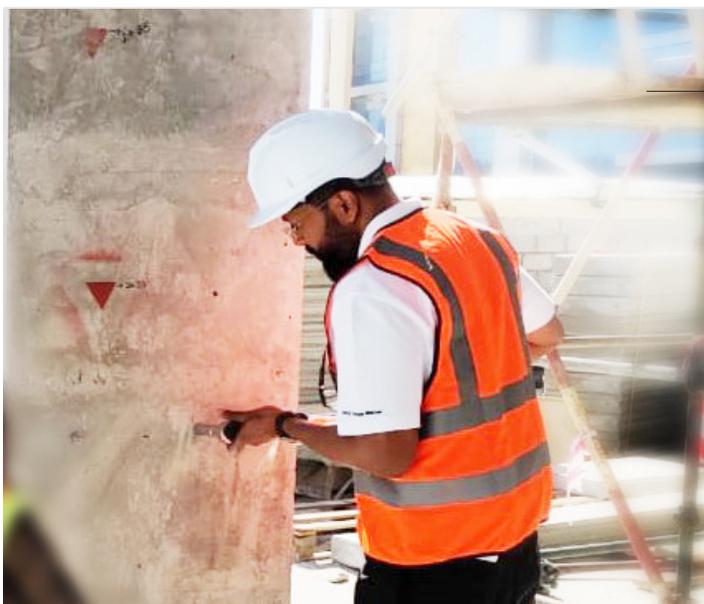


CELO

ETA-approved
fixings for
cracked concrete



Services



Application technology

- Design calculation for anchors, also for facades
- Pull-out tests on construction sites
- Technical telephone advice
- Tips and recommendations for all anchor questions

Training

- Fixing technology training
- Theoretical and practical product training
- Exchange of experiences
- Small seminar groups (max. 15 people)
- Certificate for successful participation

Design Software - Anchors + Screws

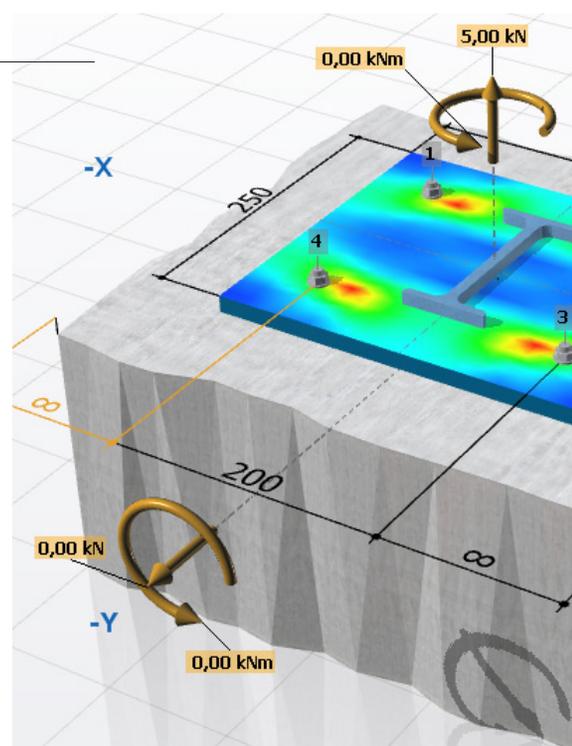
Design Software - Anchors

- Design of heavy-duty anchors, metal and chemical anchors in concrete
- Fast real time calculation
- Intuitive user interface including 3-dimensional graphics
- Flexible anchor positioning for various base plate geometries
- Perfect for planners and architects
- Professional and clear documentation
- Available in many languages
- Stress visualisation of the base plate (FEM calculation)
- Further modules will follow

Design Software - Screws

- Calculation of on-rafter insulation and universal connections (wood-wood / steel-wood)
- Predefined wind and snow loads in the module on-rafter insulation by postal code
- Support during the design of each application
- Real-time calculation with automatic determination of the most economic result
- Design of BMax and VELOX® SIT screws according to ETA, EN 19951-1 and DIN EN 1995-1-1 / NA

Free download at www.celofixings.com



www.celofixings.com

- Up-to-date product information with search function
- Approvals, DoPs, safety data sheets
- Installation videos
- Catalogues and flyers
- News and events
- Installation instructions for anchors
- Download links for the design softwares

ETA-assessment

Why is it important?

What does it mean?

