

CELO

ETA-approved
fixings for
cracked concrete



ETA-assessment

Why is it important?

What does it mean?

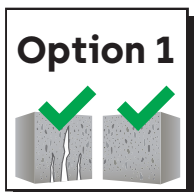


ETA stands for **European Technical Assessment** (former name: **European Technical Approval**) and is a widely accepted confirmation of technical suitability of a building product in accordance with the Construction Products Regulation (CPR) in the member states of the EU.

"[...] 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** passed the most complex tests and allow the **widest range of applications** inclusive the use in cracked concrete. Option 12 anchors allow 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 find in the ETA.

We indicate this by 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 find fire resistance values in the ETA. We indicate this by 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 shall 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**.

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



Customer Service

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Field Service

- Committed – competent – flexible
- Extensive field service care
- Personal consultation
- Product recommendations
- Shelf planning and shelf service
- Roadshow

Design Software - Anchors + Screws

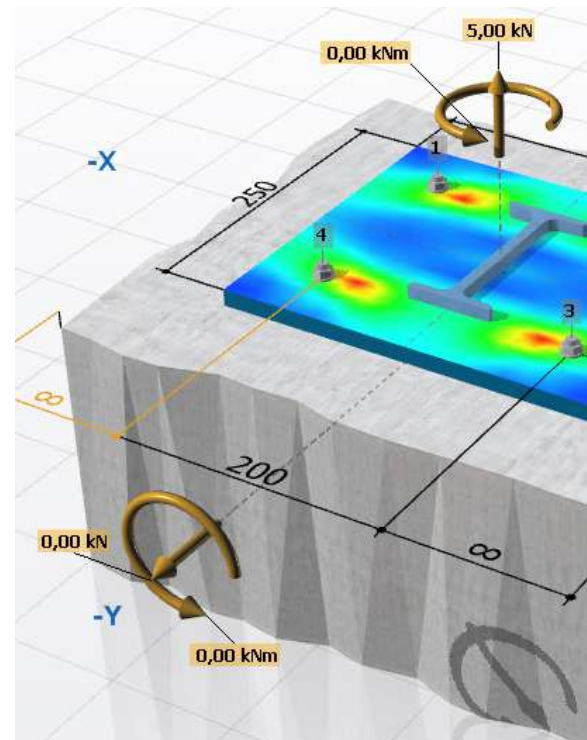
Design Software - Anchors

- 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 already 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



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

www.celofixings.com

- Buy products online
- 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



Fastening injection system

ResiFIX

Pure Epoxy Plus EPP SF

Approvals and certificates



European Technical Assessment
Option 1 for cracked concrete
(M8 - M30, Ø8 - Ø32)



European Technical Assessment
for post-installed rebar
connections (Ø8 - Ø40)



Service life of the product: 100
years based on the ETA

- **Long-lasting and safe**



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

- **Harmless to health
after curing**



Sustainability certification
LEED

- **Environmentally friendly,
low-pollutant, low-emis-
sion and sustainable
construction product**



Usage under
seismic conditions

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



(M8 - M30,
Ø8 - Ø32)

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

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



Diamond drilling is approved

- **Premium product**



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 report R120

- **Fulfills fire protection
requirements**



(Ø8 - Ø40)

European Technical
Assessment post-installed
rebar connections
(Ø8 - Ø40)

- **For more application
flexibility**



Styrene free

- **Reduced odour exposure**

Fastening injection system

ResiFIX

Pure Epoxy EP SF

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



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



Diamond drilling is approved (only for post-installed rebar connections)

- Premium product



Very high load values

- Heavy-duty usage



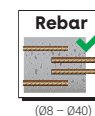
Usage also in water-filled drill holes

- Extended range of applications



Fire resistance report R240

- Valid only for post installed rebar connections



European Technical Assessment post-installed rebar connections (Ø8 - Ø40)

- 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**



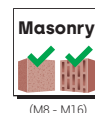
Usage also in water-filled drill holes and suitable for contact with drinking water

