

SFS

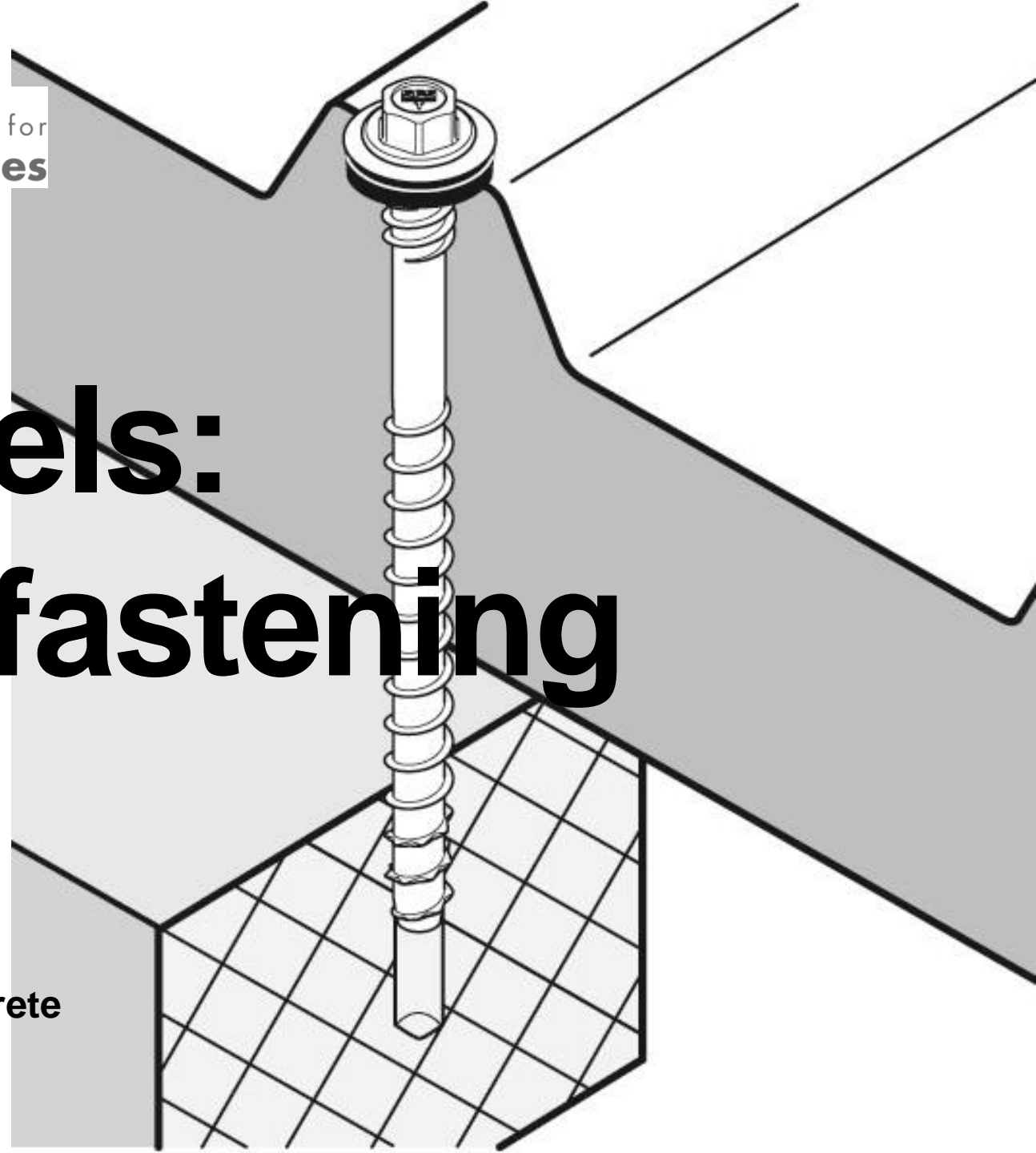
IFBS



European Association for
Panels and Profiles

Sandwich panels: Revolutionize fastening onto concrete

Sandwich panels: Revolutionize fastening onto concrete
A. Nangué, Marseille, 15.10.2019