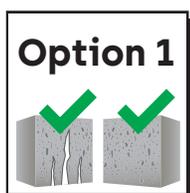


ETA stands for **European Technical Assessment (former name: European Technical Approval)** and is widely accepted as confirmation of technical suitability of a building product in accordance with the Construction Products Regulation (CPR) in the member states of the EU.

"[...] The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a **working life of the anchor of at least 50 years** [...]"

What types of ETAs exist?

Metal and chemical anchors are classified in options from 1-12. **Option 1 anchors** have passed the most complex tests and allow the **widest range of applications** including the use in cracked concrete. Option 12 anchors have the smallest range of applications and are only suitable for non-cracked concrete.



ETA Option 1 means that the product can be used in cracked and non-cracked concrete.

Can ETA-approved anchors be used in earthquake-prone regions?

Not necessarily, but usually Option 1 anchors are seismic action tested. The seismic resistance values (C1 and/or C2) you will find in the ETA.

We indicate this with a seismic symbol.



The product is suitable for use as an anchor **subjected to seismic loading** according to the European Technical Approval/Assessment.

Are ETA-approved anchors fire resistant?

For Option 1 metal and chemical anchors you will find fire resistance values in the ETA. We indicate this with a fire symbol.



see assessment

Fire resistance
The number after the R indicates the minutes, that the anchor continues to perform its function, when exposed to fire.

Why is it important for fixing construction?

An ETA approved anchor should be used if there is a high risk for

- Life and health
- Security and order
- Natural resources in the event of failure.

ETA approved Option 1 anchors are extensively tested, the supplier is regularly audited and thus they guarantee a **maximum level of safety and reliability**.

Table of content:

• Injection mortar ResiFIX Pure Epoxy	5
• Injection mortar ResiFIX VY SF	6
• Heavy-duty anchor SLA	8
• Quick-fix anchor BAZ plus	9
• Concrete screw BTS	10
• Ceiling anchor DA	11
• Drop-in anchor SA plus, SAK plus	12
• Drop-in anchor SAK plus ceiling	13
• Multifunction frame plug MFR	14

Find the
ETA assessments
on our website
www.celofixings.com





Fastening injection system

ResiFIX

Pure Epoxy



Approvals and certificates



Class A+: Lowest emissions of critical substances in closed spaces

- Harmless to health after curing



Sustainability certification LEED

- Environmentally friendly, low-pollutant, low-emission and sustainable construction product



Usage under seismic conditions

- Tested for use in areas with high risk of earthquakes



European Technical Assessment Option 1 for cracked and non-cracked concrete (M8 - M30)

- For a wide range of safety critical applications



One mixing nozzle and one extension tube are always included

- Deeper drill holes can also be filled



Very high load values

- Heavy-duty usage



Usage also in water-filled drill holes and suitable for contact with drinking water

- Extended range of applications



Fire resistance test R120

- Fulfills fire protection requirements



European Technical Assessment post-installed rebar connections (Ø8 - Ø25)

- For more application flexibility



Styrene free

- Reduced odour exposure

Fastening injection system

ResiFIX VYSF



Approvals and certificates



Approved for anchor rods and reinforced steel bars

- **Various applications**



Class A+: Lowest emissions of critical substances in closed spaces

- **Harmless to health after curing**



Sustainability certification LEED

- **Environmentally friendly, low-pollutant, low-emission and sustainable construction product**



Usage under seismic conditions

- **Tested for use in areas with high risk of earthquakes**



European Technical Assessment Option 1 for cracked and non-cracked concrete (M8 - M30)

- **For a wide range of safety critical applications**



Apart from the 410 ml cartridge, two mixing nozzles are included

- **You can continue working immediately after an interruption**



Very high load values

- **Heavy-duty usage**



Usage also in water-filled drill holes and suitable for contact with drinking water

- **Extended range of applications**



Fire resistance test R120

- **Fulfills fire protection requirements**



European Technical Assessment for masonry (M8 - M16)

- **For more application flexibility**



Styrene free

- **Reduced odour exposure**

ResiFIX Pure Epoxy & ResiFIX VY SF

Suitable building materials

Very suitable



- Concrete
- Solid brick
- Solid sand-lime brick
- Lightweight solid concrete blocks
- Aerated concrete
- Hollow brick
- Hollow sand-lime brick
- Lightweight hollow concrete blocks
- Natural stone (risk of discolouration)