- **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**

Fastening injection system **ResiFIX VY ECO SF**

Approvals and certificates



European Technical Assessment
Option 1 for cracked concrete
(M8 - M16)



European Technical Assessment
Option 7 for non-cracked concrete
(M8 - M24, Ø8 - Ø25)



European Technical Assessment
for masonry
(M8 - M16)



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

- Harmless to health
after curing



Sustainability certification
LEED

- Environmentally friendly,
low-pollutant, low-emis-
sion and sustainable
construction product



(M8 - M16)

European Technical
Assessment Option 1 for
cracked (M8 - M16) and non-
cracked concrete
(M8 - M24)

- For a wide range of safety
critical applications



Usage under
seismic conditions

- Tested for use in areas
with high risk of
earthquakes



Two mixing nozzles are
included with every cartridge

- You can continue working
immediately after an
interruption



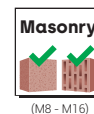
Usage also in water-filled
drill holes

- Extended range of
applications



Good load values in concrete
and masonry

- Multi-material usage



European Technical
Assessment for masonry
(M8 - M16)

- For more application
flexibility



Styrene free

- Reduced odour exposure

Heavy-duty anchor SLA

Assortment



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



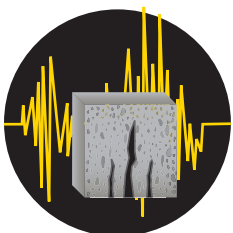
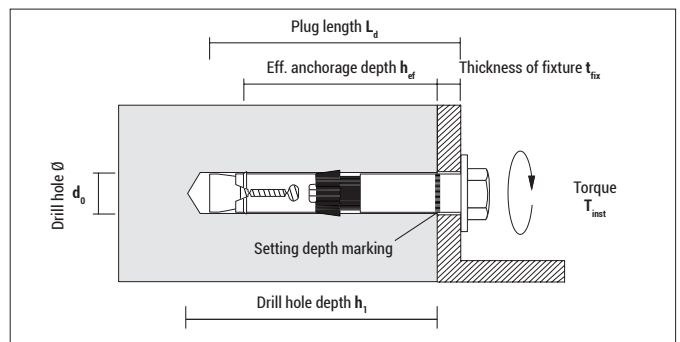
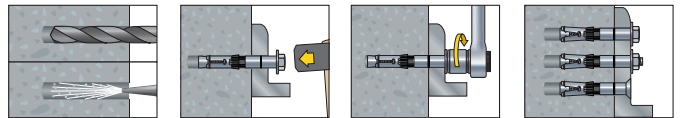
European Technical Assessment
Option 1 for cracked concrete



see assessment



Mounting



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



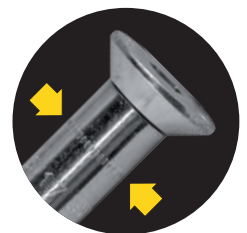
Torque controlled
heavy-duty anchor,
designed for
heaviest loads



Available with
various heads



The integrated plastic
ring **prevents twisting**
and allows to
overcome gaps



Anchorage depth
marking for quick
installation

Quick-fix anchor BAZ plus

Assortment



BAZ plus, zinc plated



BAZ plus A4, stainless steel A4



Suitable building materials

Very suitable



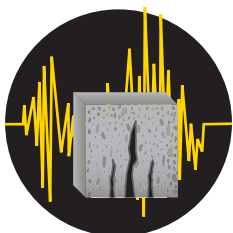
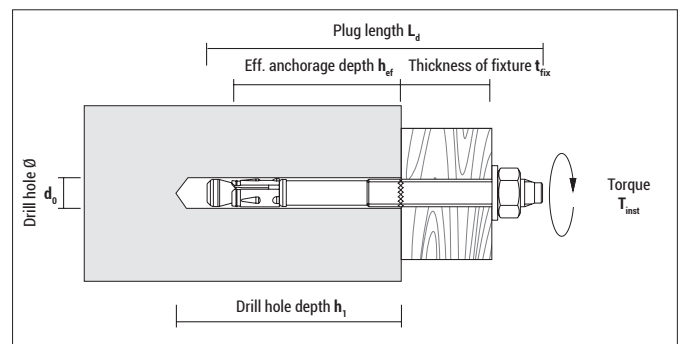
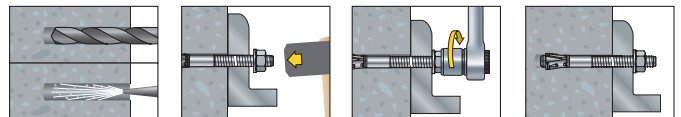
- Cracked concrete
- Non-cracked concrete



