

Wkreṭ-met[®]

KLIMAS

FASTENERS FOR EXTERNAL THERMAL INSULATION SYSTEM

2016



**POLISH
PRODUCER**



The largest manufacturer of fastening systems in Poland

Klimas Wkręt-Met is the largest manufacturer of high quality fastening systems in Poland and Eastern and Central Europe. For years, the company has set standards in fastening technology. Our offer includes screws for installation in PVC; window and door fixings; frame and expansion anchors; fasteners for thermal insulation systems being an important element of passive houses; hardened screws and woodworking fasteners; self-drilling and self-tapping screws for steel sheets and roofing elements; mechanical and chemical anchors, metric bolts and screws, drywall anchors.

Klimas Wkręt-Met sends its products to over 60 countries. The company started its operations in 1990. It was developed as a continuation of a family-run business dealing in production of plastic elements.

Initially, it was a site of 300 square meters with several production machines and limited storage facilities. Much has changed since that time.

Today, the company's production area covers over 50,000 square meters including a few production buildings and central high-bay storage area with a pallet racking system able to store over 24,000 pallets.

The area intended for new investments covers as much as 100,000 square meters.

Wkręt-Met was the first company in Poland to have been granted a European Technical Approval for building products in 2005 and today the company holds 20 such approvals. Our other products have national technical approvals. Those certificates, proved by the tests conducted by both Polish and German certification bodies, confirm that the products we offer are of the highest quality.



Own production facilities

high production capacity

Independent production stands for continuous development and extension of the technological park. At present Wkręt-met production has a host of facilities at its disposal including:

- over 100 injection moulding machines,
- 200 presses and rolling mills (which can be used to manufacture metric screws Class 10.9 and 12.9 as well as A2 and A4 stainless steel screws),
- modern tool shop with advanced machining centres,
- a twenty-first century quality control department.

Our production facilities grant us independence at every stage of the production process. Our own facilities combined with high production capacity and quality control results in products which meet today's market demands. The in-house quality control ensures that consistent, repeatable products are manufactured which meet critical requirements.

Custom-made products

Thanks to our wide experience and modern production facilities we offer custom-made products designed to meet individual customer needs. We provide product design, manufacture, control and packing as requested by the customer.



Production area - over 200 presses and rolling mills



Production area - multifunction presses



Production area - injection moulding department



25 years
We build
the quality
together!

Production area - injection moulding department, over 100 modern machines

MANUFACTURE

Metal products manufacturing process

- best quality material from European steelworks,
- a variety of steel grades (low carbon steel, A2 AISI 304 stainless steel, A4 AISI 316 acid resistant steel, heat-treatable steel),
- own research and product development department,
- large machine park,
- hardening (heat treatment),
- applying protective anti-corrosion coatings - zinc electroplating or ceramic coating,
- heads and washers available in the RAL colours,
- a wide range of solutions - suited for specific fixture and substrate,
- production offer of class 10.9 and 12.9 screws,
- quality control at each stage of manufacture,
- Polish and European technical approvals

**1 300 TONS
OF METAL
PRODUCTS**

**PROCESSED
MONTHLY**

DESIGN



METAL PRODUCTS

MANUFACTURING PROCESS



**GALVANIZING
PLANT AND
PAINT SHOP**



HARDENING PLANT



**PRESSES
AND ROLLING
MILLS**

FROM BEGINNING TO END

Wkret-met
KLIMAS



PACKING

**PRODUCTS EXPORTED
TO MORE THAN 60
COUNTRIES**



DISPATCHING



STORING

**RACKING SYSTEMS ABLE TO
STORE 24 000 PALLETES**

1

100% of our screws are controlled

2

X-ray spectrometer

3

Measurement characteristics control

4

Vickers microhardness tester

QUALITY CONTROL

**AT EACH STAGE OF
MANUFACTURE**



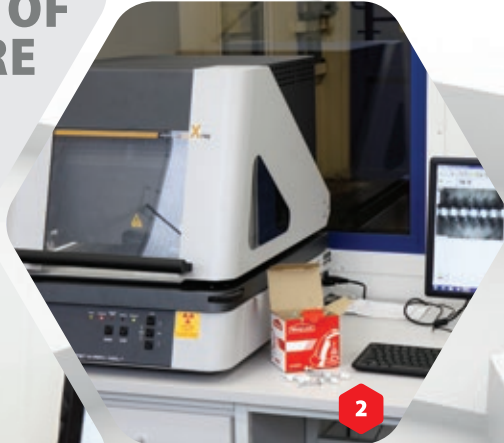
1



4



3



2

MANUFACTURE

Plastic products manufacturing process

- top quality production material, polyamide, polyethylene, polypropylene,
- conditioning of polyamide products which ensures their elasticity,
- a wide range of products for universal and special application,
- own production facilities including/comprising best quality hybrid injection moulding machines with robots,
- automatic packaging process: from box/blister pack to pallet wrap/wrapping



**700 TONS
OF PLASTIC
PROCESSED
MONTHLY**

DESIGN



PLASTIC PRODUCTS

MANUFACTURING PROCESS



**INJECTION
MOULDERS**



INJECTION MOULDERS



**CNC MACHINE
TOOLS**



PACKING

**PRODUCTS EXPORTED
TO MORE THAN 60
COUNTRIES**



DISPATCHING



STORING

**RACKING SYSTEMS ABLE TO
STORE 24 000 PALLETES**

1

Axial load testing

2

**Fasteners' load capacity testing
- testing machine**

3

**Fasteners' load capacity testing
- fastenings tester**

4

**Measurement
charateristics control**

**QUALITY
CONTROL**

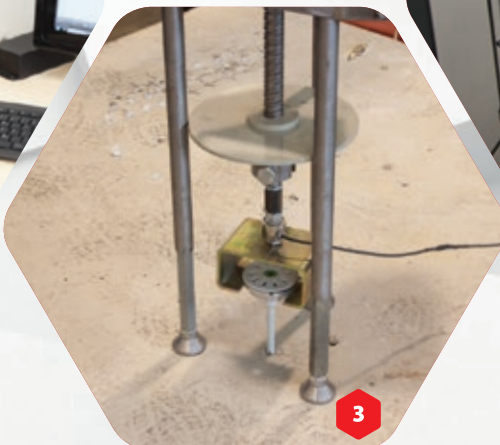
**AT EACH STAGE OF
MANUFACTURE**



1



4

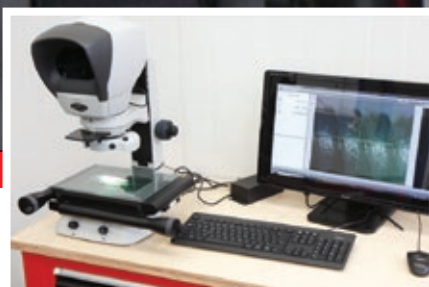


3

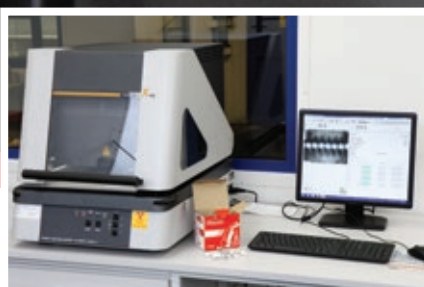


2

100% OF OUR SCREWS ARE CONTROLLED



**MEASURING
MICROSCOPE**



**X-RAY
SPECTROMETER**



**SALT SPRAY
CHAMBER**

Klimas Wkręt-met machinery park now boasts equipment for the 100 percent control of our screws. The new optic equipment makes it possible to control the whole product batch after it has been manufactured and before it is packed. The parameters checked include length, body diameter, thread diameter, head size, quality of the drive, pitch and thread length, tip and others. Screws which successfully pass the control procedure are sent to be packed whereas those which non-compliance with the standard are rejected.



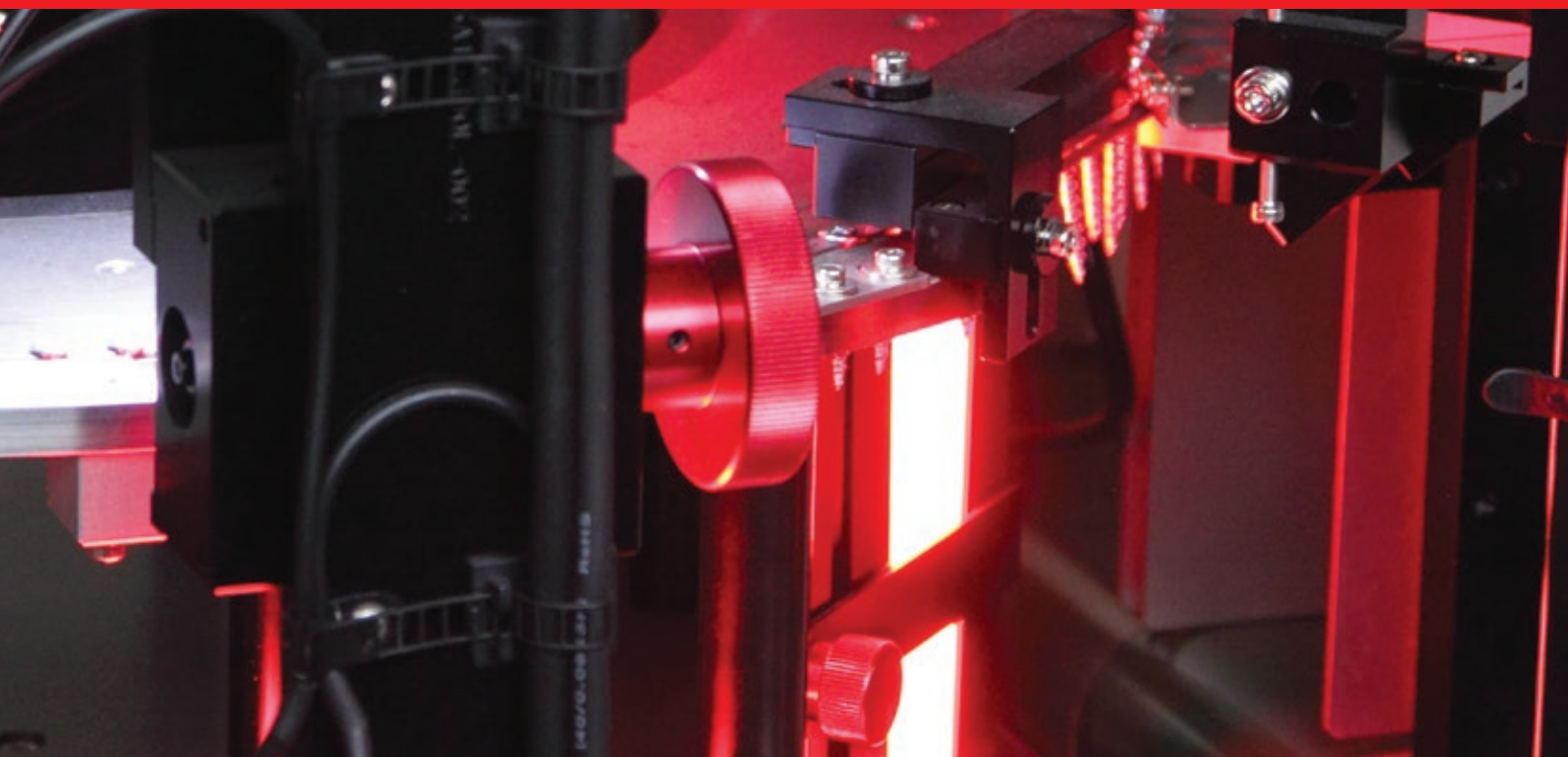
Our company is set on continuous improvement of its production control processes at each stage of manufacture. We wish to provide our customers with services of the highest-possible standard. To achieve that we have implemented the Quality Management System and have held the ISO 9001:2008 standard for a number of years now. Satisfying the standard requirements is continuously verified by both internal and external audits, which prove our successful operation at each stage of activity.



**CALIBRATION OF OUR CONTROL AND
MEASUREMENT INSTRUMENTS**

FROM BEGINNING TO END

Wkręt-met
KLIMAS



**PULL OUT
TESTING**



**INSTALLATION
TIME TESTING**



**STRENGTH
TESTING**

We have started a high-tech quality-control laboratory to ensure the highest quality of the products on offer. Our laboratory is equipped with measuring microscope, X-ray spectrometer, salt spray chamber, load capacity testing machine, Vickers microhardness tester, Rockwell hardness tester, torque converters, permascope and a number of other equipment, which allow us to:

- check and control paint and zinc coat thickness;
- check resistance of protective coating to highly corrosive environments;
- check hardness of the screw surface and body, thickness of carburized layer;
- compute the torque required for a given screw to be driven in;
- test the pull-out strength;
- compute rigidity of the support washer;
- calculate the time needed to drive-in a self-driving screw;
- and many others.



***Is quality important for you?
It IS for us!***



FASTENERS FOR EXTERNAL THERMAL INSULATION SYSTEMS

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From many years now the Wkręt-Met brand has been identified as a reliable manufacturer of fixing solutions for thermal insulation systems on the home and European markets alike. Through its solutions and innovative products, which match the most demanding European requirements, the Wkręt-met company meets specifications defined by ETICS systems' manufacturers as well as demands made by both designers and builders.

Our close cooperation results in the development of new solutions and products. This is exemplified by the family of eco-drive plugs mainly dedicated to system manufacturers, first and foremost used in the renovation of the already-existing insulation systems.

The high quality and standard of the products manufactured by the Wkręt-Met company has been repeatedly confirmed by the opinions of our customers operating in the thermal insulation sector.

Klimas Wkręt-Met is a member of the Association for ETICS.