Typical applications

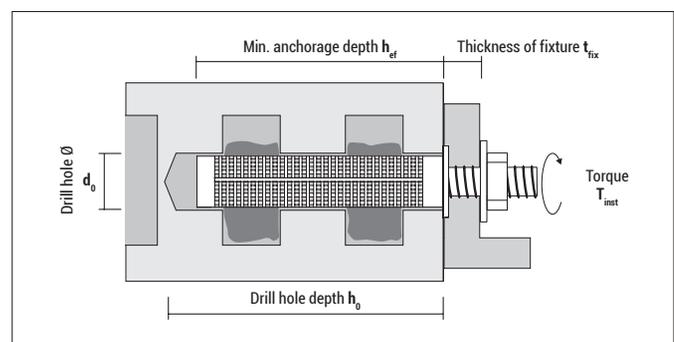
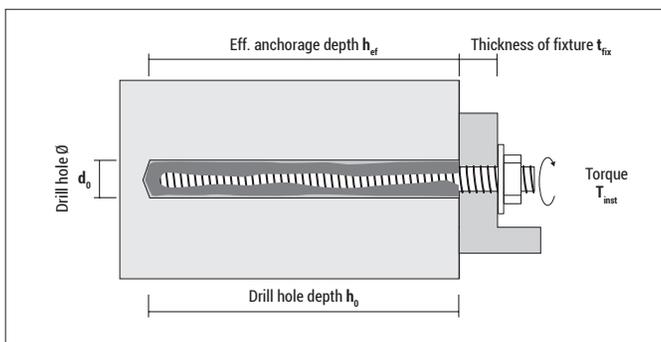
- Steel constructions
- Cantilevers
- Facade substructures
- Machines
- Guard rails
- Canopies
- Distance mountings
- Door and window frames
- Stairways
- Wood constructions
- Cable trays
- Pipe installations

Mounting in concrete and solid brick (Pure Epoxy & VY SF)

1. Drill hole
2. Clean hole (blow 4x, brush 4x)
3. Discard first 10 cm. Inject necessary amount of chemical mortar, (min. 2/3 of hole)
4. Push the anchor rod into the hole while turning
5. Respect curing time before applying any load or torque

Mounting in hollow brick (only VY SF)

1. Drill hole
2. Clean hole (blow 2x, brush 2x)
3. Insert anchor sleeve
4. Discard first 10 cm. Inject necessary amount of chemical mortar (fill sleeve completely)
5. Push the anchor rod into the hole while turning
6. Respect curing time before applying any load or torque



Heavy-duty anchor SLA



Advantages



SLA C with countersunk head



SLA S with hex-head screw



SLA B with bolt and hexagon nut

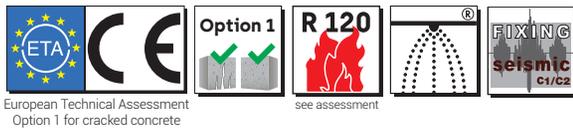
Suitable building materials

Very suitable

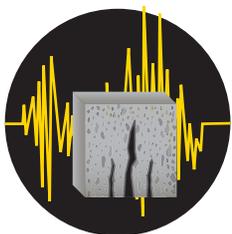
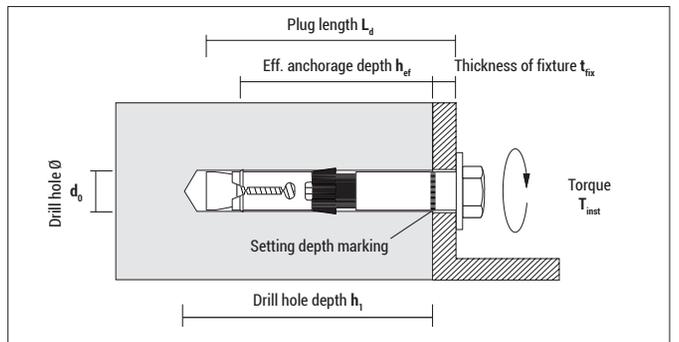
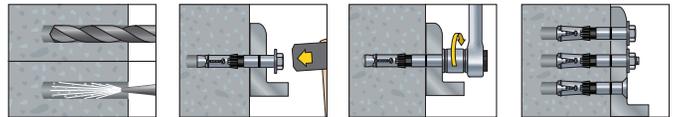


- Cracked concrete 
- Non-cracked concrete 

Approvals and certificates



Mounting



Outstanding performance in cracked concrete and for use under seismic action [C1 and C2]