Approvals and certificates



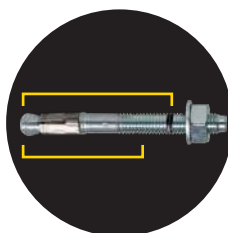
Mounting



Outstanding performance
in cracked concrete and
for use under seismic
action (C1 and C2)



**Very small edge and
axial distances**
perfect for difficult
installation situations



**M10 and M12: Two
setting depths**
for higher appli-
cation flexibility



**Setting depth
marking ring** for
easy and quick
installation



Length marking
on top of the
BAZ plus

Concrete screw BTS

Assortment



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

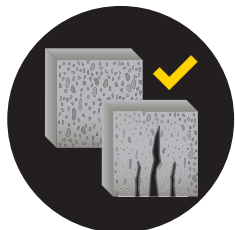
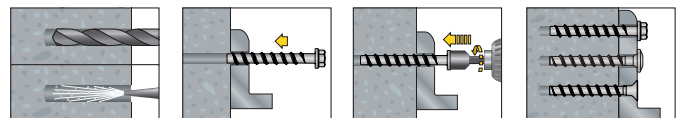


European Technical Assessment
Option 1 for cracked concrete

see assessment

from Ø8

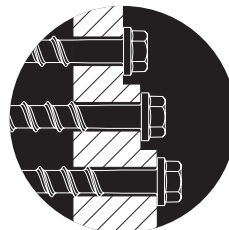
Mounting



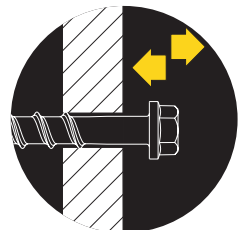
Approved for use in
cracked and non-cracked concrete



High loads combined with an
easy application (use of an
impact wrench is recommended)



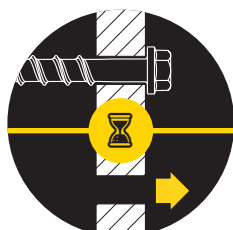
Variable, because
of **three setting depths**



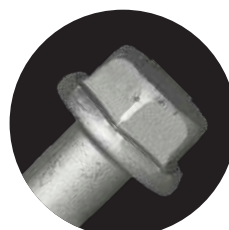
The BTS may be
adjusted



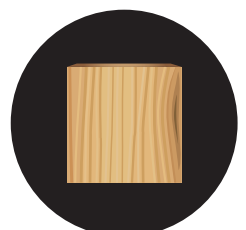
Big range: zinc plated,
stainless steel A4 or zinc
flake coated with coun-
tersunk or hex head