We would like to introduce to you our products and solutions, meeting the most demanding specifications, which guarantee the following:

- **prompt and easy choice of plug for any thermal insulation material and substrate,**
- **safe and reliable anchoring,**
- **high technical parameters,**
- **fast and reliable fixing,**
- **meeting the requirements of the plug's point thermal transmittance.**

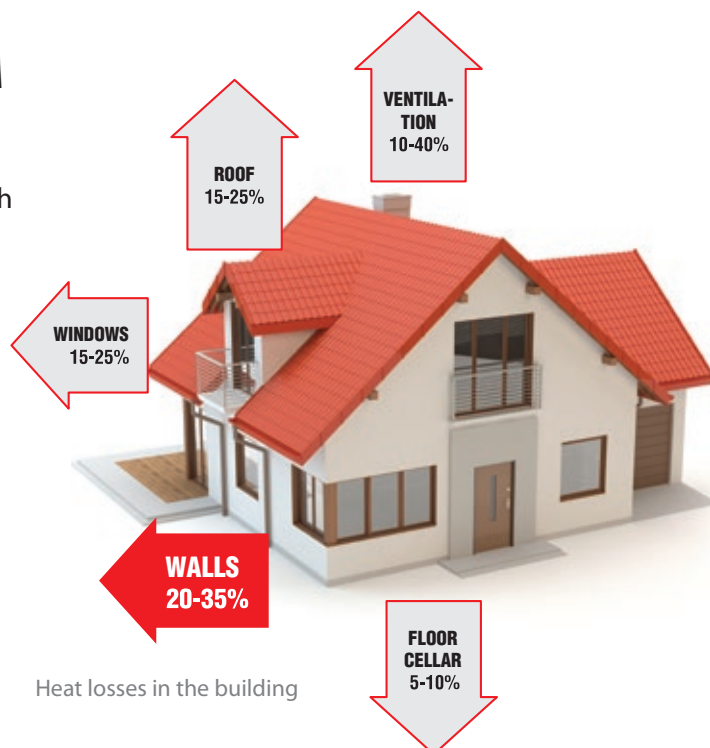


THERMAL INSULATION SYSTEM

When appropriately chosen and installed, thermal insulation system of a building should comply with the requirements set by an investor, as well as the specific regulations in place.

Thermal insulation system should ensure the following:

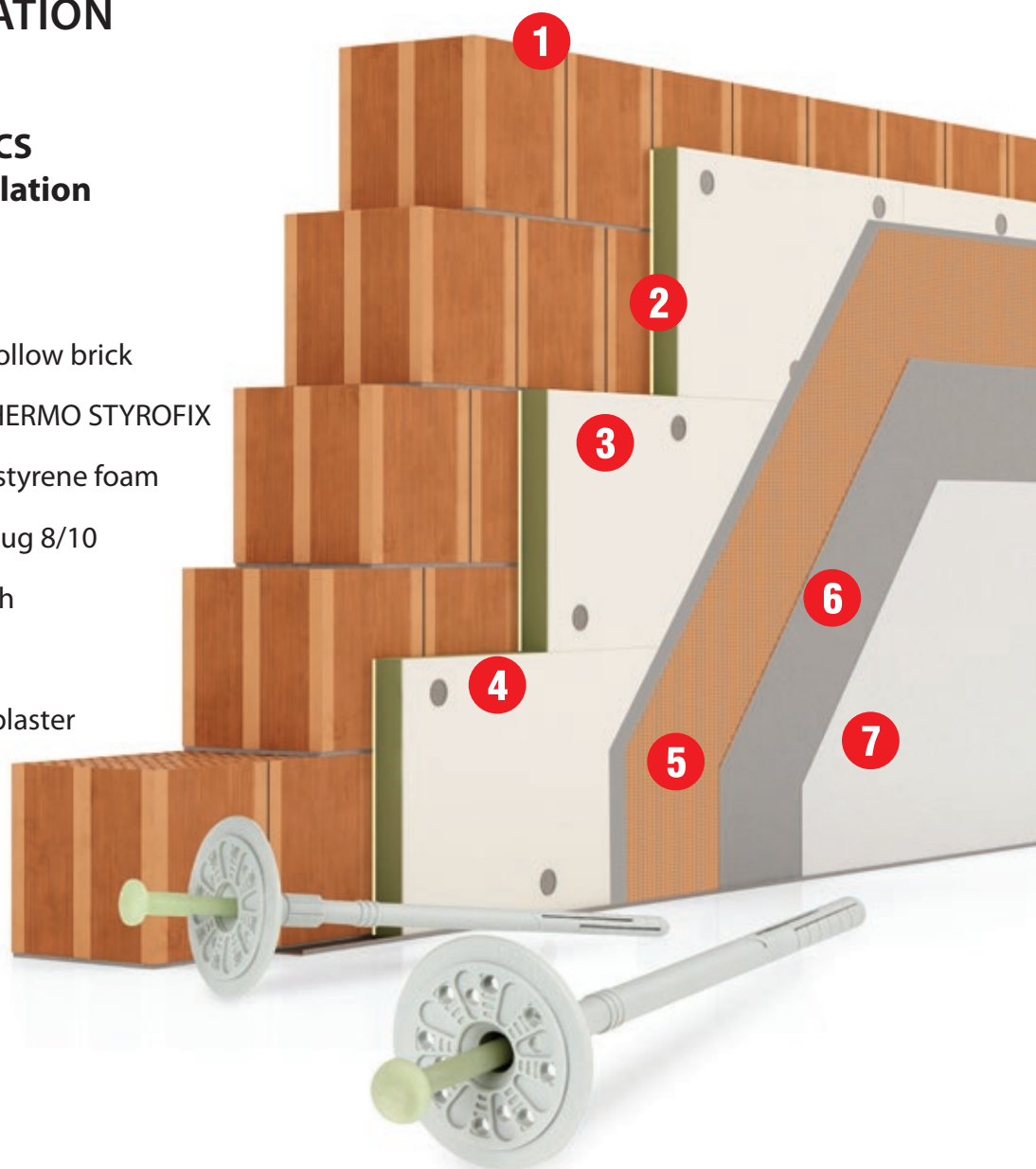
- **le economic results – energy savings,**
- **pleasant visual effects – aesthetic appearance,**
- **long-lasting and fault-free operation**
 - **serviceability for 25 years,**
- **the right atmosphere in the rooms used,**
- **protection of the facade from damage.**



THERMAL INSULATION METHODS

Light-wet method ETICS (External Thermal Insulation Composite System)

1. substrate - e.g. ceramic hollow brick
2. polystyrene adhesive - THERMO STYROFIX
3. insulation material - polystyrene foam
4. insulation fixing e.g. Fixplug 8/10
5. reinforcement - SWS mesh
6. adhesive
7. finishing coat - textured plaster



THERMAL INSULATION METHODS

Ventilated facade thermal insulation system



- 1. substrate
- 2. insulation material
- 3. insulation fixing e.g. ECO-DRIVE-W
- 4. the supporting structure
- 5. the wind foil
- 6. facade panel



Legal Requirements for ETICS

Application of ETICS requires such a system and manufacturers of system components to meet the specific legal and formal requirements, which have been defined in the European Organisation for Technical Approvals (EOTA) guidelines:

- ETAG 004 - Guidelines for External Thermal Insulation Composite Systems
- ETAG 014 - Guidelines for Plastic Anchors for ETICS

ETAG 004 comprises test methods of the ETICS including its specific components while ETAG 014 determines test methods concerning fitness for use and requirements expected of fasteners used in thermal insulation mounting, including expanded polystyrene, mineral wool and Lamella mineral wool. Compliance with all the requirements defined in the guidelines makes it possible to obtain a European Technical Approval (ETA). The Wkręt-Met company offers anchors conforming to those requirements, which is reflected by the European Technical Approvals obtained for those products.

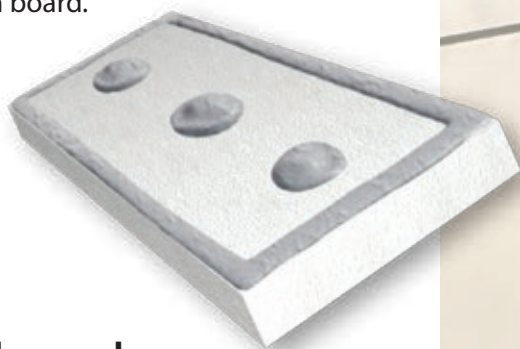
REQUIREMENTS FOR ANCHORS

Anchors for ETICS are supposed to:

- transmit certain pull-out forces caused by wind suction,
- eliminate the possibility of pulling the insulation material through the anchor's washer or plate – required washer stiffness of 0.6 [kN],
- exert the appropriate pressure onto the thermal insulation material so that,
- ensure rigidity of the whole thermal insulation system,
- ensure appropriate point thermal transmittance – 0.002 [W/K] – to limit
- the occurrence of thermal bridging in the places of fixing the anchors (visible stains and spots on the finishing coat),
- secure the thermal insulation system in case of a failure caused by a loss of bond strength between the adhesive and the substrate or a loss of its load bearing properties,
- compensate for the forces occurring on the facade as a result of high and low temperatures.

According to the ETA Guidelines the layer of an adhesive transmits the load caused by the shearing force affecting the system. That is the reason why it is important to provide appropriate distribution of an adhesive applied on the thermal insulation board. Adhesive

should be distributed over the minimum of 40 % of the board surface – stripes around the edges and three dabs in the centre. Such distribution of the adhesive ensures that the mechanical fixing is installed exactly in the places where adhesive has been applied onto the thermal insulation board.








Correct installation of the anchor:

- drill a hole in the substrate whose diameter and depth correspond to the manufacturer's recommendations (clean the drill hole in solid materials such as concrete and solid brick),
- install the anchor where adhesive has been applied,
- carry out installation within the temperature range between + 5 and + 25°C (ETA Guidelines recommendations)

Choosing the anchor type for the substrate

The right choice of a mechanical fastener depends on the substrate in which it is going to be installed, which has a significant influence on the ETICS. The requirements under ETAG 014 specify the classification of use that are defined by the letters A, B, C, D and E. All our fasteners have product labels which provide information on the use category. Our new product groups including WK THERM-S and ECO-DRIVE have been designed as universal fasteners, which eliminates the need to use different kinds of fasteners in a structure with varied substrates.

USE CATEGORIES ACCORDING TO ETAG 014

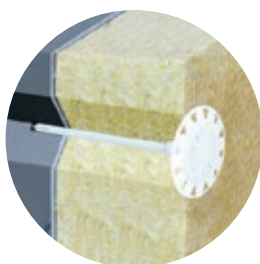
A	B	C	D	E
				
Concrete C12/15 C16/20 do C50/60	Solid clay bricks, calcium silicate bricks	Calcium silicate hollow blocks KSL, vertically perforated clay bricks HLZ, porous blocks, ceramic bricks	Elements on LAC lightweight aggregate	Autoclaved aerated concrete AAC 2, AAC 7



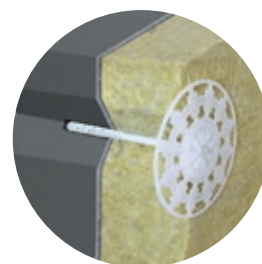


Choosing the anchor type for the thermal insulation material

Depending on the kind of insulation material used (polystyrene EPS, XPS or mineral wool and Lamella mineral wool), it is important to choose a suitable fastener with respect to the material of which its pin has been made. Anchors with a plastic pin are used for polystyrene while anchors with a metal pin are intended for both polystyrene and mineral wool if used in combination with TDX-90 or TDX-140 support washers.

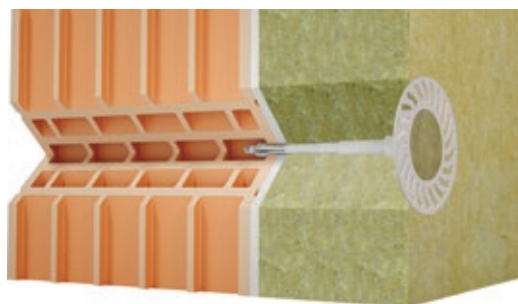


Fastener with TDX-090 support washer



Fastener with TDX-090 support washer

The Wkręt-met company offers fasteners complying with such a requirement. Our present offer contains a new product – **ECO-DRIVE W 8** anchor with an integrated support washer (diameter of 110 mm) for mineral wool applications.



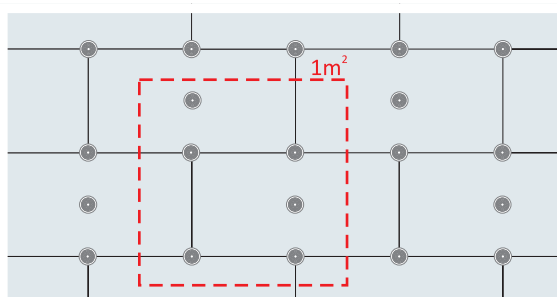
Fastener ECO-DRIVE W

Distribution of anchors on the facade

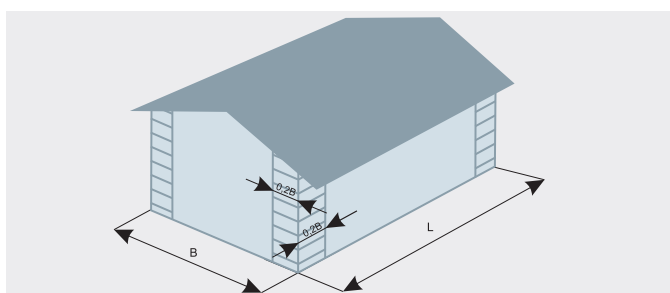
The number of anchors required in different parts of a building depends on:

- exposure to wind – wind suction,
- height of a building,
- mass component of the complete thermal insulation system – type of insulation material used,
- type of substrate and anchor's pull-out strength.

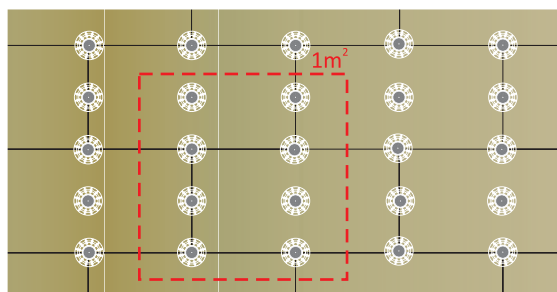
The number and appropriate distribution of fasteners should be specified in the construction design and based on the projected design loads. At least 6 fasteners should be used per 1 square metre. It is recommended that 20% more fasteners are used in the corner zone of a building (its width is said to be 0.2 of the narrower building width and should fall within the range of 2 and 4 m).