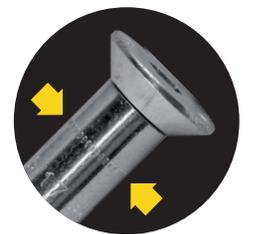
Torque controlled heavy-duty anchor, designed for **heavier loads**



Available with various heads

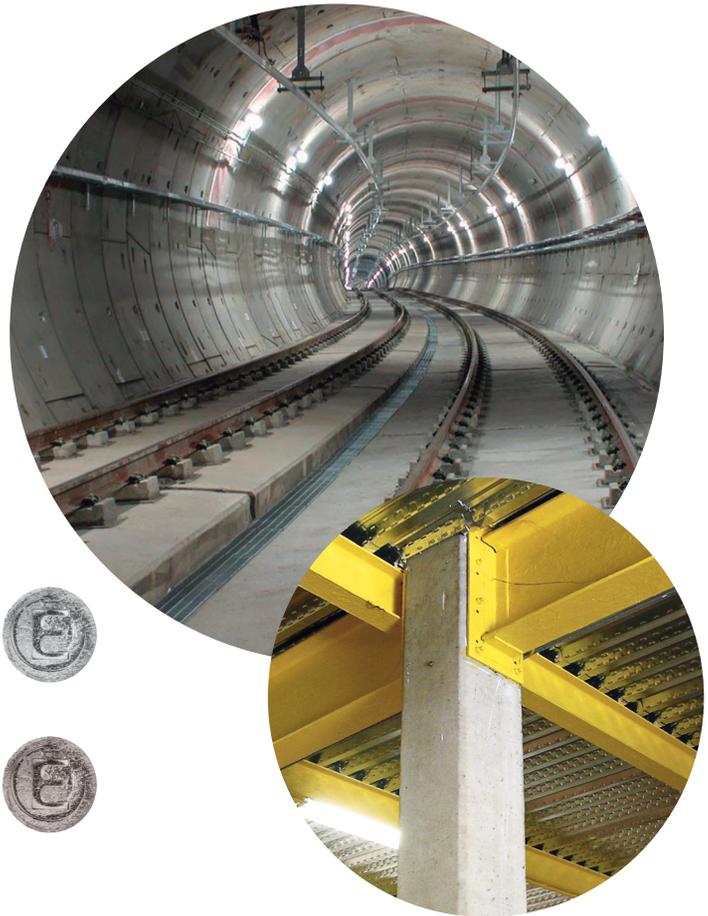


The integrated plastic ring **prevents twisting** and **overcomes gaps**



Anchorage depth marking for quick installation

Quick-fix anchor BAZ plus



Advantages



BAZ plus, zinc plated



BAZ plus A4, stainless steel A4



Suitable building materials

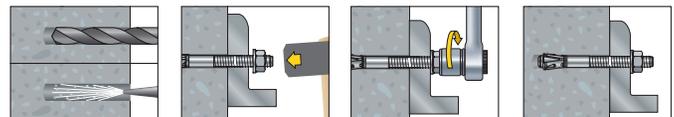
Very suitable



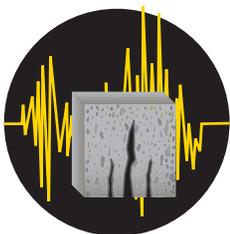
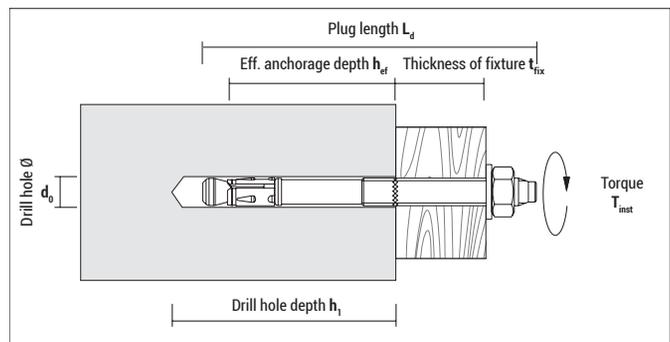
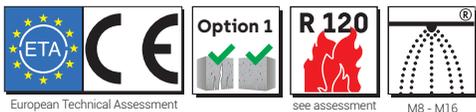
- Cracked concrete
- Non-cracked concrete



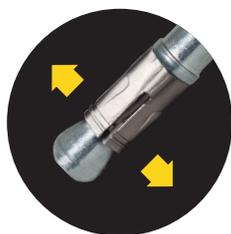
Mounting



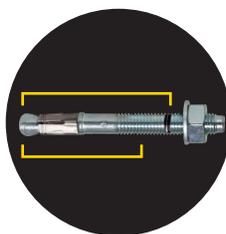
Approvals and certificates



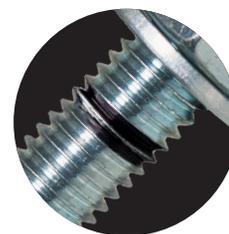
Outstanding performance in cracked concrete and for use under seismic action [C1 and C2]



Very small edge and axial distances perfect for difficult installation situations



M10 und M12: Two setting depths for higher application flexibility



Setting depth marking ring for easy and quick installation



Length marking on top of the BAZ plus

Concrete screw BTS



Advantages



BTS B, hex-head
- zinc flake coating
- stainless steel A4



BTS ST, countersunk head
- zinc plated
- stainless steel A4

Suitable building materials

Very suitable



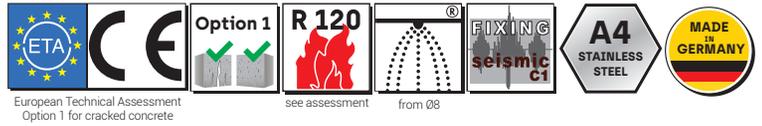
- Cracked concrete
- Non-cracked concrete



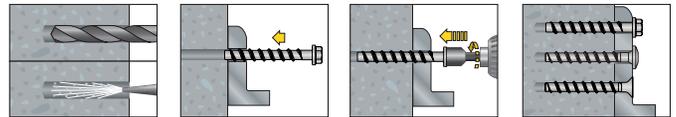
Suitable to a limited extent

- Dense natural stone

Approvals and certificates



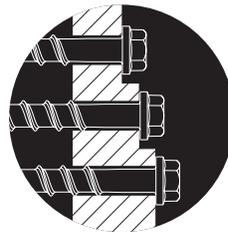
Mounting



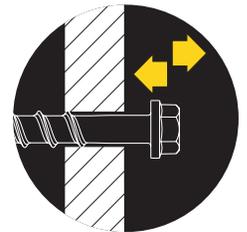
Approved for use in **cracked and non-cracked concrete**



High loads combined with an **easy application** [use of an impact wrench is recommended]



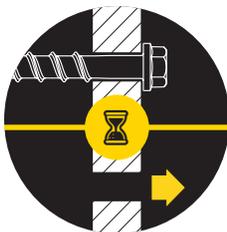
Variable, because of **three setting depths**



The BTS may be **adjusted**



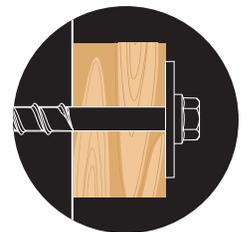
Big range: zinc plated, stainless steel A4 or zinc flake coated with countersunk or hex head



Ideal for **temporary fixings** as it can be removed completely



Zinc flake coating [ZnAl] for improved **corrosion resistance** and higher application security



Available with large washer according to ISO 7094 [DIN 440] **for woodworking**

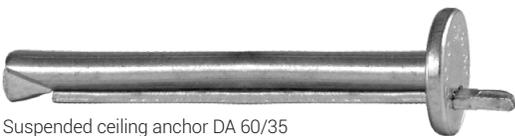
Suspended ceiling anchor

DA

Advantages



Suspended ceiling anchor DA 30/5

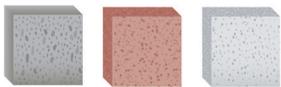


Suspended ceiling anchor DA 60/35



Suitable building materials

Very suitable

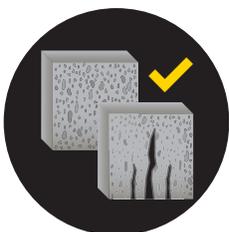
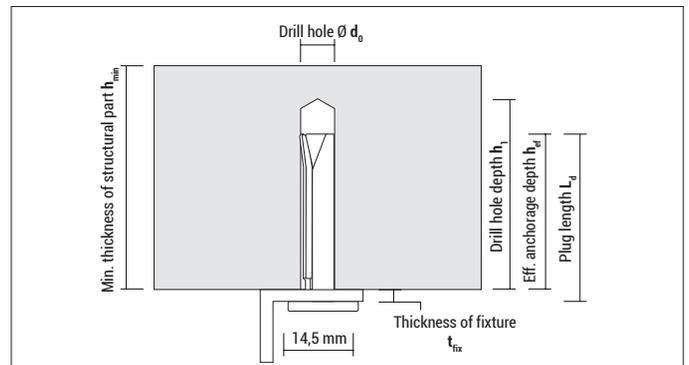
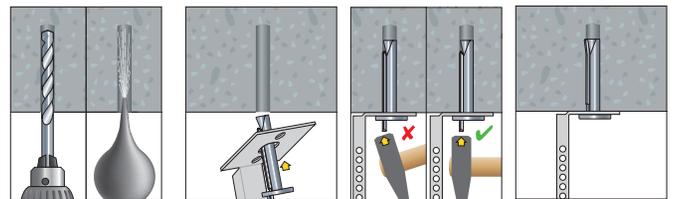


- Concrete
- Solid brick

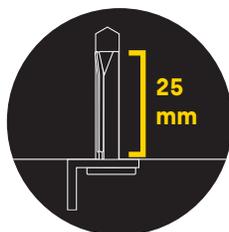
Approvals and certificates



Mounting



Approved for **multiple use in non-structural applications** in cracked and non-cracked concrete



Low anchorage depth of only 25 mm, less risk of hitting rebars!



Low impact force for fatigue-free work



Especially suited for **suspended ceilings**

Drop-in anchor SA plus & SAK plus



Advantages



SA plus, zinc plated



Setting tool ESW PRO



SAK plus with lip, zinc plated



Setting tool ESW

Suitable building materials

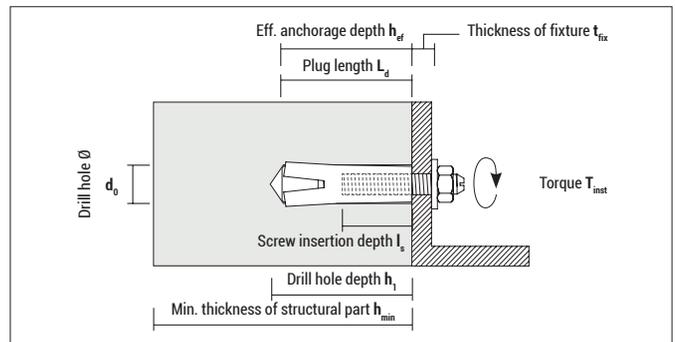
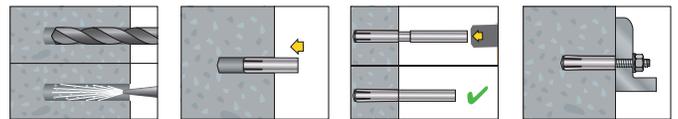
Very suitable



• Concrete



Mounting



Approvals and certificates



European Technical Assessment
Option 7 for non-cracked concrete
(M8 - M16)



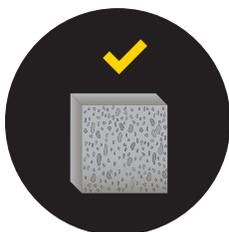
For multiple use for non-structural
applications in cracked concrete
(M6 - M10)



see assessment
M6 - M10



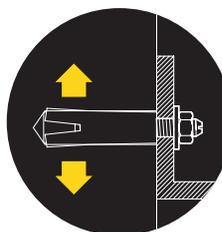
M8 - M10



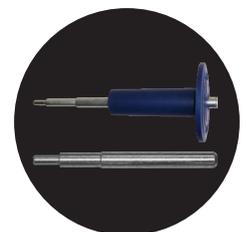
Approved for single use in
non-cracked concrete



Approved for **multiple use**
for **non-structural applica-**
tions in cracked concrete



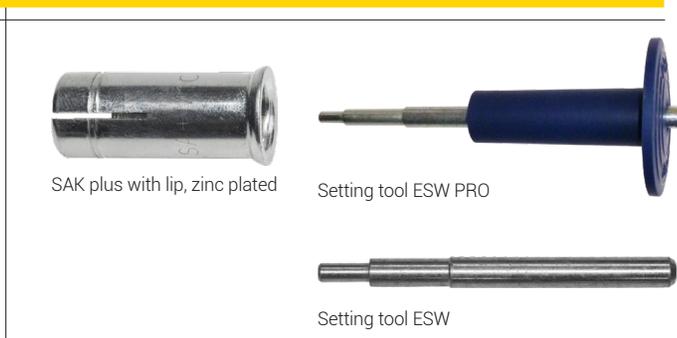
High expansion ability
enables low drill hole depth
and low anchorage depth



