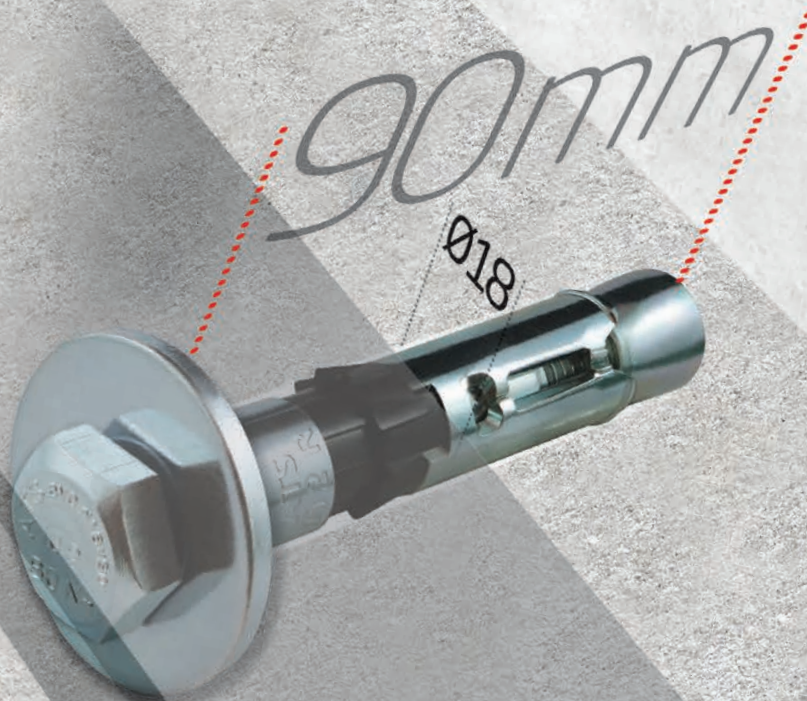




# HEAVY DUTY SAFETY ANCHOR FOR THIN PRECAST CONCRETE PANELS



- Designed for use in thin precast concrete panels
- M12 hex head class 10.9 bolt
- High strength large diameter structural washer (O.D. 44mm)
- Tested in Australian precast concrete
- Independently tested by Swinburne University of Technology (report ref. SSL18-10036)

125mm  
THIN PANEL MIN.



**FRIULSIDER**



# ATS-evo THIN PANEL ANCHOR

HEAVY DUTY SAFETY ANCHOR FOR THIN PRECAST CONCRETE PANELS

Design of post-installed fastenings in concrete is now covered by the newly released Australian Standard AS 5216:2018. Prequalification of products is outlined in appendix A of the standard.

Appendix A is based on testing in accordance with EAD 330232 and EAD 330499, as relevant. Products that hold a current ETA automatically prequalify for design under AS 5216:2018, the ICCONS ATS-evo ETA range holds a current ETA (ETA-10/0423).

For applications which fall outside the scope of AS 5216:2018, clause 1.1.1 of this standard provides an advisory note which states;

**“ For design actions, fastener products, substrates and applications not covered by the scope of this document, the design engineer should seek technical advice from the fastener supplier in relation to the suitability of the selected fastener for the intended application.”**

As a proactive fastener supplier to the Australian Construction Industry, ICCONS has developed a new ATS-evo Heavy Duty Safety Anchor specifically designed for thin precast concrete panels, the **ATS-evo Thin Panel Anchor**. The new anchor is an extension of the existing ATS-evo ETA range and has been independently tested through

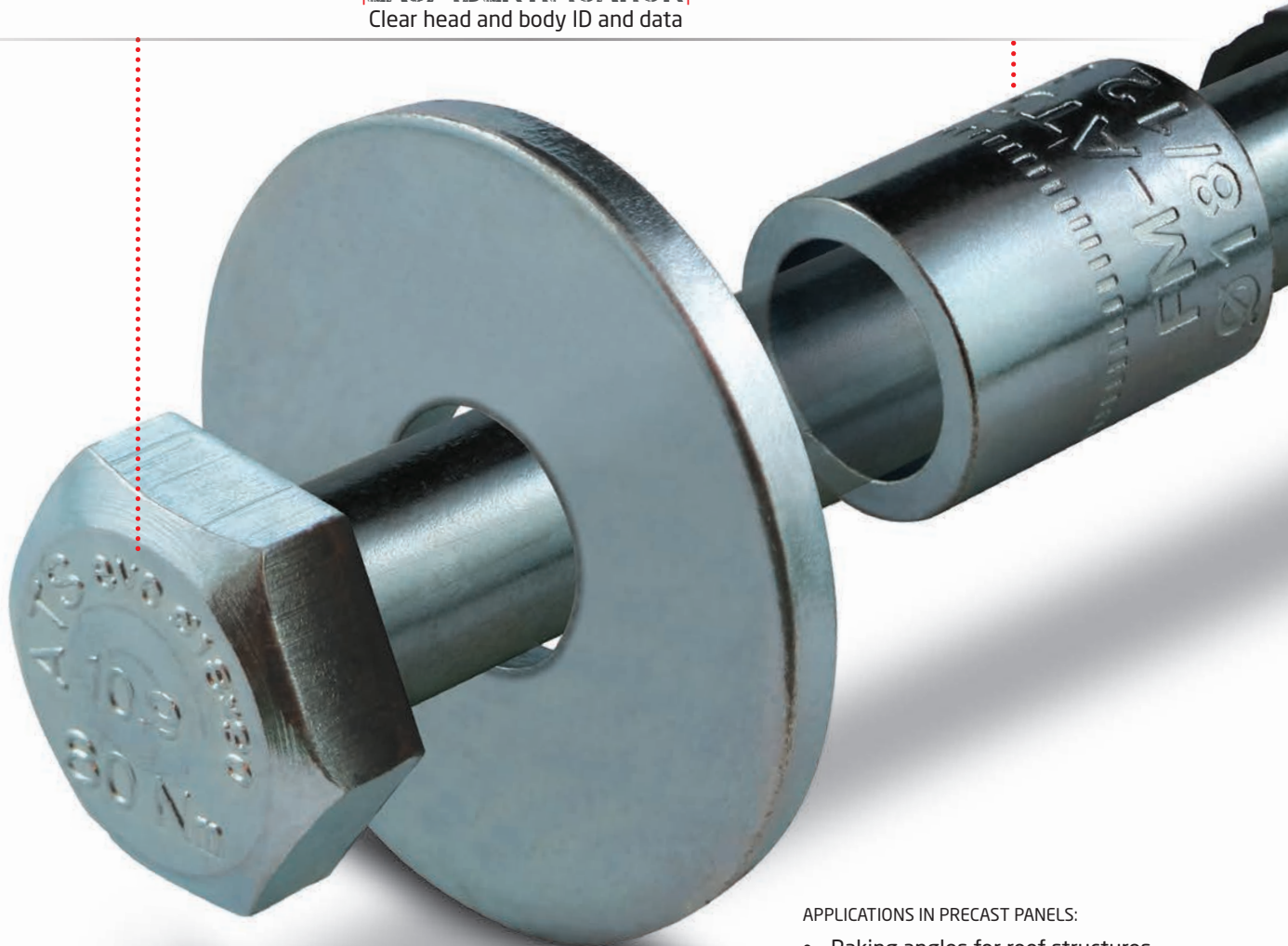
Swinburne University of Technology providing design professionals and contractors with a suitable solution for applications in thin precast concrete panels which are not covered within the scope of AS 5216:2018.

The ICCONS **ATS-evo Thin Panel Anchor** is a thick sleeve torque controlled expansion anchor designed for safety critical applications in thin precast concrete panels. Available in a hex head bolt with a heavy duty washer the **ATS-evo Thin Panel Anchor** is suitable for use in precast concrete panels as thin as 125mm.

*Note: AS 5216:2018 supersedes SA TS101:2015*

## EASY IDENTIFICATION

Clear head and body ID and data



### APPLICATIONS IN PRECAST PANELS:

- Raking angles for roof structures
- Precast panel steel plate connectors
- Roof beams
- Steel cleats
- Structural connections



**UNIFORM EXPANSION**  
Single piece three expanding segments

**ANTI-ROTATION**  
Unique compression ring prevents rotation

**SAFE INSTALLATION**  
Optimal expansion guaranteed by the coupling of the cone and expansion sleeve

**ZINC**  
clear

**CORROSION RESISTANT**  
Carbon steel

**3DG**  
COATING

High corrosion resistant zinc coating



ZINC INTERNAL

3DG EXTERNAL

Zinc Clear

Carbon Steel Corrosion Resistant / / 3DG Coating

**NEW**



Part No.	Part No.	Description	Drill mm	Clearance mm	Fixture mm	Length mm	Socket mm	qty
ATSeS18090LW	ATSeS18090LWG	Heavy Duty Thin Panel Hex Head	18	20	12	90	22	20