Installation example - polystyrene - 6 pcs./m²



Corner zone of a building $2m < 0,2B < 4m$



Installation example - mineral wool - 8 pcs./m²

Central zone	Corner zone	HEIGHT OF THE BUILDING
6 pcs./m ²	6 pcs./m ²	
6 pcs./m ²	8 pcs./m ²	
6 pcs./m ²	8 pcs./m ²	
8 pcs./m ²	10 pcs./m ²	
10 pcs./m ²	12 pcs./m ²	
12 pcs./m ²	14 pcs./m ²	
		<10m
		>10m
		<20m
		>20m

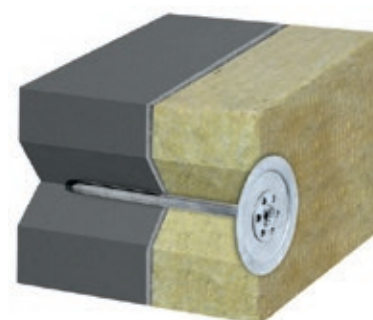
Insulation type:

polystyrene foam

mineral wool

For buildings taller than 25 m insulation fixings should be used as required by paragraph 216(6) of the Ordinance of the Minister of Infrastructure dated 12 April 2002 which states: '(...) At a building height above 25 metres from the ground level facade cladding and its mechanical fixings, as well as external wall insulation system should be made from non-combustible materials (...)'

An extensive range of products offered by the Wkret-met company also offers a special, metal fasteners (type MLN) conforming to the above mentioned criteria as the whole mechanical fixing is made of metal.



Anchor installation methods

In connection with the increasingly stringent requirements for mechanical fixings in terms of point thermal transmittance (occurrence of thermal bridging in the places where fasteners are installed) all the fasteners for installation of thermal insulation systems manufactured by Wkręt-met have fastener heads sealed in glass fibre reinforced plastic and an extended length of the plastic – air pockets, which facilitates their compliance with the requirement for point thermal transmittance of 0.002 [W/K].

There are two methods of installing a fastener in thermal insulation material

- installation of a fastener without a polystyrene or mineral wool disc – installation spot visible



- installation of a fastener with a polystyrene or mineral wool disc – installation spot covered up

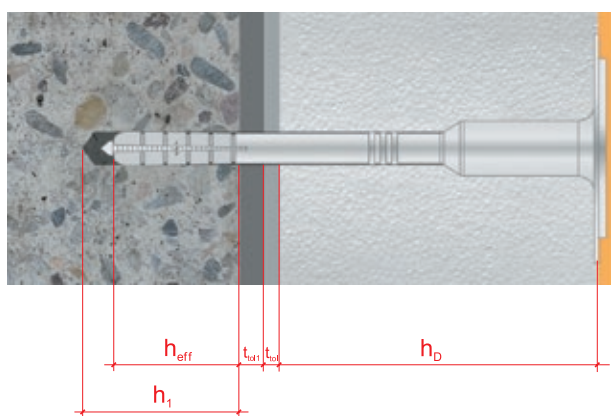


Choosing the anchor length

In order to choose the appropriate length of a fastener to be used in a given ETICS, follow the recommendations below:

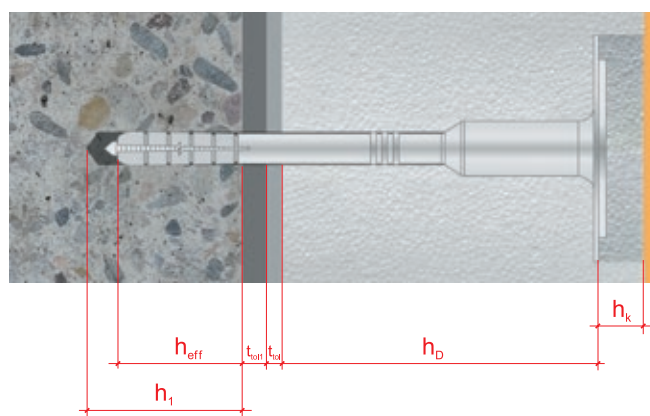
- check whether the building is a newly built structure or an old structure with an old stucco – the thickness of the old stucco cannot be treated as a load bearing substrate,
- determine the kind of substrate in a given building (according to the substrate table),
- determine the type of thermal insulation material (polystyrene, mineral wool, etc.)
- find out the thickness of thermal insulation material (thermal insulation boards)
- obtain information about the fastener installation method
 - visible mounting or recessed mounting, hidden

All the collected information will facilitate the decision to be made on the fastener type and its appropriate length.



Installation spot visible

$$\text{Formula: } L_d = h_D + t_{tol} + t_{tol1} + h_{eff}$$



Installation spot covered up

$$\text{Formula: } L_d = (h_D - 20\text{mm}) + t_{tol} + t_{tol1} + h_{eff}$$

h_D - insulation material thickness

h_{eff} - effective anchorage depth

h_1 - minimum depth of drilled hole

t_{tol} - adhesive layer (New buildings)

t_{tol1} - old plaster (building renovation)





























h_k - polystyrene disc



			Page	24	28	32	36	40	44	48
Choosing the anchor type for the thermal insulation material	Polystyrene foam EPS			✓	✓	✓	✓	✓	✓	✓
	Extruded polystyrene XPS								✓	✓
	Mineral wool								✓	✓
	Lamella mineral wool								✓	✓
	Mineral insulation panels									
Choosing the anchor type for the substrate	Concrete C 12/15, C 16/20-C 50/60 EN 206-1		A		✓	✓	✓	✓	✓	✓
	Solid clay bricks MZ EN 771-1 / DIN 105-100		B	✓	✓	✓	✓	✓	✓	✓
	Calcium silicate bricks KS EN 771-2 / DIN V 106		B		✓	✓	✓	✓	✓	✓
	Calcium silicate hollow blocks KSL EN 771-2 / DIN V 106		C		✓	✓	✓	✓	✓	✓
	Vertically perforated clay bricks HLZ EN 771-1 / DIN 105-100		C	✓	✓	✓	✓	✓	✓	✓
	Porous blocks EN 771-1		C		✓	✓	✓	✓	✓	✓
	Lightweight concrete hollow blocks HBL EN 771-3		D		✓	✓	✓	✓	✓	✓
	Lightweight concrete blocks LAC EN 771-3		D		✓	✓	✓	✓	✓	✓
	Autoclaved aerated concrete AAC 2 EN 771-7		E		✓	✓	✓	✓	✓	✓
	Autoclaved aerated concrete AAC 7 EN 771-4		E		✓	✓	✓	✓	✓	✓
	Timber C22		-							
	OSB board 12,5-18,0 mm		-							
	Steel sheet 0,88-1,25 mm		-							
Table 2. Choosing the right fastener			ETAG 014 use cat.							

FASTENERS FOR EXTERNAL THERMAL INSULATION SYSTEMS

PRODUCT INDEX - FASTENER TYPE SELECTION

											
LFM 8	LFM 10	WK THERM 8	WK THERM 8 S	ECO-DRIVE 8	ECO-DRIVE S 8	ECO-DRIVE W	drive W	drive S	TD/TDP 060	TD/TDP 090	MLN
											
52	56	60	66	72	78	82	88	90	92	94	96
✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
✓	✓	✓	✓						✓	✓	✓
✓	✓	✓	✓			✓	✓		✓	✓	✓
						✓	✓			✓	✓
			✓								
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			✓	✓	✓	✓					
✓	✓		✓	✓	✓	✓				✓	✓
✓	✓		✓	✓	✓	✓					
✓	✓		✓	✓	✓	✓					
							✓	✓	✓		
							✓	✓	✓		
									✓		


	P.	Code	LFN 10	LTX 8	LTX 10	FIXPLUG 8	FIXPLUG 10	LMX 8	LMX 10	LFM 8	LFM 10	WK THERM 8	WK THERM S 8	ECO-DRIVE 8	ECO-DRIVE S 8	ECO-DRIVE W 8	drive W	drive S
Plastic cutter for insulation material Ø 66,7 mm 	98	WK-FT	✓	✓	✓			✓	✓	✓	✓	✓	✓					
Polystyrene disc (white) Ø 67,0 mm / 17 mm 	98	KS	✓	✓	✓			✓	✓	✓	✓	✓	✓					
Polystyrene disc (grey) Ø 67,0 mm / 17 mm 	98	KSG	✓	✓	✓			✓	✓	✓	✓	✓	✓					
Polystyrene disc for eco-drive (grey) Ø 62,0 mm / 10 mm (on order) 	98	EDKS-G												✓				✓
Support washer for mineral wool Ø 90 mm 	98	TDX-90						✓	✓	✓	✓	✓	✓					
Support washer for mineral wool Ø 140 mm 	98	TDX-140						✓	✓	✓	✓	✓	✓					
Eco-drive setting tool Ø 120 mm / TORX 40 	99	EDST												✓	✓			✓
Eco-drive W setting tool Ø 65 mm 	99	EDST-W														✓	✓	
Mineral wool disc Ø 67 mm 	99	EDKW														✓	✓	

Table 3. Installation accessories









	P.	Code and size
Helical fastener 	100	WK-DS Ø 28 mm
Spacer and levelling washers 	100	DW 40 x 40 mm
Stop bead hammer drive fixing 	100	SMNKC Ø 6 mm and Ø 8 mm
Stop bead connection 	100	LLC 30 x 20 mm
PU adhesive for foamed polystyrene THERMO STYRO FIX 	100	KST-750 750 ml
Reinforcing fibreglass mesh 	101	SWS-145, SWS-145Z 110 cm x 50 mm
Expansion plug for scaffolding systems 	101	HOX-14, HOX-16 Ø 14 mm i Ø 16 mm
Plastic disc for covering eye-hook holes 	101	ZHO Ø 14 mm

Table 4. Other accessories - ancillary



FASTENERS WITH PLASTIC PIN FOR EXTERNAL THERMAL INSULATION SYSTEMS

PRODUCTION PROGRAMME



LFN-10

Hammer driven fastener with nylon pin and extended expansion zone



Description

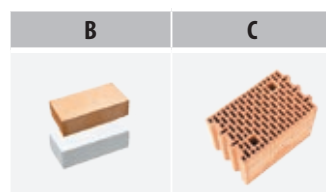
Universal fastener for installing of polystyrene

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS

ETAG 014 use cat.



Solid clay bricks,
Calcium silicate
bricks

Porous blocks

Features and advantages of the product



Fibreglass reinforced nail

Ensures good strength during installation. Nail's head design makes installation easier and seals the sleeve – nail connection



Innovative design of the plug

Greater stiffness of the support washer means better holding power of the material fixture

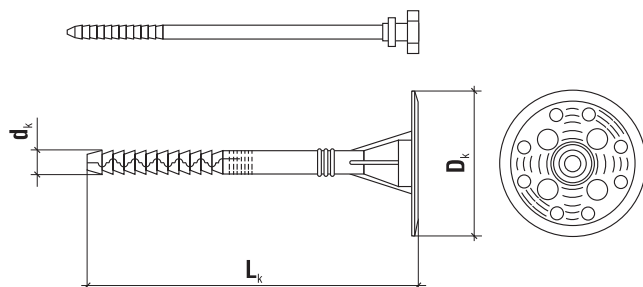


Long expansion zone

Long expansion zone ensures steady and reliable distribution of forces in the substrate

LFN-10


Hammer driven fastener with nylon pin and extended expansion zone



Product marking

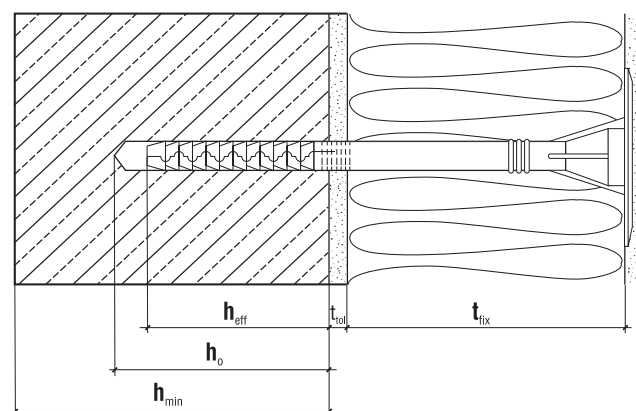
LFN	10	140	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
ø10	LFN10140(200)	10x140	50	70	30	50	200
	LFN10160 (200)	10x160	70	90	50	70	200
	LFN10180 (200)	10x180	90	110	70	90	200
	LFN10200 (200)	10x200	110	130	90	110	200
	LFN10220 (100)	10x220	130	150	110	130	100
	LFN10260 (100)	10x260	170	190	150	170	100
	LFN10300 (100)	10x300	210	230	190	210	100

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	10
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	80
Drilled hole depth	h_o [mm]	90
Thermal conductivity	λ [W/K]	0,00
Washer stiffness	S [kN/mm]	x
Use categories	-	B C
Plug material	-	PP
Pin material	-	PA + GF
European Technical Approval	-	ETA-06/0105



LFN-10

Hammer driven fastener with nylon pin and extended expansion zone

RESISTANCE

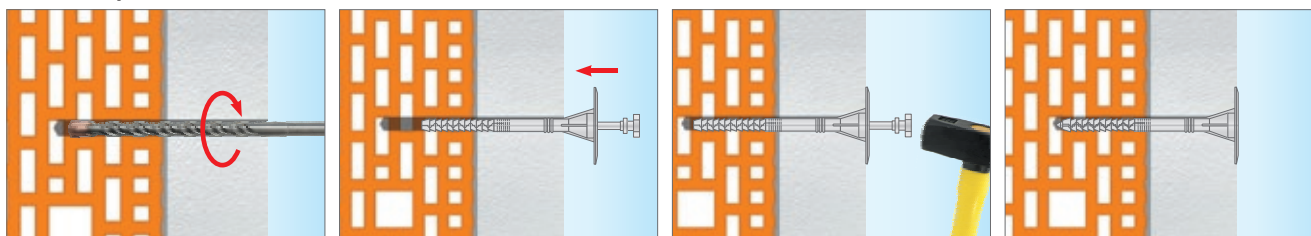
ETAG 014 use cat.	Substrate	Density [kg/dm³]	Characteristic pull-out resistance
B	Solid clay bricks	≥ 1,70	0,60
C	Perforated bricks	≥ 1,17	0,50

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

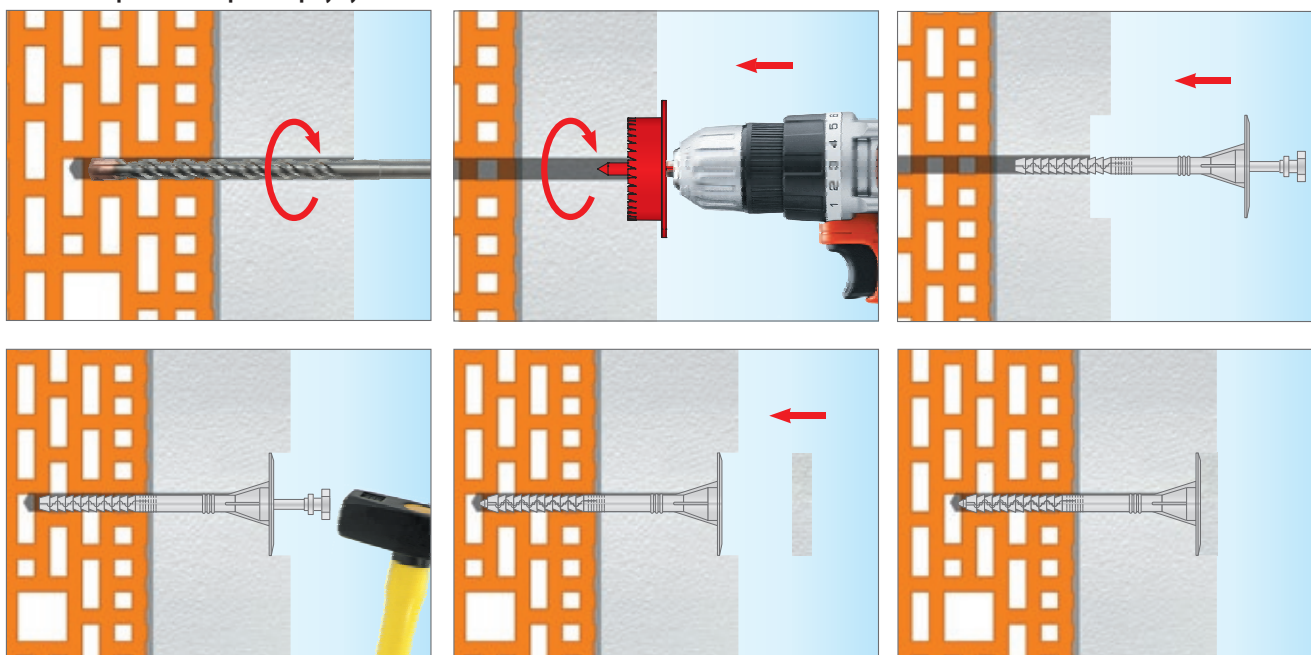
INSTALLATION DATA

Fastener type	LFN 10
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation spot visible



Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22



Our products are packed in tough boxes made of coloured corrugated cardboard

LTX-8

Universal hammer driven fastener with plastic pin - short expansion zone



NEW IMPROVED DESIGN!

Description

Universal fastener for fastening of polystyrene in various substrates

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



NEW IMPROVED DESIGN
embedding of
25 and 65 mm.

Owing to the new design of the expansion zone the fastener can be installed in all substrate categories while maintaining its high strength parameters



Improved design of the pin's head

Improved design of the pin's head ensures good strength during installation



Innovative design of the plug

Greater stiffness of the support washer means better holding power of the material fixture



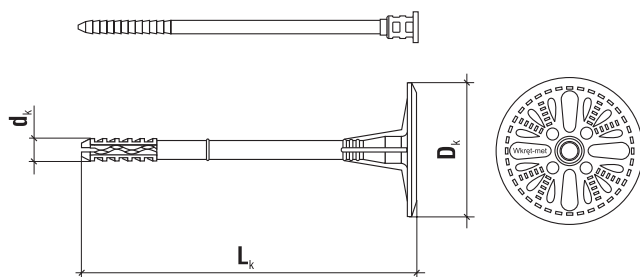
Innovative design of the plug

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar



LTX-8


Universal hammer driven fastener with plastic pin - short expansion zone



Product marking

LTX	08	095	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

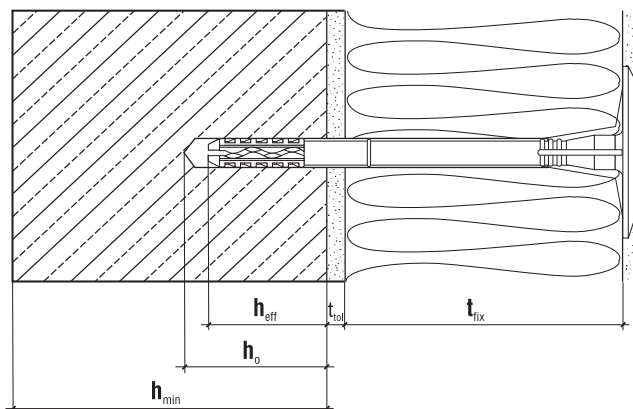
	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
Ø8	LTX08095(200)	8x95	60/20*	80/40*	40/-*	60/20*	200
	LTX08115(200)	8x115	80/40*	100/60*	60/20*	80/40*	200
	LTX08135(200)	8x135	100/60*	120/80*	80/40*	100/60*	200
	LTX08155(200)	8x155	120/80*	140/100*	100/60*	120/80*	200
	LTX08175(200)	8x175	140/100*	160/120*	120/80*	140/100*	200
	LTX08195(200)	8x195	160/120*	180/140*	140/100*	160/120*	200

* - for substrate use category E (aerated concrete)

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	25/65*
Drilled hole depth	h_o [mm]	35/75*
Thermal conductivity	λ [W/K]	0,00
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PE
Pin material	-	PA + GF
Technical Approval	-	in progress

* - for substrate use category E (aerated concrete)



LTX-8

Universal hammer driven fastener with plastic pin - short expansion zone

NEW IMPROVED DESIGN!

Resistance

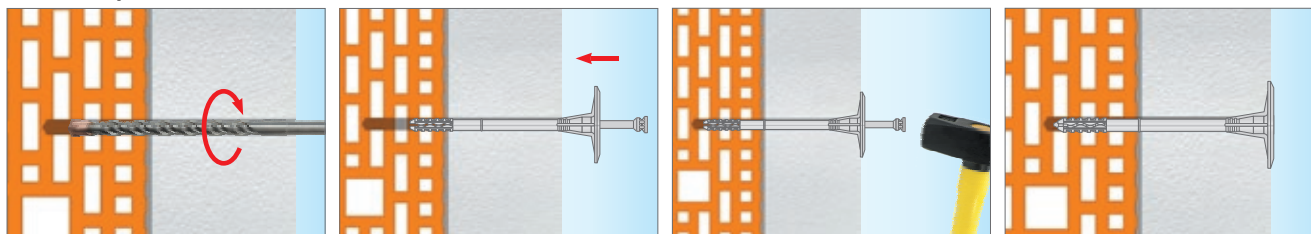
ETAG 014 use cat.	Substrate	Density [kg/dm ³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	0,50
A	Concrete C16/20 - C50/60	≥ 2,30	0,75
B	Solid clay bricks	≥ 1,77	0,75
B	Calcium silica solid brick	≥ 2,00	0,60
C	Calcium silicate hollow blocks	≥ 1,60	0,75
C	Vertically perforated clay bricks	≥ 1,20	0,60
D	Elements on LAC lightweight aggregate	≥ 1,05	0,60
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,75
E	Autoclaved aerate concrete AAC7	≥ 0,65	0,90

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

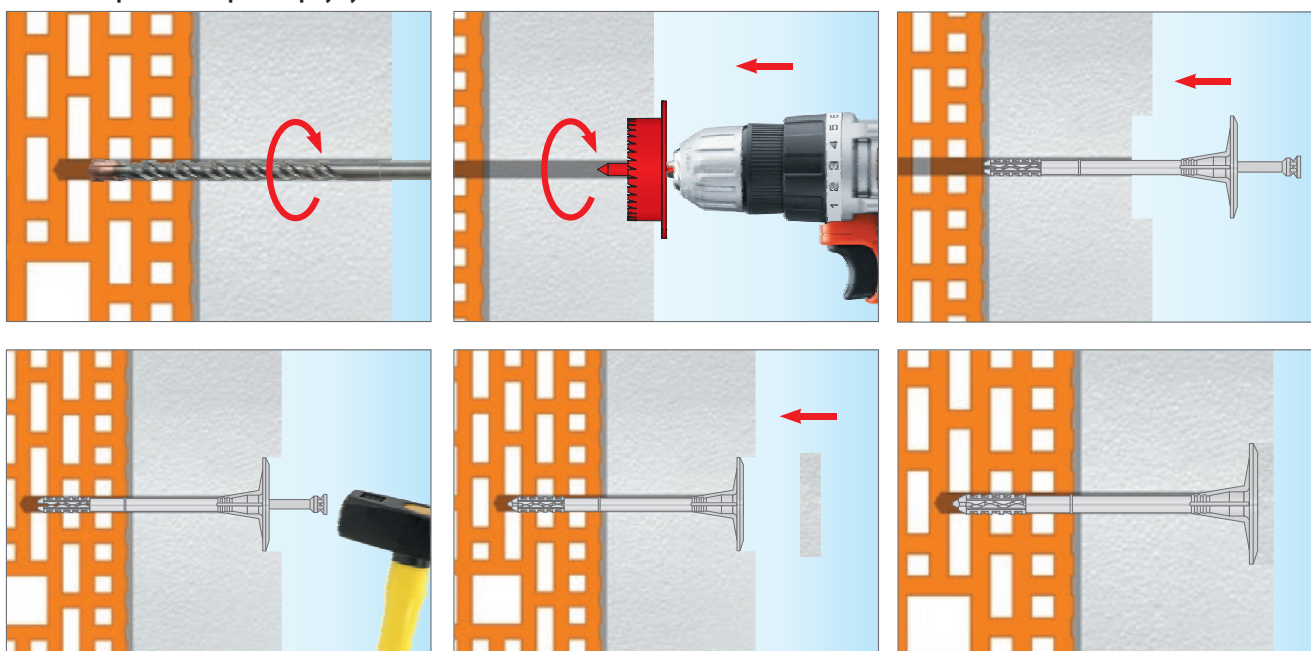
INSTALLATION DATA

Fastener type	LTX 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation spot visible



Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22



Our products are packed in tough boxes made of coloured corrugated cardboard

LTX-10

Universal hammer driven fastener with plastic pin - short expansion zone



NEW IMPROVED DESIGN!

Description

Universal fastener for fixing polystyrene

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Autoclaved aerate concrete

Features and advantages of the product



NEW IMPROVED DESIGN
embedment of
30 and 50 mm.

Owing to the new design of the expansion zone the fastener can be installed in all substrate categories while maintaining its high strength parameters



**Fibreglass rein-
forced nail**

Ensures good strength during installation. Nail's head design makes installation easier and seals the sleeve – nail connection



**Innovative design
of the plug**

Greater stiffness of the support washer means better holding power of the material fixture



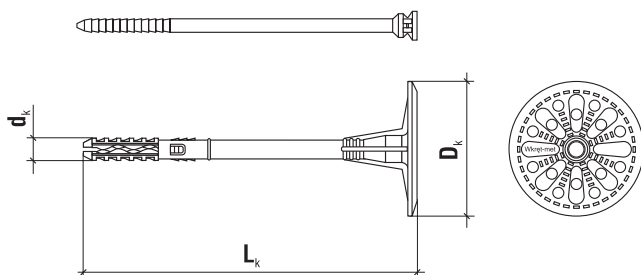
**Innovative design
of the plug**

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar



LTX-10


Universal hammer driven fastener with plastic pin - short expansion zone



Product marking

LTX	10	070	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

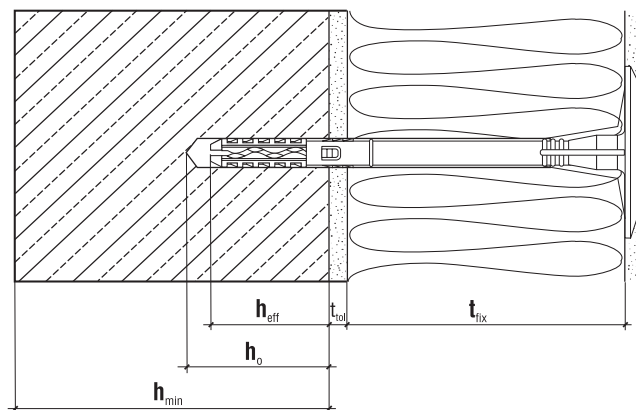
	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
ø10	LTX10070(200)	10x70	30/10*	50/30*	10/-*	30/10*	200
	LTX10090(200)	10x90	50/30*	70/50*	30/10*	50/30*	200
	LTX10110 (200)	10x110	70/50*	90/70*	50/30*	70/50*	200
	LTX10120(200)	10x120	80/60*	100/80*	60/40*	80/60*	200
	LTX10140(200)	10x140	100/80*	120/100*	80/60*	100/80*	200
	LTX10160(200)	10x160	120/100*	140/120*	100/80*	120/100*	200
	LTX10180(200)	10x180	140/120*	160/140*	120/100*	140/120*	200
	LTX10200(200)	10x200	160/140*	180/160*	140/120*	160/140*	200
	LTX10220(100)	10x220	180/160*	200/180*	160/140*	180/160*	100
	LTX10260(100)	10x260	220/200*	240/220*	200/180*	220/200*	100

* - for substrate use category E (aerated concrete)

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	10
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	30/50*
Drilled hole depth	h_o [mm]	40/60*
Thermal conductivity	λ [W/K]	0,00
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PE
Pin material	-	PA + GF
Technical Approval	-	in progress

* - for substrate use category E (aerated concrete)



LTX-10

Universal hammer driven fastener with plastic pin - short expansion zone

NEW IMPROVED DESIGN!

RESISTANCE

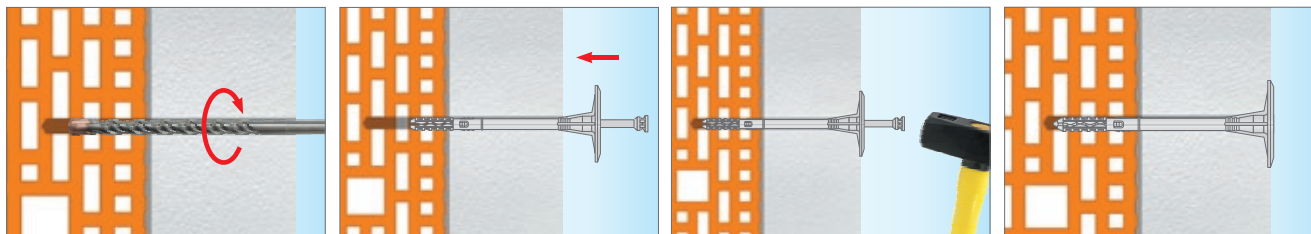
ETAG 014 use cat.	Substrate	Density [kg/dm ³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	0,50
A	Concrete C16/20 - C50/60	≥ 2,30	0,75
B	Solid clay bricks	≥ 1,77	0,75
B	Calcium silica solid brick	≥ 2,00	0,60
C	Calcium silicate hollow blocks	≥ 1,60	0,50
C	Vertically perforated clay bricks	≥ 1,20	0,50
D	Elements on LAC lightweight aggregate	≥ 1,05	0,50
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,50
E	Autoclaved aerate concrete AAC7	≥ 0,65	0,60

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

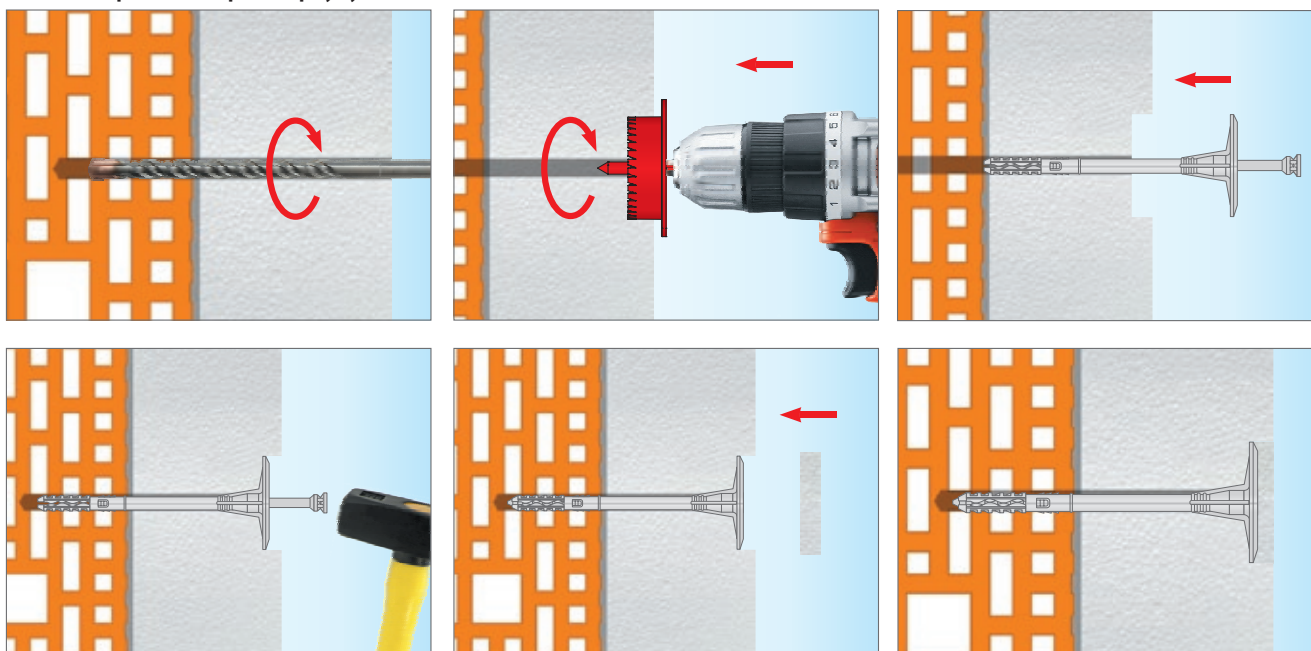
INSTALLATION DATA

Fastener type	LTX 10
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation spot visible



Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22



Our products are packed in tough boxes made of coloured corrugated cardboard

FIXPLUG-8

Hammer driven fastener with nylon pin and telescopic design support washer



NEW!



Description

Innovative telescopic design ensures proper installation of the support washer in the insulation material

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



Innovative telescopic design of the fastener

Fast, easy and reliable fixing. Telescopic design of FIXPLUG fastener guarantees its proper fixing in the substrate and flush fitting of the support washer with the insulation material used



Fibreglass reinforced nail

Pins do not break during installation, even when heavily hammered. The large head of the pin makes installation easier

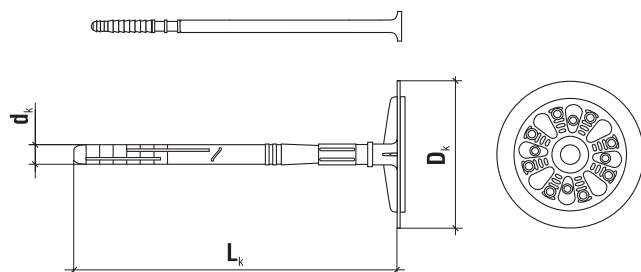


Washer design

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar

FIXPLUG-8

Hammer driven fastener with nylon pin and telescopic design support washer



Product marking

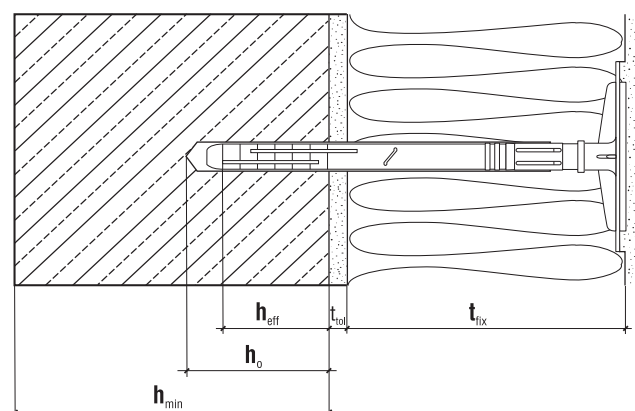
FIXPLUG	08	110	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]		Pcs
			New buildings	Old buildings	
			t_{tol} adhesive layer of 10 mm	t_{tol} adhesive layer of 10 mm + 20 mm of old plaster	
Ø8	FIXPLUG08110(200)	8x110	60	40	200
	FIXPLUG08130(200)	8x130	80	60	200
	FIXPLUG08150(200)	8x150	100	80	200
	FIXPLUG08170(200)	8x170	120	100	200
	FIXPLUG08190(200)	8x190	140	120	200
	FIXPLUG08210(100)	8x210	160	140	100

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	40
Drilled hole depth	h_o [mm]	50
Thermal conductivity	λ [W/K]	0,00
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PE
Pin material	-	PA + GF
European Technical Approval	-	ETA-15/0373



FIXPLUG-8

Hammer driven fastener with nylon pin and telescopic design support washer

RESISTANCE

ETAG 014 use cat.	Substrate	Density [kg/dm³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	0,75
A	Concrete C20/25	≥ 2,30	0,90
B	Solid clay bricks	≥ 1,77	0,90
B	Calcium silica solid brick	≥ 2,00	0,90
C	Calcium silicate hollow blocks	≥ 1,60	0,60
C	Vertically perforated clay bricks	≥ 0,95	0,40
C	Vertically perforated clay bricks	≥ 0,80	0,40
C	Perforated ceramic brick	≥ 0,80	0,75
D	Lightweight concrete blocks LAC	≥ 1,05	0,60
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,50
E	Autoclaved aerate concrete AAC7	≥ 0,65	0,75

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

INSTALLATION DATA

Fastener type	FIXPLUG 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

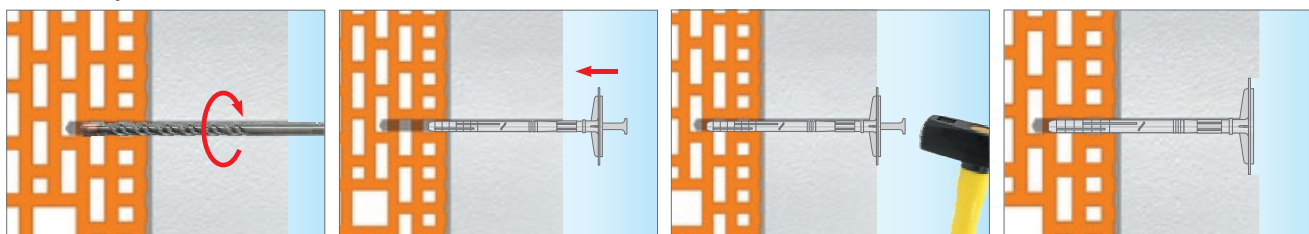
watch video



wkret-met.com/fixplug_pl



Installation spot visible



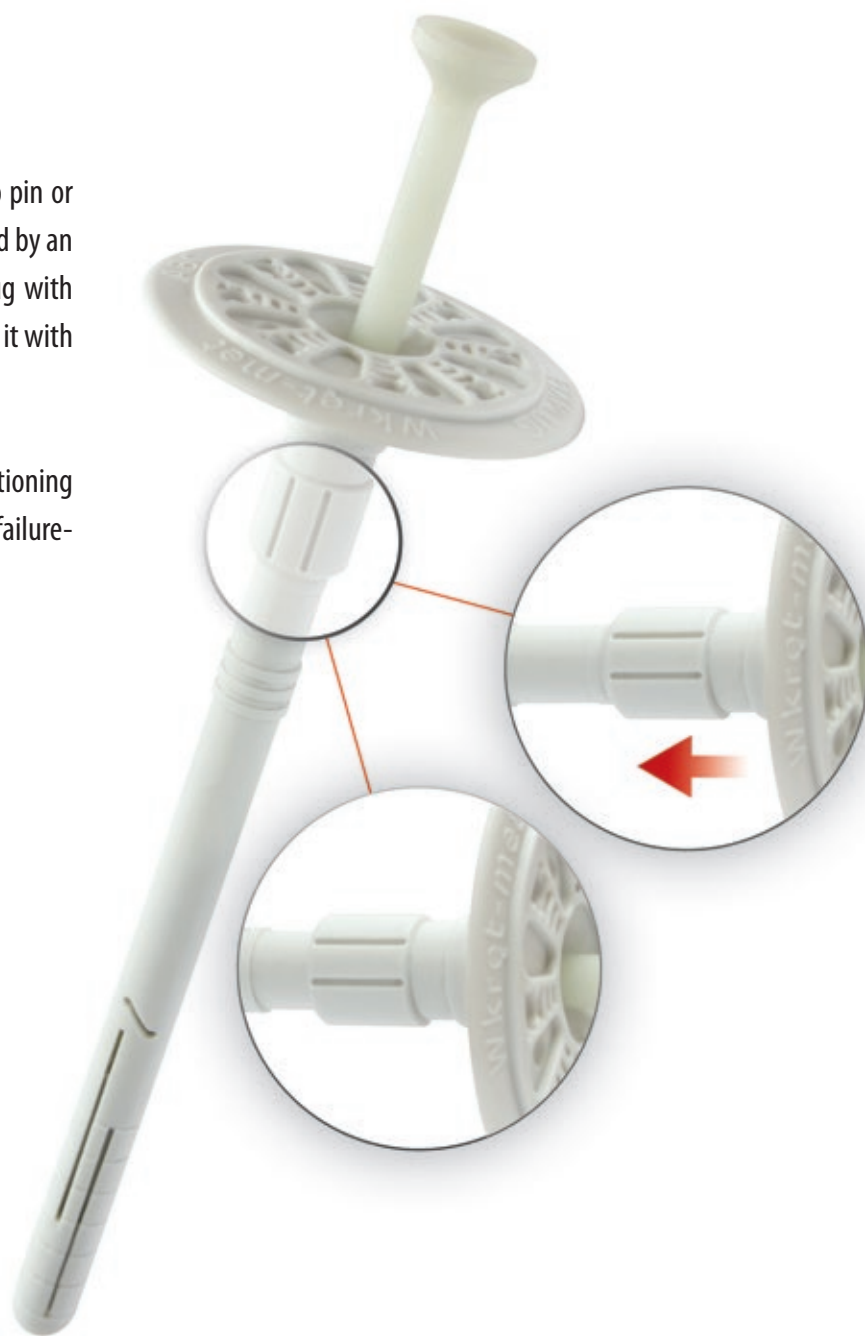
FIXPLUG

Eliminates installation errors

Installation of standard fasteners often leads to pin or even whole fastener fracture. This is often caused by an installation error involving restriking of the plug with the expansion pin already placed inside (to level it with insulation material).

FIXPLUG telescopic design enables proper positioning of the expansion pin which ensures easy and failure-free installation.

FIXPLUG fasteners come as a breakthrough for thermal insulation systems.



Special 4-way expansion guarantees secure installation in ETAG 014; A B and C type materials even when the drill hole has not been cleaned properly.

The telescopic design eliminates the problem of pin fracture even during heavy hammering. This results in secure installation with no damage to the pin.

Controlled failure zone of the washer eliminates installation errors by sinking the washer in the insulation material. It is also easier to mask the washer.

FIXPLUG-10

Hammer driven fastener with nylon pin and telescopic design support washer



Description






Innovative telescopic design ensures proper installation of the support washer in the insulation material

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS

ETAG 014 use cat.

A	B	C	D	E
				
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



Innovative telescopic design of the fastener

Fast, easy and reliable fixing. Telescopic design of FIXPLUG fastener guarantees its proper fixing in the substrate and flush fitting of the support washer with the insulation material used



Fibreglass reinforced nail

Pins do not break during installation, even when heavily hammered. The large head of the pin makes installation easier

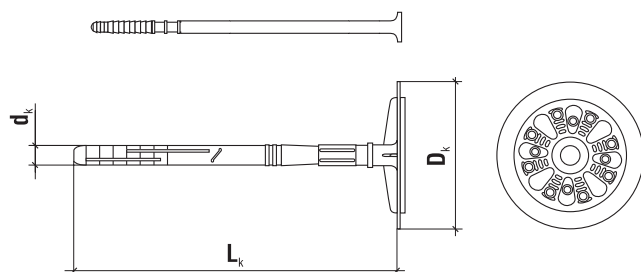


Washer design

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar

FIXPLUG-10


Hammer driven fastener with nylon pin and telescopic design support washer



Product marking

FIXPLUG	10	120	(200)
Fastener type	Diameter	Length	Number of pieces in a box

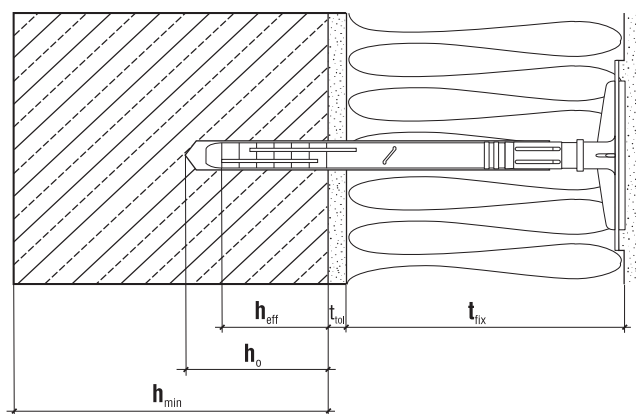
PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Szt. 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			A B	C D E	A B	C D E	
ø10	FIXPLUG10120(200)	10x120	80	70	60	50	200
	FIXPLUG10140(200)	10x140	100	90	80	70	200
	FIXPLUG10160(200)	10x160	120	110	100	90	200
	FIXPLUG10180(200)	10x180	140	130	120	110	200
	FIXPLUG10200(200)	10x200	160	150	140	130	200
	FIXPLUG10220(100)	10x220	180	170	160	150	100
	FIXPLUG10260(100)	10x260	220	210	200	190	100

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	10
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	30/40*
Drilled hole depth	h_o [mm]	40/50*
Thermal conductivity	λ [W/K]	0,00
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PE
Pin material	-	PA + GF
European Technical Approval	-	ETA-15/0373

* - ETAG 014, use category C, D, E



FIXPLUG-10

Hammer driven fastener with nylon pin and telescopic design support washer

RESISTANCE

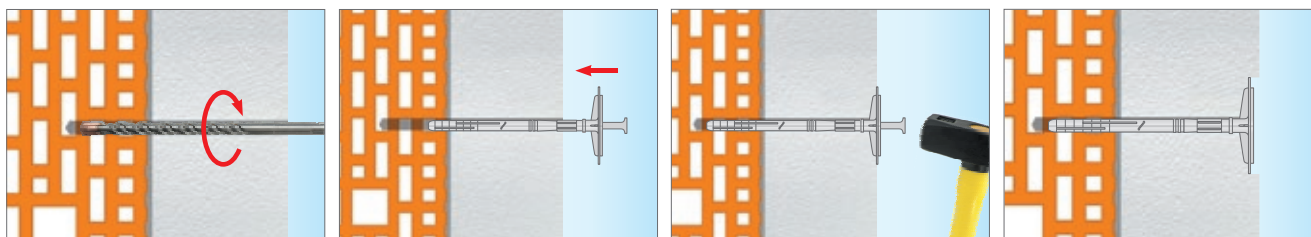
ETAG 014 use cat.	Substrate	Density [kg/dm³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 2,25	0,90
A	Concrete C16/20, C50/60	≥ 2,30	1,20
B	Solid clay bricks	≥ 2,00	0,90
B	Calcium silica solid brick	≥ 2,00	0,90
C	Calcium silicate hollow blocks	≥ 1,60	0,60
C	Vertically perforated clay bricks	≥ 0,95	0,40
C	Perforated ceramic brick	≥ 0,80	0,90
D	Lightweight concrete blocks LAC	≥ 1,05	0,75
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,50
E	Autoclaved aerate concrete AAC7	≥ 0,65	0,75

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

INSTALLATION DATA

Fastener type	FIXPLUG 10
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation spot visible





FASTENERS WITH METAL PIN FOR EXTERNAL THERMAL INSULATION SYSTEMS

PRODUCTION PROGRAMME



LMX-8

Universal hammer driven fastener with metal pin - short expansion zone



NEW IMPROVED DESIGN!



Description

Universal fastener for fastening polystyrene and mineral wool

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS



Polystyrene foam EPS



Mineral wool

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



NEW IMPROVED DESIGN
embedding of
25 and 65 mm

Owing to the new design of the expansion zone the fastener can be installed in all substrate categories while maintaining its high strength parameters



Metal nail's head sealed in plastic

Reduced point thermal transmittance enhances the heat transfer coefficient of the whole barrier, and additionally protects the pin against corrosion



Innovative design of the plug

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar
Greater stiffness of the support washer means better holding power of the material fixture

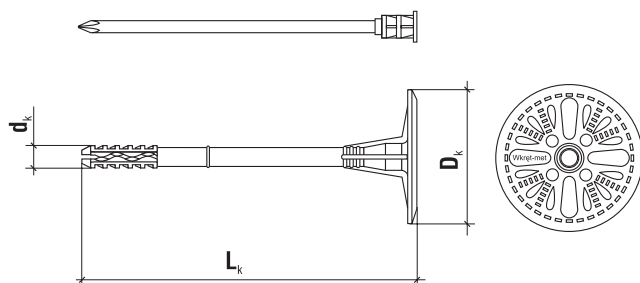


Short expansion zone, 8 mm diameter

Less drilling required – time and work saving solution

LMX-8


Universal hammer driven fastener with metal pin - short expansion zone



Product marking

LMX	08	095	(200)
Fastener type	Diameter	Length	number of pieces in a box

PRODUCT RANGE

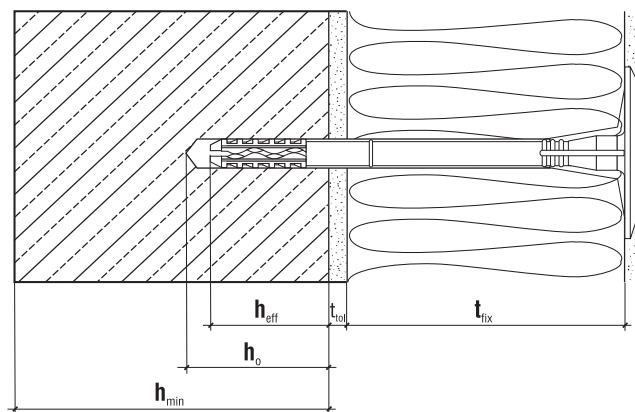
	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
ø8	LMX08095(200)	8x95	60/20*	80/40*	40/-*	60/20*	200
	LMX08115(200)	8x115	80/40*	100/60*	60/20*	80/40*	200
	LMX08135(200)	8x135	100/60*	120/80*	80/40*	100/60*	200
	LMX08155(200)	8x155	120/80*	140/100*	100/60*	120/80*	200
	LMX08175(200)	8x175	140/100*	160/120*	120/80*	140/100*	200
	LMX08195(200)	8x195	160/120*	180/140*	140/100*	160/120*	200

* - for substrate use category E (aerated concrete)

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	25/65*
Drilled hole depth	h_o [mm]	35/75*
Thermal conductivity	λ [W/K]	0,003
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PE
Pin material	-	Carbon steel, nylon coated head
Technical Approval	-	in progress

* - for substrate use category E (aerated concrete)



LMX-8

Universal hammer driven fastener with metal pin - short expansion zone

NEW IMPROVED DESIGN!

RESISTANCE

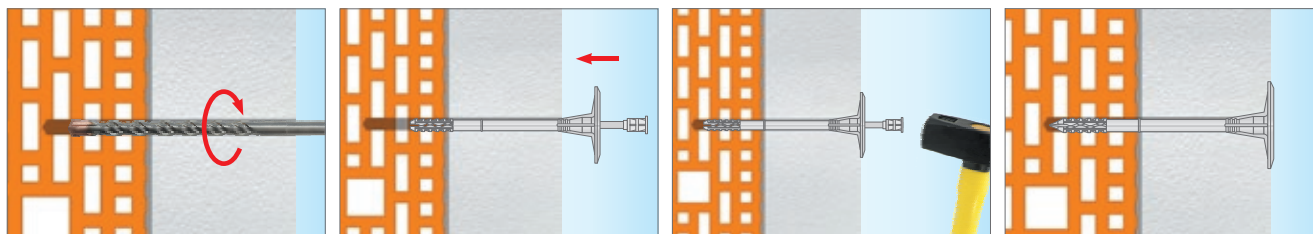
ETAG 014 use cat.	Substrate	Density [kg/dm³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	0,50
A	Concrete 16/20 - C50/60	≥ 2,30	0,75
B	Solid clay bricks	≥ 1,77	0,75
B	Calcium silica solid brick	≥ 2,00	0,75
C	Calcium silicate hollow blocks	≥ 1,60	0,60
C	Vertically perforated clay bricks	≥ 1,20	0,50
D	Lightweight concrete blocks LAC	≥ 1,05	0,75
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,75
E	Autoclaved aerate concrete AAC7	≥ 0,65	0,90

Partial safety factor for anchor resistance $\gamma_m=2$ (valid in absence of national regulations)

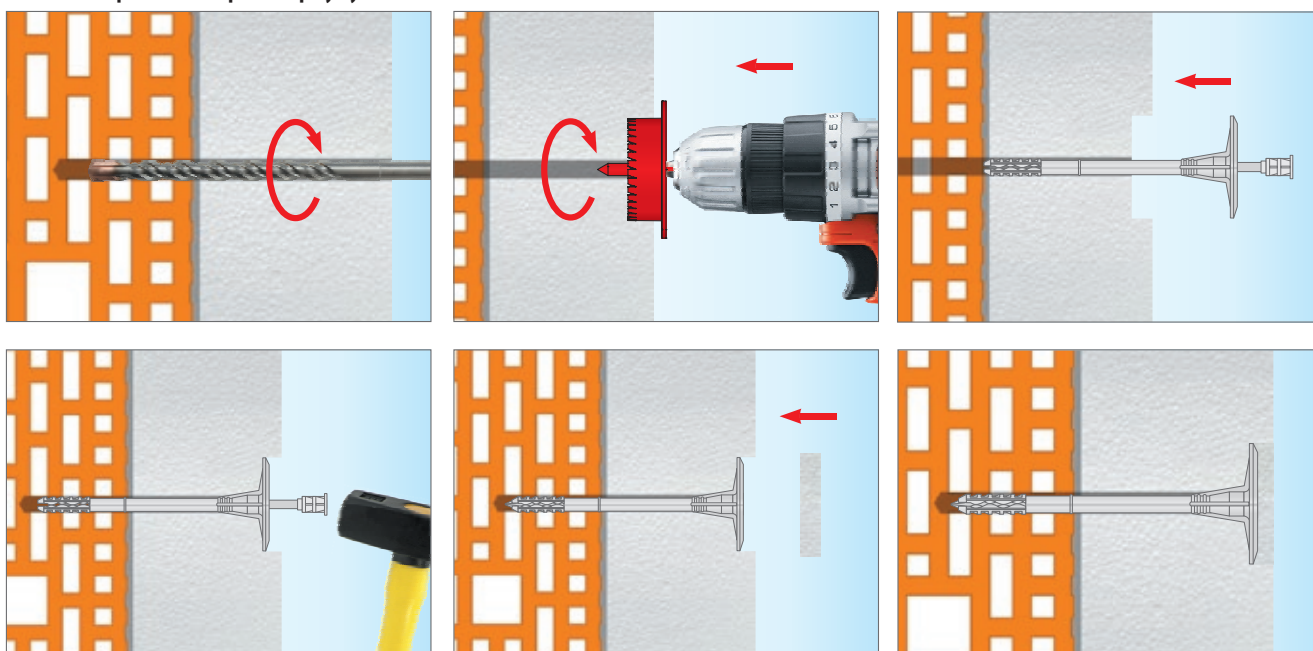
INSTALLATION DATA

Fastener type	LMX 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{05} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation spot visible



Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22



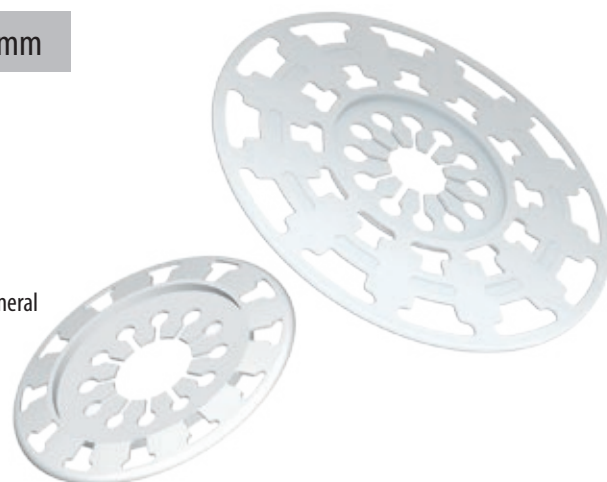
Support washer

TDX-90, TDX-140

diameters $\varnothing 90$ mm, $\varnothing 140$ mm

Specifications:

- Support plate with diameter of 90 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic
- Support plate with diameter of 140 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic



Our products are packed in tough boxes made of coloured corrugated cardboard

LMX-10

Universal hammer driven fastener with metal pin - short expansion zone



NEW IMPROVED DESIGN!



