-approved fischer FIS EM Plus or FIS SB injection mortars caps and edge beams can be anchored permanently and securely on bridges.

## fischer calculation tool



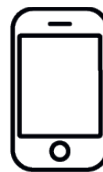
With the fischer design aid, proved verifications for post-installed bridge cap anchorages are quickly and reliably created using clearly defined connection situations, based on the building authority approval.

## Back-Office support



Challenging projects are our strength: We never leave you alone with any challenge. Whether by telephone or on site - our qualified technical advisors support you whenever needed.

## The fischer installation protocol



With the fischer Pro app, construction projects are documented in no time at all where they are happening: Directly on the construction site. The digital recording of post-installed bridge cap anchorages always and everywhere with you.

## Water-filled drill holes



The injection mortar FIS EM Plus can be easily applied in water-filled drill holes in accordance with ETA and can therefore be used under all construction site conditions.

## Diamond drilling



The FIS EM Plus achieves its maximum load-bearing capacity in diamond-drilled holes without additional roughening. This saves time and avoids misapplications.

# Bridge cap anchor FCC-B. Use with the injection mortar FIS EM Plus.

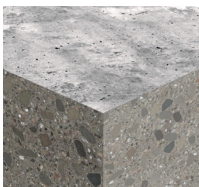


FIS EM Plus 390, 585 and 1500 ml

## The advantages at a glance

- The installation is regulated for drill hole creation with hammer, hollow and diamond drills in the aBG/ETA.
- Long opening and curing times ensure sufficient installation time.
- The injection mortar can be used at low temperatures down to  $-5^{\circ}\text{C}$ .
- For hammer-drilled holes with a hollow drill bit, no brushing is necessary for quick installation.
- FIS EM Plus is approved for anchorages with a service life of 100 years.
- An external independent expert report by the IEA Stuttgart even confirms the service life of anchorages up to 120 years.
- The aBG regulates the use of the bridge cap anchor FCC-B in combination with the injection mortar FIS EM Plus.

Suitable for building materials such as:



Uncracked concrete



Cracked concrete

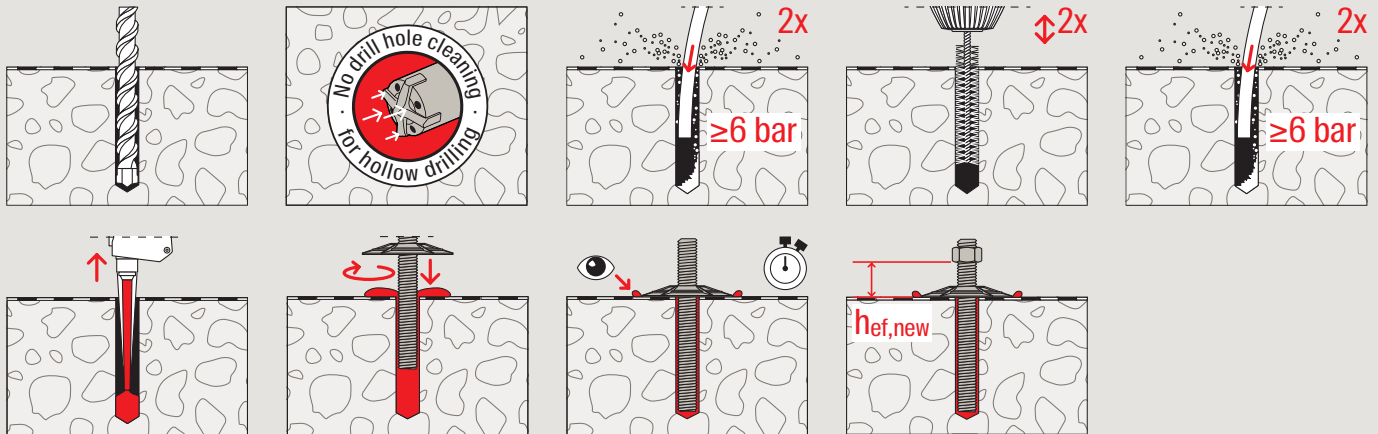
## Approval



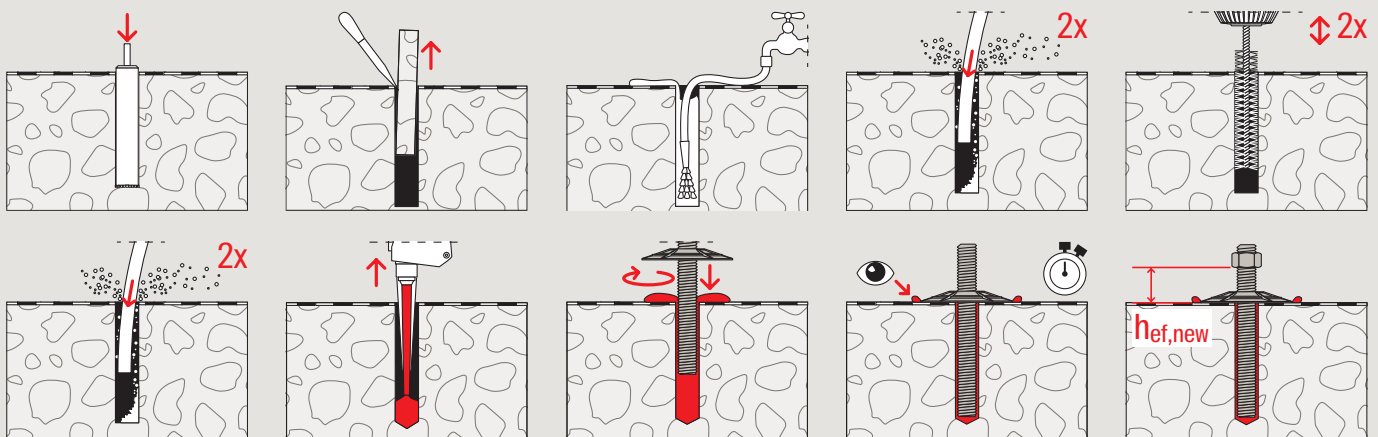
ETA-17/0979,  
for cracked and  
non-cracked concrete,  
seismic performance  
categories C1, C2

# Installation and processing.

## FCC-B with hammer drill



## FCC-B with diamond drill



## Processing and curing times FIS EM Plus

| FIS EM Plus<br>Temperature in the anchorage ground<br>[°C] | Maximum processing time<br>FIS EM Plus<br>$t_{work}$<br>[min.] | Minimum curing time <sup>1)</sup><br>FIS EM Plus<br>$t_{cure}$<br>[min.] |
|------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------|
| -5 - 0                                                     | 240                                                            | 200                                                                      |
| > 0 - +5                                                   | 150                                                            | 90                                                                       |
| > +5 - +10                                                 | 120                                                            | 40                                                                       |
| > -10 - +20                                                | 30                                                             | 18                                                                       |
| > +20 - +30                                                | 14                                                             | 10                                                                       |
| > +30 - +40                                                | 7                                                              | 5                                                                        |

<sup>1)</sup>In wet concrete or in the water-filled borehole, double the curing times.

# Bridge cap anchor FCC-B.

## Use with the injection mortar FIS SB.

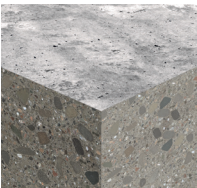


FIS SB 390 and 585 ml

### The advantages at a glance

- Superbond mortar FIS SB achieves a very high load level due to its high bond stress.
- Variable anchorage depths from 4 to 20 times anchor rod diameter allow ideal adaptation to the load to be introduced and thus ensure optimised use of material.
- Processing of the mortar is permitted down to -15°C.

Suitable for building materials such as:



Uncracked concrete



Cracked concrete

### Approval

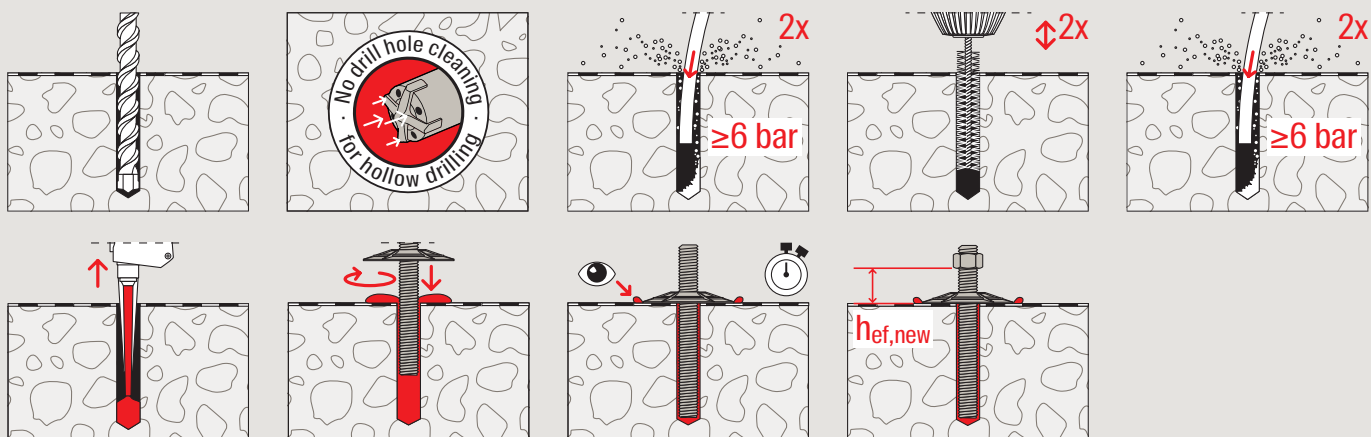


ETA-12/0258,  
für cracked and  
uncracked concrete



# Installation and processing.

## FCC-B with hammer drill



## Processing and curing times FIS SB

| FIS SB <sup>1)</sup><br>Temperature in the anchorage ground<br>[°C] | Maximum processing time<br>FIS SB<br>t <sub>work</sub><br>[min.] | Minimum curing time<br>FIS SB<br>t <sub>cure</sub> |        |
|---------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------|--------|
|                                                                     |                                                                  | [h.]                                               | [min.] |
| -15 – -10                                                           | 60                                                               | 36                                                 | –      |
| > -10 – -5                                                          | 30                                                               | 24                                                 | –      |
| > -5 – 0                                                            | 20                                                               | 8                                                  | –      |
| > +0 – +5                                                           | 13                                                               | 4                                                  | –      |
| > +5 – +10                                                          | 9                                                                | –                                                  | 120    |
| > +10 – +20                                                         | 5                                                                | –                                                  | 60     |
| > +20 – +30                                                         | 4                                                                | –                                                  | 45     |
| > +30 – +40                                                         | 2                                                                | –                                                  | 30     |

<sup>1)</sup> Minimum cartridge temperature +5°C

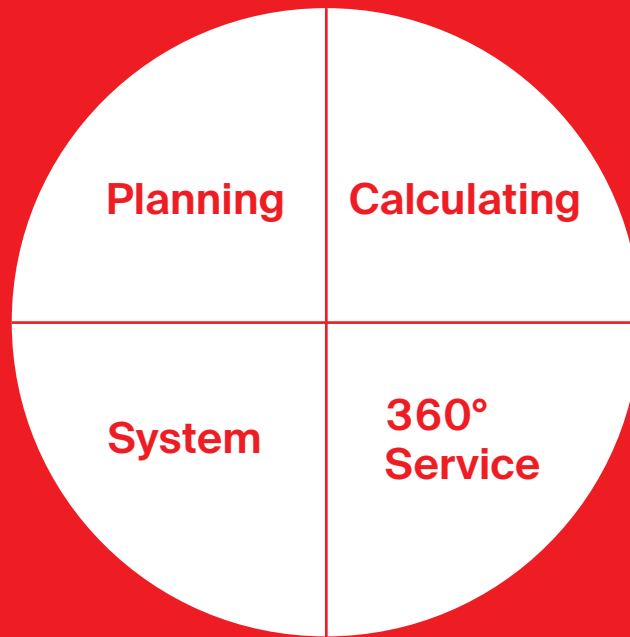
# From planning to completion.

## Planning safe and efficient constructions

All projects have one thing in common: They start with planning and the approved calculation for existing structures according to the anchor theory, as well as the head bolt theory, with nut or head plate as a secure anchorage in the new concrete. With the fischer solutions, there are no longer limits to your plannings.

## Dimensioning - Safe and reliable with the fischer calculation tool for bridge cap anchors

With the fischer calculation tool, you get safe and reliable design with maximum working comfort. Post-installed bridge cap anchorages are designed for you in the twinkling of an eye using the Concrete Capacity (CC) method.



## System – The right solution for every project

With the fischer systems consisting of injection mortar and anchor as well as the matching accessories, you are optimally equipped for every application. From drill hole creation to completion. The fischer range of drills and fischer grouting equipment rounds off the complete package.