# ATS-evo THIN PANEL ANCHOR

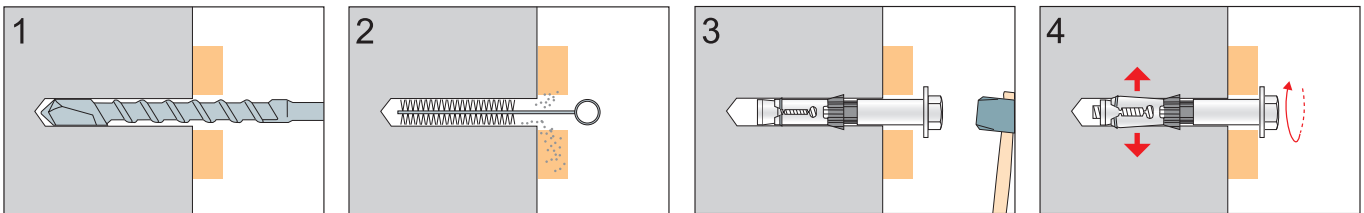
HEAVY DUTY SAFETY ANCHOR FOR THIN PRECAST CONCRETE PANELS



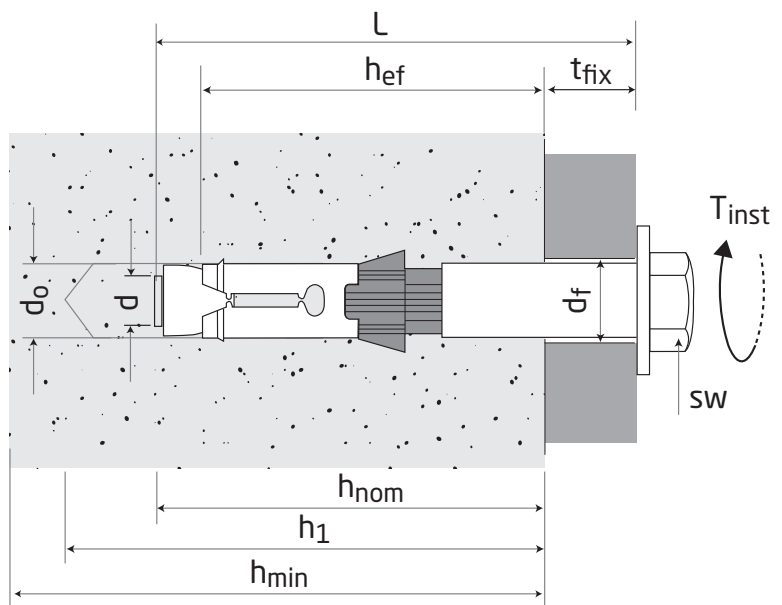
Component	Material	Coating - ATSeS18090LW	Coating - ATSeS18090LWG
Hex Head Anchor	DIN 6914	$\geq 5\mu\text{m}$ ISO 4042 (Zinc plated bright finish)	$\geq 10\mu\text{m}$ ISO 4042* (3DG Matt finish)
	Steel Grade 10.9 ISO 898-1		
Anchor sleeve	Steel EN 10025	$\geq 5\mu\text{m}$ ISO 4042 (Zinc plated bright finish)	$\geq 10\mu\text{m}$ ISO 4042* (3DG Matt finish)
Expansion sleeve	Hardened steel EN10132	$\geq 5\mu\text{m}$ ISO 4042 (Zinc plated bright finish)	$\geq 5\mu\text{m}$ ISO 4042 (Zinc plated bright finish)
Washer	Steel EN10139	$\geq 5\mu\text{m}$ ISO 4042 (Zinc plated bright finish)	$\geq 10\mu\text{m}$ ISO 4042* (3DG Matt finish)
Cone	Hardened carbon steel EN 10087	$\geq 5\mu\text{m}$ ISO 4042 (Zinc plated bright finish)	$\geq 10\mu\text{m}$ ISO 4042* (3DG Bright finish)
Compression ring	Nylon PA6 (Black)	N/A	N/A

\*3DG High corrosion resistant coating 1000 hours NSS tested to ISO 9227

## INSTALLATION INSTRUCTIONS



- $d$  = anchor diameter
- $d_o$  = hole diameter
- $d_f$  = clearance hole in fixture
- $t_{fix}$  = fixture thickness
- $sw$  = socket size
- $L$  = anchor length
- $h_1$  = minimum hole depth
- $h_{ef}$  = minimum depth of anchorage
- $h_{min}$  = min support (concrete) thickness
- $h_{nom}$  = nominal embedment depth
- $T_{inst}$  = torque





## DESIGN LOADS

### DESIGN INFORMATION 32 MPa PRECAST CONCRETE

Anchor - ATSeS18090LW / ATSeS18090LWG			M12
Anchor Diameter	d	mm	M12
Anchor Length	L	mm	90
Minimum concrete precast panel thickness	$h_{min}$	mm	125
Hole Depth (max.)	$h_1$	mm	90
Nominal Embedment Depth	$h_{nom}$	mm	78
Minimum depth of anchorage	$h_{ef}$	mm	68
Hole Diameter	$d_o$	mm	18
Clearance Hole in Fixture	$d_f$	mm	20
Spacing (min.)	$S_{min}$	mm	205
Edge Distance (min.)	$C_{min}$	mm	145
Torque Setting	$T_{inst}$	Nm	80
Fixture thickness (max.)	$t_{fix}$	mm	12
Socket Size	SW	mm	22
Design Tension Resistance	$N_{Rd}$	kN	16.0
Design Shear Resistance (parallel to edge)	$V_{Rd/par}$	kN	27.6
Design Shear Resistance (perpendicular to edge)	$V_{Rd/perp}$	kN	22.1

Note: 1) Performance data listed in the above table is based on independent testing conducted via Swinburne University of Technology (report ref. SSL18-10036) and outside the scope of AS 5216:2018. 2) Multiply design resistance by increasing factor concrete: 20MPa = 0.79, 40MPa = 1.11

## COMBINED TENSION AND SHEAR LOADING

For combined tension and shear load applications the following equations shall be satisfied:

$$N_{Sd} / N_{Rd} \leq 1$$

$$V_{Sd} / V_{Rd} \leq 1$$

$$(N_{Sd} / N_{Rd})^{1.5} + (V_{Sd} / V_{Rd})^{1.5} \leq 1$$

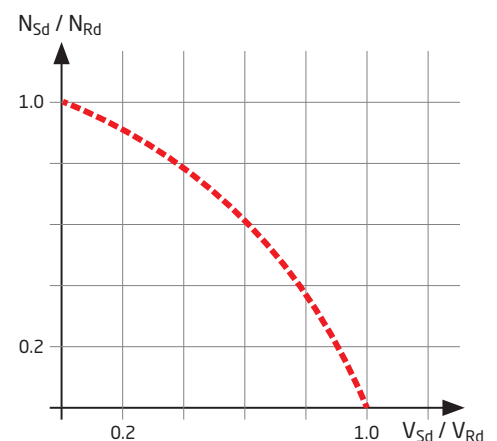
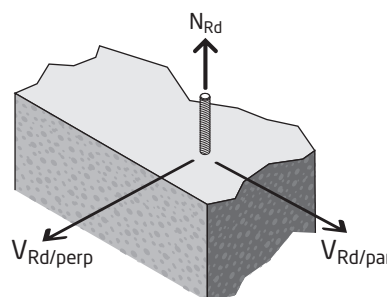
Where:

$N_{Sd}$  = Design Tension load (Action)

$N_{Rd}$  = Design Tension resistance

$V_{Sd}$  = Design Shear load (Action)

$V_{Rd}$  = Design Shear resistance





# ATS-evo THIN PANEL ANCHOR

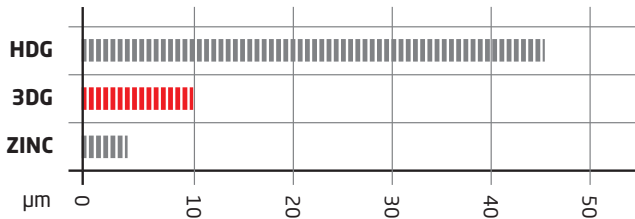
HEAVY DUTY SAFETY ANCHOR FOR THIN PRECAST CONCRETE PANELS



## CORROSION PROTECTION

### COATING THICKNESS

High resistance zinc coating with reduced thickness, that does not interfere with the thread geometry, guaranteeing the correct body/nut coupling.



### ANTI-SCRATCH

Special self-healing anti-scratch external finish that guarantees the complete fixing coating even in the event of minor impacts with other metallic bodies.



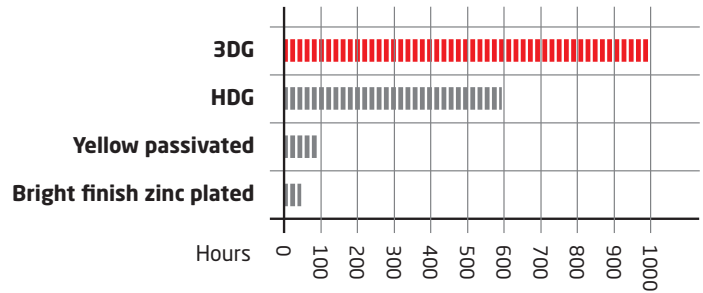
### RESPECT FOR THE ENVIRONMENT

It complies with the RoHS directive 2011/65/EU, the European CE Reach regulation 1907/2006, and is free from Chromium VI.



### MAX CORROSION RESISTANCE

Corrosion resistance in Salt Spray up to 1000 hours (min. resistance depending on the geometry of the fixing).



CORROSIVITY CATEGORIES ACCORDING TO ISO 9223			STEEL BRIGHT FINISH ZINC PLATED 5µm ISO4042	STEEL 3DG	STAINLESS STEEL A4 (wr.1.4404 EN10088)
<b>C5-I</b>	very high	Industrial			■
<b>C5-M</b>	very high	Marine			■
<b>C4-I</b>	high	Industrial			■
<b>C4-M</b>	high	Marine		■	■
<b>C3</b>	medium	Industrial-Marine-Urban		■	■
<b>C2</b>	low	Urban		■	■
<b>C1</b>	very low	Rural	■	■	■

- C5-I** = industrial environments with high air pollution (sulfur dioxide-chloride-etc.);
- C5-M** = marine environment with very high salinity and very close to the sea < 0.2 km;
- C4-I** = industrial environment with high sulfur dioxide pollution;
- C4-M** = coastal areas with high salinity, distance from the sea 0,2-1 km;
- C3** = urban or industrial environment with low sulfur dioxide pollution, coastal areas with moderate salinity, distance from the sea 1-3 km;
- C2** = urban environment contaminated mainly from densely populated areas with no significant industrial activity, distance from the sea > 3 km;
- C1** = rural non-contaminated environment, mainly natural areas, distance from the sea > 20 km.

■ Partially suitable applications ■ Suitable applications

The environmental assessment must be carried out by designers and/or competent personal, the influence of the above factors must be considered in the use of the fixings shown in the table, and therefore suitable protective and design-construction factors must be implemented.

# ATS-evo ETA Range

PREQUALIFIED IN ACCORDANCE WITH AS 5216:2018  
ETA-10/0423



## ATS-evo with Seismic Certification

HEAVY DUTY SAFETY ANCHOR

ATS-evo range available with ETA (European Technical Assessment) complying with AS 5216:2018 refer to [www.iccons.com.au](http://www.iccons.com.au) for further details.

### VERSIONS

- hex head anchor
- threaded stud with hex nut
- hex socket countersunk head screw

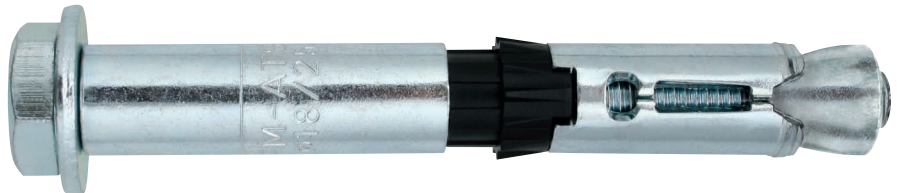
### PRODUCT FEATURES

- Class 8.8 steel
- thick shear sleeve for high shear strength
- special nylon bush prevent rotation
- white zinc plated

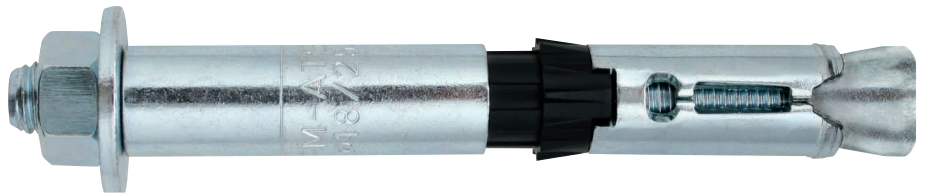
### CERTIFICATIONS

- Seismic certification C1-C2
- Option 1: for cracked concrete
- F120 fire resistance certification

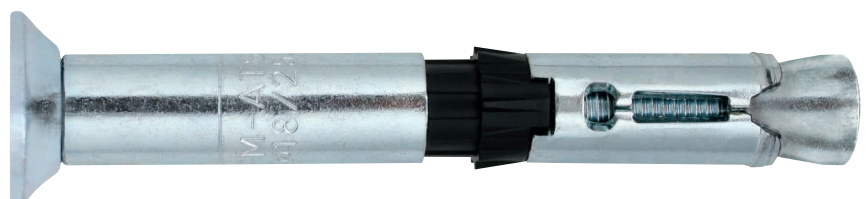
## ATS-evo S HEX HEAD ANCHOR CLASS 8.8 ZINC CLEAR COATING



## ATS-evo B THREADED BAR CLASS 8.8 ZINC CLEAR COATING



## ATS-evo SK HEX SOCKET COUNTERSUNK HEAD SCREW CLASS 8.8 ZINC CLEAR COATING



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## INNOVATIVE SOFTWARE - ANCHOR DESIGN MADE EASY

- Innovative 3d visual user interface, ETAG-001 compliant
- SEISMIC DESIGN under earthquake loads according to ETAG-001, Annex E, TR045
- Finite element analysis steel baseplate design

ICCONS® DesignFiX Software is simple, intuitive and FREE to DOWNLOAD anchor design program for Design Engineers, Project Managers, Site Engineers and End Users. Complex mechanical or chemical heavy duty anchor arrangements can be calculated in minutes. All designs are ETA based and qualify under the newly released AS 5216:2018.

With input Freedom & 3D user Interface ICCONS® DesignFiX offers complete freedom to select an anchor pattern and base plate configuration, as well as the position and direction of load combinations. Changes are made directly into the 3D user interface.

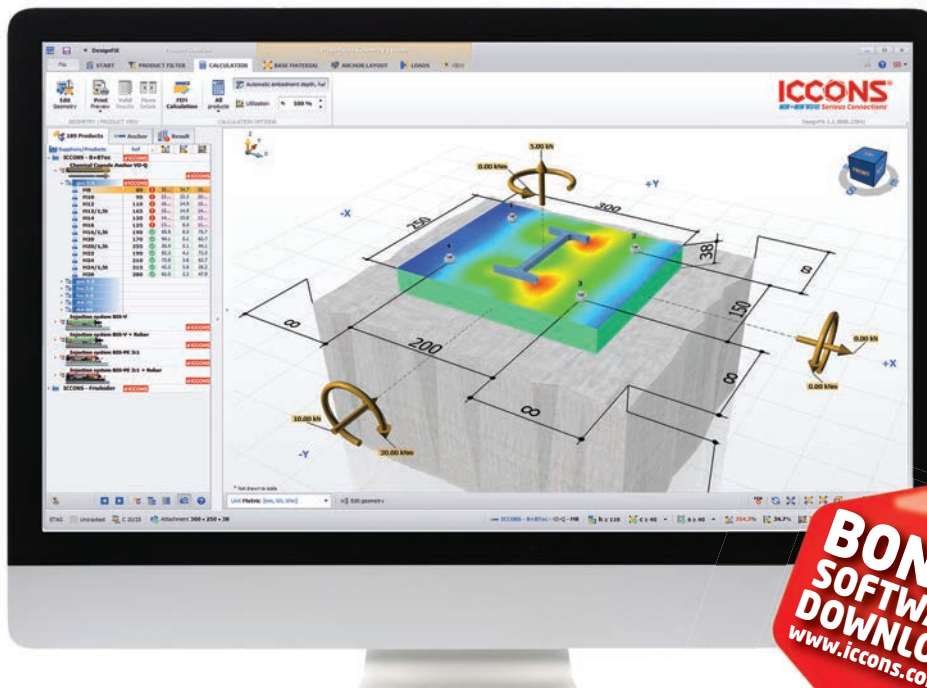
### Anchor Type Comparison

ICCONS® DesignFiX displays the usability of the various anchor types (according to ETAG-001, Annex C, TR029), including the values for each load type. This allows you to compare the calculation result of the different anchor types in a single easy to read panel.

### Optimum BIS Injection System Anchorage Depth when selecting a BIS Injection Mortar.

ICCONS® DesignFiX allows for the automatic calculation of the most effective anchorage depth, taking in consideration the minimal and maximum values of the ETA.

The integrated FEM-Calculation Method (Finite Element Method) in ICCONS® DesignFiX allows you to calculate the base plate thickness based upon the stresses in the base plate combination with the base plate configuration.



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