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



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

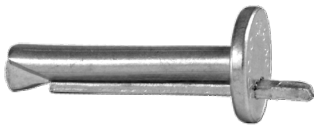


Available with large
washer according to
ISO 7094 (DIN 440)
for woodworking

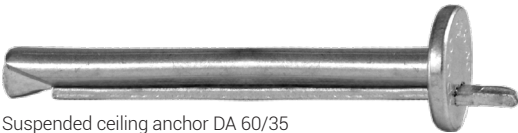
Suspended ceiling anchor

DA

Assortment



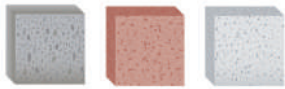
Suspended ceiling anchor DA 30/5



Suspended ceiling anchor DA 60/35

Suitable building materials

Very suitable



- Concrete
- Solid brick

Approvals and certificates



For multiple use for non-structural applications in cracked concrete

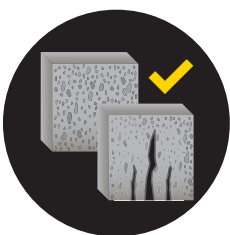
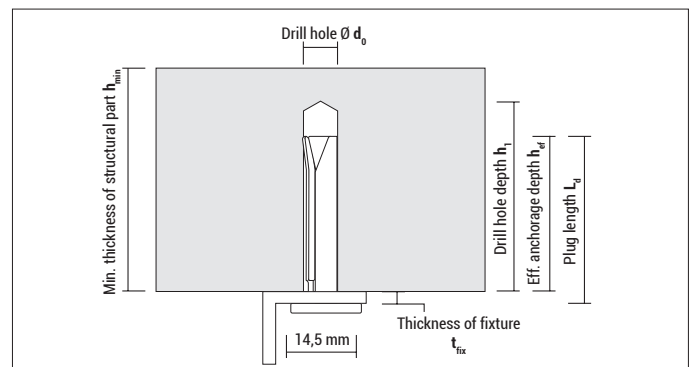
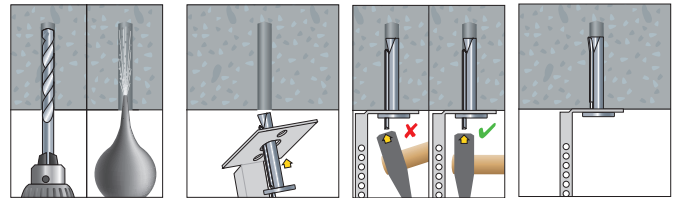


Concrete

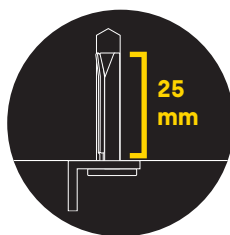


see assessment

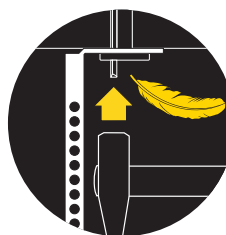
Mounting



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

Assortment



SA plus, zinc plated



Setting tool ESW PRO



SAK plus with lip, zinc plated



Setting tool ESW



Suitable building materials

Very suitable



- Concrete



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)

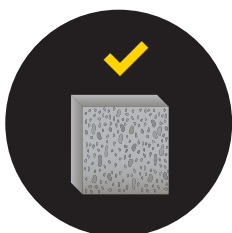
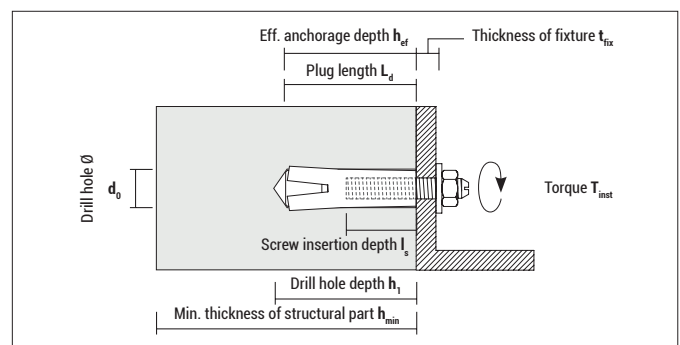
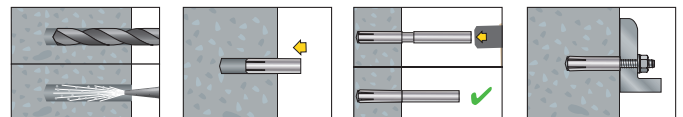


see assessment
M6 - M10



M8 - M10

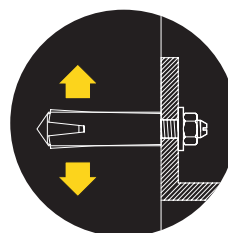
Mounting



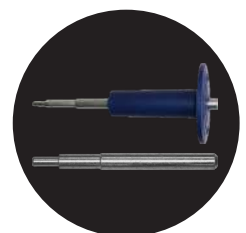
Approved for single use in
non-cracked concrete