AGENDA

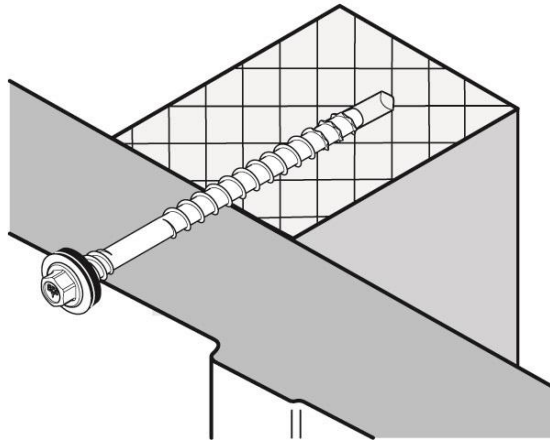
1. Outset situation
2. Introducing MDC/MXC: Key features and value propositions
3. Video summary

Outset situation

Outset situation

Fastening sandwich panels onto concrete

Sandwich panels onto concrete



- The fastening of sandwich panels onto concrete represents a growing business
- The challenges and requirements are quite high

Conventional indirect methods



- Embedded steel attachment rails in combination with traditional selfdrilling and –tapping fasteners
- Retaining plugs are also commonly used

Outset situation

Shortcomings of conventional solutions

- The only approved fastening solution are the embedded attachment rails in combination with traditional fasteners
- Indirect fastening solution: Plastic dowel or retaining plug in combination with a screw is not approved, but commonly used whenever there aren't any embedded attachment rails in the concrete
- The solution with embedded attachment rails implies following possible risks:
 - Sometimes the channels are simply not existing
 - It can also be wrong positioned in the concrete (inclined, too deep, too high, not enough space for selfdrilling fasteners...etc.)
- Those mistakes can expensively be corrected with an additional steel brackets onto which the panels are ultimately installed



Outset situation

Customers wish.....

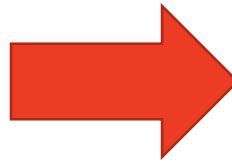
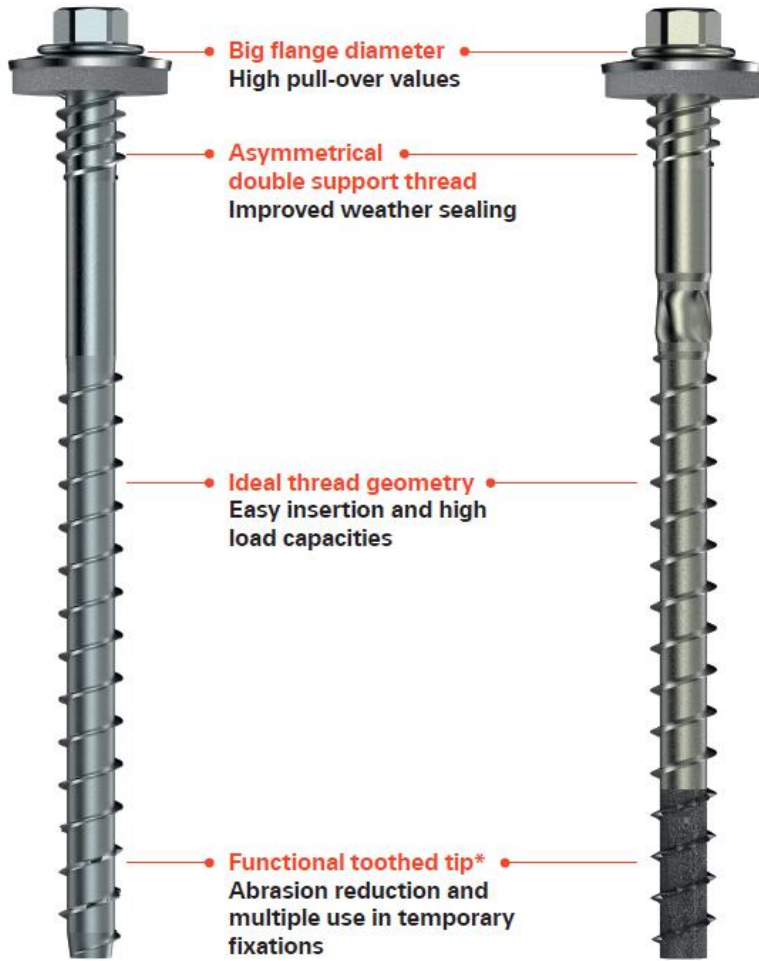
- An approved **direct** fastening solution onto concrete
- The solution should be easy (so special skills from the installer required)
- High safety
- Time saving installation process (fast)
- Flexibility with different embedment depths and
- Independent from channels positioning in the concrete