Description

Universal fastener for fastening polystyrene and mineral wool

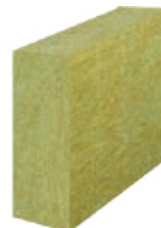
Type of insulation material with which the fastener is to be used



Polystyrene foam EPS



Polystyrene foam EPS



Mineral wool

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



NEW IMPROVED DESIGN
embedding of
30 and 50 mm

Owing to the new design of the expansion zone the fastener can be installed in all substrate categories while maintaining its high strength parameters



Metal nail's head sealed in plastic

Reduced point thermal transmittance enhances the heat transfer coefficient of the whole barrier, and additionally protects the pin against corrosion



Innovative design of the plug

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar
Greater stiffness of the support washer means better holding power of the material fixture



Short expansion zone

Less drilling required – time and work saving solution

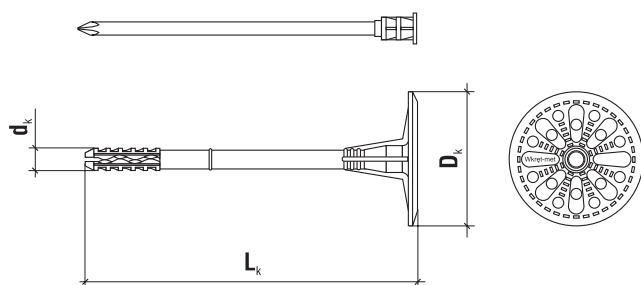


For ventilated facades

Fastener is approved for installing insulation in ventilated façade systems under AT-15-9399/2014 Technical Approval

LMX-10


Universal hammer driven fastener with metal pin - short expansion zone



Product marking

LMX	10	070	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

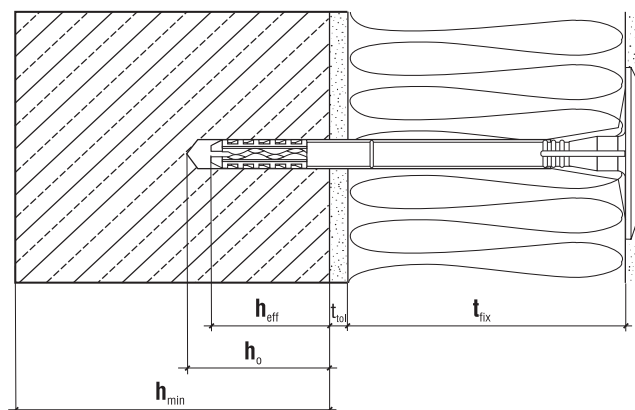
	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
ø10	LMX10070(200)	10x70	30/10*	50/30*	10/-*	30/10*	200
	LMX10090(200)	10x90	50/30*	70/50*	30/10*	50/30*	200
	LMX10110(200)	10x110	70/50*	90/70*	50/30*	70/50*	200
	LMX10120(200)	10x120	80/60*	100/80*	60/40*	80/60*	200
	LMX10140(200)	10x140	100/80*	120/100*	80/60*	100/80*	200
	LMX10160(200)	10x160	120/100*	140/120*	100/80*	120/100*	200
	LMX10180(200)	10x180	140/120*	160/140*	120/100*	140/120*	200
	LMX10200(200)	10x200	160/140*	180/160*	140/120*	160/140*	200
	LMX10220(100)	10x220	180/160*	200/180*	160/140*	180/160*	100
	LMX10260(100)	10x260	220/200*	240/220*	200/180*	220/200*	100

* - for substrate use category E (aerated concrete)

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	10
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	30/50*
Drilled hole depth	h_o [mm]	40/60*
Thermal conductivity	λ [W/K]	0,004
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PE
Pin material	-	Carbon steel, nylon coated head
Technical Approval	-	in progress

* - for substrate use category E (aerated concrete)



LMX-10

Universal hammer driven fastener with metal pin - short expansion zone

NEW IMPROVED DESIGN!

RESISTANCE

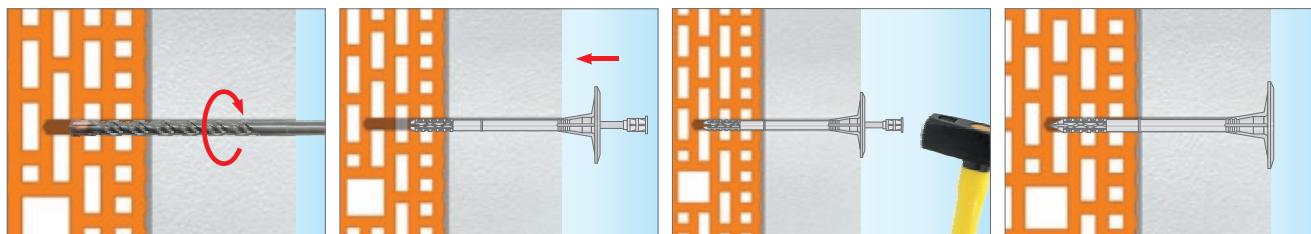
ETAG 014 use cat.	Substrate	Density [kg/dm ³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	0,75
A	Concrete C16/20 - C50/60	≥ 2,30	0,90
B	Solid clay bricks	≥ 1,77	0,90
B	Calcium silica solid brick	≥ 2,00	0,90
C	Calcium silicate hollow blocks	≥ 1,60	0,90
C	Vertically perforated clay bricks	≥ 1,20	0,75
D	Elements on LAC lightweight aggregate	≥ 1,05	0,90
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,75
E	Autoclaved aerate concrete AAC7	≥ 0,65	0,75

Partial safety factor for anchor resistance $\gamma_m=2$ (valid in absence of national regulations)

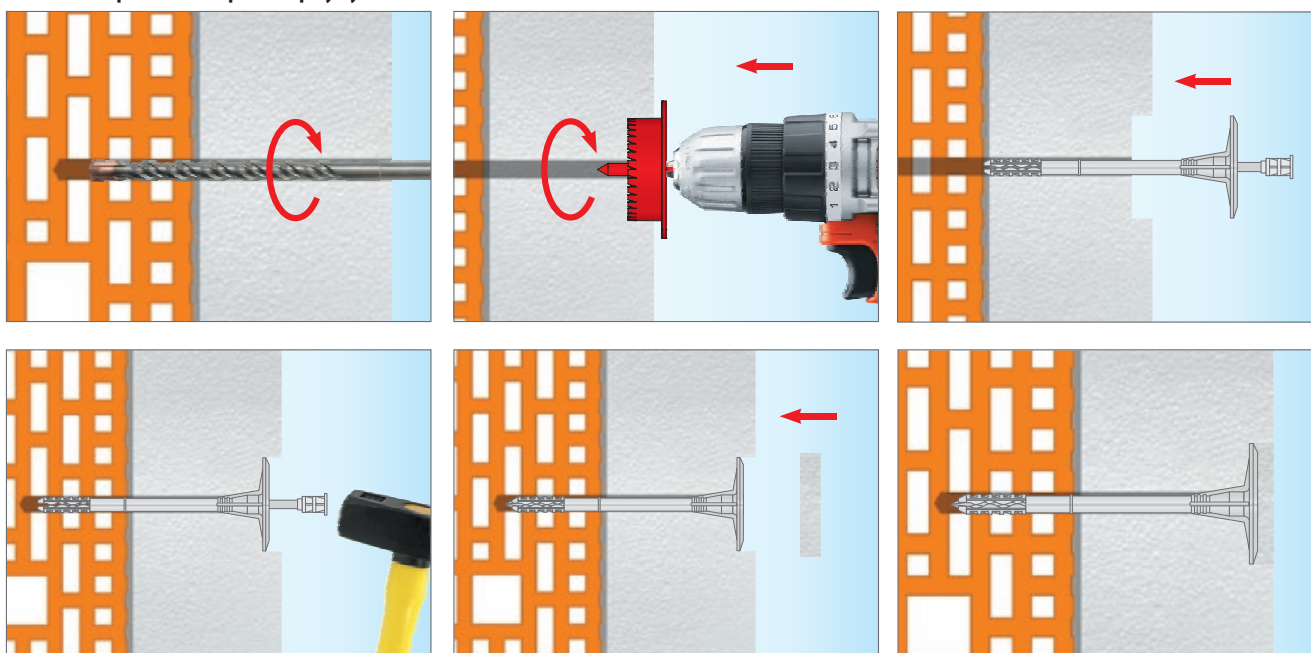
INSTALLATION DATA

Fastener type	LMX 10
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation spot visible



Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22



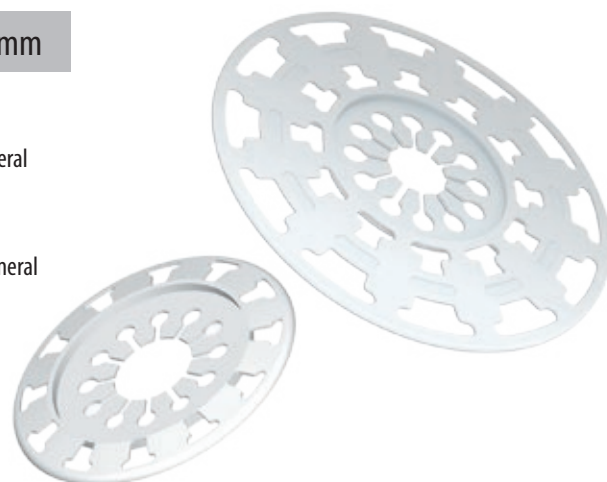
Support washer

TDX-90, TDX-140

diameters $\varnothing 90$ mm, $\varnothing 140$ mm

Specifications:

- Support plate with diameter of 90 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic
- Support plate with diameter of 140 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic



Our products are packed in tough boxes made of coloured corrugated cardboard

LFM-8

Hammer driven fastener with metal pin and extended expansion zone



Description

Universal fastener for fastening polystyrene and mineral wool

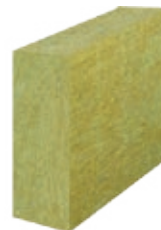
Type of insulation material with which the fastener is to be used



Polystyrene foam EPS



Polystyrene foam EPS



Mineral wool

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



Metal nail's head sealed in plastic

Reduced point thermal transmittance enhances the heat transfer coefficient of the whole barrier, and additionally protects the pin against corrosion



Innovative design of the plug

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar
Greater stiffness of the support washer means better holding power of the material fixture

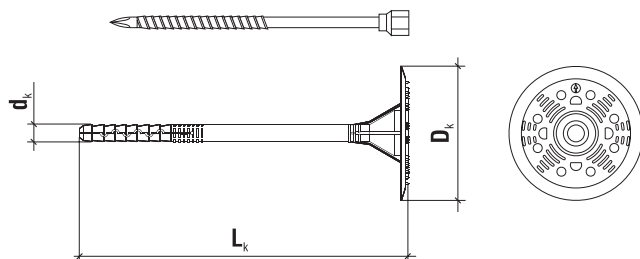


Diameter 8mm

Less drilling required – time and work saving solution

LFM-8


Hammer driven fastener with metal pin and extended expansion zone



Product marking

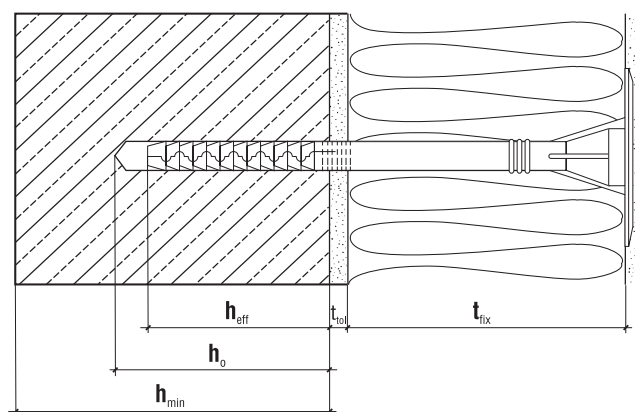
LFM	08	100	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
ø8	LFM08100(200)	8x100	30	50	10	30	200
	LFM08120(200)	8x120	50	70	30	50	200
	LFM08140(200)	8x140	70	90	50	70	200
	LFM08160(200)	8x160	90	110	70	90	200
	LFM08180(200)	8x180	110	130	90	110	200
	LFM08200(200)	8x200	130	150	110	130	200

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	60
Drilled hole depth	h_o [mm]	70
Thermal conductivity	λ [W/K]	0,004
Washer stiffness	S [kN/mm]	0,30
Use categories	-	A B C D E
Plug material	-	PP
Pin material	-	Carbon steel, nylon coated head
European Technical Approval	-	ETA-06/0080



LFM-8

Hammer driven fastener with metal pin and extended expansion zone

RESISTANCE

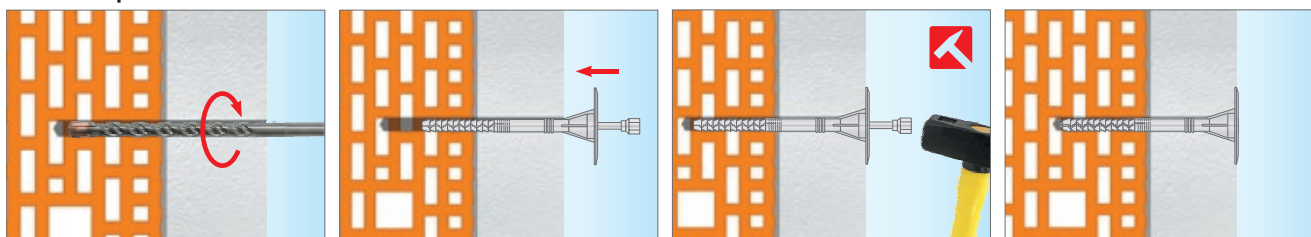
ETAG 014 use cat.	Substrate	Density [kg/dm³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	0,50
A	Concrete C20/25	≥ 2,30	0,75
B	Solid clay bricks	≥ 1,61	0,75
C	Calcium silicate hollow blocks	≥ 1,60	0,40
C	Perforated solid brick	≥ 1,20	0,40
D	Lightweight concrete blocks LAC	≥ 1,05	0,60
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,30
E	Autoclaved aerate concrete AAC7	≥ 0,65	0,75