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

Assortment



SAK plus with lip, zinc plated



Setting tool ESW PRO



Setting tool ESW

Suitable building materials

Very suitable



- Concrete
- Precast pre-stressed hollow core slabs



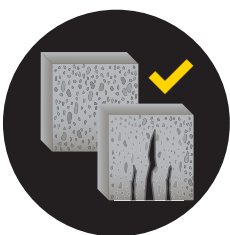
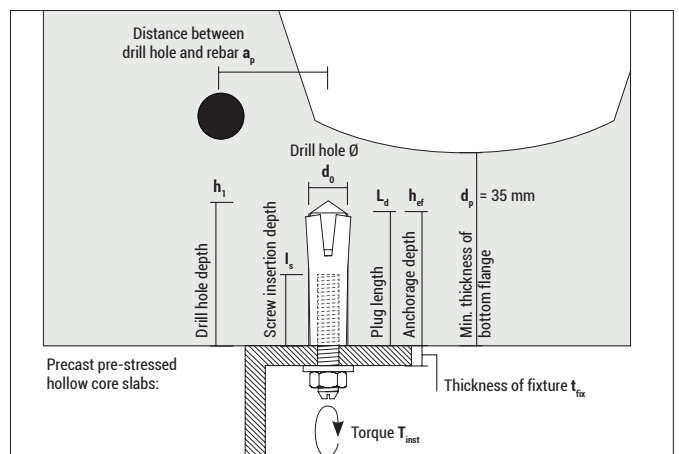
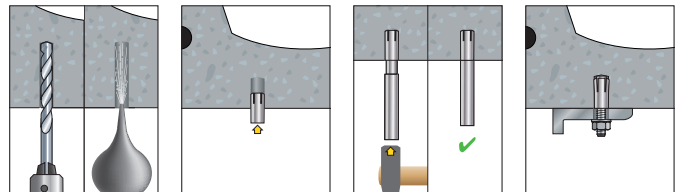
Approvals and certificates



For multiple use for non-structural applications in cracked concrete (M8 - M10)

M8 - M10

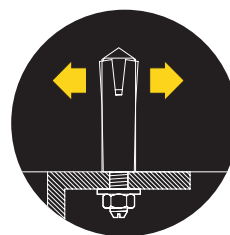
Mounting



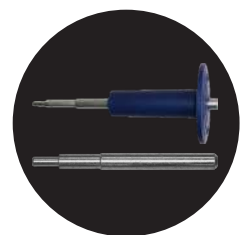
Approved for multiple use in non-structural applications in cracked and non-cracked concrete



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 for flush finishing in wood

- zinc plated
- stainless steel A4
- hot-dip galvanized (not ETA-approved)



SB SSKS increased contact pressure in wood construction

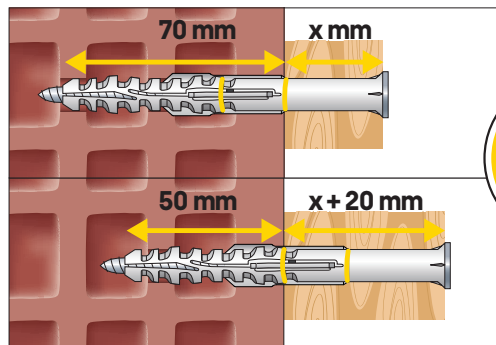
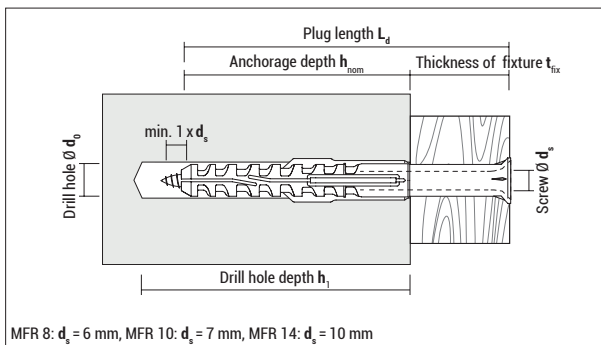
- zinc plated
- stainless steel A4
- hot-dip galvanized (not ETA-approved)