Introducing MDC/MXC: Key features and value stream

MDC/MXC

Clearly added values for the customers



Easy:

- Assembly and Installation
- No retaining plug needed
- Different embedment depth

Safe:

- Excellent weather sealing
- High load capacity (less fasteners needed)
- Eliminate assembly errors
- Backed with ETA (available Q4)
- Highly corrosion resistant (MXC)

Fast:

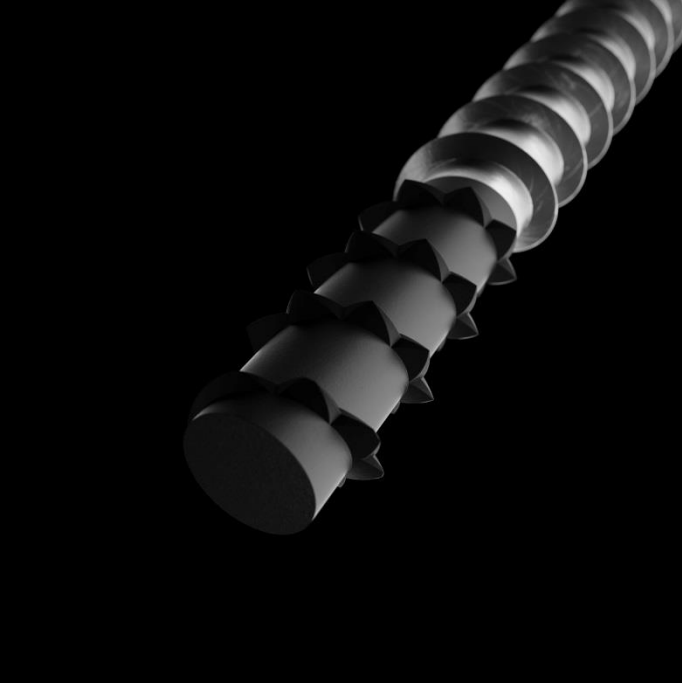
- Installation process (compared to plug or HTU)
- Insertion into concrete
- No rework necessary

Properly remove dust from the hole

Key features and innovations

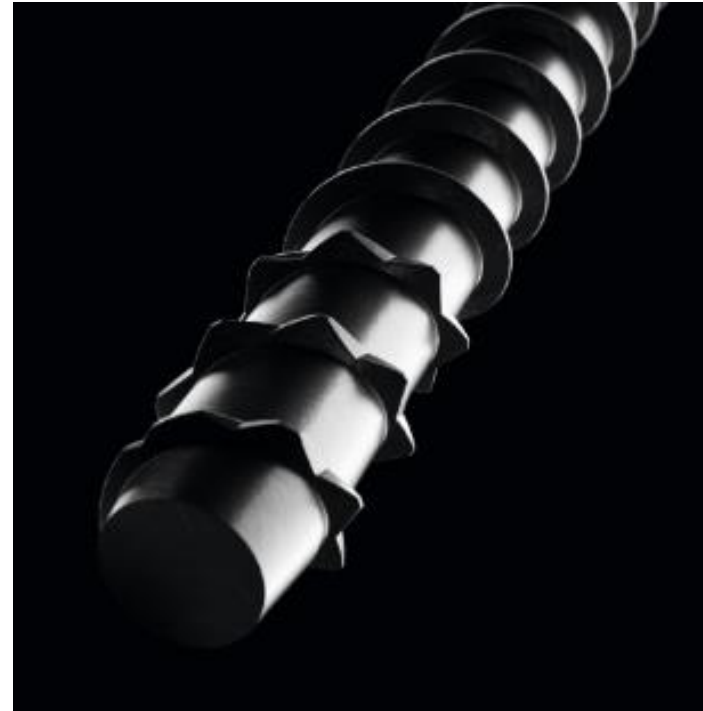
Efficient toothed tip

Abrasion reduction and easy setting



The efficient toothed tip on both fasteners:

- facilitates the insertion into concrete and the setting overall
- reduces considerably the abrasion and the wearing
- enables low driving torque



The MXC tip is made of:

- Hardened carbon steel
- Higher robustness
- Protected against corrosion

Optimized thread geometry

Easy insertion and high load capacities



The fastener thread has been optimized :

- with a larger effective contact area in concrete and ultimately enables the fastener to bear high loads
- The bigger outer diameter improves the cutting into concrete and immediately engages the load bearing functionality
- These optimizations confer both MDC and MXC their distinguishing high load capacities

The knurling on the MXC :

- Isn't only a differentiation feature
- Most importantly helps facilitates the installation without damaging the panel sheet



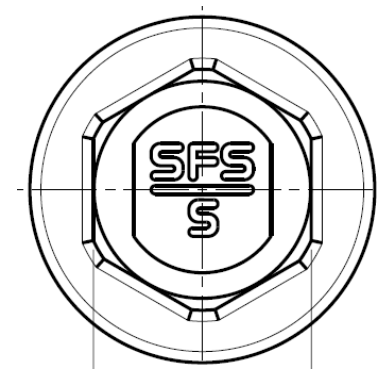
Improved pull-over values

Big flange diameter brings technical benefits



The flange diameter is $\text{\O}12.0\text{mm}$ which leads to:

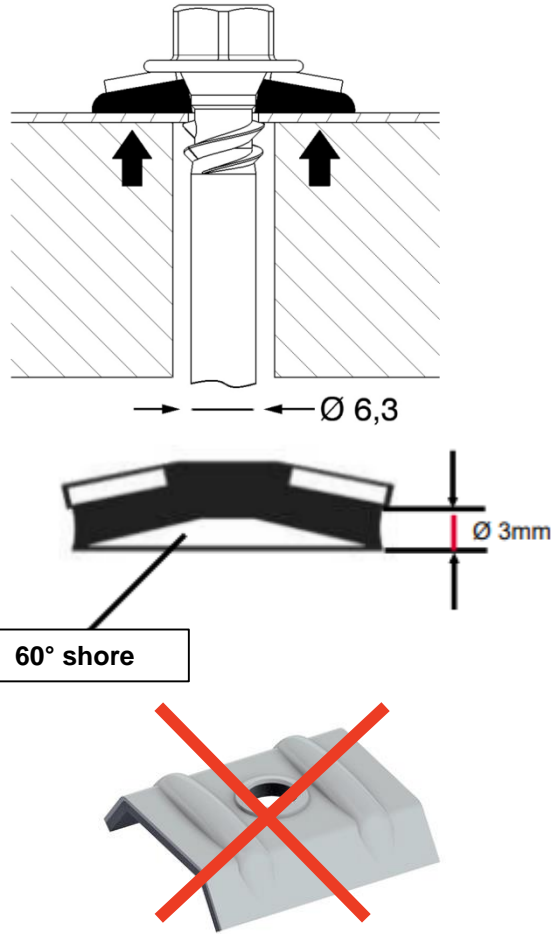
- Pull-over values increase up to 30%
- HEX head for using standard tools on job sites
- Economical benefit due to less fasteners needed
- Higher fastening quality and safety



$\text{\O}12,0\text{mm}$

Double support thread

The support thread is not always "support thread"



- The support thread is bigger than the load bearing thread
- The outer panel skin lies on the support thread
- No counter-pressure necessary on the washer
- The washer is sufficiently compressed without counter-pressure
- Better support function compared to the single support thread
- The thread free zone enables the panel sheet to sit properly and be pressed uniformly
- Special softer washer material EPDM (low shore-hardness) with 3mm thickness for perfect deformation
- No saddle washer necessary
- Water tightness internal tests at SFS were conducted successfully have confirmed the good sealing function of the double support*

*Tests were defined based on the ECCS (Basic for ETA)

Improved weather sealing function

Reliability against weather is a technical challenge



An improved weather sealing is ensured by :

- Asymmetric double support thread
- Higher resistance against deformation (outer panel sheet)
- Special softer washer material EPDM (low shore-hardness) with 3mm thickness and available in stainless steel and different diameters: S16, S19, S22

The double threaded feature enables:

- the uniform pressing of the EPDM sealing washer
- the increasing of rainproofness
- Reduction of dents formation in the panel sheet



Video products presentation

All the features and value proposition at one glance



Thank you for your attention