The **setting tool** is
necessary for the
correct installation

Drop-in anchor SAK plus 8-25 & SAK plus 10-25

Advantages



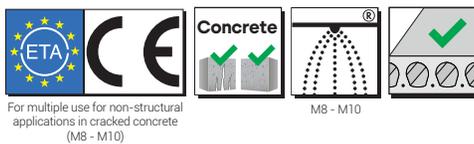
Suitable building materials

Very suitable

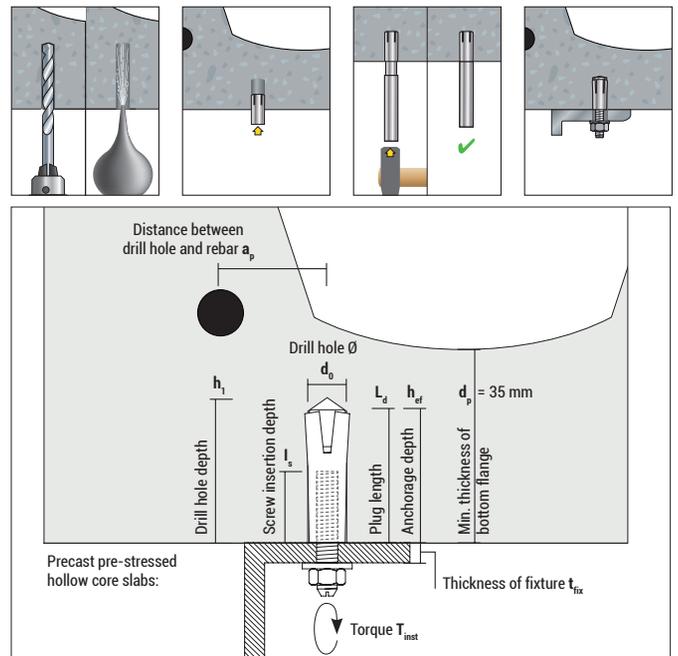
- Concrete
- Precast pre-stressed hollow core slabs



Approvals and certificates



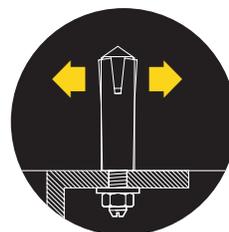
Mounting



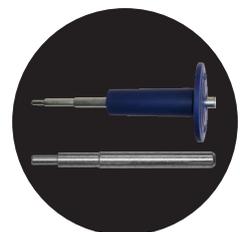
Approved for multiple use in non-structural applications in cracked and non-cracked concrete



Approved for fixing in **precast pre-stressed hollow core slabs**



High expansion ability enables low drill hole depth and low anchorage depth



The **setting tool** is necessary for the correct installation

Multifunction frame plug MFR



Assortment



SB TX

- zinc plated
- stainless steel A4
- hot-dip galvanized



SB SSKS

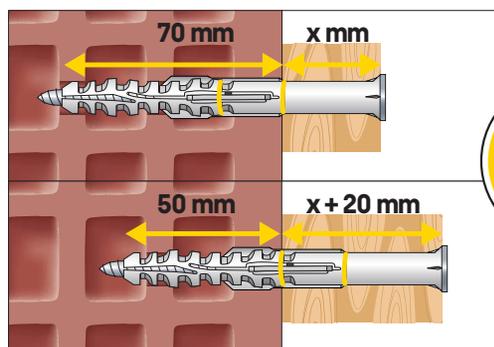
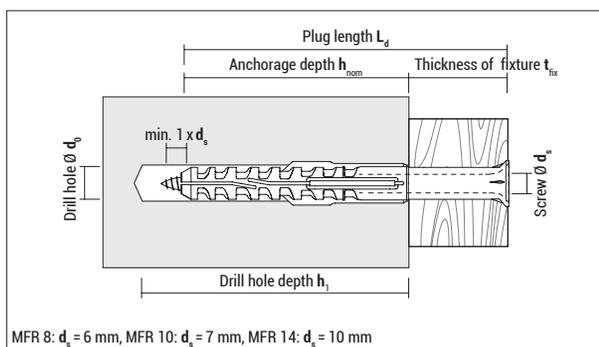
- zinc plated
- stainless steel A4
- hot-dip galvanized