## 360° Service

With fischer, no customer is left alone. No matter how difficult, unique or impossible the task seems, with our 360° service package you will find the right solution for your needs. We support you before, during and after completion of the projects.

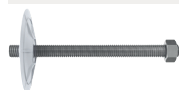
# Assortment

Explore limitless possibilities with our diverse range of anchor options, making every unique requirement achievable.

Scan to see the full anchor rod portfolio.



## Bridge cap anchor FCC-B



FCC-B

| Item              | Item No. | Length<br>[mm] | Drilling diameter<br>[mm] | Content                                 | Sales unit<br>[pcs] |
|-------------------|----------|----------------|---------------------------|-----------------------------------------|---------------------|
| FCC-B M16 x 250 R | 569827   | 250            | 18                        | 10x FIS A M16 x 250 R, 10x FCC-SD 12/16 | 1                   |
| FCC-B M16 x 300 R | 569828   | 300            | 18                        | 10x FIS A M16 x 300 R, 10x FCC-SD 12/16 | 1                   |
| FCC-B M20 x 245 R | 569829   | 245            | 22/24                     | 10x FIS A M20 x 245 R, 10x FCC-SD 20/24 | 1                   |
| FCC-B M20 x 290 R | 569830   | 290            | 22/24                     | 10x FIS A M20 x 290 R, 10x FCC-SD 20/24 | 1                   |
| FCC-B M24 x 290 R | 569831   | 290            | 28                        | 5x FIS A M24 x 290 R, 5x FCC-SD 20/24   | 1                   |
| FCC-B M24 x 380 R | 569832   | 380            | 28                        | 5x FIS A M24 x 380 R, 5x FCC-SD 20/24   | 1                   |

Other sizes available on request.

## Head plate FCC-HP



FCC-HP

| Item         | Item No. | Diameter<br>[mm] | Height<br>[mm] | Sales unit<br>[pcs] |
|--------------|----------|------------------|----------------|---------------------|
| FCC-HP M16 R | 569764   | 48               | 14,8           | 10                  |
| FCC-HP M20 R | 569765   | 50               | 18             | 10                  |
| FCC-HP M24 R | 569766   | 70               | 21,5           | 10                  |

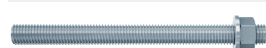
## Sealing washer FCC-SD



FCC-SD

| Item         | Item No. | Outer diameter<br>[mm] | Height<br>[mm] | Content                         | Sales unit<br>[pcs] |
|--------------|----------|------------------------|----------------|---------------------------------|---------------------|
| FCC-SD 12/16 | 569495   | 74                     | 9,1            | 50x sealing washer FCC-SD 12/16 | 50                  |
| FCC-SD 20/24 | 569496   | 102                    | 9,8            | 50x sealing washer FCC-SD 20/24 | 50                  |

## Anchor rod FIS A



FIS A

| Item            | Item No. | Length<br>[mm] | Drilling diameter<br>[mm] | Sales unit<br>[pcs] |
|-----------------|----------|----------------|---------------------------|---------------------|
| FIS A M16x250 R | 90457    | 250            | 18                        | 10                  |
| FIS A M16x300 R | 90458    | 300            | 18                        | 10                  |
| FIS A M20x245 R | 90459    | 245            | 22/24                     | 10                  |
| FIS A M20x290 R | 90460    | 290            | 22/24                     | 10                  |
| FIS A M24x290 R | 90461    | 290            | 28                        | 5                   |
| FIS A M24x380 R | 90462    | 380            | 28                        | 5                   |

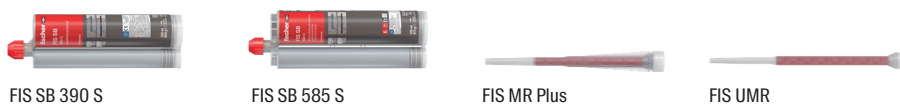
# Assortment

## Injection mortar FIS EM Plus



| Item               | Item No. | Approval<br>ETA | Languages on cartridge | Skale unit | Content                                                    | Sales unit<br>[pcs] |
|--------------------|----------|-----------------|------------------------|------------|------------------------------------------------------------|---------------------|
| FIS EM Plus 390 S  | 544171   | ●               | DE                     | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus          | 1                   |
| FIS EM Plus 390 S  | 544154   | ●               | EN, FR, NL             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus          | 1                   |
| FIS EM Plus 390 S  | 544176   | ●               | CS, SK, RO             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus          | 1                   |
| FIS EM Plus 390 S  | 544155   | ●               | EN, AR, ZH             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus          | 1                   |
| FIS EM Plus 390 S  | 544159   | ●               | RU, UK, KK             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus          | 1                   |
| FIS EM Plus 585 S  | 567989   | ●               | DE, FR, NL             | 270        | 1x cartridge 585 ml + 2x static mixer FIS UMR              | 1                   |
| FIS EM Plus 585 S  | 544166   | ●               | EN, ES, PT, EL         | 270        | 1x cartridge 585 ml + 2x static mixer FIS UMR              | 1                   |
| FIS EM Plus 585 S  | 544165   | ●               | PL, CS, SK, KO         | 270        | 1x cartridge 585 ml + 2x static mixer FIS UMR              | 1                   |
| FIS EM Plus 585 S  | 544175   | ●               | EN, ZH, KO             | 270        | 1x cartridge 585 ml + 2x static mixer FIS UMR              | 1                   |
| FIS EM Plus 1500 S | 544167   | ●               | DE, FR, IT, ES, EN, PL | 700        | 1x cartridge 1500 ml + 2x static mixer FIS UMR             | 1                   |
| FIS MR Plus        | 545853   | —               | —                      | —          | 10x static mixer for FIS EM Plus 390 S                     | 10                  |
| FIS UMR            | 520593   | —               | —                      | —          | 10x static mixer for FIS EM Plus 585 S, FIS EM Plus 1500 S | 10                  |

## Superbond mortar FIS SB



| Item         | Item No. | Approval<br>ETA | Languages on cartridge | Skale unit | Content                                           | Sales unit<br>[pcs] |
|--------------|----------|-----------------|------------------------|------------|---------------------------------------------------|---------------------|
| FIS SB 390 S | 518830   | ●               | DE                     | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus | 1                   |
| FIS SB 390 S | 519451   | ●               | DE, FR, NL             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus | 1                   |
| FIS SB 390 S | 520555   | ●               | CS, SK, RO             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus | 1                   |
| FIS SB 390 S | 520557   | ●               | DE, SL, SR, BG         | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus | 1                   |
| FIS SB 390 S | 520559   | ●               | DE, SL, SR, BG         | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus | 1                   |
| FIS SB 390 S | 518831   | ●               | EN, ES, PT             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus | 1                   |
| FIS SB 390 S | 520595   | ●               | PL, RU, HU             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus | 1                   |
| FIS SB 390 S | 519450   | ●               | IT, EN, DE             | 180        | 1x cartridge 390 ml + 2x static mixer FIS MR Plus | 1                   |
| FIS SB 585 S | 520526   | ●               | IT,EN,DE               | 270        | 1x cartridge 585 ml + 2x static mixer FIS UMR     | 1                   |
| FIS SB 585 S | 519452   | ●               | EN, ES, PT             | 270        | 1x cartridge 585 ml + 2x static mixer FIS UMR     | 1                   |
| FIS SB 585 S | 540990   | ●               | PL, RU, LT, LV, ET, HU | 270        | 1x cartridge 585 ml + 2x static mixer FIS UMR     | 1                   |
| FIS SB 585 S | 562065   | ●               | DE, FR, NL             | 270        | 1x cartridge 585 ml + 2x static mixer FIS UMR     | 1                   |
| FIS MR Plus  | 545853   | —               | —                      | —          | 10 Statikmischer für FIS SB 390 S                 | 10                  |
| FIS UMR      | 520593   | —               | —                      | —          | 10x static mixer for FIS SB 585 S                 | 10                  |