FB SSKS ideal for metal construction

- zinc plated
- stainless steel A4

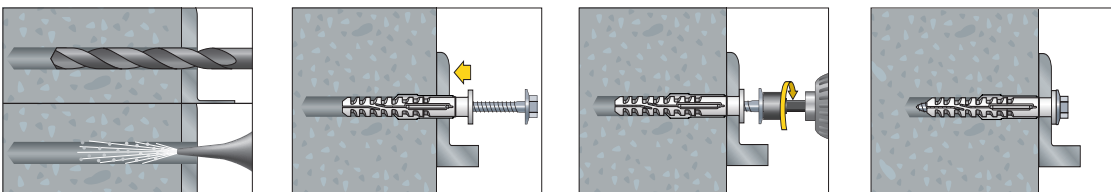
Mounting



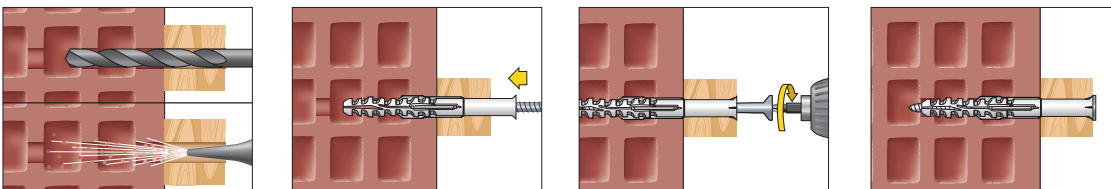
MFR 10:

Now with two setting depths

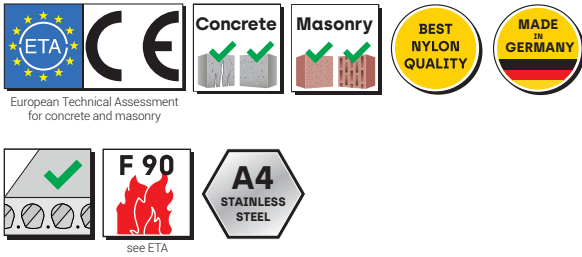
Mounting flat rim plug with hex-head screw with integral washer



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

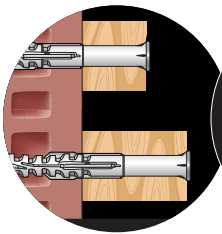


- Precast prestressed hollow core slabs
- Lightweight hollow concrete blocks
- Natural stone
- Lightweight solid concrete blocks

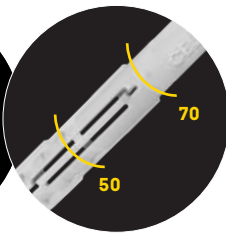


Approved for **all** base material groups (see ETA)!

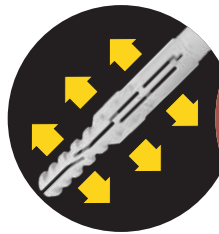
MFR 10 Advantages



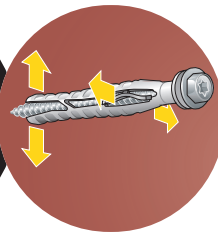
Setting depth 50 mm and 70 mm
for a big variety of applications



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



Flat rim plug prevents **contact corrosion**



- Wide range:**
- zinc plated
 - stainless steel A4
 - hot-dip galvanized



All lengths **pre-assembled**



European Technical Assessment for concrete and masonry (see ETA)



Countersunk plug for **smooth mounting** in fixture

MFR 10 Application examples



Suitable for metal façade substructures



Suitable for wooden façade substructures



Approved for precast prestressed hollow core slabs



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

CELO Befestigungssysteme GmbH
Industriestraße 6
D-86551 Aichach
www.celofixings.com
Hotline: +49 (0) 8251-90485-0
Telefax: +49 (0) 8251-90485-49
E-mail: info@celofixings.de

Small Things Matter

Presented by: