

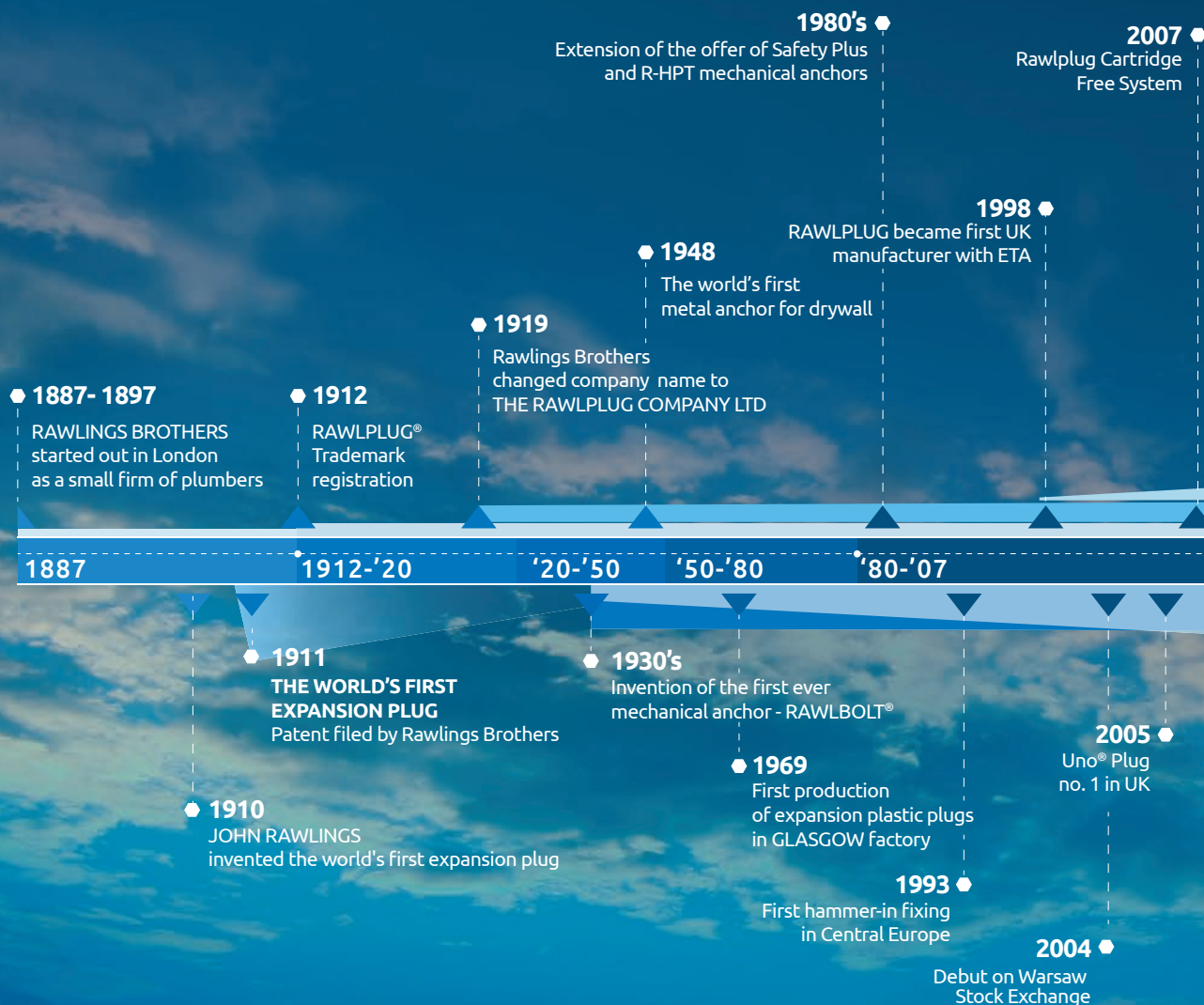


# **RAWLPLUG<sup>®</sup>**

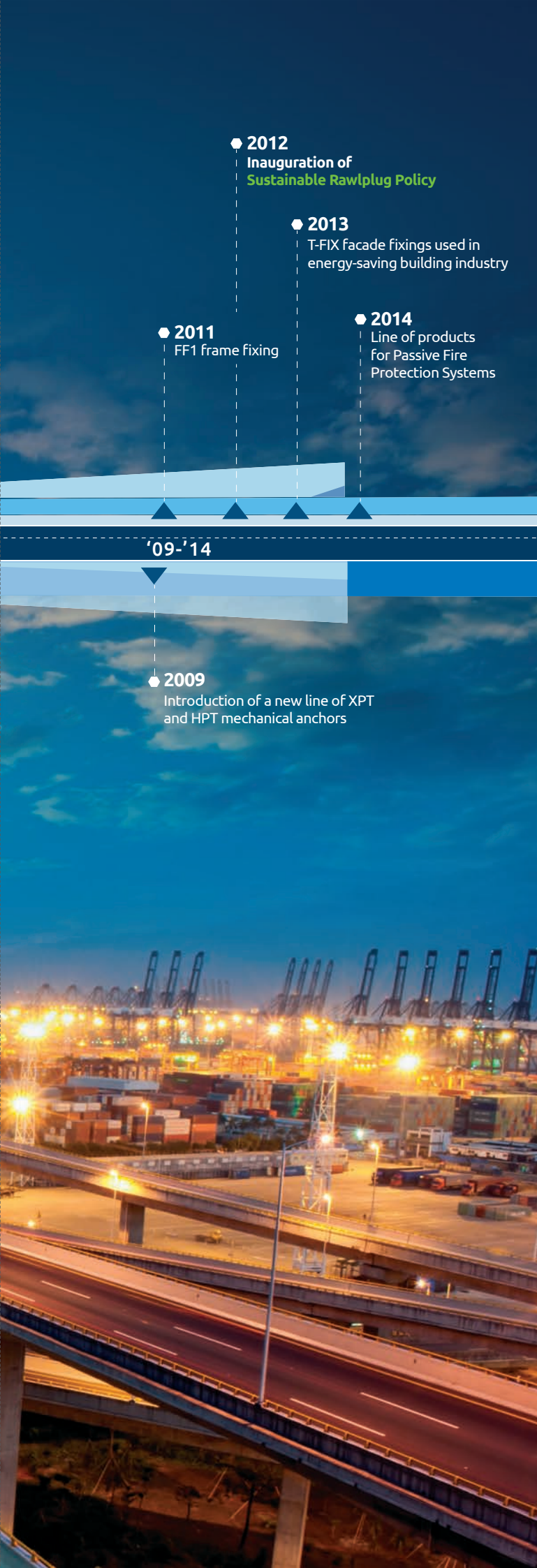
Facade Insulation  
Fixings

**Trust & Innovation**









● **2012**  
Inauguration of  
Sustainable Rawlplug Policy

● **2013**  
T-FIX facade fixings used in  
energy-saving building industry

● **2011**  
FF1 frame fixing

● **2014**  
Line of products  
for Passive Fire  
Protection Systems

'09-'14

● **2009**  
Introduction of a new line of XPT  
and HPT mechanical anchors

- Since 1911, when John Rawlings invented and filed an application to patent the world's first wall plug, the history of fixings has been inextricably linked with the RAWLPLUG® brand. Following the tremendous success of this revolutionary product in Europe, the RAWLPLUG company was founded in 1919 and quickly became renowned across the world for its innovative and reliable fixings.

Over the years, a small family company became an international organisation whose power is reflected in **13 companies** on four continents, over **1.900 employees** and almost **30.000 lines**, making up our diverse range of products. The Group's present-day know-how is a synergy of knowledge and experience based on the best practices of its subsidiaries whose main activity is developing innovative solutions in the field of fixing technologies, including their **design, production and distribution**.

Since it was founded, Rawlplug has placed great emphasis on the **quality and innovation** of its products, developing research centres in Glasgow, Wroclaw and Lancut. R&D teams consisting of experienced engineers, in the quest to find innovative solutions, design products intended for a wide range of substrates and applications. Pioneering Rawlplug solutions, imitated all over the world, have been defining the direction for the entire fixings industry for over 100 years.

- Nowadays Rawlplug's® products are used in construction, automotive, machine and electro-machine, mining, shipyard, road, timber and power industries, including around 30.000 product listings divided into 3 key groups:

#### Fixings & Anchors

Thermal insulation fixings for facades and roofs, self-drilling screws, lightweight & domestic fixings, frame fixings, medium & heavy-duty anchors, resin-bonded anchors and many others.

#### Fasteners

DIN bolts, nuts & washers, special bolts and many others (including bespoke solutions).

#### Tools

Hand & power tools, power tool accessories (drills, saws, chisels, etc.) and direct fastening systems.

Today Rawlplug continues in its fine tradition of innovation through constant research and development of technologies and processes that minimise the company's impact on the natural environment, making sustainable development one of the pillars of its existence.

### Sustainable Rawlplug:

- employs a strategy of successful management and ethical business practices;
- builds long-lasting relationships based on common respect and trust with customers, suppliers and business partners thanks to an effectively designed and operated supply chain;
- cares for its employees and provides help and support to develop local communities;
- is concerned for the natural environment, focusing on areas involving production processes, employee education and cooperation with experts in the field of waste management.

Thanks to its constant emphasis on innovative solutions and customer care together with keen concern over sustainable development and environmental issues, RAWLPLUG'S® products continue to be acknowledged around the globe making them a world-class, first choice for the fixings industry.

Sustainable **RAWLPLUG**



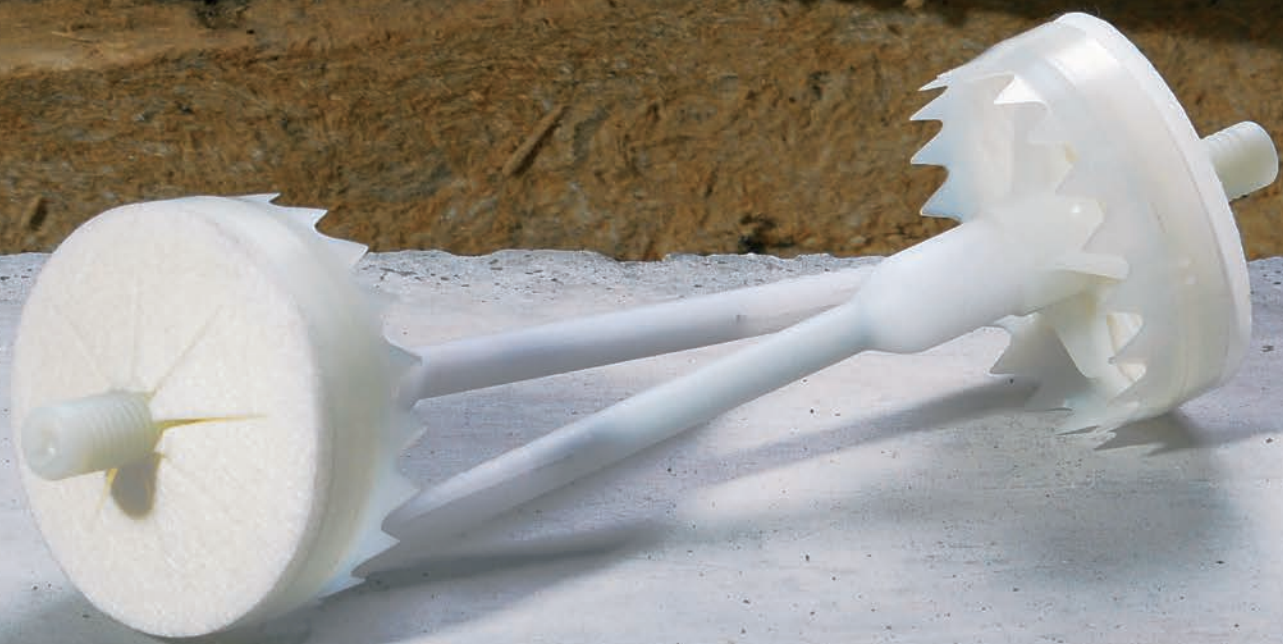
## Facade Insulation Fixings

Rawlplug has been uniquely associated with innovations in the field of fixings for over 100 years. For more than 30 years, our line has been to design, manufacture, sell and fully maintain fixings for facade thermal insulations. Our company is unique in recognizing needs of contractors and manufacturers of insulation systems by cooperating with them and constantly developing our products.

To provide flexible and reliable solutions that ensure quick and simple installation, we have created the innovative TFIX 8 mm facade fixings – designed for professionals, conforming to the ETICS requirements and backed by the European certificates.

The standard of our products has been defined by our customers and it is for them that we have precisely designed and now recommend the high-quality product, which provides:

- safe anchoring in every type of substrate with the highest technical parameters guaranteed;
- hidden anchoring of the fastener in the thermal insulation layer with no additional accessories needed;
- fixing of the thermal insulation up to 420 mm of thickness range;
- reduction of thermal transmittance in the anchoring point;
- very simple and quick installation; complete service - design consultation, training and site support.





Olympic park, Sochi  
Sochi, Russia.



Atal City Towers  
Kraków (Czyżyny), Poland



Sky Tower  
Wrocław, Poland



Wyndford Estate  
Refurbishment  
Glasgow, Scotland



Thanks to decades of experience, our customer-orientated approach, quality products and trustful relationships with our clients, RAWLPLUG® are proud to have been involved in many high-profile projects, including:

Presidential Palace Abu Dhabi  
Dubai.

Biotechnology and Biomedicine Center  
of the Academy of Sciences and Charles  
University in Vestec  
Prague, Czech Republic

Louvre Museum Abu Dhabi  
Dubai.

Wembley Stadium  
London.

Mixed Use Complex  
Sheikh Zayed Road – Dubai.

Emirates Stadium  
(Arsenal F.C) – London.

Lower Lea Valley Cable Tunnels  
National Grid – London.

Burj Khalifa Tower  
Dubai.

Copernicus Science Centre  
Warsaw.

Municipal Stadium and Sky Tower  
Wrocław.

Bucharest Metro  
Bucharest.

Kraków Airport - multilevel parking

Atal City Towers  
Kraków (Czyżyny).

And many more...

**RAWLPLUG®**  
Trust & Innovation. Since 1919.



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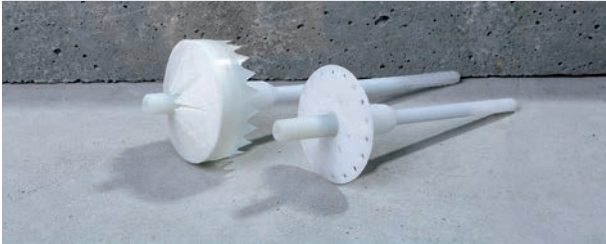
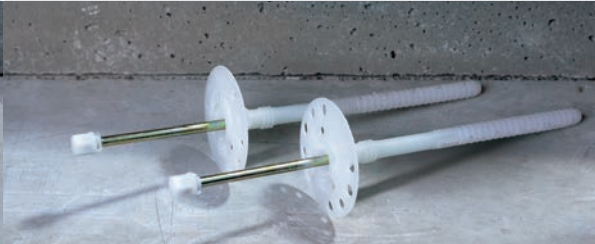

**HR** SCAFFOLDING HOOK  
**HRK** SCAFFOLDING PLUG



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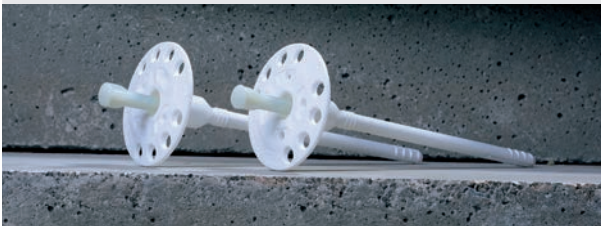


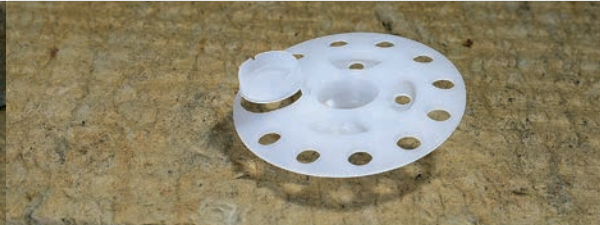
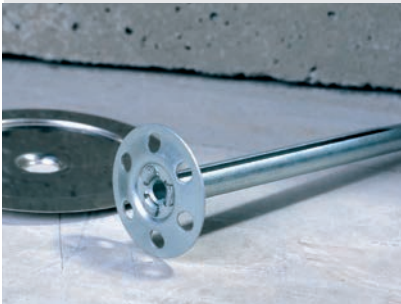




## Overview of our range

FACADE INSULATION FIXINGS	
ETICS FIXINGS	INSULATION FIXINGS
	
SCREW-IN FACADE FIXINGS	
Versatile screw-in façade fixing with high performance in all base materials recommended for ETICS.	Screw-in façade fixing with 60mm long expansion zone for high performance in masonry.
	
FEATURES AND BENEFITS:	
<ul style="list-style-type: none"> <li>• Quick and easy installation in all substrates (categories A,B,C,D,E)</li> <li>• Unique sleeve compression zone for precision installations.</li> <li>• The long plastic overmoulding minimises thermal bridging (value 0.002W/K), contributing to energy-saving benefits</li> <li>• Plate stiffness (value 0.6 kN/mm) ensures smooth elevation surface and stable insulation system.</li> <li>• Pre-assembled screw saves time and labour.</li> <li>• Design allows for high load-bearing capacities. This reduces the quantity of fixings required per square metre of insulation.</li> <li>• The shortest embedment depth at the maximum strength parameters.</li> </ul>	<ul style="list-style-type: none"> <li>• Approved for use in all base material categories A,B,C,D,E</li> <li>• Steel screw allows fast and trouble-free installation with correct expansion of the plug</li> <li>• Can be used with additional KWL insulation holding plate, available in 90, 110 and 140mm flange sizes (recommended for soft insulation materials such as lamella wool).</li> </ul>
HAMMER-IN FACADE FIXING WITH METAL NAIL	
Versatile hammer-in façade fixing with steel nail recommended for ETICS.	Hammer-in façade fixing 60mm long expansion zone for high performance in masonry, as well as lightweight and aerated concrete.
	
FEATURES AND BENEFITS:	
<ul style="list-style-type: none"> <li>• Simple installation in all standard substrates (A,B,C).</li> <li>• Excellent plate stiffness (value 1.0 kN/mm) ensures smooth elevation surface and stable insulation system.</li> <li>• The long plastic overmoulding on the TFIX-8M nail minimises thermal bridging (value 0.002W/K), contributing to energy-saving benefits.</li> <li>• Unique nail design allows for high load-bearing capacities. This reduces the quantity of fixings required per square metre of insulation.</li> <li>• The shortest embedment depth at the maximum strength parameters.</li> <li>• Pre-assembled expansion nail saves time and labour.</li> </ul>	<ul style="list-style-type: none"> <li>• Easy installation with best performance in lightweight base materials</li> <li>• Approved for use in base material categories B, C, D, and E</li> <li>• Steel nail allows fast and trouble-free installation with correct expansion of the plug.</li> <li>• Can be used with additional KWL insulation holding plate, available in 90, 110 and 140mm flange sizes.</li> </ul>

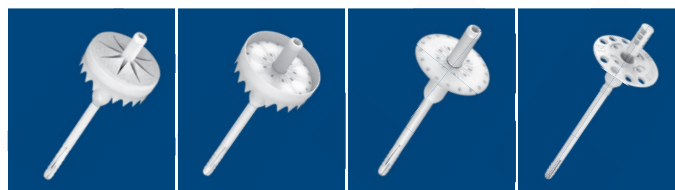


## Overview of our range


FACADE INSULATION FIXINGS		
ETICS FIXINGS	INSULATION FIXINGS	
HAMMER-IN FAÇADE FIXING WITH PLASTIC NAIL		
Versatile hammer-in facade fixing with plastic nail recommended for ETICS.	Hammer-in fixing with reinforced plastic nail.	
		
FEATURES AND BENEFITS:		
<ul style="list-style-type: none"><li>• Installation in all base materials (categories A,B,C,D,E)</li><li>• The plastic nail reduces heat transmission (value 0.0W/K)</li><li>• Pre-assembled expansion nail saves time and labour.</li><li>• Unique nylon pin design reinforced with glass fibre allows fast and trouble-free installation with correct expansion of the plug.</li><li>• Expansion zone designed for low embedment depths, reducing the amount of drilling required.</li></ul>	<ul style="list-style-type: none"><li>• Approved for use in all substrates (categories A,B,C,D,E).</li><li>• The plastic nail reduces heat transmission (value 0.0W/K)</li><li>• Expansion zone designed for low embedment depths, reducing the amount of drilling required.</li></ul>	
INSULATION WASHER		
Insulation washer with integral cap suitable for attachment of insulation layers to wooden and sheet metal substrates.	Insulation washer with integral cap suitable for attachment of insulation layers to wooden and sheet metal substrates.	
		
FEATURES AND BENEFITS:		
<ul style="list-style-type: none"><li>• Recommended for the attachment of ETICS to wooden substrates using UC screws, or to sheet metal using WB screws (allows setting without pre-drilling, thus saving a stage of installation)</li><li>• Special design of integral fastener cap allows reduction of thermal bridges to 0,001W/K.</li><li>• Design with long tube allows to use short length of the screw for best cost effective solution to fix large insulation thickness.</li><li>• Consistent and reliable holding force; quick, simple and clean installation.</li></ul>	<ul style="list-style-type: none"><li>• Recommended for the attachment of ETICS to wooden substrates using UC screws, or to sheet metal using WB screws.</li><li>• Consistent and reliable holding force.</li><li>• Quick, simple and clean installation.</li></ul>	
INSULATION SUPPORT		
FIRE-RESISTANT METAL INSULATION FIXINGS	INSULATION RETAINING PLATES	FACADE INSULATION ACCESSORIES
Metal facade fixing, recommended for use when fire resistance (F120) is a requirement	Insulation retaining plate for use in combination with facade fixings from TFIX and KI ranges	Tools, bits, insulation caps, adhesives and other accessories you need for external wall insulation.
		







## Overview of our range



### ETICS FIXINGS

FASTENER NAME			TFIX-8ST	TFIX-8ST-ECO	TFIX-8S	TFIX-8M
INSULATION MATERIAL	EXTRUDED OR EXPANDED POLYSTYRENE		✓	✓	✓	✓
	MINERAL WOOL		✓	✓	✓	✓
	LAMELLA WOOL + HOLDING FLANGE		-	-		
	CORK BOARDS, WOOD FIBREBOARDS, LIGHTWEIGHT RECYCLED PANELS	 	-	-	✓	✓
SUBSTRATES	CONCRETE	 A	✓ 1.2 kN	✓ 1.2 kN	✓ 1.2 kN	✓ 1.2kN
	SOLID BRICK, CALCIUMSILICATE BRICK, CONCRETE BLOCKS, STONE	 B	✓ 1.2 kN	✓ 1.2 kN	✓ 1.2 kN	✓ 1.2kN
	HOLLOW BRICK, CHEQUER BRICK, CERAMIC HOLLOW BRICKS	 C	✓ 0.75 kN	✓ 0.75 kN	✓ 0.75 kN	✓ 0.6 kN
	LIGHTWEIGHT CONCRETE BLOCKS, E.G. LECA CONCRETE	 D	✓ 0.6 kN	✓ 0.6 kN	✓ 0.6 kN	-
	AUTOCLAVED CELLULAR (GAS) CONCRETE	 E	✓ 1.2 kN	✓ 1.2 kN	✓ 1.2 kN	
	TIMBER, WOOD-BASED BOARDS		-	-	-	-
	TRAPEZOIDAL SHEET		-	-	-	-
APPROVALS			ETA 11/0144	ETA 11/0144	ETA 11/0144	ETA-07/0336
CHARACTERISTICS	AVAILABLE LENGHTS [MM]		135, 155, 175, 195, 215, 235, 255, 275, 295, 335, 355, 375, 395, 415, 435, 455	135, 155, 175, 195, 215, 235, 255, 275, 295, 335, 355, 375, 395, 415, 435, 455	115, 135, 155, 175, 195, 215, 235, 255, 275, 295, 335, 355, 375, 395, 415, 435, 455	95, 115, 135, 155, 175, 195, 215, 235, 275, 295
	THERMAL INSULATION THICKNESSES RANGE [MM]		60-420	60-420	60-420	60 - 260
	DRILL DIAMETER [MM]		8 	8 	8 	8 
	ANCHORAGE DEPTH (MM)		25 (65)	25 (65)	25 (65)	25
	INSTALLATION TYPE		screw-in 	screw-in 	screw-in 	hammer set 
	ADDITIONAL INFORMATION		The best fastener for every fixing. 100% correct anchoring in all conditions. The best parameters, the most versatile of professional fixings.			

## Overview of our range

						
ETICS FIXINGS			INSULATION FIXINGS			
TFIX 8P	KCX	MBA	KI-10	KI-10N	KI-10NS	KC
✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓
						
✓	-	✓	✓	✓	✓	-
✓ 0.5 kN	✓ 1.5 kN	✓ 0.8 kN	✓ 0.4 kN	-	-	✓ 1.0 kN
✓ 0.5 kN	-	✓ 0.6 kN	✓ 0.4 kN	✓ 0.9 kN	✓ 1.2 kN	✓ 1.0 kN
✓ 0.3 kN	-	-	✓ 0.3 kN	✓ 0.4 kN	✓ 0.4 kN	-
✓ 0.3 kN	-	-	✓ 0.5 kN	✓ 0.3 kN	✓ 0.73 kN	-
✓ 0.5 kN	-	✓ 0.7 kN	✓ 0.1 kN	✓ 0.9 kN	✓ 0.75 kN	-
-	✓ 1.5 kN	-	-	-	-	✓ 1.0 kN
-	✓ 1.5 kN	-	-	-	-	✓ 1.0 kN
ETA-13/0845	AT-15-9280/2014	AT-15-8092/2009 and Annex No. 1	ETA 07/0291	ETA 07/0221	ETA 07/0221	AT-15-4627/2006
95, 115, 135, 155, 175, 195, 215	UC: 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 180, 200 WB: 80, 100, 120, 140, 160, 170, 180, 200, 220	MBA: 80, 110, 140, 170, 200, 240, 300, MBA-SS: 90, 110, 140, 170, 200, 250, 300	70, 90, 120, 140, 160, 180, 200, 220	120, 140, 160, 180, 200, 220, 240, 260, 300	140, 160, 180, 200, 220, 240, 260, 300	UC: 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 180, 200 WB: 80, 100, 120, 140, 160, 170, 180, 200, 220
50-180	40-350	50 - 160	30 - 180	60 - 230	80 - 230	40 -200
8 	-	8 	10 	10 	10 	-
25 (65)	30	50	25	60	60	30
hammer set 	screw-in 	hammer set 	hammer set 	hammer set 	screw-in 	screw-in 
The economical fixing for bonded ETICS applications.	The best choice for timber, sheathing board and trapezoidal sheet.	Non-flammable fixings for ETICS-requiring installations.	The economical fixing for bonded ETICS applications.	Fastener for most demanding substrates. Screwed-in fixings are strongly recommended for large sections of insulation installed in porous materials, such as porous ceramic hollow bricks and the lightest form of a gas concrete.		The best choice for timber, sheathing board and trapezoidal sheet.



## Fastener selection & installation

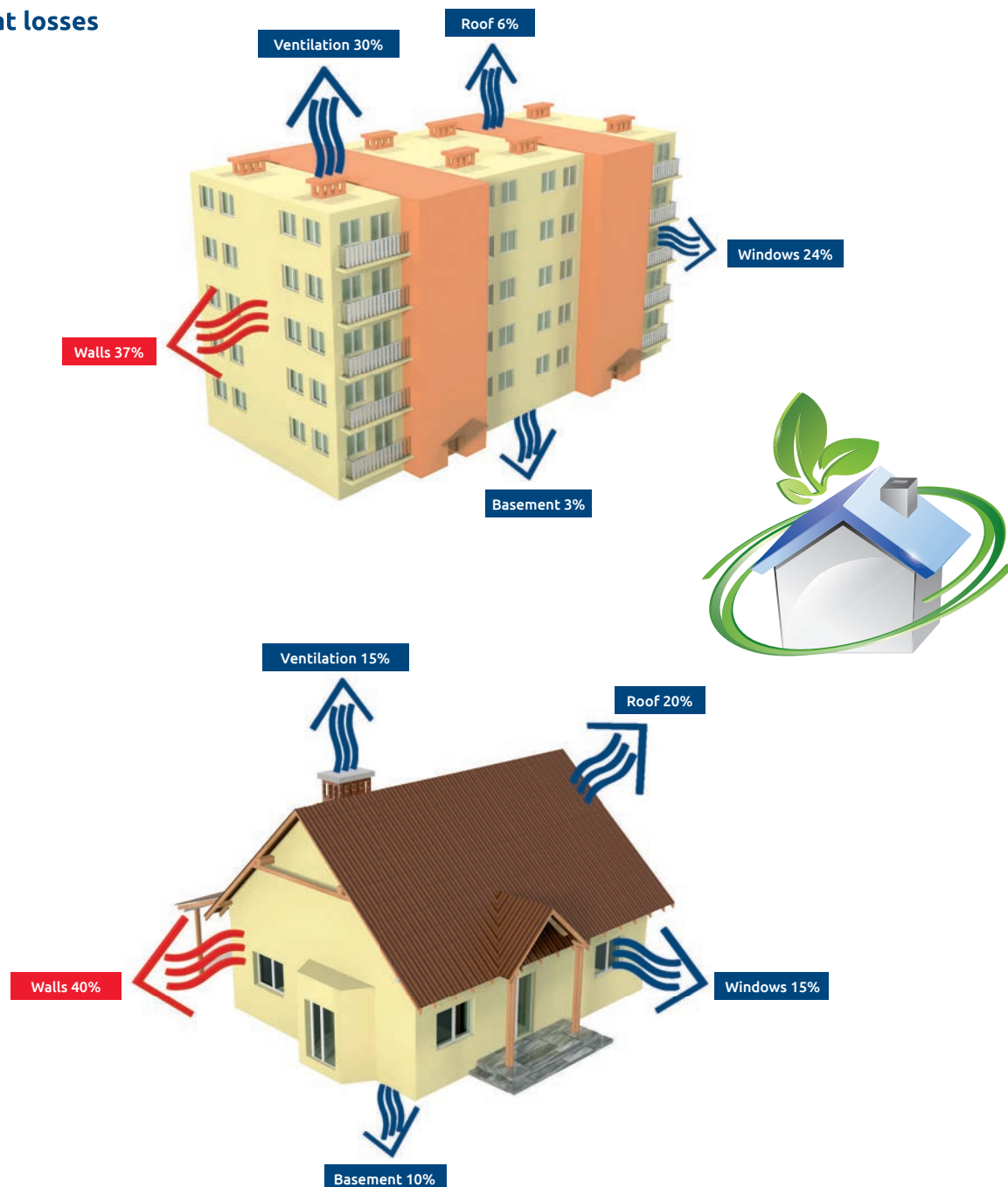
### Buildings thermal insulations

Adequate insulation of the building contributes to improving the climate and the thermal comfort indoors. The higher the temperature of the wall, the cosier it is in the building. The warmer the walls are, the easier and faster the air is heated indoors, and this translates directly to reduced heating expense.

Thermal insulation of the building provides:

- up to 40% savings in energy consumption, which translates directly into the amount of heat needed to heat the rooms
- optimal climate inside the building
- long term protection of the building envelope
- improved and long-lasting facade aesthetics
- care for natural environment

### Heat losses



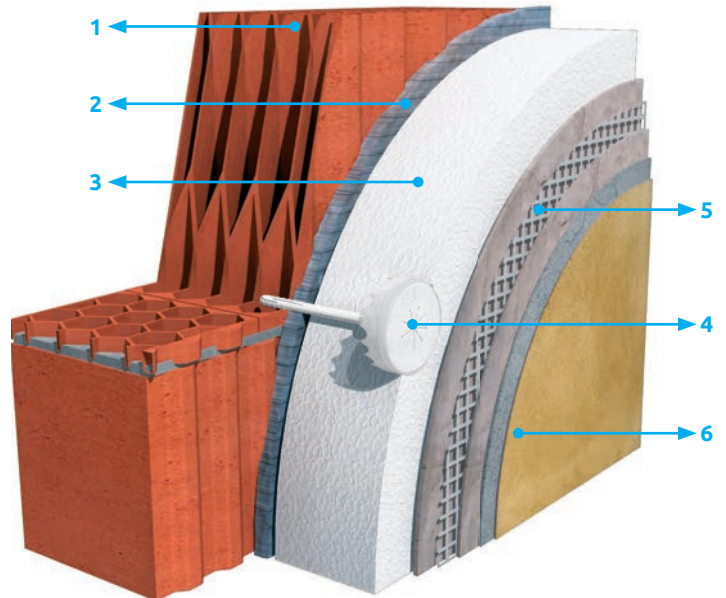
## Fastener selection & installation

### Buildings insulation methods

#### Thermal insulation from the outside

External Thermal Insulation Composite Systems (ETICS)

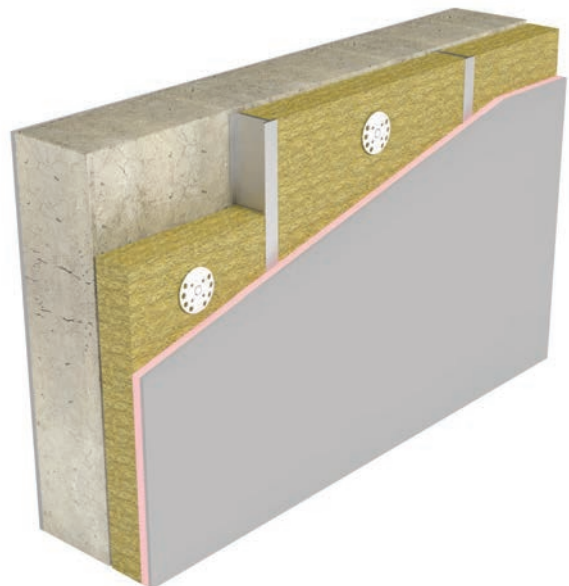
- 1) Insulated wall - substrate
- 2) Layer of adhesive compound or mortar
- 3) Thermal insulation board
- 4) Mechanical fastener
- 5) Mesh-reinforced layer
- 6) Render



#### Thermal insulation from the outside using the ventilated method



#### Thermal insulation from the inside



For each of the insulation methods we recommend a professional system of mechanical connectors, which serves as the fixing of the system to the elevation.



## Fastener selection & installation

### Formal and legal requirements applied to the components of thermal insulation systems

The criteria applied to the components of external thermal insulation composite systems (ETICS) have been identified the European Organisation for Technical Approvals (EOTA). The recommendations and research programs of the products are contained in the guidelines for European Technical Approval (ETAG – European Technical Approval Guidelines). For thermal insulation systems on facades the following documents are important:

- ETAG No. 004: "External Thermal Insulation Composite Systems with rendering"
- ETAG No. 014: "Plastic anchors for fixing external thermal insulation composite systems"
- ETAG constitutes a foundation for granting the European Technical Approval (ETA) for each product. Construction Products holding an ETA certificate and Declarations of Conformity can use the marking, which allows free movement of goods within the Member States of the European Economic Area (EEA).
- CE marking is a guarantee of uniform manufacture of the products in relation to technical specifications. However, a CE mark cannot be treated as a quality mark. The guidelines assume a predictable service life of the thermal insulation system for at least 25 years. The actual life may be, however, much longer. This information cannot constitute the guarantee of the Manufacturer of the system or its components. When installing the products, the national building regulations, including regional requirements (e.g. regulations resulting from the wind zone, in which a building is located – this translates into the wind suction loads and safety factors, etc.) must also be taken into account.

Under the Directive on construction products, insulation systems constitute a set of products for use in the interconnection, as an integral usable whole.

Thermal insulation manufacturer, which holds the European Technical Approval (ETA) certificate, is responsible for the selection of individual components of the system, which, according to ETAG004, include:

- adhesive compound or mortar for fixing insulation panels
- thermal insulation boards – most frequently EPS panels and facade panels made of mineral wool under the direct plaster;
- mechanical fasteners for anchoring the thermal insulation materials
- adhesive bulk or mortar for bedding of the reinforcement
- reinforcing fabric
- primer – optional, depending on the system
- compound or plaster
- supplementary elements: plinth beads, profiles
- corner, drain strips etc.

If the investor voluntarily completes the components of the system from various tenderers, whose products are not included in the European Technical Approval of the given system, the document loses its validity. As a result, the Manufacturer's warranty becomes automatically void.

### RAWLPLUG recommendation:

All components of the system should be supplied by the holder of the European Technical Approval certificate for insulation systems.



## Fastener selection & installation

### Main principles for use of mechanical fasteners in thermal insulation technology

The thermal insulation system composed of laminated insulation panels has a large own weight, which is transferred through the shearing forces directly onto the wall. The adhesive mortar is the only connection of the facade with thermal insulation material and according to the ETAG assumption, it transfers all shearing forces, which impact on the facade.

The following forces affect the elevation:

- deadweight of the thermal insulation system
- weather conditions (wind, temperature difference)
- hygrothermal factors (thermal expansion of the panels and thus the adhesive bonding weakens with time)

These forces are characterized by: magnitude, direction and origin. Force values (load carrying capacity) are defined in kN (kilonewtons, 1 kN = 100 kg), bending torques in Nm (Newton-metre, 1 Nm = 0.1 kgm). The knowledge of these loads is essential for the optimal selection of the type and quantity of the fasteners:

- breaking force – the force that causes the destruction of the substrate, fastener, and the connection (breaking of the fastener);
- characteristic resistance – the force that is reached or exceeded in 90% of all cases;
- recommended load – the so-called useful load carrying capacity, which takes into account the assumed safety factors.

In order to determine the recommended load carrying capacity, the characteristic resistance is divided by recommended safety factor defined in the technical approval (preferably factors are  $\gamma = 2$ ) and then again by 1.4.

$$\text{Design resistance} = \frac{\text{Characteristic resistance}}{\gamma}$$

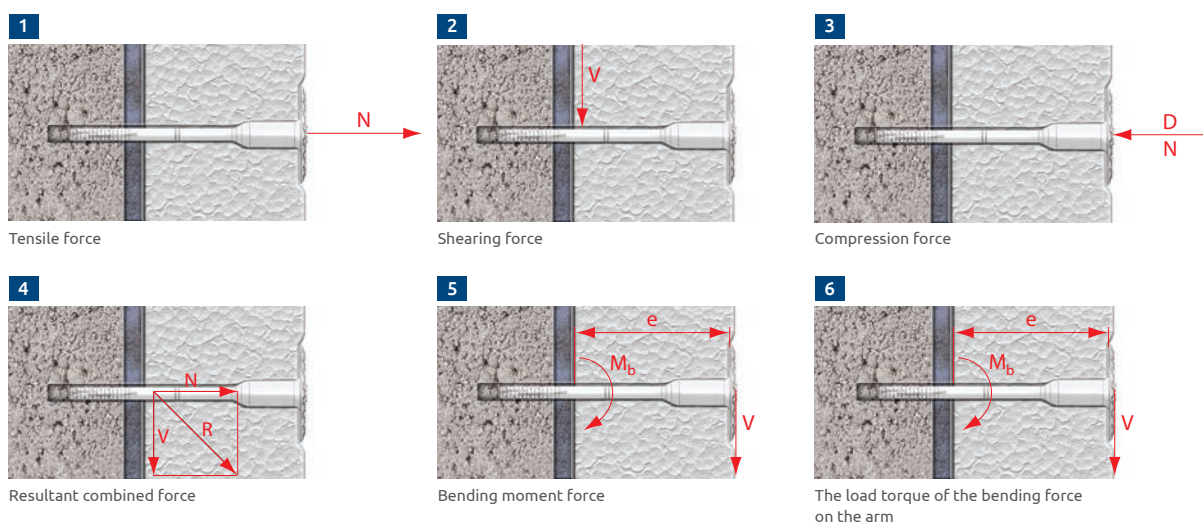
$$\text{Recommended load} = \frac{\text{Design resistance}}{1.4}$$

The model of the facade fastener's operation is shown in Fig. 1 (p. 14)

The special design of the plates and anchoring areas of the RAWLPLUG fasteners allows the transfer of high load carrying capacities at the shortest (25 mm) anchoring depth available.

Holding down of the insulation panel through the use of a mechanical fastener increases the friction between the layers of the elevation- adhesive- insulation board surface by reducing the shearing force that affects the bonding of the insulation with the facade.

As a result, the fastener is an essential element that ensures the mechanical stability of the thermal insulation system.



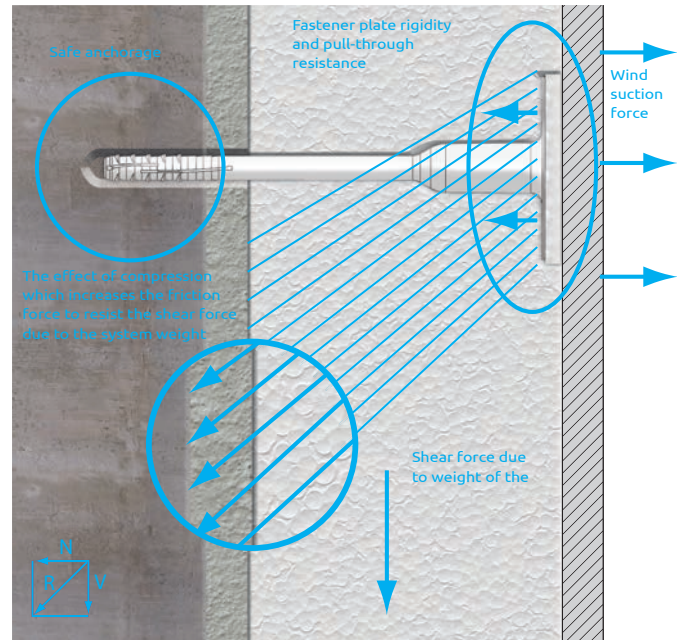


## Fastener selection & installation

### Resistance of wind suction forces

Wind suction force is another heavy load, in addition to the system's own weight. Tensile stresses, created by its activity, impact heavily the rigid adhesive joints, especially with the increase of the building's height. The joints between the wall and mortar adhesive (or between old plaster and adhesive mortar) and between the adhesive mortar and insulation board are particularly vulnerable. As a result, the fastener is an essential element that ensures the mechanical stability of the thermal insulation system. The use of mechanical fasteners in thermal insulation systems counteracts wind suction forces protecting the system against detachment from the substrate.

To withstand this load, the fastener must have a rigid plate (preferably 0.6 kN/mm) which holds down the insulation board to the substrate and a special anchorage area, which carries large forces in the applied material of the substrate. If the adhesive mortar stops binding the insulation with the substrate, the fastener is the only element that secures the facade from delamination. Predominantly the largest stress occurs in tall buildings, building edges, freestanding buildings and buildings in mountainous and coastal wind areas.



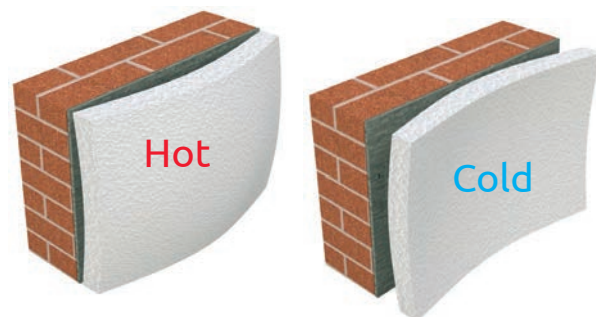
### Resistance of hygrothermal forces

Large temperature and humidity fluctuations can cause volumetric changes in thermal insulation material. These changes very significantly affect the rigid bonding between the substrate and insulation panels, and over time can lead to its weakening due to the formation of bulges or depressions in the insulation panels.

In the case of multiple hygrothermal interactions, system failures may be due to insufficient preparation of the substrate under the laminated panel, for example:

- insufficient amount of adhesive,
- adhesive not resistant enough to aging under low temperatures;
- poorly prepared surface; weak, old layers of plaster left;
- incorrect facade finishing, surface too uneven;
- failure to observe technological requirements during installation (including setting time of cement-based adhesive),
- failure to observe the recommended ambient temperature (typically +5°C to +25°C),
- leaving unfinished work for the winter.

The mechanical fastener is the only element that counteracts all forces that affect the facade. The entire weight of the elevation and protection against wind suction forces rests on a fastener, so it is very important to select the optimal anchoring for the facade.



The position of fixings in the joints of thermal insulation boards, in their corners and in the central section is the best guarantee of proper functioning of the system over a long period. The recommended arrangement of the fixing points of the thermal insulation panels is shown in the adjacent drawing.



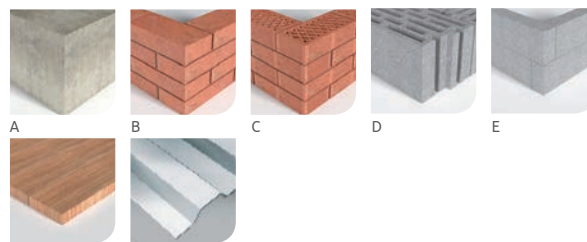
## Fastener selection & installation

### Selection of mechanical fasteners

#### Assessment of the substrate

The selection of the optimal mechanical fastening starts with defining the substrate, to which the anchoring of heat insulation system is being planned. ETAG 014 "Plastic anchors for fixing external thermal insulation composite systems" defines 5 categories of substrate suitable for use with mechanical fasteners:

- Usable category A – Plastic fasteners for use in ordinary concrete (C12/15-C50/60)
- Usable category B – Plastic fasteners for use in solid wall blocks (solid silica brick, solid ceramic brick)
- Usable category C – Plastic fasteners for use in walls made of hollow bricks or cavity bricks
- Usable category D – Plastic fasteners for use in lightweight concrete (tensile grade LAC 2 – LAC 25)
- Usable category E – Plastic fasteners for use in autoclaved cellular concrete (tensile grade P2-P7)



Minimum thickness of the substrate, in which fasteners are anchored, is  $h_{min} = 100 \text{ mm}$ .

Since the resistance to load and displacement under load largely depends on the substrate, the assessment of the fasteners is generally possible only for well-defined substrates. To assess the properties of the fastener in less-defined substrates (cavity bricks, chequer bricks or hollow blocks) tests should always be carried out on site. This is particularly important in the case of old substrates. Affected by time, exposure to natural elements and other factors can alter their characteristics significantly.

### Application of fasteners with additional plates

Depending on the system, facade fasteners can be used with additional insulation retaining plates which are designed to increase the pull-over resistance of the fastener. The plates are quickly and easily attached to the fastener before installation. Fasteners with additional plates are particularly recommended when installing mineral wool and lamella insulation boards.



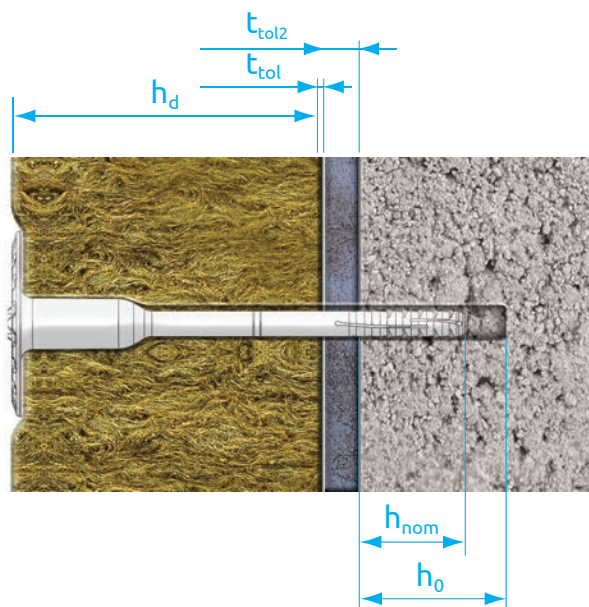
#### Determination of optimal length of the fastener

For proper selection of the mechanical fastener's length (L) the following must be considered:

- thermal insulation thickness ( $h_d$ )
- adhesive/mortar thickness ( $t_{tol}$  10mm)
- old plaster thickness - if any ( $t_{tol2}$  – usually it is 20mm)
- the depth of anchoring the fastener of the given type, as specified by the manufacturer ( $h_{nom}$ )

$$L = h_d + t_{tol} + t_{tol2} + h_{nom}$$

The depth of the drill hole in the substrate ( $h_0$ ) should be greater than the embedment depth the fastener ( $h_{nom}$ ) by approx. 10 mm. When selecting the fastener always take into account all the factors specific to the given building.





## Fastener selection & installation

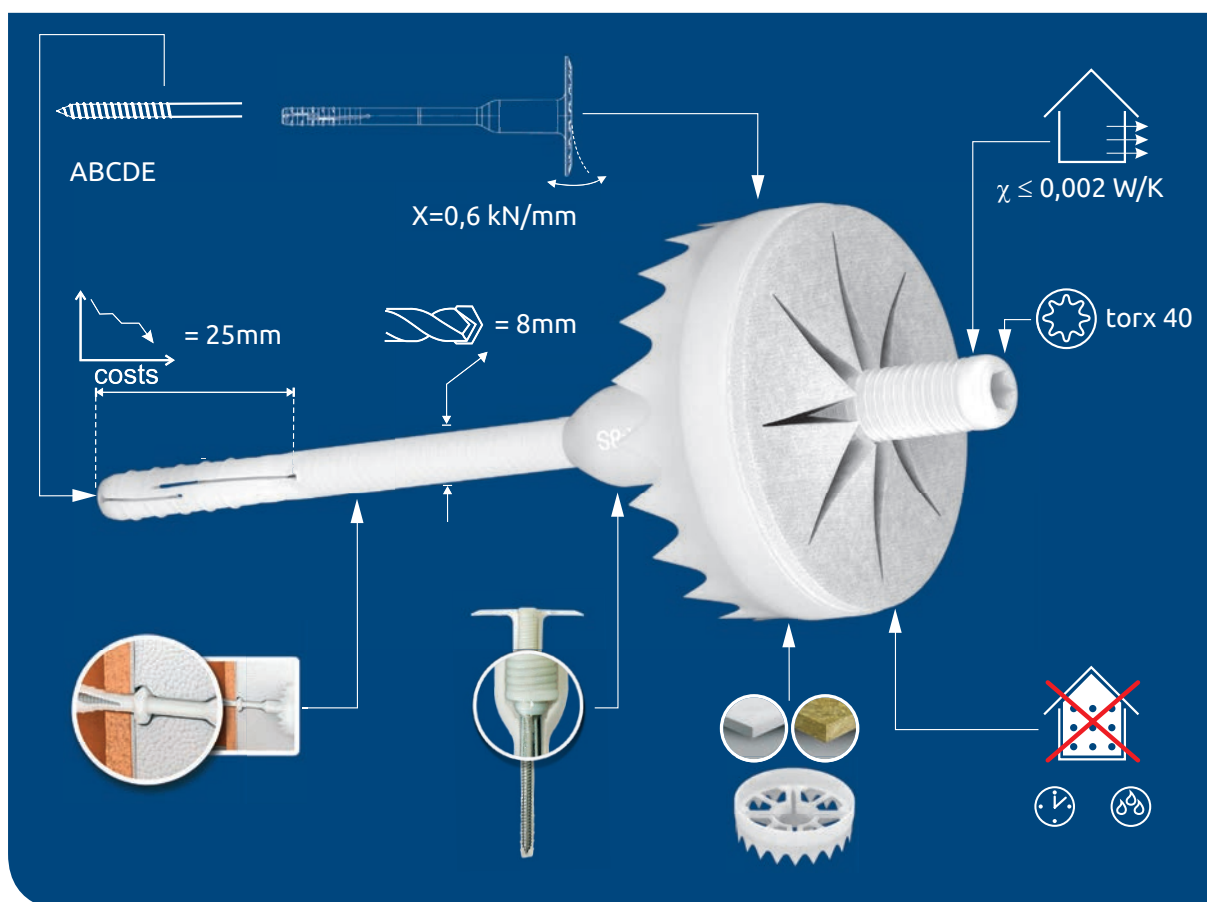
## Selection of fastener type

After the substrate has been determined, the optimal type of the fastener is selected. Each European Approval regarding mechanical fasteners defines the suitability of the given fastener for the particular type of the substrate along with specifying the carrying capacity characteristic of the fastener. Based on these details it is possible to precisely determine what parameters the specified fastener can reach in the given substrate. When selecting the type of the fastener the following parameters should be compared:

- **specific carrying capacity of the fastener** - the fastener's res-istance to wind suction forces on anchoring it in the defined substrate;
- **"insulation" of the fastener's plate with a layer of thermal insulation** – insulation of the fastener's plate with a layer of thermal insulation to equalize thermal conductivity across the newly insulated facade. Failure to insulate fastener plates may result in discolouration or so called „spotting" of the facade;
- **the depth of the fastener anchoring** – the depth of embedding the fastener in the substrate, at which the

fastener reaches the characteristic load carrying capacity as specified in the ETA (the shorter the better – ideally 25 mm);

- **point thermal transmittance** – the so-called “thermal bridge” – a place where heat from the interior escapes outside (the lower the better – it should not be greater than  $0.002 \text{ W/m}^2\text{K}$ ); High thermal permeability may result in the loss of heat and the formation of spot stains on the elevation;
- **the stiffness of the fastener plate** – increases the pull-through of thermal insulation system over the fastener anchored in the substrate ideally it should be not less than  $0.6 \text{ kN/mm}$ ); poor stiffness of the plate may result in tearing off of the insulation from the facade, while the fastener remains in the substrate;
- **versatility of application** – from the customer's perspective the best fastener is the product which can be safely embedded in any substrate i.e. A, B, C, D & E; and fulfils all the above mentioned parameters.



## Fastener selection & installation

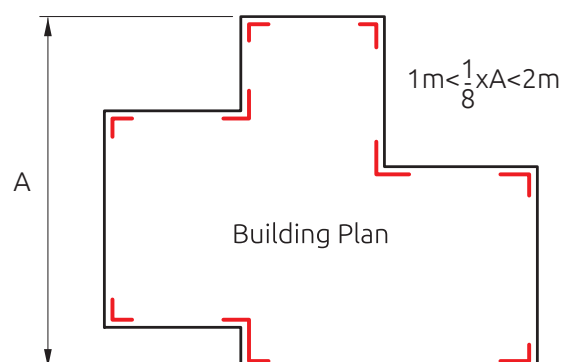
### Numbers and placement of fasteners

The quantity and distribution of the fasteners is one of the most important parameters, which determine the stability and safety of the facade operation. The quantity and distribution of the fasteners depends on:

- the weight of the thermal insulation system
- type and dimensions of the thermal insulation material
- the height of the building being insulated
- the zone of wind force impact
- resistance to pulling out of individual fasteners in a given substrate

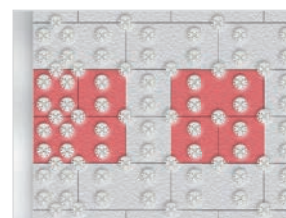
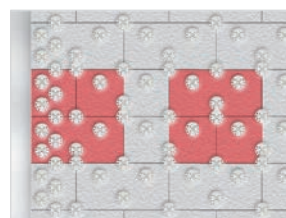
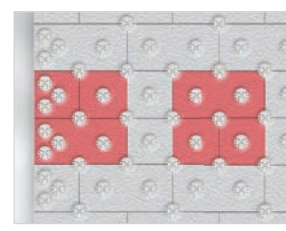
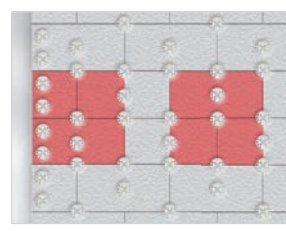
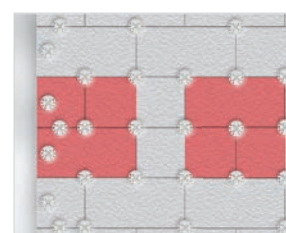
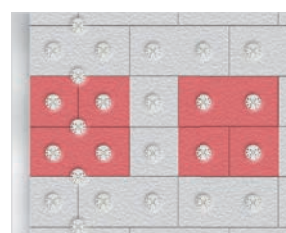
Generally, there is a rule to increase the number of fixing points along with the increasing height of the building and on its edges. Due to high suction forces impacting these areas it is recommended to increase the quantity of the anchors in that area.

The recommended quantity of the fasteners should be calculated for each specific building and take into account all the factors that affect its value (according to EN 1991-14:2005).



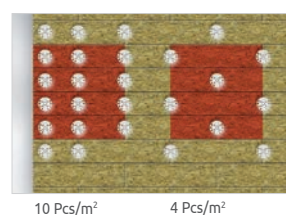
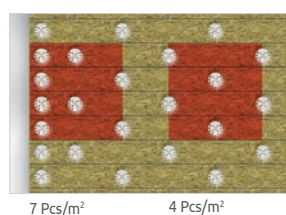
### Examples of fixing palettes (100cm x 50cm boards)

Styrofoam			
Fastener type	Building height/number of fasteners up		
	to 8 m	8-20 m	over 20 m
TFIX-8S/ST	4 - 5 Pcs/m <sup>2</sup>	6 - 8 Pcs/m <sup>2</sup>	-
TFIX-8M			8 - 10 Pcs/m <sup>2</sup>
KI-10			
KI-10N/M			
KCX/KC			



Mineral wool			
Fastener type	Building height/number of fasteners up		
	to 8 m	8-20 m	over 20 m
TFIX-8S/ST	6 - 8 Pcs/m <sup>2</sup>	8 - 10 Pcs/m <sup>2</sup>	10 - 12 Pcs/m <sup>2</sup>
TFIX-8M			
KI-10N/M			
KCX/KC			

Lamella wool			
Fastener type	Building height/number of fasteners up		
	to 20 m	over 20 m	
TFIX-8S/ST	+ KWL	7 Pcs/m <sup>2</sup>	10 Pcs/m <sup>2</sup>
TFIX-8M			
KI-10N/M			
KCX/KC			



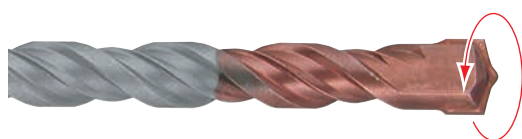


## Fastener selection & installation

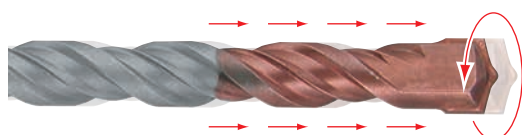
### Drilling

The method of drilling a hole for the installation of an anchor depends on the type of substrate material. There are drilling techniques:

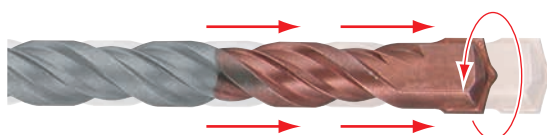
- rotary drilling – drilling by rotation and without percussion (or hammer action), recommended for drilling in materials of low mechanical strength such as bricks & aerated concrete due to the fact that it does not enlarge the hole, nor damage the structure of the material;



- percussive drilling – drilling by rotation with multiple light strikes with the drill bit into the substrate; recommended for drilling materials with high mechanical strength and solid structure such as concrete & solid brick;



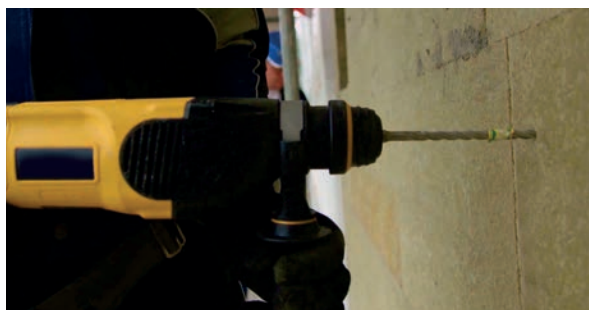
- hammer drilling – drilling by rotation with a small number of high energy strikes with the drill bit into the substrate; recommended for drilling in extremely hard structures such as concrete;



A drill bit is a tool, which is subject to wear – its degree and frequency is a derivative of the hardness of the substrate material. The harder the substrate, the greater the wear of the drill bit. Taking care of an effective rate of assembly works, be sure to replace the bit as frequently as required.

In the process of drilling a hole for embedding an anchor it is important to maintain the correct geometry and depth of the hole.

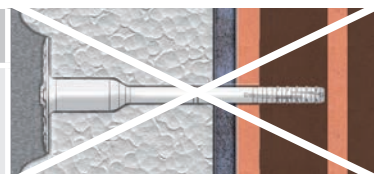
After the drilling is finished it is essential to clean the hole of dust and drill debris, failure to do this can be the cause of improper anchoring of the fastener in the substrate.



### Embedding the fastener

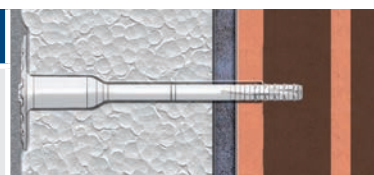
#### INCORRECT

Too deep anchoring of the fastener may require using more reinforcing mortar, which significantly increases the quantity of the plaster used and over time it may cause cracks on the facade.



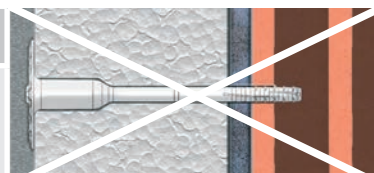
#### CORRECT

The proper embedment of the fastener in the elevation provides for full facing of the fastener plate with the layer of insulation.



#### INCORRECT

Too shallow anchoring of the fastener may cause its plate to protrude above the insulation, which leads to the necessity of applying a thicker layer of reinforcement over the entire surface of the facade, except for the surface of the pins, which will significantly increase the cost of the project.



## Etics installation

### Inspection of substrate's carrying load

In each case, the examination of the substrate's load carrying capacity should precede the installation of thermal insulation on the building. This measurement should be carried out using a pull-out test meter.



### Preparation of the substrate

The substrate should be cleaned of dust, old layers of plaster and coating residue, and in the case of new buildings it must bear sufficient load, while maintaining technological intervals.

### Starter rail installation

Using a level, align the rail horizontally; mark the reference line and the drilling points.

Drill holes in points previously selected. Select the drill diameter that corresponds to the fasteners used for the installation of

the rail; the recommended spacing of the fasteners for the installation of the rail is approx. 50 cm.

In inner and outer corners the starter rail should be cut at 45°.

In case of uneven substrate the use of spacers is recommended.

To join the starter rail the use of connectors is recommended.



### Installing the fasteners

After bonding the insulation panels and observing the adhesive manufacturers specified setting time (normally 24 hours) the mechanical fasteners can be installed.

The drill bit diameter should correspond to the fastener diameter: 8 or 10 mm.

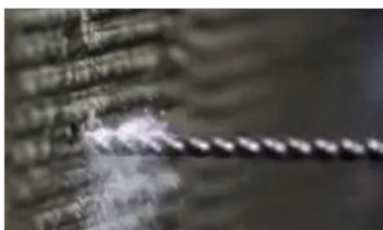
The depth of the drill hole in the substrate should be 10 mm longer than the embedment depth of the fastener.

After drilling the hole, insert a fastener until the plate is flush with the insulation.

Depending on the type of fastener drive or screw-in until fully set. Do not use worn bits, especially in hard materials (concrete, solid brick), as it makes it difficult and sometimes impossible to correctly install the fasteners.

When installing soft or lamella type insulation use KWL retaining plates.

The number and distribution of the fasteners should be in accordance with the relevant installation drawings for each height section of the building.





# PROFESSIONAL FACADE INSULATION FIXINGS FOR ETICS

- TFIX-8ST
- TFIX-8ST-ECO
- TFIX-8S
- TFIX-8M
- TFIX-8P
- MBA

The most universal fastener – for all substrates (ABCDE), all types of insulation material and thickness, either counter-sunk or surface fixed, backed by European Technical Approval.

Integrated perforator provides quick and precise countersinking of the fastener

Highest performance parameters confirmed by European Technical Assessment

Optimum plate stiffness ensures stability and excellent pull-over values

Extended over-moulding of the screw reduces Point Thermal Transmission below 0.002W/K



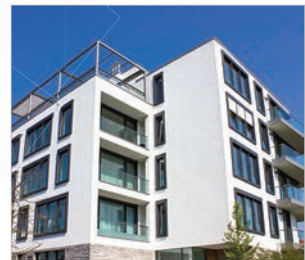
## TFIX-8ST Universal facade fixing

The first thermal insulation combination screw fixing that can be countersunk together with the integrated insulation cap



### Approvals and Reports

- ETA-11/0144



## Product information

### Features and benefits

- Accurate countersunk setting automatically sets the fixing flush with the insulation layer.
- Integrated insulation cap (with unique surface reinforcement) equalizes thermal conductivity over the fixing point, whilst also leveling out drying times of render.
- Unique sleeve compression zone for precision installations.
- Simple countersunk installation in all substrates (A,B,C,D,E).
- The long plastic overmoulding on the TFIX-8ST screw minimises thermal bridging (value 0.001-0.002W/K), contributing to energy-saving benefits
- The shortest embedment depth at the maximum strength parameters.
- Unique design allows for high load-bearing capacities. This reduces the quantity of fixings required per square metre of insulation.

### Applications

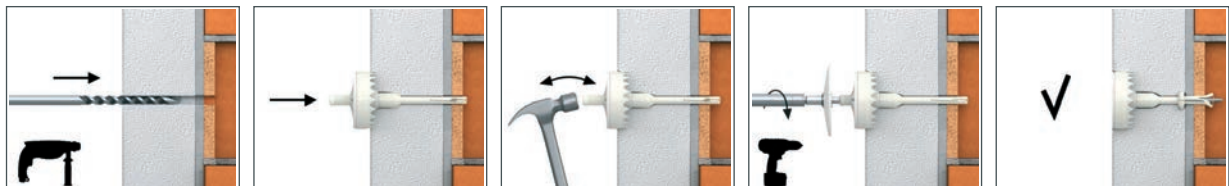
- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Mineral wool
- Polyurethane (PU) boards

### Base materials

#### Approved for use in:

- Concrete C12/15-C50/60 (Use category A)
- Solid Brick (Use category B)
- Solid Sand-lime Brick (Use category B)
- Hollow Brick (Use category C)
- Hollow Sand-lime Brick (Use category C)
- Vertically-perforated clay block (Use category C)
- Lightweight Concrete Block (Use category C)
- Hollow Lightweight Concrete Block (Use category C)
- Reinforced components of lightweight aggregate concrete (Use category D)
- Aerated Concrete Block (Use category E)

## Installation guide

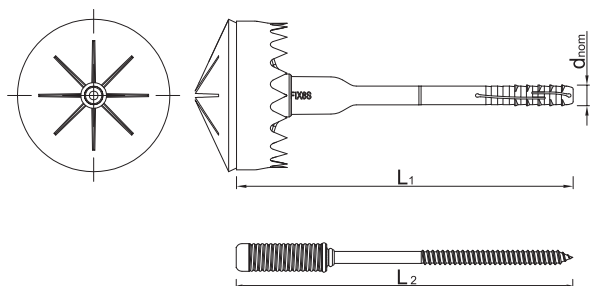




## Installation guide

1. Drill a hole of required diameter and depth
2. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached
3. When using the TFIX-DEVICE the teeth should be embedded in the insulation material after hammering.
4. Embedment depth of min 25mm in A,B,C,D materials and 65mm in Aerated Concrete Block
5. Drilling depth of min 40mm in A,B,C,D materials and 80mm in Aerated Concrete Block
6. Apply steady axial pressure, ensuring the disc of the setting tool is kept perpendicular to the fixing axis.

## Product information



Size	Product Code	Fixing			Fixture	
		Diameter	Length	Plate diameter	Recommended thickness	
		d	L	D	$t_{fix}$ A, B, C, D	$t_{fix}$ E
		[mm]				
Ø08	TFIX-8ST-135	8	135	60	100	60
	TFIX-8ST-155	8	155	60	120	80
	TFIX-8ST-195	8	195	60	160	120
	TFIX-8ST-215	8	215	60	180	140
	TFIX-8ST-235	8	235	60	200	160
	TFIX-8ST-255	8	255	60	220	180
	TFIX-8ST-275	8	275	60	240	200
	TFIX-8ST-295	8	295	60	260	220
	TFIX-8ST-335	8	335	60	300	260
	TFIX-8ST-355	8	355	60	320	280
	TFIX-8ST-375	8	375	60	340	300
	TFIX-8ST-395	8	395	60	360	320
	TFIX-8ST-415	8	415	60	380	340
	TFIX-8ST-435	8	435	60	400	360
	TFIX-8ST-455	8	455	60	420	380

## Installation data

Substrate			A, B, C, D	E
Fixing diameter	d	[mm]	8	8
Hole diameter in substrate	$d_o$	[mm]	8	8
Min. hole depth in substrate	$h_o$	[mm]	40	80
Installation depth	$h_{nom}$	[mm]	25	65
Min. substrate thickness	$h_{min}$	[mm]	100	100
Min. spacing	$s_{min}$	[mm]	100	100
Min. edge distance	$c_{min}$	[mm]	100	100

## Basic performance data












Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Concrete C50/60	Concrete C16/20	Concrete C12/15	Solid brick Mz	Sand-lime solid brick KS	Vertically perforated clay brick HLz	Sand-lime perforated brick KSL	Lightweight concrete solid brick V	Lightweight concrete hollow block HBL 4MPa	Lightweight concrete hollow block HBL 6MPa	Prefabricated reinforced components of lightweight aggregate concrete 6MPa	Prefabricated reinforced components of lightweight aggregate concrete 6MPa	Autoclaved aerated concrete AAC 4MPa	Autoclaved aerated concrete AAC 6MPa
Embedment depth $h_{ef}$	[mm]	25	25	25	25	25	25	25	25	25	25	25	25	65	65
MEAN ULTIMATE LOAD $N_{Ru,m}$															
TFIX-8ST	[kN]	1.74	2.03	1.64	1.68	1.32	0.94	1.15	0.64	0.48	0.71	0.66	0.99	1.08	1.61
CHARACTERISTIC LOAD $N_{Rk}$															
TFIX-8ST	[kN]	1.20	1.50	1.20	1.20	0.90	0.75	0.90	0.50	0.40	0.60	0.40	0.60	0.90	1.20
DESIGN LOAD $N_{Rd}$															
TFIX-8ST	[kN]	0.60	0.75	0.60	0.60	0.45	0.38	0.45	0.25	0.20	0.30	0.20	0.30	0.45	0.60
RECOMMENDED LOAD $N_{rec}$															
TFIX-8ST	[kN]	0.18	0.54	0.43	0.43	0.32	0.27	0.32	0.18	0.14	0.21	0.14	0.21	0.32	0.43

## Basic performance data

Fixing type	TFIX-8ST
Plate resistance	[kN] 2.04
Plate stiffness	[kN/mm] 0.6
Point thermal transmittance x	[W/K] 0.001 - 0.002

## Recommended drills

Base material	Indeks	Diameter	Total length of drill	Working length of drill	Quantity	Bar Codes
		[mm]	[L]	[L1]	[pcs]	
	BRICKDRILL 8 					
	RT-SDSB-8/260	8	260	200	1	5906675046310
	RT-SDSB-8/310	8	310	250	1	5906675047553
	RT-SDSB-8/460	8	460	400	1	5906675048918
	AGGRESSOR 8 					
  	RT-SDSA-8/160	8	160	100	1	5906675027944
	RT-SDSA-8/160B12	8	160	100	12	5906675063546
	RT-SDSA-8/210	8	210	150	1	5906675027968
	RT-SDSA-8/260	8	260	200	1	5906675027937
	RT-SDSA-8/310	8	310	250	1	5906675027975
	RT-SDSA-8/310B12	8	310	250	12	5906675063508
	RT-SDSA-8/410	8	410	350	1	5906675114873
	RT-SDSA-8/460	8	460	400	1	5906675114880
	REBARDRILL 8 					
   	RT-SDSR-8/160	8	160	100	1	5906675046044
	RT-SDSR-8/160B12	8	160	100	12	5906675063546
	RT-SDSR-8/210	8	210	150	1	5906675046051
	RT-SDSR-8/260	8	260	200	1	5906675046068
	RT-SDSR-8/310	8	310	250	1	5906675046075
	RT-SDSR-8/310B12	8	310	250	12	5906675063577
	RT-SDSR-8/460	8	460	400	1	5906675046082

Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø8	TFIX-8ST-135	8	135	60	100	100	3200	4.7	4.7	181.0	5906675034706
	TFIX-8ST-155	8	155	60	100	100	3200	5.0	5.0	189.0	5906675034713
	TFIX-8ST-195	8	195	60	100	100	3200	5.6	5.6	209.2	5906675034737
	TFIX-8ST-215	8	215	60	100	100	3200	5.9	5.9	218.5	5906675034720
	TFIX-8ST-235	8	235	60	100	100	3200	6.1	6.1	225.2	5906675034744
	TFIX-8ST-255	8	255	60	100	100	3200	6.6	6.6	240.6	5906675049687
	TFIX-8ST-275	8	275	60	100	100	3200	6.6	6.6	240.0	5906675018959
	TFIX-8ST-295	8	295	60	100	100	3200	6.9	6.9	249.9	5906675018966
	TFIX-8ST-335	8	335	60	100	100	2400	7.6	7.6	212.2	5906675018973
	TFIX-8ST-355	8	355	60	100	100	2400	7.2	7.2	202.8	5906675088051
	TFIX-8ST-375	8	375	60	50	50	1600	4.0	4.0	158.8	5906675087795
	TFIX-8ST-395	8	395	60	50	50	1600	4.3	4.3	166.0	5906675087801
	TFIX-8ST-415	8	415	60	50	50	1600	4.5	4.5	172.4	5906675088839
	TFIX-8ST-435	8	435	60	50	50	1600	4.5	4.5	173.2	5906675117157
	TFIX-8ST-455	8	455	60	50	50	1600	4.9	4.9	185.2	



## TFIX-8ST-ECO Universal Facade Fixing

Thermal insulation combination screw fixing that can be countersunk together with the integrated perforator for installation with insulation cap



### Approvals and Reports

- ETA-11/0144



### Product information

#### Features and benefits

- Accurate countersunk setting automatically sets the fixing flush with the insulation layer.
- Countersunk installation (with post-installed insulation cap) reduces heat transmission and results in a homogenous insulation surface.
- The long plastic overmoulding on the TFIX-8S screw minimises thermal bridging (value 0.002W/K), contributing to energy-saving benefits
- Unique sleeve compression zone for precision installations.
- Simple countersunk installation in all substrates (A,B,C,D,E).
- The shortest embedment depth at the maximum strength parameters.
- Unique design allows for high load-bearing capacities. This reduces the quantity of fixings required per square metre of insulation.

#### Applications

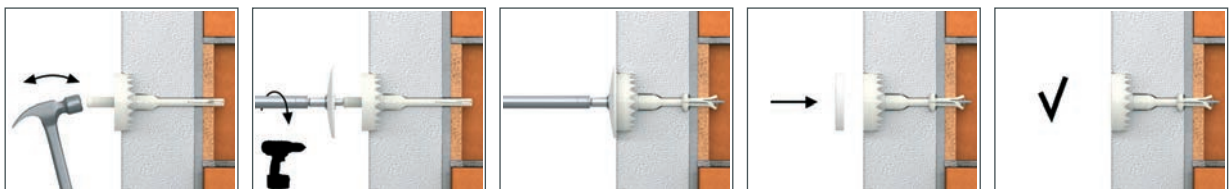
- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Mineral wool
- Polyurethane (PU) boards

#### Base materials

##### Approved for use in:

- Concrete C12/15-C50/60 (Use category A)
- Solid Brick (Use category B)
- Solid Sand-lime Brick (Use category B)
- Hollow Brick (Use category C)
- Hollow Sand-lime Brick (Use category C)
- Vertically-perforated clay block (Use category C)
- Lightweight Concrete Block (Use category C)
- Hollow Lightweight Concrete Block (Use category C)
- Reinforced components of lightweight aggregate concrete (Use category D)
- Aerated Concrete Block (Use category E)

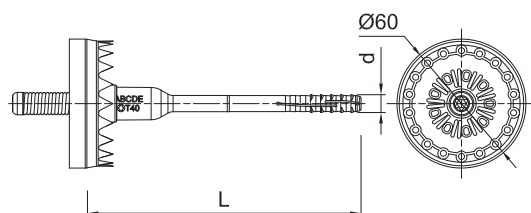
### Installation guide



## Product information

1. Drill a hole of required diameter and depth
2. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached
3. Tighten screw (using special TFIX-8ST-TOOL setting tool) until fixing is secure and flush with insulation material
4. Embedment depth of min 25mm in A,B,C,D materials and 65mm in Aerated Concrete Block
5. Drilling depth of min 40mm in A,B,C,D materials and 80mm in Aerated Concrete Block
6. Insert cap into countersunk hole in insulation

## Product information



Size	Product Code	Fixing			Fixture	
		Diameter	Length	Plate diameter	Recommended thickness	
		d	L	D	t <sub>fix</sub> A, B, C, D	t <sub>fix</sub> E
		[mm]				
Ø08	TFIX-8ST-135-ECO	8	135	60	100	60
	TFIX-8ST-155-ECO	8	155	60	120	80
	TFIX-8ST-195-ECO	8	195	60	160	120
	TFIX-8ST-215-ECO	8	215	60	180	140
	TFIX-8ST-235-ECO	8	235	60	200	160
	TFIX-8ST-255-ECO	8	255	60	220	180
	TFIX-8ST-275-ECO	8	275	60	240	200
	TFIX-8ST-295-ECO	8	295	60	260	220
	TFIX-8ST-335-ECO	8	335	60	300	260
	TFIX-8ST-355-ECO	8	355	60	320	280
	TFIX-8ST-375-ECO	8	375	60	340	300
	TFIX-8ST-395-ECO	8	395	60	360	320
	TFIX-8ST-415-ECO	8	415	60	380	340
	TFIX-8ST-435-ECO	8	435	60	400	360
	TFIX-8ST-455-ECO	8	455	60	420	380

## Installation data

Substrate			A, B, C, D	E
Fixing diameter	d	[mm]	8	8
Hole diameter in substrate	d <sub>0</sub>	[mm]	8	8
Min. hole depth in substrate	h <sub>0</sub>	[mm]	40	80
Installation depth	h <sub>nom</sub>	[mm]	25	65
Min. substrate thickness	h <sub>min</sub>	[mm]	100	100
Min. spacing	s <sub>min</sub>	[mm]	100	100
Min. edge distance	c <sub>min</sub>	[mm]	100	100

## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Concrete C50/60	Concrete C46/20	Concrete C12/15	Solid brick Mz	Sand-lime solid brick K5	Vertically perforated clay brick HLz	Sand-lime perforated brick KSL	Lightweight concrete solid brick V	Lightweight concrete hollow block HBL 4MPa	Lightweight concrete hollow block HBL 6MPa	Prefabricated reinforced components of lightweight aggregate concrete 6MPa	Prefabricated reinforced components of lightweight aggregate concrete 6MPa	Autoclaved aerated concrete AAC 4MPa	Autoclaved aerated concrete AAC 6MPa
Embedment depth $h_{ef}$	[mm]	25	25	25	25	25	25	25	25	25	25	25	25	65	65
MEAN ULTIMATE LOAD $N_{Ru,m}$															
TFIX-8ST-ECO	[kN]	1.74	2.03	1.64	1.68	1.32	0.94	1.15	0.64	0.48	0.71	0.66	0.99	1.08	1.61
CHARACTERISTIC LOAD $N_{Rk}$															
TFIX-8ST-ECO	[kN]	1.20	1.50	1.20	1.20	0.90	0.75	0.90	0.50	0.40	0.60	0.40	0.60	0.90	1.20
DESIGN LOAD $N_{Rd}$															
TFIX-8ST-ECO	[kN]	0.60	0.75	0.60	0.60	0.45	0.38	0.45	0.25	0.20	0.30	0.20	0.30	0.45	0.60
RECOMMENDED LOAD $N_{rec}$															
TFIX-8ST-ECO	[kN]	0.18	0.54	0.43	0.43	0.32	0.27	0.32	0.18	0.14	0.21	0.14	0.21	0.32	0.43

## Basic performance data (cont.)

Fixing type		TFIX-8S-PLUS
Plate resistance	[kN]	2.04
Plate stiffness	[kN/mm]	0.6
Point thermal transmittance x	[W/K]	0.001 - 0.002

## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø8	TFIX-8ST-135-ECO	8	135	60	100	100	3200	4.7	4.7	181.0	5906675089294
	TFIX-8ST-155-ECO	8	155	60	100	100	3200	5.0	5.0	189.0	5906675089300
	TFIX-8ST-195-ECO	8	195	60	100	100	3200	5.6	5.6	209.2	5906675089324
	TFIX-8ST-215-ECO	8	215	60	100	100	3200	5.9	5.9	218.5	5906675089331
	TFIX-8ST-235-ECO	8	235	60	100	100	3200	6.1	6.1	225.2	5906675089348
	TFIX-8ST-255-ECO	8	255	60	100	100	3200	6.6	6.6	240.6	5906675089355
	TFIX-8ST-275-ECO	8	275	60	100	100	3200	6.6	6.6	240.0	5906675089362
	TFIX-8ST-295-ECO	8	295	60	100	100	3200	6.9	6.9	249.9	5906675089379
	TFIX-8ST-335-ECO	8	335	60	100	100	2400	7.6	7.6	212.2	5906675089386
	TFIX-8ST-355-ECO	8	355	60	100	100	2400	8.0	8.0	220.7	5906675118758
	TFIX-8ST-375-ECO	8	375	60	50	50	1600	4.3	4.3	167.5	5906675118765
	TFIX-8ST-395-ECO	8	395	60	50	50	1600	4.5	4.5	173.9	5906675118772
	TFIX-8ST-415-ECO	8	415	60	50	50	1600	4.7	4.7	179.0	5906675118789
	TFIX-8ST-435-ECO	8	435	60	50	50	1600	4.8	4.8	183.8	5906675118802
	TFIX-8ST-455-ECO	8	455	60	50	50	1600				



# TFIX-8S Universal Facade Fixing

Versatile screw-in facade fixing with high performance in all base materials recommended for ETICS



## Approvals and Reports

- ETA-11/0144



## Product information

### Features and benefits

- Quick and easy installation in all substrates (categories A,B,C,D,E)
- Unique sleeve compression zone for precision installations.
- The long plastic overmoulding on the TFIX-8S screw minimises thermal bridging (value 0.002W/K), contributing to energy-saving benefits
- Plate stiffness (value 0.6 kN/mm) ensures smooth elevation surface and stable insulation system.
- Pre-assembled screw saves time and labour.
- Unique design allows for high load-bearing capacities. This reduces the quantity of fixings required per square metre of insulation.
- The shortest embedment depth at the maximum strength parameters.

### Applications

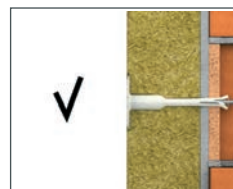
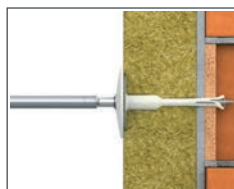
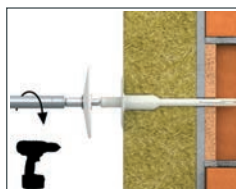
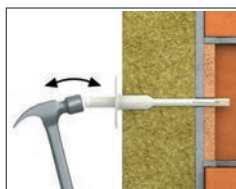
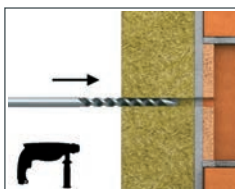
- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Mineral wool
- Light wood wool building boards
- Polyurethane (PU) boards
- Cork boards

### Base materials

#### Approved for use in:

- Concrete C12/15-C50/60 (Use category A)
- Solid Brick (Use category B)
- Solid Sand-lime Brick (Use category B)
- Hollow Brick (Use category C)
- Hollow Sand-lime Brick (Use category C)
- Vertically-perforated clay block (Use category C)
- Lightweight Concrete Block (Use category C)
- Hollow Lightweight Concrete Block (Use category C)
- Reinforced components of lightweight aggregate concrete (Use category D)
- Aerated Concrete Block (Use category E)

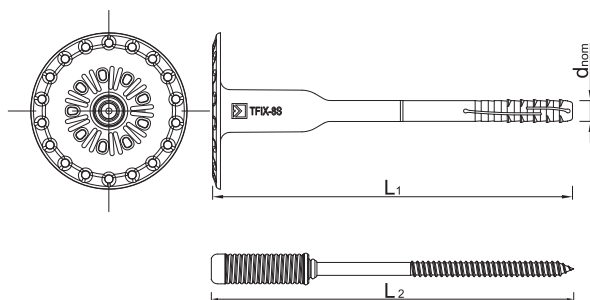
## Installation guide



## Installation guide (cont.)

1. Drill a hole of required diameter and depth
2. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached
3. Tighten screw (ideally using special TFIX-8S-TOOL setting tool) until fixing is secure and flush with insulation material.
4. Embedment depth of min 25mm in A,B,C,D materials and 65mm in Aerated Concrete Block
5. Drilling depth of min 40mm in A,B,C,D materials and 80mm in Aerated Concrete Block
6. In soft insulation panels the fixing should be combined with insulation retaining plates KWL-90, KWL-110, KWL-140.

## Product information



Size	Product Code	Fixing			Fixture	
		Diameter	Length	Plate diameter	Recommended thickness	
		d	L	D	t <sub>fix</sub> A, B, C, D	t <sub>fix</sub> E
		[mm]				
Ø08	TFIX-8S-115	8	115	60	80	40
	TFIX-8S-135	8	135	60	100	60
	TFIX-8S-155	8	155	60	120	80
	TFIX-8S-175	8	175	60	140	100
	TFIX-8S-195	8	195	60	160	120
	TFIX-8S-215	8	215	60	180	140
	TFIX-8S-235	8	235	60	200	160
	TFIX-8S-255	8	255	60	220	180
	TFIX-8S-275	8	275	60	240	200
	TFIX-8S-295	8	295	60	260	220
	TFIX-8S-335	8	335	60	300	260
	TFIX-8S-355	8	355	60	320	280
	TFIX-8S-375	8	375	60	340	300
	TFIX-8S-395	8	395	60	360	320
	TFIX-8S-415	8	415	60	380	340
	TFIX-8S-435	8	435	60	400	360
	TFIX-8S-455	8	455	60	420	380

## Installation data

Substrate			A, B, C, D	E
Fixing diameter	d	[mm]	8	8
Hole diameter in substrate	d <sub>0</sub>	[mm]	8	8
Min. hole depth in substrate	h <sub>0</sub>	[mm]	40	80
Installation depth	h <sub>nom</sub>	[mm]	25	65
Min. substrate thickness	h <sub>min</sub>	[mm]	100	100
Min. spacing	s <sub>min</sub>	[mm]	100	100
Min. edge distance	c <sub>min</sub>	[mm]	100	100

## Basic performance data












Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Concrete C50/60	Concrete C16/20	Concrete C12/15	Solid brick Mz	Sand-lime solid brick KS	Vertically perforated clay brick HLz	Sand-lime perforated brick KSL	Lightweight concrete solid brick V	Lightweight concrete hollow block HBL 4MPa	Lightweight concrete hollow block HBL 6MPa	Prefabricated reinforced components of lightweight aggregate concrete 6MPa	Prefabricated reinforced components of lightweight aggregate concrete 6MPa	Autoclaved aerated concrete AAC 4MPa	Autoclaved aerated concrete AAC 6MPa
Embedment depth $h_{ef}$	[mm]	25	25	25	25	25	25	25	25	25	25	25	25	65	65
MEAN ULTIMATE LOAD $N_{Ru,m}$															
TFIX-8S	[kN]	1.74	2.03	1.64	1.68	1.32	0.94	1.15	0.64	0.48	0.71	0.66	0.99	1.08	1.61
CHARACTERISTIC LOAD $N_{Rk}$															
TFIX-8S	[kN]	1.20	1.50	1.20	1.20	0.90	0.75	0.90	0.50	0.40	0.60	0.40	0.60	0.90	1.20
DESIGN LOAD $N_{Rd}$															
TFIX-8S	[kN]	0.60	0.75	0.60	0.60	0.45	0.38	0.45	0.25	0.20	0.30	0.20	0.30	0.45	0.60
RECOMMENDED LOAD $N_{rec}$															
TFIX-8S	[kN]	0.18	0.54	0.43	0.43	0.32	0.27	0.32	0.18	0.14	0.21	0.14	0.21	0.32	0.43

## Basic performance data

Fixing type		TFIX-8S	
Plate resistance	[kN]	2.04	
Plate stiffness	[kN/mm]	0.6	
Point thermal transmittance x	[W/K]	0.002	

## Recommended drills

Base material	Indeks	Diameter	Total length of drill	Working length of drill	Quantity	Bar Codes
		[mm]	[L]	[L1]	[pcs]	
	BRICKDRILL 8 					
	RT-SDSB-8/260	8	260	200	1	5906675046310
	RT-SDSB-8/310	8	310	250	1	5906675047553
	RT-SDSB-8/460	8	460	400	1	5906675048918
	AGGRESSOR 8 					
  	RT-SDSA-8/160	8	160	100	1	5906675027944
	RT-SDSA-8/160B12	8	160	100	12	5906675063546
	RT-SDSA-8/210	8	210	150	1	5906675027968
	RT-SDSA-8/260	8	260	200	1	5906675027937
	RT-SDSA-8/310	8	310	250	1	5906675027975
	RT-SDSA-8/310B12	8	310	250	12	5906675063508
	RT-SDSA-8/410	8	410	350	1	5906675114873
	RT-SDSA-8/460	8	460	400	1	5906675114880
	RT-SDSA-8/610	8	610	550	1	5906675064468
	REBARDRILL 8 					
   	RT-SDSR-8/160	8	160	100	1	5906675046044
	RT-SDSR-8/160B12	8	160	100	12	5906675063546
	RT-SDSR-8/210	8	210	150	1	5906675046051
	RT-SDSR-8/260	8	260	200	1	5906675046068
	RT-SDSR-8/310	8	310	250	1	5906675046075
	RT-SDSR-8/310B12	8	310	250	12	5906675063577
	RT-SDSR-8/460	8	460	400	1	5906675046082



## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø08	TFIX-8S-115	8	115	60	200	200	8000	5.7	5.7	259.6	5906675033853
	TFIX-8S-135	8	135	60	200	200	8000	6.5	6.5	291.2	5906675027579
	TFIX-8S-155	8	155	60	200	200	6400	7.2	7.2	260.4	5906675028774
	TFIX-8S-175	8	175	60	200	200	6400	7.8	7.8	280.9	5906675028323
	TFIX-8S-195	8	195	60	200	200	6400	8.4	8.4	298.5	5906675027845
	TFIX-8S-215	8	215	60	100	100	4000	4.8	4.8	222.4	5906675028026
	TFIX-8S-235	8	235	60	100	100	4000	5.1	5.1	234.4	5906675028347
	TFIX-8S-255	8	255	60	100	100	4000	5.4	5.4	245.6	5906675049670
	TFIX-8S-275	8	275	60	100	100	4000	5.4	5.4	244.0	5906675018843
	TFIX-8S-295	8	295	60	100	100	4000	5.7	5.7	256.4	5906675018850
	TFIX-8S-335	8	335	60	100	100	4000	6.4	6.4	285.2	5906675018867
	TFIX-8S-355	8	355	60	100	100	3200	6.9	6.9	250.8	5906675088044
	TFIX-8S-375	8	375	60	100	100	3200	7.1	7.1	255.6	5906675087313
	TFIX-8S-395	8	395	60	50	50	1600	3.8	3.8	150.0	5906675079042
	TFIX-8S-415	8	415	60	50	50	1600	3.9	3.9	154.8	5906675088822
	TFIX-8S-435	8	435	60	50	50	1600	3.9	3.9	155.4	5906675117140
	TFIX-8S-455	8	455	60	50	50	1600	4.1	4.1	166.1	

## TFIX-8M Facade fixing with metal nail

Versatile hammer-in facade fixing with steel nail recommended for ETICS



### Approvals and Reports

- ETA-07/0336



### Product information

#### Features and benefits

- Simple installation in all standard substrates (A,B,C).
- Excellent plate stiffness (value 1.0 kN/mm) ensures smooth elevation surface and stable insulation system.
- The long plastic overmoulding on the TFIX-8M nail minimises thermal bridging (value 0.002W/K), contributing to energy-saving benefits.
- Unique nail design allows for high load-bearing capacities. This reduces the quantity of fixings required per square metre of insulation.
- The shortest embedment depth at the maximum strength parameters.
- Pre-assembled expansion nail saves time and labour.

#### Applications

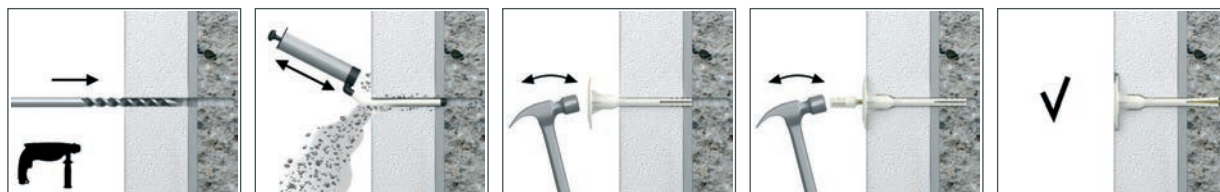
- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Mineral wool
- Light wood wool building boards
- Polyurethane (PU) boards
- Cork boards

#### Base materials

##### Approved for use in:

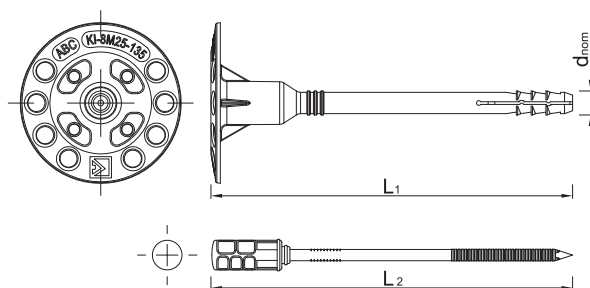
- Concrete C12/15-C50/60 (Use category A)
- Solid Brick (Use category B)
- Solid Sand-lime Brick (Use category B)
- Hollow Brick (Use category C)
- Vertically-perforated clay block (Use category C)
- Hollow Sand-lime Brick (Use category C)
- Lightweight Concrete Block (Use category C)
- Hollow Lightweight Concrete Block (Use category C)

### Installation guide



1. Drill a hole of required diameter and depth
2. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached and plastic sleeve flush with insulation material
3. Hammer the nail into the plastic sleeve until fixing is secure and flush with insulation material.
4. Embedment depth of min 25mm in approved materials
5. Drilling depth of min 35-45mm in approved materials
6. In soft insulation panels the fixing should be combined with insulation retaining plates KWL-90, KWL-110, KWL-140.

## Product information



Size	Product Code	Fixing			Fixture
		Diameter	Length	Plate diameter	Recommended thickness
		d	L	D	$t_{fix}$ A, B, C
		[mm]			
Ø8	TFIX-8M-095	8	95	60	40
	TFIX-8M-115	8	115	60	80
	TFIX-8M-135	8	135	60	100
	TFIX-8M-155	8	155	60	120
	TFIX-8M-175	8	175	60	140
	TFIX-8M-195	8	195	60	160
	TFIX-8M-215	8	215	60	180
	TFIX-8M-235	8	235	60	200
	TFIX-8M-255	8	255	60	220
	TFIX-8M-275	8	275	60	240
	TFIX-8M-295	8	295	60	260

## Installation data

Substrate			A, B, C
Fixing diameter	d	[mm]	8
Hole diameter in substrate	$d_0$	[mm]	8
Min. hole depth in substrate	$h_0$	[mm]	35
Installation depth	$h_{nom}$	[mm]	25
Min. substrate thickness	$h_{min}$	[mm]	100
Min. spacing	$s_{min}$	[mm]	100
Min. edge distance	$c_{min}$	[mm]	100

## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

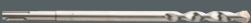










Substrate		Concrete	Solid brick Mz	Sand-lime solid brick KS	Sand-lime perforated brick KSL	Perforated clay brick HLz	Lightweight concrete solid V	Lightweight concrete solid block VBI	Lightweight concrete hollow block HBI
Embedment depth $h_{ef}$	[mm]	25	52	25	25	25	25	25	25
MEAN ULTIMATE LOAD $N_{R,u,m}$									
TFIX-8M	[kN]	1.54	1.72	1.47	1.00	0.68	0.54	0.51	0.53
CHARACTERISTIC LOAD $N_{R,k}$									
TFIX-8M	[kN]	1.20	1.20	1.20	0.90	0.60	0.50	0.30	0.50
DESIGN LOAD $N_{R,d}$									
TFIX-8M	[kN]	0.60	0.60	0.60	0.45	0.30	0.25	0.15	0.25
RECOMMENDED LOAD $N_{R,rec}$									
TFIX-8M	[kN]	0.43	0.43	0.43	0.45	0.21	0.18	0.11	0.18



## Basic performance data

Fixing type		TFIX-8M
Plate resistance	[kN]	1.75
Plate stiffness	[kN/mm]	1.00
Point thermal transmittance x	[W/K]	0.002

## Recommended drills

Base material	Indeks	Diameter	Total length of drill	Working length of drill	Quantity	Bar Codes
		[mm]	[L]	[L1]	[pcs]	
	BRICKDRILL 8 					
	RT-SDSB-8/260	8	260	200	1	5906675046310
	RT-SDSB-8/310	8	310	250	1	5906675047553
	RT-SDSB-8/460	8	460	400	1	5906675048918
	AGGRESSOR 8 					
  	RT-SDSA-8/160	8	160	100	1	5906675027944
	RT-SDSA-8/160B12	8	160	100	12	5906675063546
	RT-SDSA-8/210	8	210	150	1	5906675027968
	RT-SDSA-8/260	8	260	200	1	5906675027937
	RT-SDSA-8/310	8	310	250	1	5906675027975
	RT-SDSA-8/310B12	8	310	250	12	5906675063508
	RT-SDSA-8/410	8	410	350	1	5906675114873
	RT-SDSA-8/460	8	460	400	1	5906675114880
	REBARDRILL 8 					
   	RT-SDSR-8/160	8	160	100	1	5906675046044
	RT-SDSR-8/160B12	8	160	100	12	5906675063546
	RT-SDSR-8/210	8	210	150	1	5906675046051
	RT-SDSR-8/260	8	260	200	1	5906675046068
	RT-SDSR-8/310	8	310	250	1	5906675046075
	RT-SDSR-8/310B12	8	310	250	12	5906675063577
	RT-SDSR-8/460	8	460	400	1	5906675046082

## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø8	TFIX-8M-095	8	95	60	200	200	9600	4.5	4.5	247.9	5906675188768
	TFIX-8M-115	8	115	60	200	200	8000	5.2	5.2	236.0	5906675188775
	TFIX-8M-135	8	135	60	200	200	8000	5.7	5.7	258.8	5906675188782
	TFIX-8M-155	8	155	60	200	200	6400	6.3	6.3	231.6	5906675188799
	TFIX-8M-175	8	175	60	200	200	6400	6.9	6.9	252.1	5906675188805
	TFIX-8M-195	8	195	60	200	200	6400	7.4	7.4	266.8	5906675188812
	TFIX-8M-215	8	215	60	100	100	4000	4.1	4.1	195.2	5906675188829
	TFIX-8M-235	8	235	60	100	100	4000	4.5	4.5	208.8	5906675188836
	TFIX-8M-255	8	255	60	100	100	4000	4.8	4.8	222.4	5906675188843
	TFIX-8M-275	8	275	60	100	100	4000	5.1	5.1	232.4	5906675188850
	TFIX-8M-295	8	295	60	100	100	4000	5.3	5.3	243.6	5906675188867

## TFIX-8P Facade fixing with plastic pin

Versatile hammer-in facade fixing with plastic nail recommended for ETICS



### Approvals and Reports

- ETA-13/0845



### Product information

#### Features and benefits

- Installation in all base materials (categories A,B,C,D,E)
- The plastic nail reduces heat transmission (value 0.0W/K)
- Pre-assembled expansion nail saves time and labour.
- Unique nylon pin design reinforced with glass fibre allows fast and trouble-free installation with correct expansion of the plug.
- Expansion zone designed for low embedment depths, reducing the amount of drilling required.
- Can be used in combination with additional KWL plate - 90, 110 or 140mm diameter.

#### Applications

- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Polyurethane (PU) boards
- Mineral wool
- Lightweight wood wool building boards
- Cork boards

#### Base materials

##### Approved for use in:

- Concrete C12/15-C50/60 (Use category A)
- Solid Brick (Use category B)
- Solid Sand-lime Brick (Use category B)
- Hollow Brick (Use category C)
- Hollow Sand-lime Brick (Use category C)
- Vertically-perforated clay block (Use category C)
- Lightweight Concrete Block (Use category C)
- Hollow Lightweight Concrete Block (Use category C)
- Reinforced components of lightweight aggregate concrete (Use category D)
- Aerated Concrete Block (Use category E)

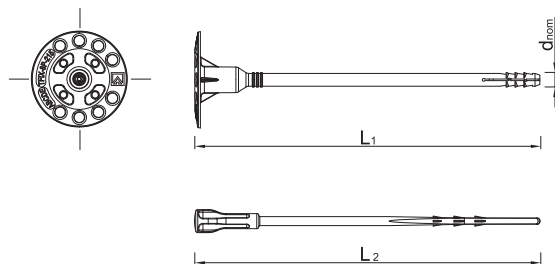
### Installation guide



## Installation guide (cont.)

1. Drill a hole of required diameter and depth.
2. Clean the hole.
3. Lightly tap the plastic nail into the plastic sleeve until fixing is secure and flush with insulation material.
4. Embedment depth of min 25 in masonry, perforated materials and lightweight concrete blocks and 65mm in aerated concrete.
5. In soft insulation panels the fixing should be combined with insulation retaining plates KWL-90, KWL-110, KWL-140.

## Product information



Size	Product Code	Fixing			Fixture	
		Diameter	Length	Plate diameter	Recommended thickness	
		d	L	D	t <sub>fix</sub> A, B, C, D	t <sub>fix</sub> E
		[mm]				
Ø8	TFIX-8P-115	8	115	60	60	20
	TFIX-8P-135	8	135	60	80	40
	TFIX-8P-155	8	155	60	100	60
	TFIX-8P-175	8	175	60	120	80
	TFIX-8P-195	8	195	60	140	100
	TFIX-8P-215	8	215	60	160	120

## Installation data

Substrate			A, B, C, D	E
Fixing diameter	d	[mm]	8	8
Hole diameter in substrate	d <sub>0</sub>	[mm]	8	8
Min. hole depth in substrate	h <sub>0</sub>	[mm]	40	80
Installation depth	h <sub>nom</sub>	[mm]	25	65
Min. substrate thickness	h <sub>min</sub>	[mm]	100	110
Min. spacing	s <sub>min</sub>	[mm]	100	100
Min. edge distance	c <sub>min</sub>	[mm]	100	100

## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

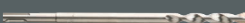










Substrate		Concrete C16/20	Concrete C12/15	Solid brick	Sand-lime solid brick	Perforated ceramic brick	Sand-lime perforated brick	Lightweight concrete solid block	Lightweight concrete hollow block	Lightweight aggregate concrete hollow block	Aerated concrete
Embedment depth h <sub>ef</sub>	[mm]	25	25	25	25	25	25	25	25	25	25
CHARACTERISTIC LOAD N <sub>nk</sub>											
TFIX-8P	[kN]	0.50	0.40	0.40	0.50	0.30	0.30	0.40	0.40	0.30	0.50
DESIGN LOAD N <sub>Rd</sub>											
TFIX-8P	[kN]	0.25	0.20	0.20	0.25	0.15	0.15	0.20	0.20	0.15	0.15
RECOMMENDED LOAD N <sub>rec</sub>											
TFIX-8P	[kN]	0.18	0.14	0.14	0.25	0.11	0.11	0.14	0.14	0.11	0.11



## Basic performance data

Fixing type		TFIX-8P
Plate resistance	[kN]	1.38
Plate stiffness	[kN/mm]	0.3
Point thermal transmittance x	[W/K]	0.00

## Recommended drills

Base material	Indeks	Diameter	Total length of drill	Working length of drill	Quantity	Bar Codes
		[mm]	[L]	[L1]	[pcs]	
	BRICKDRILL 8 					
	RT-SDSB-8/260	8	260	200	1	5906675046310
	RT-SDSB-8/310	8	310	250	1	5906675047553
	RT-SDSB-8/460	8	460	400	1	5906675048918
	AGGRESSOR 8 					
  	RT-SDSA-8/160	8	160	100	1	5906675027944
	RT-SDSA-8/160B12	8	160	100	12	5906675063546
	RT-SDSA-8/210	8	210	150	1	5906675027968
	RT-SDSA-8/260	8	260	200	1	5906675027937
	RT-SDSA-8/310	8	310	250	1	5906675027975
	RT-SDSA-8/310B12	8	310	250	12	5906675063508
	RT-SDSA-8/410	8	410	350	1	5906675114873
	RT-SDSA-8/460	8	460	400	1	5906675114880
	REBARDRILL 8 					
   	RT-SDSR-8/160	8	160	100	1	5906675046044
	RT-SDSR-8/160B12	8	160	100	12	5906675063546
	RT-SDSR-8/210	8	210	150	1	5906675046051
	RT-SDSR-8/260	8	260	200	1	5906675046068
	RT-SDSR-8/310	8	310	250	1	5906675046075
	RT-SDSR-8/310B12	8	310	250	12	5906675063577
	RT-SDSR-8/460	8	460	400	1	5906675046082

## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø8	TFIX-8P-115	8	115	60	200	200	6000	2.9	2.9	117.0	5906675078267
	TFIX-8P-135	8	135	60	200	200	6400	3.0	3.0	127.3	5906675087818
	TFIX-8P-155	8	155	60	200	200	6400	3.2	3.2	132.4	5906675092515
	TFIX-8P-175	8	175	60	200	200	6000	3.5	3.5	135.0	5906675078274
	TFIX-8P-195	8	195	60	200	200	6400	3.4	3.4	140.1	5906675088228
	TFIX-8P-215	8	215	60	100	100	6400	2.0	2.0	154.8	5906675086514

## MBA/MBA-SS facade fixing

### Fire-resistant metal insulation fixing



### Approvals and Reports

- AT-15-8092/2009
- AT-15-8092/2009 - Annex 1, 2 & 3

### Version:

- MBA - Steel
- MBA-SS - Stainless steel



## Product information

### Features and benefits

- Metal facade fixing, recommended for use when fire resistance (F120) is a requirement
- Fast and simple hammer-set installation reduces working times.
- Extensive dimensional range allows anchorage of insulation boards up to 250mm thick
- Accessory spreader plate, MKC (80mm diameter) also available for installation of soft insulation materials such as mineral wool.

### Applications

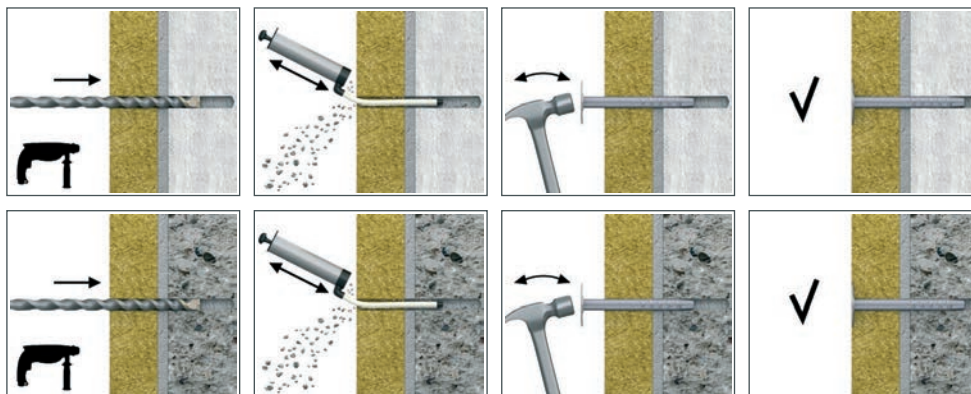
- Mineral wool
- Glass wool
- Lightweight wood wool building boards
- Lightweight recycled panels
- Polystyrene (EPS) boards
- Polyurethane (PU) boards

### Base materials

#### Approved for use in:

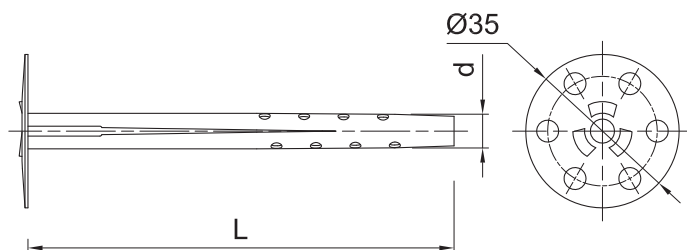
- Concrete C12/15-C50/60 (Use category A)
- Solid Brick (Use category B)
- Solid Sand-lime Brick (Use category B)
- Aerated Concrete Block (Use category E)

### Installation guide



1. Drill a hole of required diameter and depth
2. With a hammer, lightly tap MBA fixing (with MKC washer where applicable) through the insulation material into hole, until fixing depth is reached.
3. Installation depth 50mm with min. drill depth 60mm

## Product information



Size	Product Code	Fixing			Fixture
		Diameter	Length	Plate diameter	Max. thickness
		d	L	D	t <sub>fix</sub>
		[mm]			
MBA Steel facade fixing					
Ø8	MBA-08090	8	90	40	40
	MBA-08110	8	110	40	60
	MBA-08140	8	140	40	90
	MBA-08170	8	170	40	120
	MBA-08200	8	200	40	150
	MBA-08250	8	250	40	200
	MBA-08300	8	300	40	250
MBA-SS Stainless steel facade fixing					
Ø8	MBA-SS-08090	8	90	40	40
	MBA-SS-08110	8	110	40	60
	MBA-SS-08140	8	140	40	90
	MBA-SS-08170	8	170	40	120
	MBA-SS-08200	8	200	40	150
	MBA-SS-08250	8	250	40	200
	MBA-SS-08300	8	300	40	250

## Installation data

Substrate			A, B	E
Fixing diameter	d	[mm]	8	8
Hole diameter in substrate	d <sub>0</sub>	[mm]	8	-
Min. hole depth in substrate	h <sub>0</sub>	[mm]	60	-
Installation depth	h <sub>nom</sub>	[mm]	50	50
Min. substrate thickness	h <sub>min</sub>	[mm]	100	100
Min. spacing	s <sub>min</sub>	[mm]	100	100
Min. edge distance	c <sub>min</sub>	[mm]	100	100

## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Concrete	Solid brick	Sand-lime solid brick	Autoclaved aerated concrete
Embedment depth h <sub>ef</sub>	[mm]	50	50	50	50
MEAN ULTIMATE LOAD N <sub>Ru,m</sub>					
MBA/MBA-SS	[kN]	1.05	0.85	0.85	1.05
CHARACTERISTIC LOAD N <sub>Rk</sub>					
MBA/MBA-SS	[kN]	0.85	0.65	0.80	0.90
DESIGN LOAD N <sub>Rd</sub>					
MBA/MBA-SS	[kN]	0.34	0.22	0.32	0.26
RECOMMENDED LOAD N <sub>rec</sub>					
MBA/MBA-SS	[kN]	0.24	0.16	0.23	0.19














## Basic performance data

Pull the fixing plate through the insulation material with thickness 50mm acc. to ETAG 004

Fixing type		MBA/MBA-SS + MKC
Characteristic load	[kN]	0.32

## Recommended drills

Base material	Indeks	Diameter	Total length of drill	Working length of drill	Quantity	Bar Codes
		[mm]	[L]	[L1]	[pcs]	
	BRICKDRILL 8 					
	RT-SDSB-8/260	8	260	200	1	5906675046310
	RT-SDSB-8/310	8	310	250	1	5906675047553
	RT-SDSB-8/460	8	460	400	1	5906675048918
	AGGRESSOR 8 					
  	RT-SDSA-8/160	8	160	100	1	5906675027944
	RT-SDSA-8/160B12	8	160	100	12	5906675063546
	RT-SDSA-8/210	8	210	150	1	5906675027968
	RT-SDSA-8/260	8	260	200	1	5906675027937
	RT-SDSA-8/310	8	310	250	1	5906675027975
	RT-SDSA-8/310B12	8	310	250	12	5906675063508
	RT-SDSA-8/410	8	410	350	1	5906675114873
	RT-SDSA-8/460	8	460	400	1	5906675114880
	REBARDRILL 8 					
   	RT-SDSR-8/160	8	160	100	1	5906675046044
	RT-SDSR-8/160B12	8	160	100	12	5906675063546
	RT-SDSR-8/210	8	210	150	1	5906675046051
	RT-SDSR-8/260	8	260	200	1	5906675046068
	RT-SDSR-8/310	8	310	250	1	5906675046075
	RT-SDSR-8/310B12	8	310	250	12	5906675063577
	RT-SDSR-8/460	8	460	400	1	5906675046082

## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
MBA Steel facade fixing											
Ø8	MBA-08090	8	90	40	250	250	4000	5.0	5.0	110.0	5906675049809
	MBA-08110	8	110	40	250	250	4000	5.3	5.3	114.0	5906675049816
	MBA-08140	8	140	40	250	250	4000	5.4	5.4	116.0	5906675049830
	MBA-08170	8	170	40	250	250	4000	5.4	5.4	116.7	5906675049847
	MBA-08200	8	200	40	250	250	4000	5.7	5.7	120.8	5906675049854
	MBA-08250	8	250	40	125	125	4000	2.9	2.9	122.4	5906675073910
	MBA-08300	8	300	40	125	125	5000	6.0	6.0	271.0	5906675049878
MBA-SS Stainless steel facade fixing											
Ø08	MBA-SS-08090	8	90	40	250	250	4000	5.0	5.0	110.0	5906675049885
	MBA-SS-08110	8	110	40	250	250	4000	5.3	5.3	114.0	5906675049892
	MBA-SS-08140	8	140	40	250	250	4000	5.4	5.4	116.0	5906675049908
	MBA-SS-08170	8	170	40	250	250	4000	5.4	5.4	116.7	5906675049915
	MBA-SS-08200	8	200	40	250	250	4000	5.7	5.7	120.8	5906675049922
	MBA-SS-08250	8	250	40	125	125	4000	2.9	2.9	122.4	5906675049939
	MBA-SS-08300	8	300	40	125	125	4000	3.0	3.0	125.2	5906675049946



# FACADE INSULATION FIXINGS

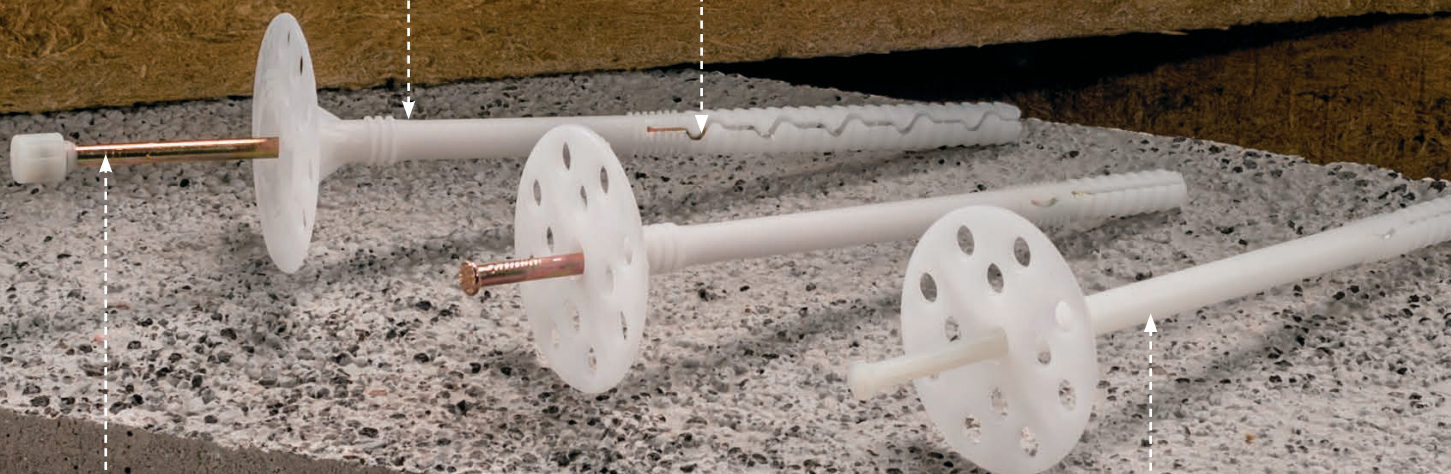
- KI-10NS
- KI-10N
- KI-10M
- KI-10
- KIK

Correctly matched accessories ensure perfect installation and reduced point thermal transmission



European standard of the product confirmed in ETAs

Long expansion zone for best performance in lightweight base materials.



Steel nail allows fast and trouble-free installation

Economical and hammer-set fastener with European Technical Approval for all substrates



## KI-10NS Screw-in insulation fixing with long expansion zone

Screw-in facade fixing with 60mm long expansion zone for high performance in all base materials



### Approvals and Reports

- ETA-07/0221



### Product information

#### Features and benefits

- Quick and easy installation in all substrates
- Approved for use in all base material categories A,B,C,D,E
- Steel screw allows fast and trouble-free installation with correct expansion of the plug
- Reduction of thermal bridge formation (value 0.3W/K) through the integration of an impact-resistant plastic overmoulding on the screw head.
- Plate stiffness (value 0.5 kN/mm) ensures smooth elevation surface and stable insulation system.
- Can be used with additional KWL insulation holding plate, available in 90, 110 and 140mm flange sizes (recommended for soft insulation materials such as mineral wool).

#### Applications

- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Mineral wool
- Light wood wool building boards
- Polyurethane (PU) boards
- Lightweight recycled panels

#### Base materials

##### Approved for use in:

- Concrete C12/15-C50/60 (Use category A)
- Solid Brick (Use category B)
- Hollow Brick (Use category C)
- Vertically-perforated clay block (Use category C)
- Reinforced components of lightweight aggregate concrete (Use category D)
- Aerated Concrete Block (Use category E)

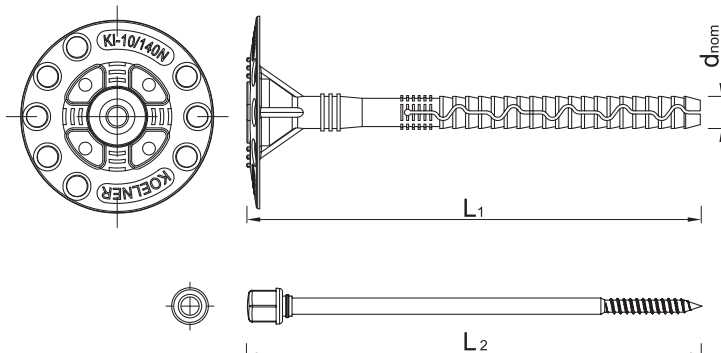
### Installation guide



## Installation guide

1. Drill a hole of required diameter and depth
2. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached
3. Tighten screw until fixing is secure and flush with insulation material
4. Embedment depth of min 40mm in concrete and 60mm in other approved materials
5. Drilling depth of min 60mm in concrete and 80mm in other approved materials
6. Temperature range when installed -35°C to +80°C.
7. In soft insulation panels the fixing should be combined with insulation retaining plates KWL-90, KWL-110, KWL-140.

## Product information



Size	Product Code	Fixing			Fixture
		Diameter	Length	Plate diameter	Recommended thickness
		d	L	D	t <sub>fix</sub> B, C, D, E
		[mm]			
Ø10	R-KI-140NS	10	140	60	70
	R-KI-160NS	10	160	60	90
	R-KI-180NS	10	180	60	110
	R-KI-200NS	10	200	60	130
	R-KI-220NS	10	220	60	150
	R-KI-260NS	10	260	60	190
	R-KI-300NS	10	300	60	230

## Installation data

Substrate			B, C, D, E
Fixing diameter	d	[mm]	10
Hole diameter in substrate	d <sub>0</sub>	[mm]	10
Min. hole depth in substrate	h <sub>0</sub>	[mm]	70
Installation depth	h <sub>nom</sub>	[mm]	60
Min. substrate thickness	h <sub>min</sub>	[mm]	100
Min. spacing	s <sub>min</sub>	[mm]	100
Min. edge distance	c <sub>min</sub>	[mm]	100



## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Solid brick	Vertically perforated block	Lightweight aggregate concrete hollow block	Autoclaved aerated concrete block
Embedment depth $h_{ef}$	[mm]	60	60	60	60
MEAN ULTIMATE LOAD $N_{Rd,m}$					
KI-10NS	[kN]	1.86	0.71	0.53	0.89
CHARACTERISTIC LOAD $N_{Rk}$					
KI-10NS	[kN]	1.20	0.40	0.30	0.75
DESIGN LOAD $N_{Rd}$					
KI-10NS	[kN]	0.60	0.20	0.15	0.38
RECOMMENDED LOAD $N_{rec}$					
KI-10NS	[kN]	0.43	0.14	0.11	0.27

Fixing type		KI-10NS
Plate resistance	[kN]	1.04
Plate stiffness	[kN/mm]	0.50
Point thermal transmittance $\lambda$	[W/K]	0.003

## Recommended drills

Base material	Indeks	Diameter	Total length of drill	Working length of drill	Quantity	Bar Codes
		[mm]	[L]	[L1]	[pcs]	
	BRICKDRILL 10 					
	RT-SDSB-10/260	10	160	200	1	5906675046334
	RT-SDSB-10/310	10	310	250	1	5906675047560
	RT-SDSB-10/460	10	460	400	1	5906675047560
	AGGRESSOR 10 					
	RT-SDSA-10/160	10	160	100	1	5906675026602
	RT-SDSA-10/160B12	10	160	100	12	5906675026602
	RT-SDSA-10/210	10	210	150	1	5906675026619
	RT-SDSA-10/260	10	260	200	1	5906675026626
	RT-SDSA-10/310	10	310	250	1	5906675028002
	RT-SDSA-10/310B12	10	310	250	12	5906675063508
	RT-SDSA-10/460	10	460	400	1	5906675114910

## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø10	R-KI-140NS	10	140	60	250	250	8000	7.5	7.5	270.0	5906675281117
	R-KI-160NS	10	160	60	250	250	8000	8.9	8.9	314.2	5906675281124
	R-KI-180NS	10	180	60	250	250	6000	9.4	9.4	255.1	5906675281186
	R-KI-200NS	10	200	60	250	250	6000	10.0	10.0	270.0	5906675281506
	R-KI-220NS	10	220	60	250	250	6000	11.6	11.6	309.1	5906675281513
	R-KI-260NS	10	260	60	200	200	4800	11.3	11.3	300.7	5906675281520
	R-KI-300NS	10	300	60	200	200	4800	11.9	11.9	315.6	5906675281537

# KI-10N Long expansion zone facade fixing with metal pin

Hammer-in facade fixing 60mm long expansion zone for high performance in masonry, as well as lightweight and aerated concrete



## Approvals and Reports

- ETA-07/0221



## Product information

### Features and benefits

- Easy installation with best performance in lightweight base materials
- Approved for use in base material categories B, C, D, and E
- Steel nail allows fast and trouble-free installation with correct expansion of the plug.
- Reduction of thermal bridge formation (value 0.3W/K) through the integration of an impact-resistant plastic overmoulding on the nail head.
- Plate stiffness (value 0.5 kN/mm) ensures smooth elevation surface and stable insulation system.
- Can be used with additional KWL insulation holding plate, available in 90, 110 and 140mm flange sizes.

### Applications

- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Mineral wool
- Light wood wool building boards
- Polyurethane (PU) boards
- Lightweight recycled panels

### Base materials

#### Approved for use in:

- Solid Brick (Use category B)
- Hollow Brick (Use category C)
- Vertically-perforated clay block (Use category C)
- Lightweight Concrete Block (Use category C)
- Reinforced components of lightweight aggregate concrete (Use category D)
- Aerated Concrete Block (Use category E)

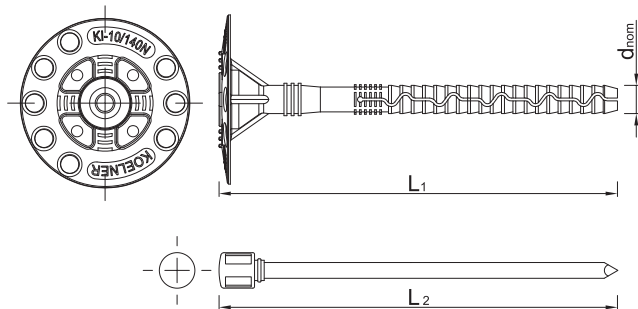
## Installation guide



## Installation guide

1. Drill a hole of required diameter and depth
2. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached
3. Hammer the steel nail into the plastic sleeve until fixing is secure and flush with insulation material.
4. Embedment depth of min 60mm in approved materials.
5. Drilling depth of min 80mm in approved materials.
6. In soft insulation panels the fixing should be combined with insulation retaining plates KWL-90, KWL-110, KWL-140.
7. Temperature range when installed -35°C to +80°C.

## Product information



Size	Product Code	Fixing			Fixture
		Diameter	Length	Plate diameter	Recommended thickness
		d	L	D	t <sub>fix</sub> B, C, D, E
		[mm]			
Ø10	R-KI-140N	10	140	60	70
	R-KI-160N	10	160	60	90
	R-KI-180N	10	180	60	110
	R-KI-200N	10	200	60	130
	R-KI-220N	10	220	60	150
	R-KI-260N	10	260	60	190
	R-KI-300N	10	300	60	210

## Installation data

Substrate			B, C, D, E
Fixing diameter	d	[mm]	10
Hole diameter in substrate	d <sub>o</sub>	[mm]	10
Min. hole depth in substrate	h <sub>o</sub>	[mm]	70
Installation depth	h <sub>nom</sub>	[mm]	60
Min. substrate thickness	h <sub>min</sub>	[mm]	100
Min. spacing	s <sub>min</sub>	[mm]	100
Min. edge distance	c <sub>min</sub>	[mm]	100

## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Solid brick	Vertically perforated block	Lightweight aggregate concrete hollow block	Autoclaved aerated concrete block
Embedment depth h <sub>ef</sub>	[mm]	60	60	60	60
MEAN ULTIMATE LOAD N <sub>Rd,m</sub>					
KI-10N	[kN]	1.57	0.82	0.88	1.54
CHARACTERISTIC LOAD N <sub>Rk</sub>					
KI-10N	[kN]	0.90	0.40	0.30	0.90



## Basic performance data

Substrate		Solid brick	Vertically perforated block	Lightweight aggregate concrete hollow block	Autoclaved aerated concrete block
DESIGN LOAD $N_{Rd}$					
KI-10N	[kN]	0.45	0.20	0.15	0.45
RECOMMENDED LOAD $N_{rec}$					
KI-10N	[kN]	0.32	0.14	0.11	0.32

Fixing type		KI-10N
Plate resistance	[kN]	1.04
Plate stiffness	[kN/mm]	0.50
Point thermal transmittance x	[W/K]	0.003

## Recommended drills

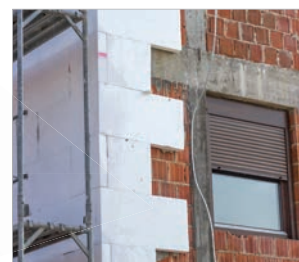
Base material	Indeks	Diameter	Total length of drill	Working length of drill	Quantity	Bar Codes
		[mm]	[L]	[L1]	[pcs]	
	BRICKDRILL 10					
	RT-SDSB-10/260	10	160	200	1	5906675046334
	RT-SDSB-10/310	10	310	250	1	5906675047560
	RT-SDSB-10/460	10	460	400	1	5906675047560
	AGGRESSOR 10					
	RT-SDSA-10/160	10	160	100	1	5906675026602
	RT-SDSA-10/160B12	10	160	100	12	5906675026602
	RT-SDSA-10/210	10	210	150	1	5906675026619
	RT-SDSA-10/260	10	260	200	1	5906675026626
	RT-SDSA-10/310	10	310	250	1	5906675028002
	RT-SDSA-10/310B12	10	310	250	12	5906675063508
	RT-SDSA-10/460	10	460	400	1	5906675114910

## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø10	R-KI-140N	10	140	60	250	250	8000	8.0	8.0	286.0	5906675261423
	R-KI-160N	10	160	60	250	250	8000	9.1	9.1	322.2	5906675261430
	R-KI-180N	10	180	60	250	250	6000	9.8	9.8	264.0	5906675261447
	R-KI-200N	10	200	60	250	250	6000	10.4	10.4	279.1	5906675261454
	R-KI-220N	10	220	60	250	250	6000	11.9	11.9	315.1	5906675261461
	R-KI-260N	10	260	60	200	200	4800	11.4	11.4	302.9	5906675261478
	R-KI-300N	10	300	60	200	200	4800	12.3	12.3	325.2	5906675261485

## KI-10 Facade fixing with plastic pin

Hammerset insulation fixing with reinforced plastic nail



### Approvals and Reports

- ETA-07/0291



### Product information

#### Features and benefits

- Installation in all substrates (categories A,B,C,D,E).
- The plastic nail reduces heat transmission (value 0.0W/K)
- Plastic nail reinforced with glass fibre allows fast and trouble-free installation with correct expansion of the plug.
- Expansion zone designed for low embedment depths, reducing the amount of drilling required.
- Can be used with additional KWL insulation holding plate, available in 90, 110 and 140mm flange sizes (recommended for soft insulation materials such as mineral wool).
- Optimal product parameters enable cost-saving solutions.

#### Applications

- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene boards
- Mineral wool
- Light wood wool building boards
- Polyurethane boards
- Wood fibre boards
- Lightweight recycled panels

#### Base materials

##### Approved for use in:

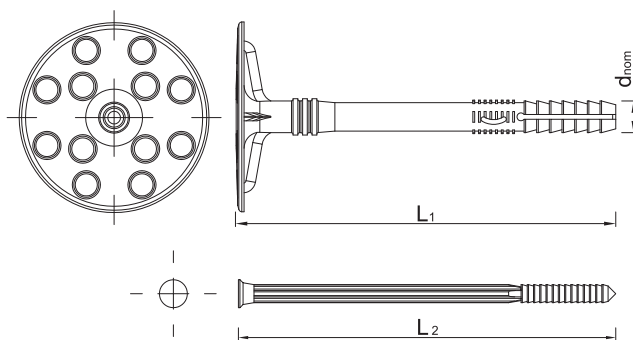
- Concrete C12/15-C50/60 (Use category A)
- Solid Brick (Use category B)
- Solid Sand-lime Brick (Use category B)
- Hollow Sand-lime Brick (Use category C)
- Vertically-perforated clay block (Use category C)
- Hollow Lightweight Concrete Block (Use category C)
- Lightweight Concrete Block (Use category C)
- Reinforced components of lightweight aggregate concrete (Use category D)
- Aerated Concrete Block (Use category E)

### Installation guide



1. Drill a hole of required diameter and depth
2. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached
3. Lightly tap the plastic nail into the plastic sleeve until fixing is secure and flush with insulation material.
4. Embedment depth of min 25 in masonry, 40mm in perforated materials and 60mm in lightweight concrete block and aerated concrete
5. Drilling depth of min 35 in masonry, 50mm in perforated materials and 70mm in lightweight concrete block and aerated concrete

## Product information



Size	Product Code	Fixing			Fixture		
		Diameter	Length	Plate diameter	Recommended thickness		
		d	L	D	$t_{fix}$ A, B, C	$t_{fix}$ D	$t_{fix}$ E
		[mm]					
Ø10	R-KI-070	10	70	60	35	20	0
	R-KI-090	10	90	60	55	40	20
	R-KI-120	10	120	60	85	70	50
	R-KI-140	10	140	60	105	90	70
	R-KI-160	10	160	60	125	110	90
	R-KI-180	10	180	60	145	130	110
	R-KI-200	10	200	60	165	150	130
	R-KI-220	10	220	60	185	170	150

## Installation data

Substrate			A, B, C	D	E
Fixing diameter	d	[mm]	10	10	10
Hole diameter in substrate	$d_o$	[mm]	10	10	10
Min. hole depth in substrate	$h_o$	[mm]	35	50	70
Installation depth	$h_{nom}$	[mm]	25	40	60
Min. substrate thickness	$h_{min}$	[mm]	100	100	100
Min. spacing	$s_{min}$	[mm]	100	100	100
Min. edge distance	$c_{min}$	[mm]	100	100	100

## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Concrete min. C16/20	Concrete C12/15	Solid brick	Sand-lime solid brick	Perforated ceramic brick	Perforated ceramic brick (i.e. Porotherm)	MEGA MAX	Sand-lime hollow brick	Lightweight concrete solid block	Lightweight concrete hollow block	Aerated concrete
Embedment depth $h_{ef}$	[mm]	25	25	25	25	40	40	40	25	60	40	60
MEAN ULTIMATE LOAD $N_{Ru,m}$												
KI-10M	[kN]	0.97	0.92	0.72	0.89	0.74	0.57	0.67	0.96	0.78	0.75	0.25
CHARACTERISTIC LOAD $N_{Rk}$												
KI-10M	[kN]	0.50	0.50	0.50	0.60	0.40	0.40	0.30	0.60	0.50	0.40	0.10
DESIGN LOAD $N_{Rd}$												
KI-10M	[kN]	0.25	0.25	0.25	0.30	0.20	0.20	0.15	0.30	0.25	0.20	0.05
RECOMMENDED LOAD $N_{rec}$												
KI-10M	[kN]	0.18	0.18	0.18	0.21	0.14	0.14	0.11	0.21	0.18	0.14	0.04



## Basic performance data

Fixing type		KI-10
Plate resistance	[kN]	0.86
Plate stiffness	[kN/mm]	0.50
Point thermal transmittance x	[W/K]	0.000

## Recommended drills

Base material	Indeks	Diameter	Total length of drill	Working length of drill	Quantity	Bar Codes
		[mm]	[L]	[L1]	[pcs]	
	BRICKDRILL 10 					
	RT-SDSB-10/260	10	160	200	1	5906675046334
	RT-SDSB-10/310	10	310	250	1	5906675047560
	RT-SDSB-10/460	10	460	400	1	5906675047560
	AGGRESSOR 10 					
  	RT-SDSA-10/160	10	160	100	1	5906675026602
	RT-SDSA-10/160B12	10	160	100	12	5906675026602
	RT-SDSA-10/210	10	210	150	1	5906675026619
	RT-SDSA-10/260	10	260	200	1	5906675026626
	RT-SDSA-10/310	10	310	250	1	5906675028002
	RT-SDSA-10/310B12	10	310	250	12	5906675063508
	RT-SDSA-10/460	10	460	400	1	5906675114910

## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø10	R-KI-070	10	70	60	250	250	14000	2.5	2.5	167.4	5906675258171
	R-KI-090	10	90	60	250	250	14000	2.5	2.5	170.0	5906675258188
	R-KI-120	10	120	60	250	250	12000	3.2	3.2	181.2	5906675258195
	R-KI-140	10	140	60	250	250	10000	4.0	4.0	190.0	5906675258201
	R-KI-160	10	160	60	250	250	10000	4.2	4.2	198.0	5906675258218
	R-KI-180	10	180	60	250	250	7500	4.5	4.5	165.0	5906675258225
	R-KI-200	10	200	60	250	250	7500	5.1	5.1	181.5	5906675258232
	R-KI-220	10	220	60	250	250	7500	5.1	5.1	182.1	5906675270029

## KIK Insulation fixings

Cost-effective insulation support for thin insulation boards



### Product information

#### Features and benefits

- The simple hammer-set functioning allows for fast installation.
- Embedded portion of fixing grips inside of hole when hammered into base material.

#### Applications

- Foundation board
- Polystyrene (EPS) boards
- Polyurethane (PU) boards
- Cork boards
- Wood boards

#### Base materials

Also suitable for use in:

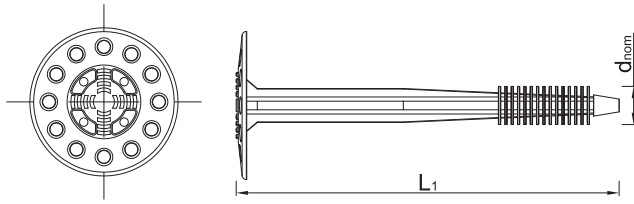
- Concrete
- Solid Brick
- Natural Stone
- Solid Sand-lime Brick

### Installation guide



1. Drill a hole of required diameter and depth
2. Lightly tap the plastic fixing with a hammer, through the insulation material into hole until fixing depth is reached.

## Product information



Size	Product Code	Fixing			Fixture
		Screw diameter	Length	Plate diameter	Max. thickness
		d	L	D	t <sub>fix</sub>
		[mm]			
Ø10	KIK-070	8	70	35	30
	KIK-090	8	90	35	50

## Installation data

Size			Ø10
Fixing diameter	d	[mm]	8
Hole diameter in substrate	d <sub>o</sub>	[mm]	8
Min. hole depth in substrate	h <sub>o</sub>	[mm]	40
Installation depth	h <sub>nom</sub>	[mm]	30
Min. substrate thickness	h <sub>min</sub>	[mm]	100
Min. spacing	s <sub>min</sub>	[mm]	100
Min. edge distance	c <sub>min</sub>	[mm]	100

## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Screw diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø10	R-KIK-070	8	70	35	400	400	12800	2.5	2.5	110.0	5906675262390
	R-KIK-090	8	90	35	400	400	12800	2.8	2.8	119.6	5906675262406





## INSULATION WASCHERS & RETAINING PLATES

- KCX    ▪ KWL
- KC    ▪ MKC

Insulation retaining plate  
for use in combination  
with facade fixings



European standard  
of the product  
confirmed in ETAs



## KCX Tubed insulation washer

Insulation washer with integral cap suitable for attachment of insulation layers to wooden and sheet metal substrates



### Approvals and Reports

- AT-15-9280/2014

## Product information

### Features and benefits

- Recommended for the attachment of ETICS to wooden substrates using UC screws, or to sheet metal using WB screws ( allows setting without pre-drilling, thus saving a stage of installation)
- Special design of integral fastener cap allows reduction of thermal bridges to 0,001W/K.
- Design with long tube allows to use short length of the screw for best cost effective solution to fix large insulation thickness.
- Consistent and reliable holding force.
- Quick, simple and clean installation.
- Can be used in combination with additional KWL plate - 90, 110 or 140mm diameter.

### Applications

- External Thermal Insulation Composite Systems (ETICS)

### Base materials

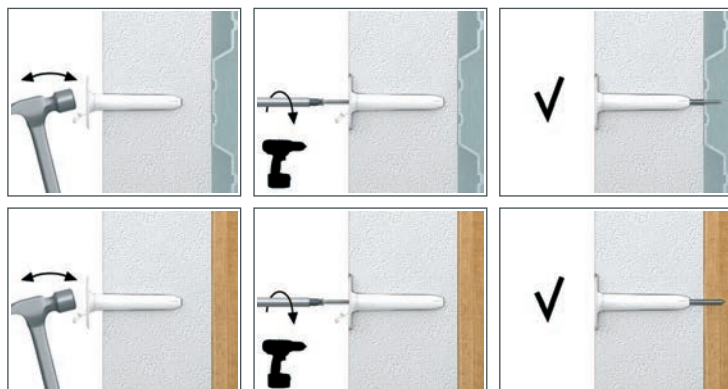
#### Approved for use in:

- Metal Sheet & Profiles
- Wood
- Timber
- Chipboard

#### Also suitable for use in:

- Plastic

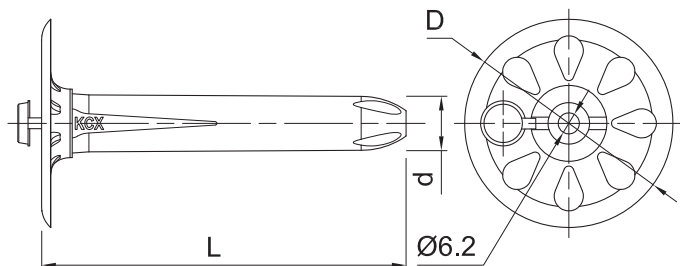
## Installation guide



## Installation guide (cont.)

1. Lightly insert KCX washer into surface of insulation material.
2. Drive the required screw through the washer and insulation material into the substrate, until fixing depth is reached.
3. In wooden substrates the washer is recommended for use with the UC chipboard screw.
4. In sheet metal the washer is recommended for use with either the WB or WX self-drilling screw.

## Product information



Size	Product Code	Screw	Screw		Fixture	Diameter	Length
			Diameter	Length	Max. thickness		
			d	L	t <sub>fix</sub>	D	L
			[mm]			[mm]	
KCX with screw to wood							
Ø5	KCX-055	UC-5050	5	50	70	60	55
		UC-5060	5	60	80	60	55
		UC-5070	5	70	90	60	55
		UC-5080	5	80	100	60	55
		UC-5090	5	90	110	60	55
Ø6	KCX-105	UC-6050	6	50	120	60	105
		UC-6060	6	60	130	60	105
		UC-6070	6	70	140	60	105
		UC-6080	6	80	150	60	105
		UC-6090	6	90	160	60	105
		UC-6100	6	100	170	60	105
	KCX-165	UC-6050	6	50	180	60	165
		UC-6060	6	60	190	60	165
		UC-6070	6	70	200	60	165
		UC-6080	6	80	210	60	165
		UC-6090	6	90	220	60	165
		UC-6100	6	100	230	60	165
		UC-6110	6	110	240	60	165
		UC-6120	6	120	250	60	165
		UC-6140	6	140	270	60	165
		UC-6160	6	160	290	60	165
KCX with selfdrilling screw to metal sheet							
Ø4.8	KCX-055	WX-48050	4.8	50	70	60	55
		WX-48060	4.8	60	80	60	55
		WX-48070	4.8	70	90	60	55
		WX-48080	4.8	80	100	60	55
		WX-48100	4.8	100	110	60	55
	KCX-105	WX-48050	4.8	50	120	60	105
		WX-48060	4.8	60	130	60	105
		WX-48070	4.8	70	140	60	105
		WX-48080	4.8	80	150	60	105
		WX-48100	4.8	100	170	60	105

## Product information (cont.)

Size	Product Code	Screw	Screw		Fixture	Diameter	Length
			Diameter	Length	Max. thickness		
			d	L	t <sub>fix</sub>	D	L
			[mm]			[mm]	
KCX with selfdrilling screw to metal sheet							
Ø4.8	KCX-165	WX-48050	4.8	50	180	60	165
		WX-48060	4.8	60	190	60	165
		WX-48070	4.8	70	200	60	165
		WX-48080	4.8	80	210	60	165
		WX-48100	4.8	100	230	60	165
		WX-48120	4.8	120	250	60	165
		WX-48140	4.8	140	270	60	165
		WX-48160	4.8	160	290	60	165
		WX-48180	4.8	180	310	60	165
		WX-48200	4.8	200	330	60	165
		WX-48240	4.8	240	370	60	165
		WX-48300	4.8	300	430	60	165
KCX with screw to metal sheet							
Ø4.8	KCX-055	WO-48060	4.8	60	80	60	55
		WO-48080	4.8	80	100	60	55
		WO-48100	4.8	100	110	60	55
	KCX-105	WO-48060	4.8	60	130	60	105
		WO-48080	4.8	80	150	60	105
		WO-48100	4.8	100	170	60	105
	KCX-165	WO-48060	4.8	60	190	60	165
		WO-48080	4.8	80	210	60	165
		WO-48100	4.8	100	230	60	165
		WO-48120	4.8	120	250	60	165
		WO-48140	4.8	140	270	60	165
		WO-48160	4.8	160	290	60	165
		WO-48180	4.8	180	310	60	165
		WO-48200	4.8	200	330	60	165
		WO-48240	4.8	240	370	60	165
		WO-48300	4.8	300	430	60	165
KCX with screw to concrete							
Ø6.1	KCX-055	WBT-61075	6.1	75	90	60	55
		WBT-61100	6.1	100	110	60	55
	KCX-105	WBT-61075	6.1	75	140	60	105
		WBT-61100	6.1	100	160	60	105
		WBT-61120	6.1	120	180	60	105
	KCX-165	WBT-61075	6.1	75	200	60	165
		WBT-61100	6.1	100	230	60	165
		WBT-61120	6.1	120	250	60	165
		WBT-61140	6.1	140	270	60	165
		WBT-61160	6.1	160	290	60	165
		WBT-61180	6.1	180	310	60	165
		WBT-61200	6.1	200	330	60	165
		WBT-61220	6.1	220	430	60	165
		WBT-61240	6.1	240	450	60	165
		WBT-61260	6.1	260	470	60	165
		WBT-61300	6.1	300	510	60	165



## Installation data

Substrate			Timber		Steel	Concrete
Fixing diameter	d	[mm]	5	6	4.8	6.1
Installation depth	h <sub>nom</sub>	[mm]	20	25	-	40
Min. substrate thickness	h <sub>min</sub>	[mm]	20	25	0.75	70
Min. spacing	s <sub>min</sub>	[mm]	100	100	120	120
Min. edge distance	c <sub>min</sub>	[mm]	100	100	30	50

## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Concrete				Steel			Timber			OSB
Embedment depth h <sub>ef</sub>	[mm]	30	0.5	0.63	0.75	0.88	19	20	24	30	18	
CHARACTERISTIC LOAD N <sub>rk</sub>												
KCX + UC ø5	[kN]	-	-	-	-	-	-	1.78	-	-	-	-
KCX + UC ø6	[kN]	-	-	-	-	-	-	-	1.78	-	-	-
KCX + WO ø4.8	[kN]	-	0.96	1.04	1.54	-	1.78	-	-	-	-	1.78
KCX + WX ø4.8	[kN]	-	-	-	1.30	1.78	-	-	-	-	-	-
KCX + WBT ø6.1	[kN]	1.78	-	-	-	-	-	-	-	-	1.78	-
DESIGN LOAD N <sub>Rd</sub>												
KCX + UC ø5	[kN]	-	-	-	-	-	-	0.89	-	-	-	-
KCX + UC ø6	[kN]	-	-	-	-	-	-	-	0.89	-	-	-
KCX + WO ø4.8	[kN]	-	0.48	0.52	0.77	-	0.89	-	-	-	-	0.89
KCX + WX ø4.8	[kN]	-	-	-	0.65	0.89	-	-	-	-	-	-
KCX + WBT ø6.1	[kN]	0.89	-	-	-	-	-	-	-	-	0.89	-

## Recommended bits

Indeks	Diameter	Total length of drill	Quantity	Bar Codes
	[mm]	[L]	[pcs]	
BRICKDRILL SDS-PLUS				
RT-BIT-PH2/100	8	100	1	5906675900308
RT-BIT-PH2/150	8	150	1	5906675900407
RT-BIT-PH2/200	8	200	1	5906675900506
RT-TORX25/100	8	100	1	5906675900308
RT-TORX25/150	8	150	1	5906675900407
RT-TORX25/200	8	200	1	5906675100234

## Product commercial data

Product Code	Length [mm]	Quantity [pcs]			Weight [kg]			Bar Codes
		Box	Outer	Pallet	Box	Outer	Pallet	
KCX-055	55	400	400	9600	4.2	4.2	130.8	5906675078984
KCX-105	105	250	250	3600	3.6	3.6	81.5	5906675078991
KCX-165	165	150	150	6000	2.9	2.9	145.2	5906675079004

## KC Insulation Washers

Insulation washer with integral cap suitable for attachment of insulation layers to wooden and sheet metal substrates



### Product information

#### Features and benefits

- Recommended for the attachment of ETICS to wooden substrates using UC screws, or to sheet metal using WB screws.
- Special design of integral fastener cap allows reduction of thermal bridges.
- Consistent and reliable holding force.
- Quick, simple and clean installation.
- Can be used in combination with additional KWL plate - 90, 110 or 140mm diameter.

#### Applications

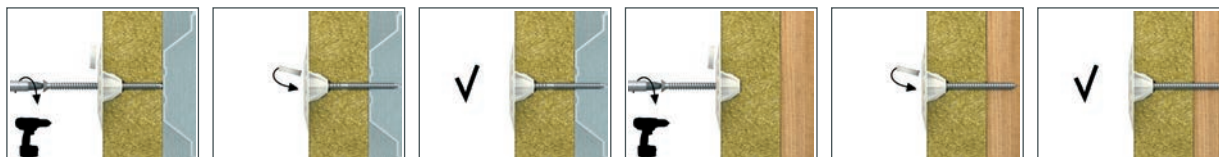
- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Mineral wool
- Polyurethane (PU) boards

#### Base materials

##### Approved for use in:

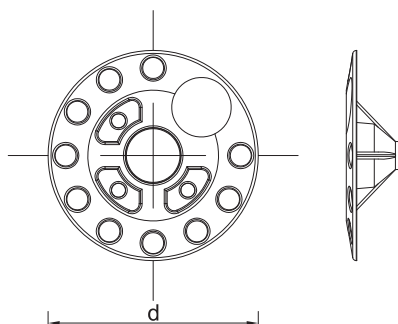
- Metal Sheet & Profiles
- Wood

### Installation guide



1. Lightly insert KC washer into surface of insulation material.
2. Drive the required screw through the washer and insulation material into the substrate, until fixing depth is reached.
3. In wooden substrates the washer is recommended for use with the UC chipboard screw.
4. In sheet metal the washer is recommended for use with either the WB or WX self-drilling screw.
5. Lightly insert KC washer into surface of insulation material.
6. Drive the required screw through the washer and insulation material into the substrate, until fixing depth is reached.
7. In sheet metal the washer is recommended for use with either the WB or WX self-drilling screw.

## Product information



Size	Product Code	Fixing			Fixture
		Screw diameter	Length	Plate diameter	Max. thickness
		d	L	D	t <sub>fix</sub>
		[mm]			
KC with screw to wood					
Ø5	R-KC + UC-5050	5	50	60	30
	R-KC + UC-5060	5	60	60	40
	R-KC + UC-5070	5	70	60	50
	R-KC + UC-5080	5	80	60	60
	R-KC + UC-5090	5	90	60	70
	R-KC + UC-50100	5	100	60	80
Ø6	R-KC + UC-60100	6	100	60	75
	R-KC + UC-60120	6	120	60	95
	R-KC + UC-60140	6	140	60	115
	R-KC + UC-60160	6	160	60	135
	R-KC + UC-60200	6	200	60	175
KC with selfdrilling screw to steel sheet					
Ø5	R-KC + WB-48100	4.8	100	60	90
	R-KC + WB-48120	4.8	120	60	110
	R-KC + WB-48140	4.8	140	60	130
	R-KC + WB-48160	4.8	160	60	150
	R-KC + WB-48170	4.8	170	60	160
	R-KC + WB-48180	4.8	180	60	170
	R-KC + WB-48200	4.8	200	60	190
	R-KC + WB-48220	4.8	220	60	210

## Installation data

Substrate			Timber		Steel
Fixing diameter	d	[mm]	5	6	4.8
Installation depth	h <sub>nom</sub>	[mm]	20	25	0.75
Min. substrate thickness	h <sub>min</sub>	[mm]	20	25	0.75
Min. spacing	s <sub>min</sub>	[mm]	100	100	100
Min. edge distance	c <sub>min</sub>	[mm]	100	100	100

## Basic performance data

Performance data for single anchor in tension without influence of edge distance and spacing

Substrate		Steel	Timber	Timber
Embedment depth $h_{ef}$	[mm]	0.75	20	25
MEAN ULTIMATE LOAD $N_{Rk,m}$				
R-KC + UC ø5	[kN]	-	0.78	-
R-KC + UC ø6	[kN]	-	-	0.98
R-KC + WB	[kN]	0.86	-	-
CHARACTERISTIC LOAD $N_{Rk}$				
R-KC + UC ø5	[kN]	-	0.73	-
R-KC + UC ø6	[kN]	-	-	0.91
R-KC + WB	[kN]	0.81	-	-
DESIGN LOAD $N_{Rd}$				
R-KC + UC ø5	[kN]	-	0.24	-
R-KC + UC ø6	[kN]	-	-	0.30
R-KC + WB	[kN]	0.44	-	-
RECOMMENDED LOAD $N_{rec}$				
R-KC + UC ø5	[kN]	-	0.17	-
R-KC + UC ø6	[kN]	-	-	0.22
R-KC + WB	[kN]	0.31	-	-

## Product commercial data

Product Code	Quantity [pcs]			Weight [kg]			Bar Codes
	Box	Outer	Pallet	Box	Outer	Pallet	
R-KC	200	200	22 400	1.248	1.248	139.78	5906675262567



## KWL Insulation retaining plate

Insulation retaining plate for use in combination with facade fixings from TFIX and KI ranges



### Approvals and Reports

- ETA-07/0221
- ETA-07/0291
- ETA-07/0336
- ETA-11/0144
- ETA-13/0845



### Product information

#### Features and benefits

- Quick and easy application possible with all ETICS fixings.
- Nylon versions ideal for enhanced plate stiffness.
- Polypropylene standard versions are recommended for cost-effective applications.
- A versatile solution for many insulation scenarios.

#### Applications

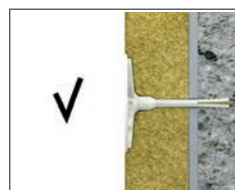
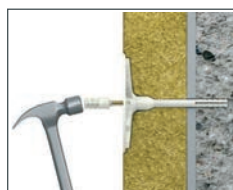
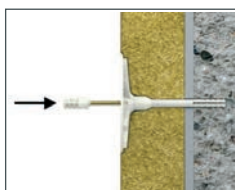
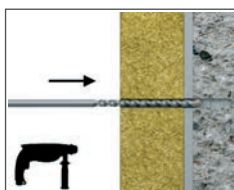
- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Mineral wool
- Polyurethane (PU) boards

#### Base materials

Approved for use in:

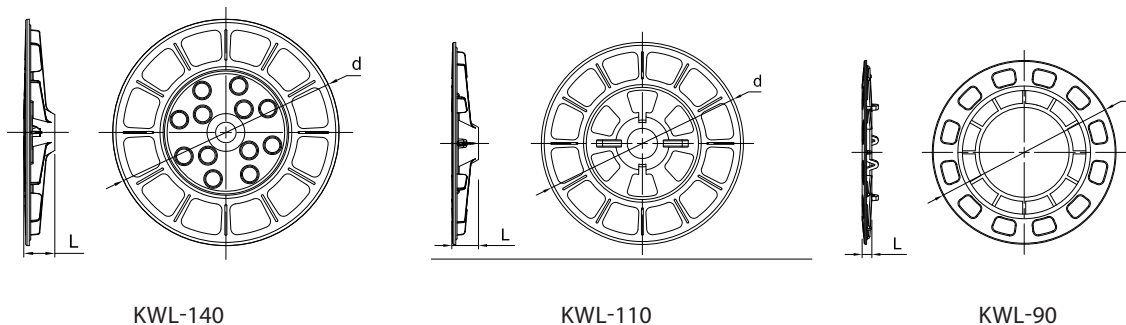
- Polystyrene (EPS) boards
- Mineral Wool Boards

### Installation guide



1. Insert chosen TFIX or KI fixing through hole in centre of KWL flange.
2. Follow installation procedure for relevant TFIX or KI fixing.

## Product information

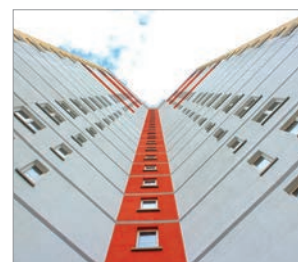


## Product commercial data

Size	Product Code	Fixing			Quantity [pcs]			Weight [kg]			Bar Codes
		Screw diameter [mm]	Length [mm]	Plate diameter [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
Ø90	R-KWL-090	90	15	60	200	200	11200	1.64	1.64	121.8	5906675217154
Ø110	R-KWL-110	110	15	60	200	200	3200	3.2	3.2	80.6	5906675207179
Ø120	R-KWL-140	140	15	60	200	200	2400	5.0	5.0	89.4	5906675217048

## MKC/MKC-A2 Washers

Metal washer for use in combination with metal facade fixings from MBA range



### Approvals and Reports

- AT-15-8092/2009
- AT-15-8092/2009 - Annex 1 & 2

### Version:

- MKC - Steel
- MKC-A2 - Stainless steel

## Product information

### Features and benefits

- Fire resistant washer
- Washer to suit all types of compressible thermal insulation materials
- Quick and easy application
- A versatile solution for many insulation scenarios.

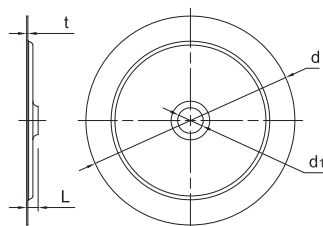
### Applications

- Polystyrene (EPS) boards
- Polyurethane (PU) boards
- Mineral wool
- Light wood wool boards
- Cork boards

## Installation guide

1. Insert MBA fixing through hole in centre of MKC washer.
2. Follow installation procedure for relevant MBA fixing.

## Product information



Product Code	Diameter	Inside diameter	Thickness	Length
	d	d <sub>1</sub>	t	L
	[mm]			[m]
MKC	80	8.5	0.5	3
MKC-A2	80	8.5	0.5	3





## ACCESSORIES

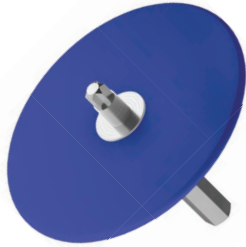
- Setting tools
- Insulation caps
- Drill bits
- Iso-Plug Insulation fixings
- Polyurethane Adhesive
- FTF Firtree Fixing
- PD Spacer disc
- Hammer-in fixing
- Scaffolding hook





## TFIX-8ST-TOOL/ TFIX-8S-TOOL Setting tool

Accessory for installation of screw fixing TFIX-8ST/TFIX-8S with T40 bit



### Product information

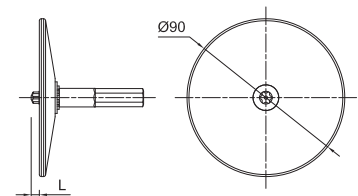
#### Features and benefits

- Integrated disc facilitates optimum TFIX-8S installation, setting the flange flush with the surface of the insulation
- User-friendly - enables fast and easy installation
- Torx-40 bit type

#### Applications

- Façade construction (ETICS)
- Polystyrene boards
- Polyurethane boards
- Mineral wool

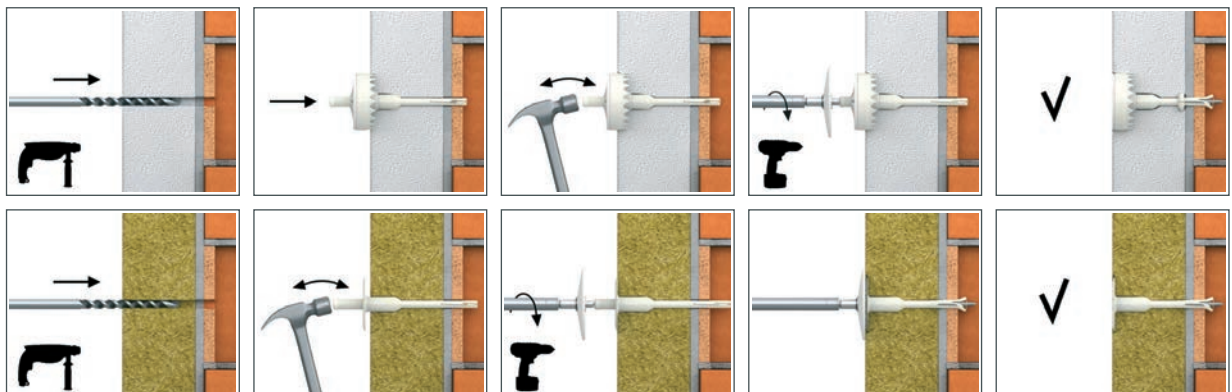
#### Product information



### Product commercial data

Product Code	Bite type	Size		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [m]	Box	Outer	Pallet	Box	Outer	Pallet	
TFIX-8ST-TOOL	torx-40	90	15	1	1	210	0.30	0.30	93.0	5906675056654
TFIX-8S-TOOL	torx-40	90	4	1	1	210	0.30	0.30	93.0	5906675032450

### Installation guide



1. Drill a hole of required diameter and depth,
2. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached
3. When using the TFIX-DEVICE the teeth should be embedded in the insulation material after hammering.
4. Embedment depth of min 25mm in A,B,C,D materials and 65mm in Aerated Concrete Block
5. Drilling depth of min 40mm in A,B,C,D materials and 80mm in Aerated Concrete Block
6. Apply steady axial pressure, ensuring the disc of the setting tool is kept perpendicular to the fixing axis.

## Insulation caps for TFIX-ST-ECO

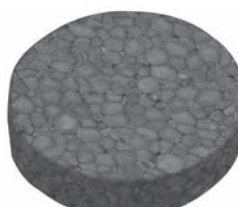
Post-installed cap reduces heat transmission and results in a homogenous insulation surface recommended to TFIX-8ST-ECO



White Polystyrene



Mineral Wool



Grey Polystyrene



### Product information

#### Features and benefits

- Post-installed cap reduces heat transmission at fixing points
- Results in homogeneous and smooth insulation surface
- Cost-saving solution, as countersunk installation allows selection of shorter fixings.

#### Applications

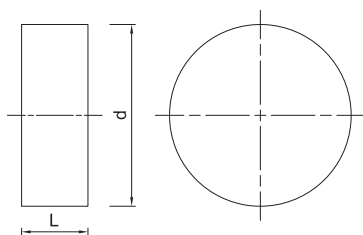
- Façade construction (ETICS)
- Polystyrene boards
- Polyurethane boards
- Mineral wool

#### Base materials

Approved for use in:

- Polystyrene (EPS) boards
- Mineral Wool Boards

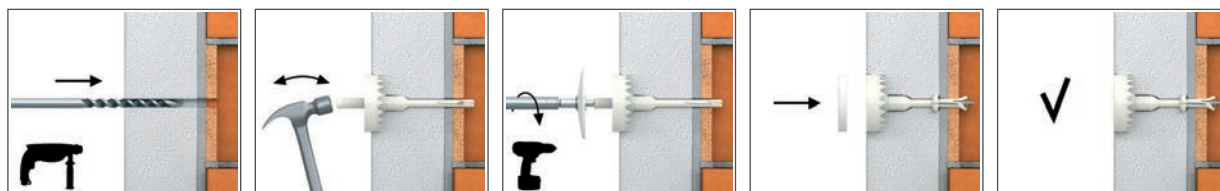
### Product information



### Product commercial data

Product Code	Material	Size		Quantity [pcs]		Weight [kg]		Bar Codes
		Diameter [mm]	High [mm]	Box	Outer	Box	Outer	
TFIX-8S-EPS	white polystyrene	62	10	100	100	0.08	0.08	5906675056692
TFIX-8S-EPS-GREY	grey polystyrene	62	10	100	100	0.08	0.08	5906675078717
TFIX-8S-MW	mineral wool	62	10	100	100	0.08	0.08	5906675056708

### Installation guide



1. Pre-assemble TFIX-8S-SETTING DEVICE with TFIX-8S fixing and then make installation of screw fixing
2. Drill a hole of required diameter and depth
3. Lightly tap the plastic sleeve through the insulation material into hole with a hammer, until fixing depth is reached
4. Tighten screw (using special TFIX-8ST-TOOL setting tool) until fixing is secure and flush with insulation material
5. Embedment depth of min 25mm in A,B,C,D materials and 65mm in Aerated Concrete Block
6. Drilling depth of min 40mm in A,B,C,D materials and 80mm in Aerated Concrete Block
7. Insert cap into countersunk hole in insulation

## Caps KES/KES-MW for use with KI-10, KI-10N, KI-10NS

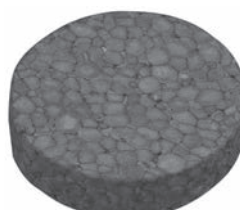
Post-installed polystyrene cap reduces heat transmission and results in a homogenous insulation surface



White Polystyrene



Mineral Wool



Grey Polystyrene



### Product information

#### Features and benefits

- Post-installed cap reduces heat transmission at fixing points
- Results in homogeneous and smooth insulation surface
- Cost-saving solution, as countersunk installation allows selection of shorter fixings.
- Quick and easy application

#### Applications

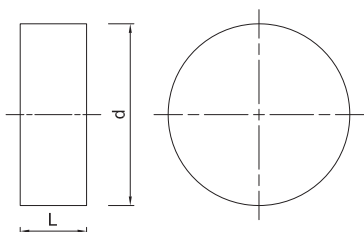
- Façade construction (ETICS)
- Polystyrene (EPS) boards
- Polyurethane (PU) boards
- Mineral wool

#### Base materials

##### Approved for use in:

- Polystyrene (EPS) boards
- Mineral Wool Boards

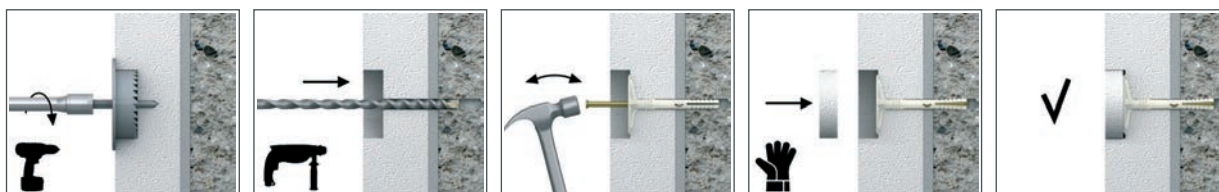
### Product information



### Product commercial data

Product Code	Material	Diameter [mm]	High [mm]	Quantity [pcs]			Weight [kg]		
				Box	Outer	Pallet	Box	Outer	Pallet
R-KES	white polystyrene	68	17.5	250	250	6000	0.28	0.28	36.7
R-KES-GREY	grey polystyrene	68	17.5	250	250	6000	0.28	0.28	36.7
R-KES-MW-65	mineral wool	65	17.5	250	250	10000	0.53	0.53	51.0

### Installation guide



1. Cut the hole in polystyrene with KFS tool.
2. Insert cap into countersunk hole in polystyrene following installation of the facade fixing

## KFS Counterbore Cutter

Cutter accessory for counterbored installation of hammer-in facade fixings



### Product information

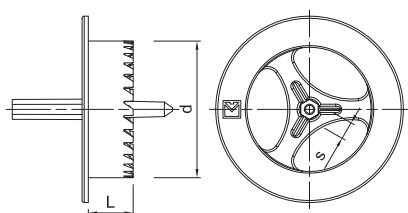
#### Features and benefits

- Precise tool construction allows to cut polystyrene, polyurethane and mineral wool boards
- Countersunk installation (with post-installed insulation cap) reduces heat transmission and results in a homogenous insulation surface.
- Cost-saving solution, as countersunk installation allows selection of shorter fixings.
- KFS-tool recommended for polystyrene boards.
- KFS-MW-65 recommended for mineral wool boards.

#### Applications

- External Thermal Insulation Composite Systems (ETICS)
- Polystyrene (EPS) boards
- Polyurethane (PU) boards
- Mineral wool

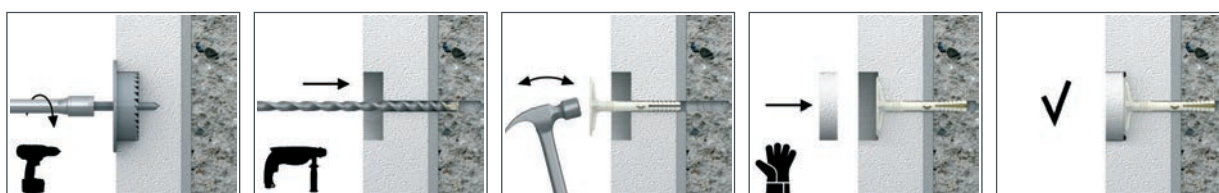
### Product information



### Product commercial data

Product Code	Material	Hole diameter [mm]	Length [mm]	Quantity [pcs]			Weight [kg]			Bar Codes
				Box	Outer	Pallet	Box	Outer	Pallet	
R-KFS	polystyrene	68	18	1	10	864	0.10	1.00	116.4	5906675212166
R-KFS-MW-65	mineral wool	65	18	1	10	864	0.10	1.00	116.4	5906675212166

### Installation guide



1. Cut the hole in insulation board
2. Insert cap into countersunk hole in insulation board following installation of the facade fixing



# RT-SDSA Aggressor SDS plus

Drill bits for fast drilling in concrete



## Product information

### Features and benefits

- Self-aligning drill bit tip enables quick and easy start drilling at the marked spot
- Increased angle plates to 160° results in faster drilling in concrete
- Very deep seating of carbide plate significantly increases the durability of the connection to the core drill which improves the quality of the drill
- Aggressive flutes increase dust extraction and accelerate drilling
- Drilling speed increased by 30%
- Extremely high durability confirmed by the international certificate SicherSafe

### Base materials

Approved for use in:

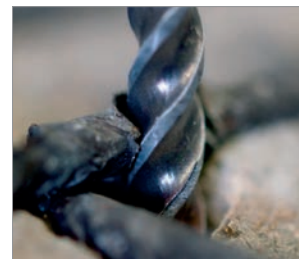
- Concrete
- Solid Brick
- Hollow Brick
- Natural Stone
- Aerated Concrete Block

## Product commercial data

Product Code	Diameter	Length	Working length	Quantity [pcs]	Bar Codes
	[ø]	[mm]	[mm]	Box	
RT-SDSA-8/160	8	160	100	1	5906675027944
RT-SDSA-8/160B12	8	160	100	12	5906675063546
RT-SDSA-8/210	8	210	150	1	5906675027968
RT-SDSA-8/260	8	260	200	1	5906675027937
RT-SDSA-8/310	8	310	250	1	5906675027975
RT-SDSA-8/310	8	310	250	12	5906675063508
RT-SDSA-8/410	8	410	350	1	5906675114873
RT-SDSA-8/460	8	460	400	1	5906675114880
RT-SDSA-8/610	8	610	550	1	5906675064468
RT-SDSA-10/160	10	160	100	1	5906675026602
RT-SDSA-10/160B12	10	160	100	12	5906675026602
RT-SDSA-10/210	10	210	150	1	5906675026619
RT-SDSA-10/260	10	260	200	1	5906675026626
RT-SDSA-10/310	10	310	250	1	5906675028002
RT-SDSA-10/310B12	10	310	250	12	5906675063508
RT-SDSA-8/460	10	460	400	1	5906675114910

## RT-SDSR Rebardrill SDS plus

High quality drill bits for reinforced concrete



### Informacja o produkcie

#### Features and benefits

- The monolithic carbide plate greatly increases the life of the drill
- Self-aligning drill bit tip enables quick and easy start drilling at the marked spot
- 3 symmetrical points of contact of the bit with the substrate allows drilling perfectly straight and cylindrical holes
- Very deep seating of carbide plate significantly increases the durability of the connection to the core drill which improves the quality of the drill
- Suitable Approach angle Plate 135° allows for drilling in reinforced concrete
- 3 areas of dust extraction and special shape make it easy to remove the dust
- Drill bit core subjected to special thermal treatment what increases the working life
- Drilling without damage the substrate even near edges

#### Base materials

Approved for use in:

- Reinforced concrete
- Concrete
- Natural Stone
- Solid Concrete Block
- Solid Brick

### Product commercial data

Product Code	Diameter	Length	Working length	Quantity [pcs]	Bar Codes
	[ø]	[mm]	[mm]	Box	
RT-SDSR-8/160	8	160	100	1	5906675046044
RT-SDSR-8/160B12	8	160	100	12	5906675063546
RT-SDSR-8/210	8	210	150	1	5906675046051
RT-SDSR-8/260	8	260	200	1	5906675046068
RT-SDSR-8/310	8	310	250	1	5906675046075
RT-SDSR-8/310B12	8	310	250	12	5906675063577
RT-SDSR-8/460	8	460	400	1	5906675046082
RT-SDSR-10/160	10	160	100	1	5906675046099
RT-SDSR-10/160B12	10	160	100	12	5906675063607
RT-SDSR-10/210	10	210	150	1	5906675046105
RT-SDSR-10/260	10	260	200	1	5906675046112
RT-SDSR-10/310	10	310	250	1	5906675046136
RT-SDSR-10/310B12	10	310	250	12	5906675046075
RT-SDSR-10/460	10	460	400	1	5906675063614

## RT-SDSB Brickdrill SDS plus

Fast drilling into ceramic and terracotta bricks without hammer action



### Product information

#### Features and benefits

- Tip angle 120° allows for fast drilling of holes in ceramic material without damage
- Short drill bit flute accelerates dust extraction between the slots of ceramic brick
- Drilling without hammering
- Perfect straight hole without damaging the ceramic brick
- Also suitable for aerated concrete
- Long drill bit shank allows to drill deep holes also by insulation
- Extremely high durability confirmed by the international certificate SicherSafe

#### Applications

- Drilling in ceramic hollow bricks
- Suitable for use with SDS plus Rotary Hammer

#### Base materials

Approved for use in:

- Hollow Brick
- Aerated Concrete Block

### Product commercial data

Product Code	Diameter	Length	Working length	Quantity [pcs]	Bar Codes
	[Ø]	[mm]	[mm]	Box	
RT-SDSB-8/260	8	260	200	1	5906675046310
RT-SDSB-8/310	8	310	250	1	5906675047553
RT-SDSB-8/460	8	460	400	1	5906675047918
RT-SDSB-10/260	10	160	200	1	5906675046334
RT-SDSB-10/310	10	310	250	1	5906675047560
RT-SDSB-10/460	10	460	400	1	5906675047560

## ISO-PLUG Insulation fixings

For fastening lightweight fixtures on insulated facades



### Product information

#### Features and benefits

- No thermal bridging.
- Can be installed with commercial drill/drive tool.
- The geometry of the ISO-PLUG allows for a simple installation in thin layers of plaster, without the need for pre-drilling, thus saving a stage of installation
- Fixtures are fixed with a 4 - 4.5mm screw

#### Applications

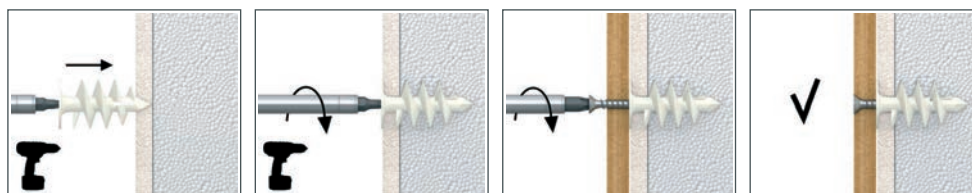
- Façade construction (ETICS)
- Attachments to insulation
- Lightweight recycled panels
- Electrical fittings
- Refrigeration and climate control

#### Base materials

##### Approved for use in:

- Polystyrene (EPS) boards
- Mineral Wool Boards

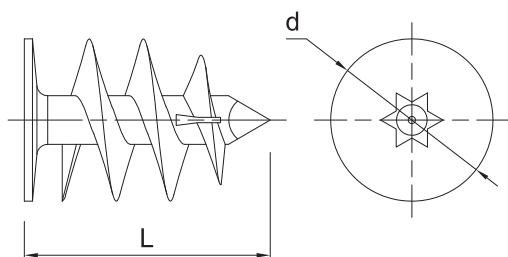
### Installation guide



1. Drive ISO-PLUG into the insulation material (manually, or with an electric screwdriver) until installation depth reached.
2. Insert screw of required diameter into plug through fixture and tighten.
3. Fixtures are fixed with a 4,5mm screw



## Product information



Product Code	Plug			Recommended screw diameter
	Length	Plate diameter	Screw length inside plug	
	L	d		
	[mm]			
ISO-PLUG-50	52	27	40	4
ISO-PLUG-80	82	27	70	4

## Installation data

Substrate			Insulation Board	
Bite type			torx-30	torx-30
Fixing diameter	d	[mm]	27	27
Installation depth	$h_{nom}$	[mm]	50	80
Min. substrate thickness	$h_{min}$	[mm]	100	100
Min. spacing	$s_{min}$	[mm]	100	100
Min. edge distance	$c_{min}$	[mm]	100	100

## Basic performance data

Substrate		Insulation Board	
MEAN ULTIMATE LOAD $F_{Ru,m}$			
ISO-PLUG-50	[kN]	0.14	
ISO-PLUG-80	[kN]	0.24	
CHARACTERISTIC LOAD $F_{Rk}$			
ISO-PLUG-50	[kN]	0.11	
ISO-PLUG-80	[kN]	0.20	
DESIGN LOAD $F_{Rd}$			
ISO-PLUG-50	[kN]	0.05	
ISO-PLUG-80	[kN]	0.10	
RECOMMENDED LOAD $F_{rec}$			
ISO-PLUG-50	[kN]	0.04	
ISO-PLUG-80	[kN]	0.07	

## Product commercial data

Product Code	Plug	Quantity [pcs]			Weight [kg]			Bar Codes
	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
ISO-PLUG-50	52	50	600	22000	0.31	3.7	166.4	5901764904144
ISO-PLUG-80	82	40	480	8640	0.25	3.0	84.0	5901764904151

## ISO-PLUG-80-XL Insulation fixings maxi

For fastening lightweight fixtures on insulated facades



### Product information

#### Features and benefits

- No thermal bridging.
- Can be installed with commercial drill/drive tool.
- Fixtures are fixed with a 6-7 mm screw
- The geometry of the ISO-PLUG allows for a simple installation in thin layers of plaster, without the need for pre-drilling, thus saving a stage of installation

#### Applications

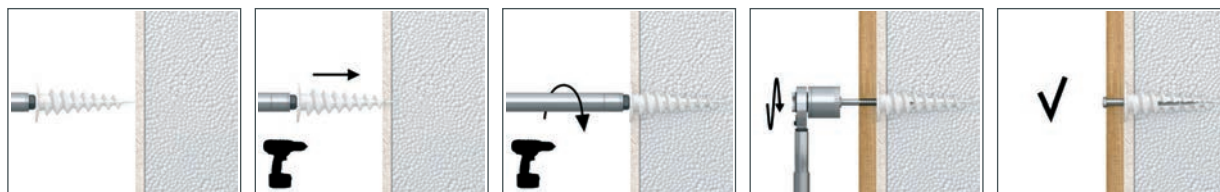
- Attachments to insulation
- Electrical fittings
- Refrigeration and climate control
- Lightweight recycled panels

#### Base materials

Suitable for use in:

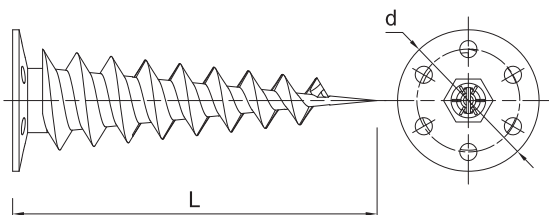
- Polystyrene (EPS) boards
- Mineral Wool Boards

### Installation guide



1. Drive ISO-PLUG into the insulation material (manually, or with an electric screwdriver) until installation depth reached.
2. Insert screw of required diameter into plug through fixture and tighten.
3. Fixtures are fixed with 6-7 mm screw.