FB SSKS

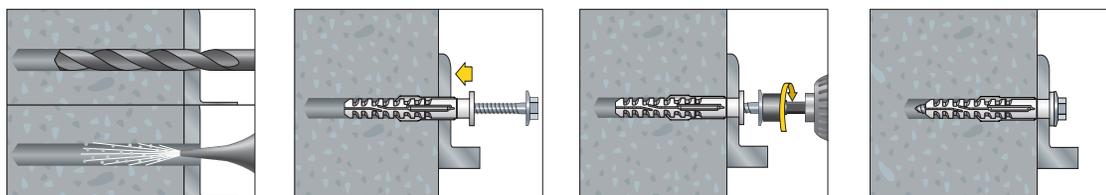
- zinc plated
- stainless steel A4

Mounting

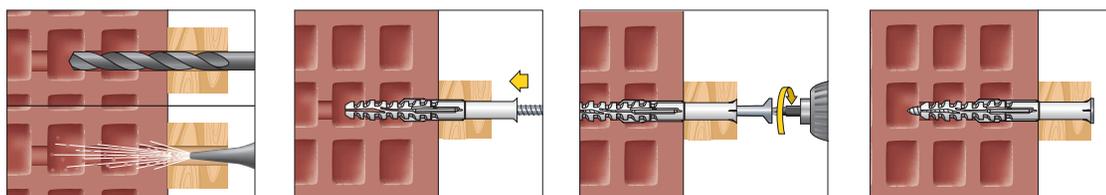


MFR 10:
Now with two
setting depths

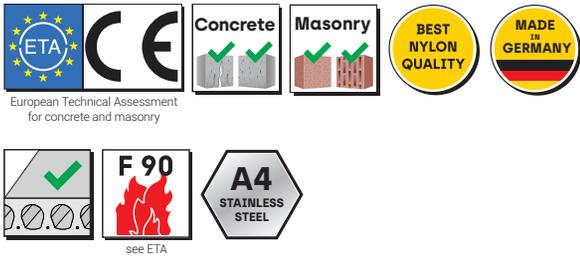
Mounting flat rim plug with hex-head screw with integral washer



Mounting countersunk plug with countersunk screw



Approvals and certificates



Suitable building materials



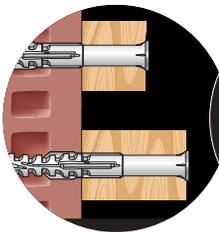
- Concrete
- Solid brick
- Solid sand-lime brick
- Aerated concrete
- Hollow brick
- Hollow sand-lime brick



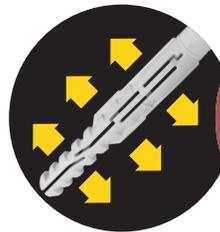
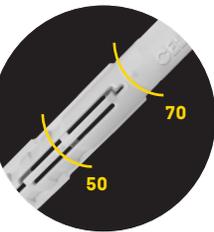
- Precast prestressed hollow core slabs
- Lightweight hollow concrete blocks
- Natural stone
- Lightweight solid concrete blocks

Approved for **all** base material groups (see ETA)!

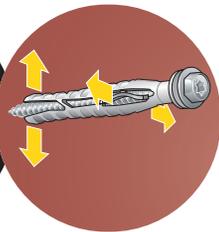
MFR 10 Advantages



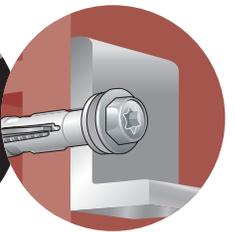
Setting depth 50 mm and 70 mm for a higher flexibility of applications



Long expansion area and early expansion achieved by **lateral bars** ensure **secure hold**



Flat rim plug prevents **contact corrosion**



Countersunk plug for **smooth mounting** in fixture



Wide range:

- zinc plated
- stainless steel A4
- hot-dip galvanized



All lengths **pre-assembled**



European Technical Assessment for concrete and masonry [see ETA]



MFR 10 Application examples



Suitable for metal façade substructures



Suitable for wooden façade substructures



Approved for precast pre-stressed hollow core slabs



Approved by company Hörmann for **fire protection doors** in solid building materials

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Business Development Manager Middle East
E-mail: praveen.pinto@celo.com
Mobile: +971 58 811 8504

Small Things Matter

Presented by:

EN 01/21

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