# Accessories

## Cleaning brush / brush extension / SDS attachment / compressed air nozzle



Cleaning brush BSB with connection thread M 8

FIS brush extension

SDS receptacle M 8

Compressed air nozzle

| Item                          | Item No. | for drill diameter<br>[mm] | Colour | Length<br>[mm] | suitable for                                                   | Sales unit<br>[pcs] |
|-------------------------------|----------|----------------------------|--------|----------------|----------------------------------------------------------------|---------------------|
| BSB for Drill-Ø 12 mm         | 001490   | 12                         | White  | 180            | —                                                              | 1                   |
| BSB for Drill-Ø 14 mm         | 001491   | 14                         | Blue   | 180            | —                                                              | 1                   |
| BSB for Drill-Ø 16 mm         | 001492   | 16                         | Red    | 180            | —                                                              | 1                   |
| BSB for Drill-Ø 18 mm         | 001493   | 18                         | Yellow | 180            | —                                                              | 1                   |
| BSB for Drill-Ø 20 mm         | 001494   | 20                         | Green  | 180            | —                                                              | 1                   |
| BSB for Drill-Ø 25 mm         | 001495   | 25                         | Black  | 180            | —                                                              | 1                   |
| FIS brush extension           | 508791   | —                          | —      | 420            | —                                                              | 1                   |
| SDS receptacle M 8            | 530332   | —                          | —      | —              | —                                                              | 1                   |
| Compressed air nozzle D12-D15 | 511956   | 12 - 15                    | —      | —              | Compressed air cleaning unit ABP, Compressed air cleaning hose | 2                   |
| Compressed air nozzle D16-D19 | 511957   | 16 - 19                    | —      | —              | Compressed air cleaning unit ABP, compressed air cleaning hose | 2                   |
| Compressed air nozzle D20-D25 | 511958   | 20 - 25                    | —      | —              | Compressed air cleaning unit ABP, compressed air cleaning hose | 2                   |

## Cleaning device / air blower / compressed air cleaning hose



Compressed air cleaning unit ABP

Blow-out pump AB G

| Item                             | Item No. | Description                                                       | for borehole stiffness up to<br>[mm] | Sales unit<br>[pcs] |
|----------------------------------|----------|-------------------------------------------------------------------|--------------------------------------|---------------------|
| Compressed air cleaning unit ABP | 059456   | Compressed air cleaning unit with Compressed air nozzle D20 - D25 | 380                                  | 1                   |
| Blow-out pump AB G               | 567792   | Blow-out pump                                                     | 160                                  | 1                   |
| Centring wedge                   | 093076   | —                                                                 | —                                    | 10                  |