## Product information



Product Code	Plug			Recommended screw diameter
	Length	Plate diameter	Screw length inside plug	
	L	d		
	[mm]			
ISO-PLUG-80-XL	86	33	60	6-7

## Installation data

Substrate			Insulation Board
Bite type			Hex
Fixing diameter	d	[mm]	33
Installation depth	$h_{nom}$	[mm]	80
Min. substrate thickness	$h_{min}$	[mm]	100
Min. spacing	$s_{min}$	[mm]	100
Min. edge distance	$c_{min}$	[mm]	100

## Basic performance data

Substrate		Insulation Board	
MEAN ULTIMATE LOAD $F_{Ru,m}$			
ISO-PLUG-80-XL	[kN]	0.16	
CHARACTERISTIC LOAD $F_{Rk}$			
ISO-PLUG-80-XL	[kN]	0.12	
DESIGN LOAD $F_{Rd}$			
ISO-PLUG-80-XL	[kN]	0.06	
RECOMMENDED LOAD $F_{rec}$			
ISO-PLUG-80-XL	[kN]	0.04	

## Product commercial data

Product Code	Plug	Quantity [pcs]			Weight [kg]			Bar Codes
	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
ISO-PLUG-80-XL	86	25	300	18000	0.55	6.6	424.2	5906675034294

## RPP-FIX Polyurethane Adhesive

Polyurethane adhesive with for bonding XPS and EPS boards



### Product information

#### Features and benefits

- Fixing possible just two hours after application.
- One product for thermal insulation of facades (EPS) and foundations (XPS).
- Highly efficient - coverage of about 8m<sup>2</sup> facades and approx 12m<sup>2</sup> foundations.
- Thermal insulation of foundations possible at working temperatures of -5 degrees
- Portable - no requirement for access to water and electricity.
- Installation and sealing of window sills
- High strength characteristics and excellent adhesion to common construction materials

#### Applications

- For bonding expanded polystyrene boards (EPS) on facade installations
- For bonding extruded polystyrene (XPS) on building foundations
- For bonding expanded polystyrene insulation
- For bonding and insulation of wall panels, corrugated sheets, roof tiles, etc.
- Thermal insulation of roofing (including flat roofs)
- Thermal insulation of plumbing and central heating
- Fixing (for installation of doors and windows)
- Installation & sealing of window sills
- Filling gaps in the thermal insulation of buildings

#### Base materials

##### Approved for use in:

- Aerated Concrete Block
- Chipboard
- Concrete
- Concrete Slab
- Cracked Concrete
- High-Density Natural Stone
- Hollow Brick
- Hollow Lightweight Concrete Block
- Hollow Sand-lime Brick
- Hollow-core Slab
- Lightweight Concrete Block
- Natural Stone
- Non-cracked Concrete
- Oriented Strand Board
- Plasterboard
- Plastic
- Plywood

### Installation guide

1. Wear protective gloves. Ensure surfaces are free from dust, dirt, lime or grease. If the wall surface is dirty it must be primed.
2. Before adhering polystyrene board, starter track must be installed.
3. Shake can vigorously a dozen or so times and attach applicator gun.
4. For adhesion of foamed polystyrene facade insulation, apply a braid of Styrofix (approx. 3 cm wide) around the perimeter of polystyrene boards (approx. 2 cm from the edge), with an additional strip across the centre of the board.



## Installation guide (cont.)

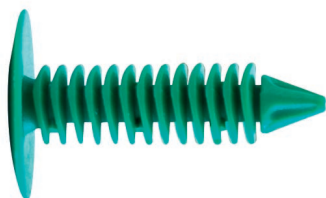
5. For adhesion of extruded polystyrene foam (XPS) on foundations, apply Stryrofix in 4 vertical braids (approx. 3 cm wide) maintaining equal spacing of 20-30 cm between the strips. Ensure 3 cm clearance from the edge of the board (for boards wider than 100 cm, more braids should be applied).
6. Allow 3 – 4 minutes after application of Styrofix before mounting insulation to the facade or foundation.
7. After mounting, adjust board to the desired position. Board adjustment is only possible for up to 10 minutes after adhesion.
8. After removing the applicator gun from the can, wipe down the nozzle and gun (internal and external surfaces) using a cleaner.

## Product commercial data

Product Code	Quantity [pcs]			Weight [kg]			Bar Code
	Box	Outer	Pallet	Box	Outer	Pallet	
RPP-FIX	12	12	672	10.88	10.88	609.50	5906675251417

## FTF Firtree fixing

Firtree Fixings securely fasten surface mounted beads into the insulation



### Product information

#### Features and benefits

- Simple and quick to install.
- Plastic ribs flex to grip the substrate  
Can be installed through base coat render

#### Applications

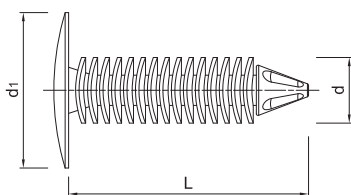
- ETICS beads & trims

#### Base materials

Suitable for use in:

- Most insulation materials

### Product information



### Installation guide

1. The fixings can be easily pushed in by hand.
2. When fixing through base coat they may be tapped lightly with a hammer.
3. Use 3 fixings per linear metre.

### Product commercial data

Product Code	Length [m]	d [mm]	Diameter [mm]	Quantity [pcs]			Weight [kg]			Bar Codes
				Box	Outer	Pallet	Box	Outer	Pallet	
FTF-029-BLACK	29	7.5	18	1000	1000	64000	0.89	0.89	87.0	5906675090887
FTF-029-GREEN	29	7.5	18	1000	1000	64000	0.89	0.89	87.0	5906675090870

## PD Spacer disc

Essential for correct installation of base tracks and ETICS rails



### Product information

#### Features and benefits

- Designed for use with different fasteners in diameters 6,8 & 10mm
- Colour coded for quick and easy size identification
- For levelling out facade tolerances: lengths can be combined (3,5,8,10,15mm)
- Simple installation.

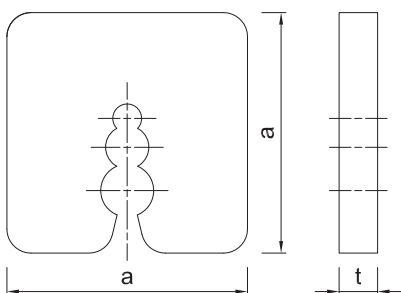
#### Applications

- ETICS rails
- Base track

### Installation guide

1. Simply clip onto the anchor between wall and rail
2. For anchor diameters 6mm, 8mm and 10mm.
3. Sorted by colour

### Product information

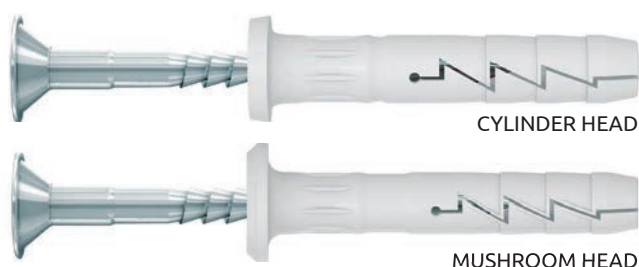


### Product commercial data

Product Code	Size a [mm]	Thickness [mm]	Quantity [pcs]			Weight [kg]			Bar Codes
			Box	Outer	Pallet	Box	Outer	Pallet	
PD-03	40	3	25	600	19200	0.14	3.4	137.5	5906675005614
PD-05	40	5	25	600	19200	0.17	4.1	160.6	5906675005621
PD-08	40	8	25	450	14400	0.23	4.1	162.5	5906675005638
PD-10	40	10	25	300	9600	0.28	3.4	137.5	5906675005645
PD-15	40	15	25	300	9600	0.32	3.8	152.9	5906675005652

## R-FX-N HAMMER-IN Fixing

The hammer fixing for fast, simple, cost-effective installations.



### Approvals and Reports

- ETA-12/0457
- ETA-13/0088



### Versions:

- FX-C with cylinder head
- FX-K with mushroom head

## Product information

### Features and benefits

- Rapid hammer-set installation reduces the time required and allows for cost-effective, high-volume installation.
- Cylinder head prevents plug slipping into over-sized holes and allows fix thin elements
- Combination of Phillips recess and the helical thread makes removal of the nail possible, facilitating disassembly when necessary.
- The extensive range of product lengths, diameters and head types ensures availability of the correct fixing for every scenario.
- Designed for push-through installation.
- Nylon material for best quality

### Applications

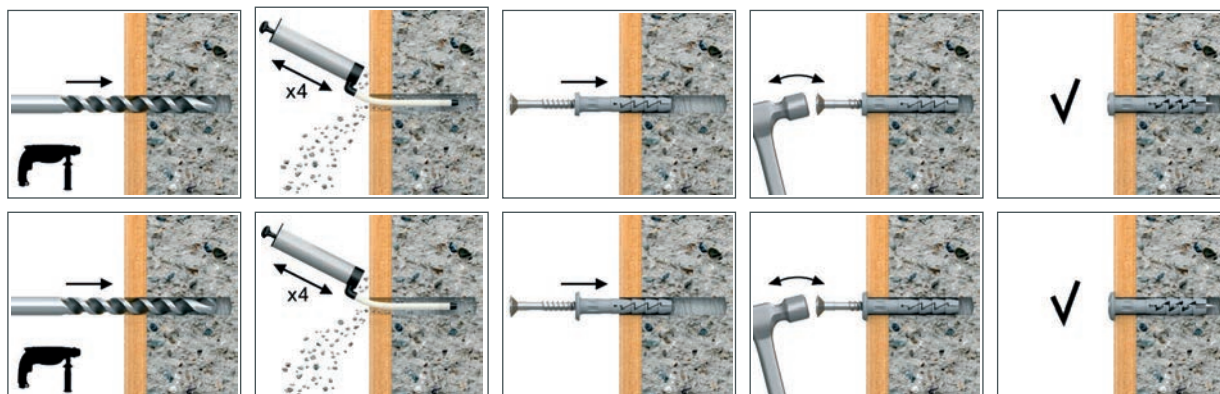
- Timber or metal battens
- Drywall structures
- Skirting / Dado railing
- Cable clamps
- Pipe clamps
- Sheeting

### Base materials

#### Approved for use in:

- Concrete
- Solid Brick
- Solid Sand-lime Brick
- Hollow Sand-lime Brick
- Lightweight Concrete Block
- Hollow Lightweight Concrete Block
- Aerated Concrete Block

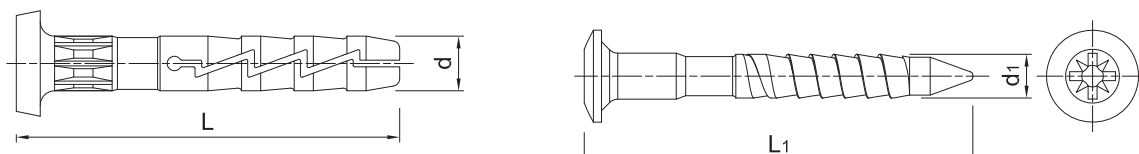
## Installation guide



1. Drill a hole of required diameter.
2. Insert FX plug into hole through fixture.



## Product information



Size	Product Code	Material	Plug		Fixture	
			Diameter	Length	Max. thickness	Hole diameter
			d	L	t <sub>fix</sub>	d <sub>f</sub>
			[mm]			
FX-N-C NYLON HAMMER-IN Fixing with cylinder head/FX-C HAMMER-IN Fixing with cylinder head						
Ø8	R-FX-N-08C045	nylon	8	45	5	9
	R-FX-N-08C060	nylon	8	60	20	9
	R-FX-N-08C080	nylon	8	80	40	9
	R-FX-N-08C100	nylon	8	100	60	9
FX-N-K NYLON HAMMER-IN Fixing with mushroom head/FX-K HAMMER-IN Fixing with mushroom head						
Ø6	R-FX-N-06K040	nylon	6	40	11	7
	R-FX-N-06K060	nylon	6	60	31	7

## Installation data

Size			Ø6	Ø8
Fixing diameter	d	[mm]	6	8
Hole diameter in substrate	d <sub>0</sub>	[mm]	6	8
Min. hole depth in substrate	h <sub>0</sub>	[mm]	35	45
Installation depth	h <sub>nom</sub>	[mm]	29	40
Min. substrate thickness	h <sub>min</sub>	[mm]	100	100
Min. spacing	s <sub>min</sub>	[mm]	100	100
Min. edge distance	c <sub>min</sub>	[mm]	100	100

## Basic performance data

Performance data for single fixing in tension without influence of edge distance and spacing

Substrate		Concrete C12/15	Concrete C20/25 - C50/60	Solid brick	Sand-lime solid brick	Sand-lime hollow brick	Lightweight concrete hollow block	Lightweight concrete block	Autoclaved aerated concrete
<b>FX-N-C NYLON HAMMER-IN Fixing with cylinder head/ FX-N-K HAMMER-IN Fixing with mushroom head</b>									
<b>MEAN ULTIMATE LOAD N<sub>KU,m</sub></b>									
Ø06, Embedment depth 29 mm	[kN]	0.37	0.53	0.39	0.55	0.53	0.50	0.49	0.14
Ø08, Embedment depth 40 mm	[kN]	0.55	0.78	0.82	0.55	-	0.50	0.74	0.17
<b>CHARACTERISTIC LOAD N<sub>Rk</sub></b>									
Ø06, Embedment depth 29 mm	[kN]	0.20	0.30	0.20	0.40	0.30	0.30	0.30	0.10
Ø08, Embedment depth 40 mm	[kN]	0.30	0.50	0.50	0.40	-	0.30	0.50	0.10
<b>DESIGN LOAD N<sub>Rd</sub></b>									
Ø06, Embedment depth 29 mm	[kN]	0.15	0.15	0.10	0.20	0.15	0.15	0.15	0.05
Ø08, Embedment depth 40 mm	[kN]	0.25	0.25	0.25	0.20	-	0.15	0.25	0.05
<b>RECOMMENDED LOAD N<sub>rec</sub></b>									
Ø06, Embedment depth 29 mm	[kN]	0.11	0.11	0.07	0.14	0.11	0.11	0.11	0.04
Ø08, Embedment depth 40 mm	[kN]	0.18	0.18	0.18	0.14	-	0.11	0.18	0.04

## Product commercial data

Size	Product Code	Plug		Quantity [pcs]			Weight [kg]			Bar Codes
		Diameter [mm]	Length [mm]	Box	Outer	Pallet	Box	Outer	Pallet	
NYLON PLUG										
FX-N-C NYLON HAMMER-IN Fixing with cylinder head										
Ø8	R-FX-N-08C045	8	45	100	1200	28800	0.76	9.1	248.9	5906675800066
	R-FX-N-08C060	8	60	100	1200	28800	0.80	9.6	260.4	5906675800073
	R-FX-N-08C080	8	80	50	600	14400	0.68	8.2	225.8	5906675261089
	R-FX-N-08C100	8	100	50	600	14400	0.81	9.7	263.3	5906675266213
FX-N-K HAMMER-IN Fixing with mushroom head										
Ø6	R-FX-N-06K040	6	40	200	2400	57600	0.84	10.1	271.9	5906675107523
	R-FX-N-06K060	6	60	100	1200	28800	0.65	7.8	217.2	5906675123721

# HR Scaffolding Eye

Scaffold eyebolt for use with HRK plug



## Product information

### Features and benefits

- The high-quality weld stops the eye from opening.
- In order to achieve the maximum load-bearing capacity, nylon plugs should only be used once.

### Applications

- Scaffolding

### Base materials

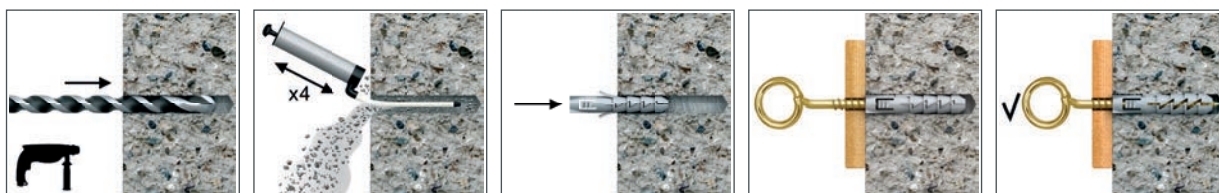
Suitable for use in:

- Concrete
- Solid Brick
- Natural Stone
- Solid Sand-lime Brick
- Vertically-perforated clay block

## Product commercial data

Product Code	Hole diameter [mm]	Length [mm]	Quantity [pcs]		Bar Codes
			Box	Outer	
R-HR-12120	12	120	25	25	5906675169361
R-HR-12160	12	160	25	25	5906675169385
R-HR-12190	12	190	25	25	5906675262352
R-HR-12230	12	230	25	25	5906675169408
R-HR-12300	12	300	25	25	5906675262369
R-HR-12350	12	350	25	25	5906675169422

## Installation guide



1. Drill a hole of required diameter and depth
2. Insert HRK plug into hole and tap home.
3. Insert HR screw into plug and tighten.

## HRK Scaffolding Plug

Special plug designed for use with HR scaffold eye



### Product information

#### Features and benefits

- Anti-rotation fins prevent spinning during tightening of the screw.
- Engineered grip feature for extra holding power.
- Two-way expansion mechanism provides a strong anchorage in solid base materials.

#### Applications

- Scaffolding

#### Base materials

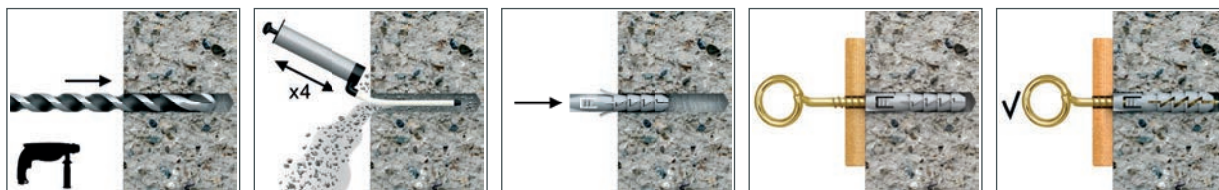
Suitable for use in:

- Concrete
- Solid Brick
- Natural Stone
- Solid Sand-lime Brick
- Vertically-perforated clay block

### Product commercial data

Product Code	Hole diameter [mm]	Length [mm]	Quantity [pcs]		Bar Codes
			Box	Outer	
R-HRK-14070	14	70	25	450	5906675238968
R-HRK-14100	14	100	25	400	5906675238975
R-HRK-14135	14	135	25	300	5906675238982

### Installation guide



1. Drill a hole of required diameter.
2. Insert FIX plug into hole and tap home.
3. Insert screw of required diameter into plug through fixture and tighten.



# More from Rawlplug

## Efficacy in the hardest conditions

We are proud to present innovative fixing from the **Bonded Anchors and Mechanical Anchors** group designed for the heavy loads demanded by industrial construction. Among our products you will find unique solutions to enable you to achieve maximal amounts with any kind of substrate. Knowledge backed-up with experience guarantees the effectiveness of our fixings and the success of your investment.

## Durability and versatility

Our wide range of expansion plugs made of synthetic materials and metal, for low and medium loads, have been used for years for both industrial and residential construction. Incredibly durable FF1 from frame fixings group, universal in use 4ALL and UNO Plug, no. 1 on the UK market, are leading products of RAWLPLUG®'s offer in the field of **Lightweight Fixings**, designed with every substrate in mind.

## Innovations in Energy Saving construction

As a leading producer of façade insulation fixings we would like to present to you our wide array of products used in energy saving constructions. The Reliability and simplicity of our solutions combined with their ease of installation make them the most popular and desired by professionals. We invite you to familiarize yourselves with our offer for **Facade Insulations Fixings**.

## Excellent resistance for high loads

Thanks to our close cooperation with roof covering product producers, and our insight into the needs of investment contractors, our **Roofing Insulations Fixings** are one of the most popular among European roof fixing system producers. We invite cooperation from engineers, architects, and roof works contractors. And encourage you to try out our calculation software "ROOFIX" today.

## Safety Certificate

Stepping towards the needs of customers, and increasing the general level of safety in closed spaces, we have created a protection system event of which in the combustion prevents fire and smoke from spreading. We invite you to acquaint with our offer for **Passive Fire Protection Systems**, which hold the European Conformity Assessment.

## Guarantee of lasting quality

Thanks to our constant monitoring of the production of assortments from our **Sealants and Adhesives** range we guarantee the constant and repeatable quality of our products. Their wide range of application possibilities and high efficiency has enabled us to rank among the top 5 of companies in the construction chemistry industry for years.

## Maximal weather resistance

Rawlplug® **Fasteners** guarantee reliability of connections and maximal weather resistance. Our products, thanks to the use of appropriate materials and adoption of modern anticorrosion coating, pass even the hardest tests, matching the expectations of the most demanding clients. In our rich offer of screws characterized by extraordinary ease of installation, one may find perfect kind of connection for any kind of material and substrate.

## Save time and minimize costs

In our offer of **Direct Fastening Systems** you may find, among others, highly effective pneumatically and gas powered nailers with accessories, compressors and an innovative and ergonomic rebar tier. We invite you to familiarize yourselves with the capabilities of Rawlplug® tools, which can significantly increase the comfort and effectiveness of work at any construction site.

## Maximal effect of optimal offer

In order to ease the application and proper use and installation of our products, we supplement the our assortment of fixings with a precisely composed offer of **Power Tool Accessories**. They include, among others, European-made drills of the highest quality, as confirmed with a 'Sichersafe' certificate. We invite you to familiarize yourselves with our offer of accessories for professional installation techniques of the Rawlplug® brand.

## Unique and exclusive exposition

Rawlplug **POS Essential Offer** it is a unique and complete solution designed for product exposition in building wholesale and retail stores. The POS system is based on easily configurable rack components enhanced with expansive information elements and additional decorations, as well as a combination of individual packages in form of innovative Rawlplug Bag and cutting-edge cardboard boxes.

Sealants and Adhesives

Facade Insulation Fixings

Lightweight Fixings

Direct Fastening Systems

Power Tool Accessories

POS Rawlplug Essentials

Passive Fire Protection Systems

Anchors & Mechanical Anchors

Insulation Fixings

Facade Insulation Fixings

Fasteners

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Trust & Innovation. Since 1919.



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