## Dispensers / spare battery



FIS DM S Pro

FIS AM

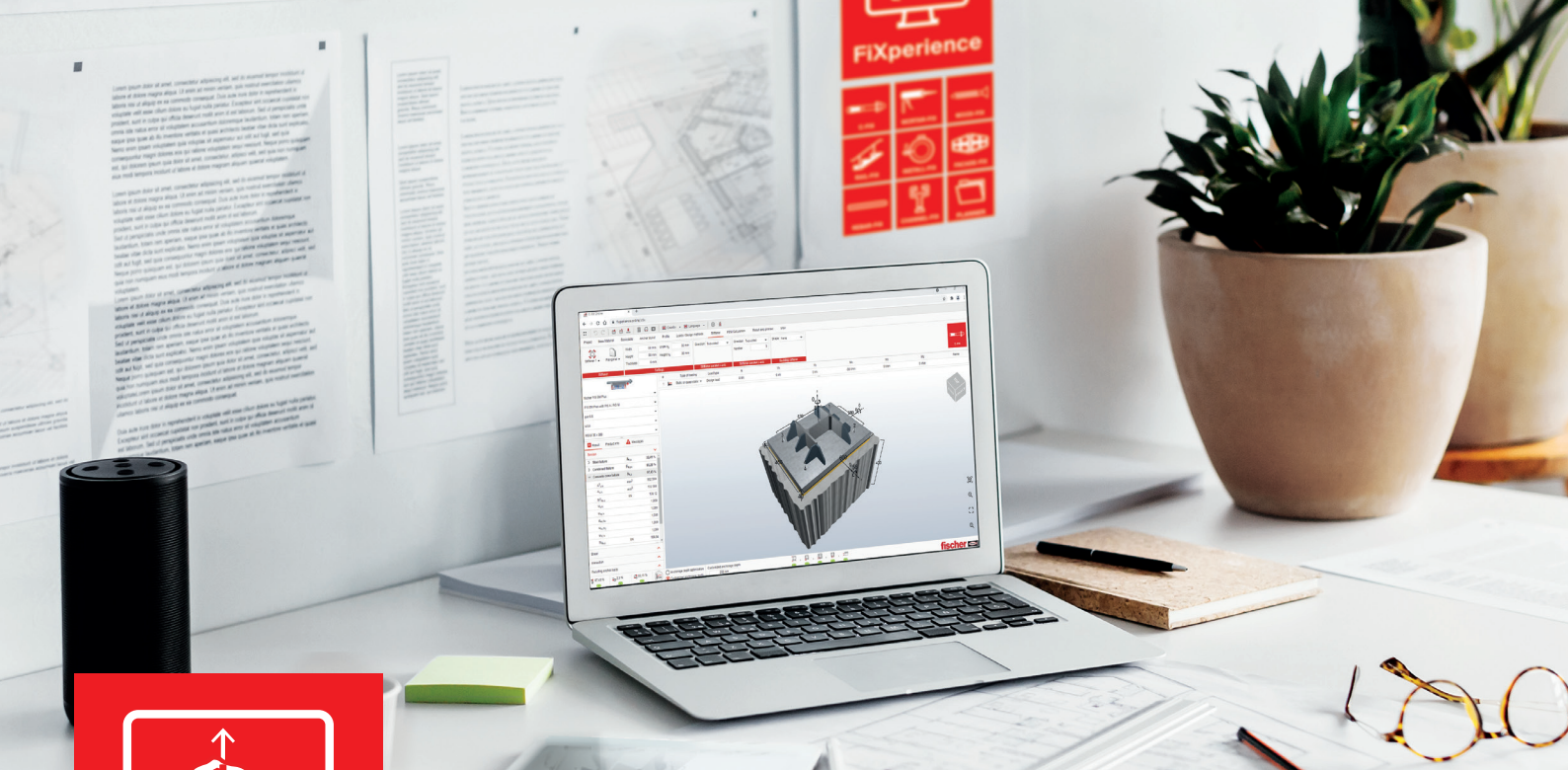
FIS DM SL

FIS DB S Pro

FIS DB SL Pro

FIS DP S-XL

| Item            | Item No. | Description                                                                                                                                                                         | Sales unit<br>[pcs] |
|-----------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| FIS DM S Pro    | 563337   | Manual dispenser for 300ml-, 360 ml- and 390 ml-cartridges                                                                                                                          | 1                   |
| FIS AM          | 058000   | Manual dispenser for 300ml-, 360 ml- and 390 ml-cartridges                                                                                                                          | 1                   |
| FIS DM SL       | 567768   | Manual dispenser for 585 ml-cartridges                                                                                                                                              | 1                   |
| FIS DB S Pro    | 558955   | Battery operated dispenser for 150ml-, 300ml-, 360 ml- and 390 ml-cartridges with 1x charger 12-36V EU, 1x battery pack 18V 2,0 Ah, 1x screw off handle, 1x belt hook, 1x hard case | 1                   |
| FIS DB SL Pro   | 562004   | Battery operated dispenser for 585 ml- and 825 ml-cartridges with 1x charger 12-36V EU, 1x battery pack 18V 2,0 Ah, 1x screw off handle, 1x belt hook, 1x hard case                 | 1                   |
| FSS-B 18V 2,0Ah | 563787   | Battery Pack 2,0 Ah FIS DB S Pro, FIS DB SL Pro                                                                                                                                     | 1                   |
| FSS-B 18V 4,0Ah | 552930   | Battery Pack 4,0 Ah FIS DB S Pro, FIS DB SL Pro                                                                                                                                     | 1                   |
| FIS DP S-XL     | 512401   | Pneumatic dispenser for 1.500 ml-cartridges                                                                                                                                         | 1                   |



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The fischer design Software FiXperience gives you safe and reliable support in dimensioning your projects whether you are a planner, structural engineer or craftsman. FiXperience is set up modularly

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



## C-FIX

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.



## MORTAR-FIX

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.



## RAIL-FIX

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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## Design Software FiXperience Suite.

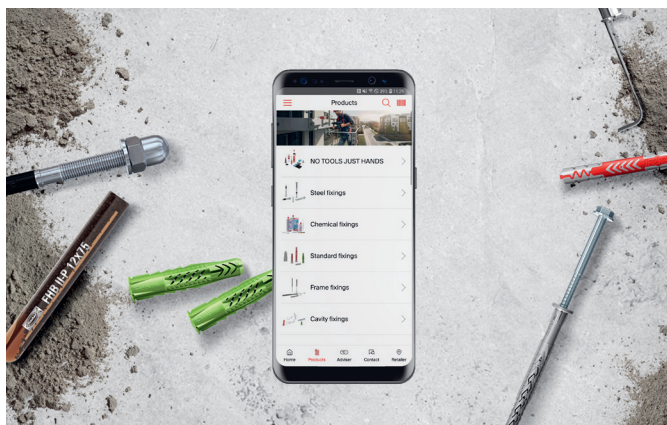
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