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

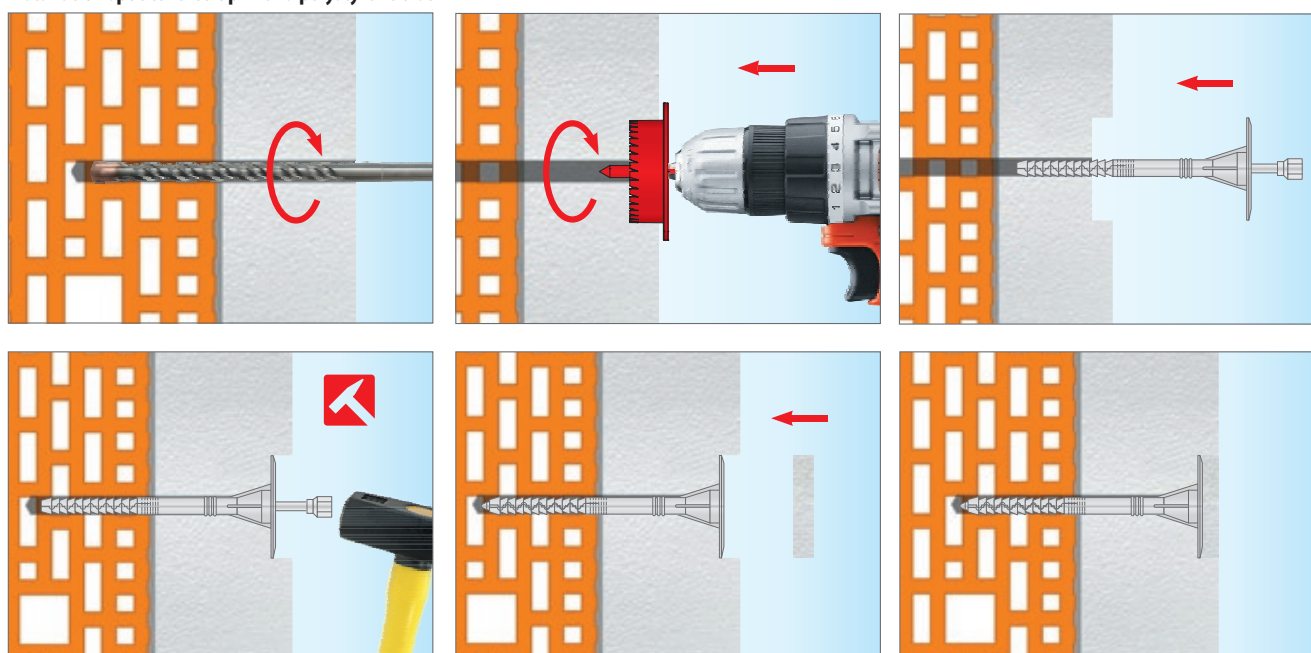
INSTALLATION DATA

Fastener type	LFM 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation spot visible



Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22



Support washer

TDX-90, TDX-140

diameters $\varnothing 90$ mm, $\varnothing 140$ mm

Specifications:

- Support plate with diameter of 90 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic
- Support plate with diameter of 140 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic



Our products are packed in tough boxes made of coloured corrugated cardboard

LFM-10

Hammer driven fastener with metal pin and extended expansion zone



Description

Universal fastener for fastening of polystyrene and mineral wool

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS



Polystyrene foam EPS



Mineral wool

ETAG 014 use cat.

B	C	D	E
Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



Metal nail's head sealed in plastic

Reduced point thermal transmittance enhances the heat transfer coefficient of the whole barrier, and additionally protects the pin against corrosion



Innovative design of the plug

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar. Greater stiffness of the support washer means better holding power of the material fixture.

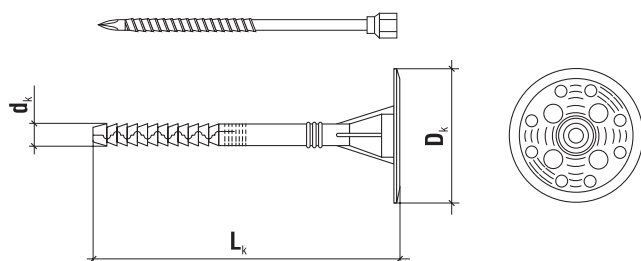


Long expansion zone

Long expansion zone ensures steady and reliable distribution of forces in the substrate.

LFM-10


Hammer driven fastener with metal pin and extended expansion zone



Product marking

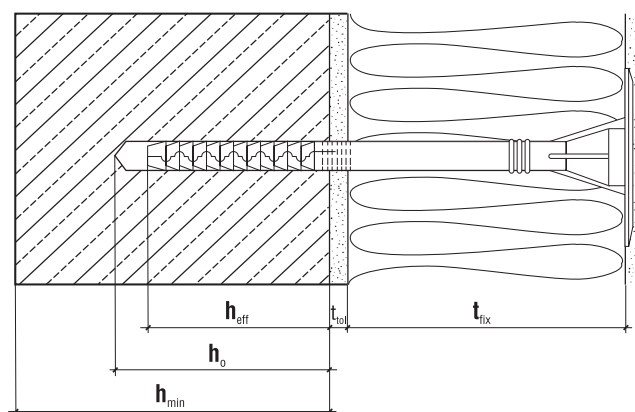
LFM	10	140	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
ø10	LFM10140(200)	10x140	50	70	30	50	200
	LFM10160(200)	10x160	70	90	50	70	200
	LFM10180(200)	10x180	90	110	70	90	200
	LFM10200(200)	10x200	110	130	90	110	200
	LFM10220(100)	10x220	130	150	110	130	100
	LFM10260(100)	10x260	170	190	150	170	100
	LFM10300(100)	10x300	210	230	190	210	100

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	10
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	80
Drilled hole depth	h_o [mm]	90
Thermal conductivity	λ [W/K]	0,004
Washer stiffness	S [kN/mm]	X
Use categories	-	B C D E
Plug material	-	PP
Pin material	-	Carbon steel, nylon coated head
European Technical Approval	-	ETA-06/0105



LFM-10

Hammer driven fastener with metal pin and extended expansion zone

RESISTANCE

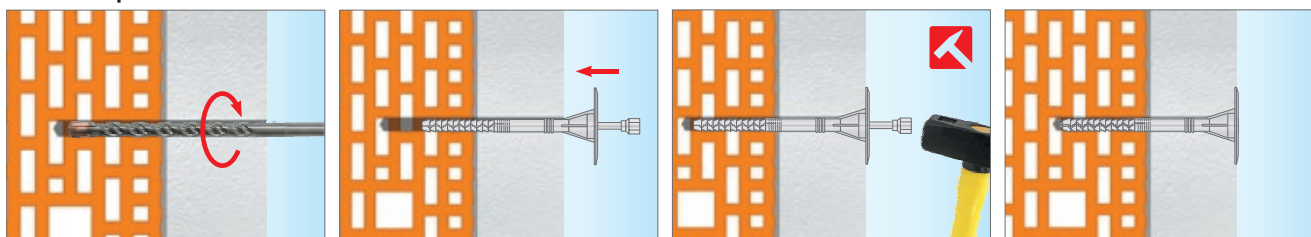
ETAG 014 use cat.	Substrate	Density [kg/dm³]	Characteristic pull-out resistance
B	Solid clay bricks	≥ 1,61	0,75
C	Perforated solid brick	≥ 1,20	0,75
D	Lightweight concrete blocks LAC	≥ 1,05	0,90
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,30
E	Autoclaved aerate concrete AAC7	≥ 0,65	0,75

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

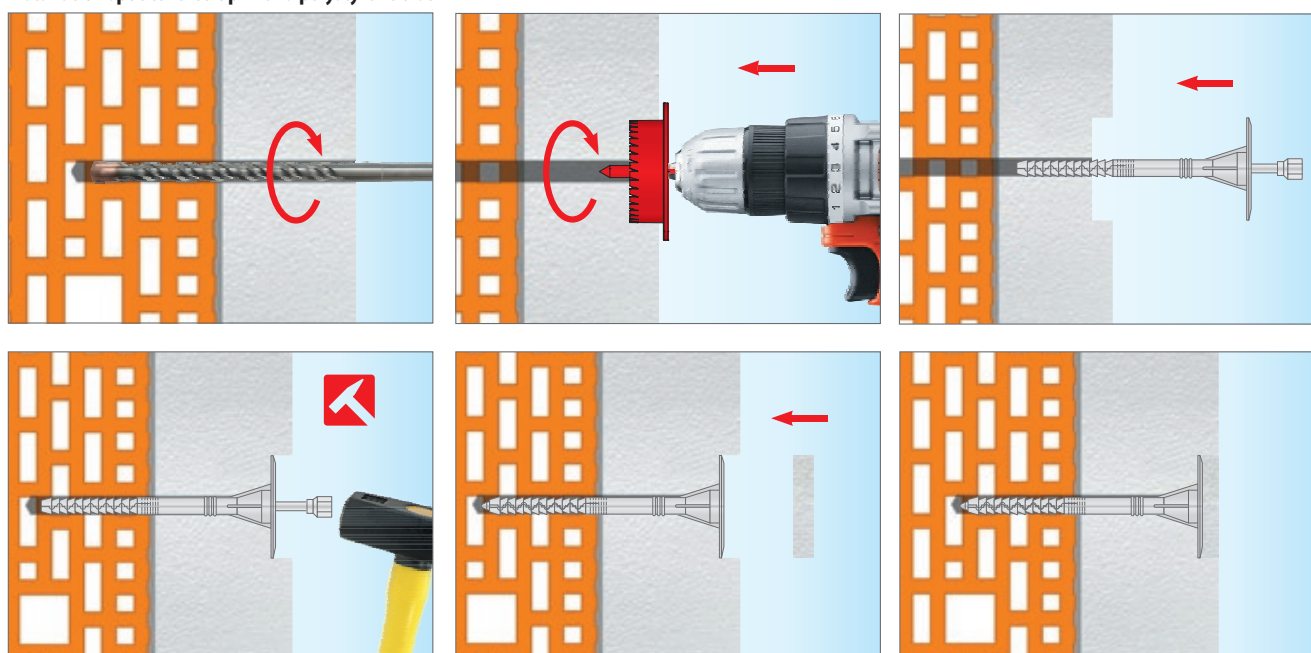
INSTALLATION DATA

Fastener type	LFM 10
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation spot visible



Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22



Support washer

TDX-90, TDX-140

diameters $\varnothing 90$ mm, $\varnothing 140$ mm

Specifications:

- Support plate with diameter of 90 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic
- Support plate with diameter of 140 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic



Our products are packed in tough boxes made of coloured corrugated cardboard.

NEW!

WK THERM 8

Hammer driven fastener
with metal pin and short
expansion zone, \varnothing 8 mm



**ANCHORAGE
DEPTH
ONLY
25 mm**



ETAG 014 A B C



SECURE FIXING OF INSULATING MATERIALS

UP TO **280 mm** THICK!

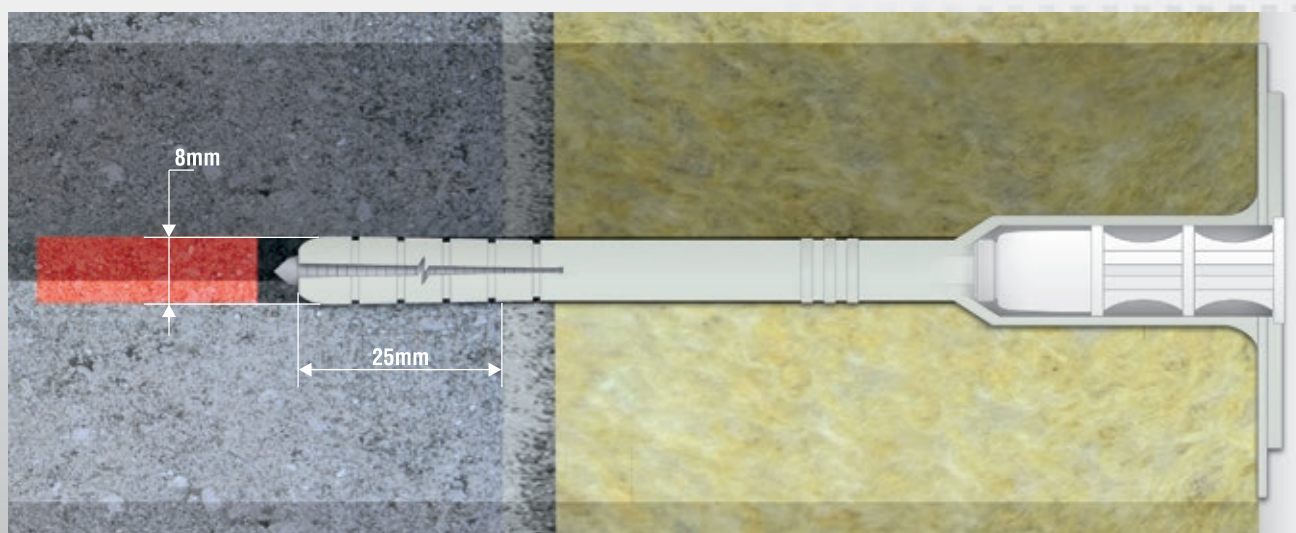
WK THERM 8

Standard thermal insulation fasteners require a time consuming drilling process and drill hole preparation. This extends the installation time and increases the costs of equipment wear and tear, as well as scaffolding hire. Reduced drilling depth saves time and money. WK THERM fasteners offer substantial benefits. They also offer an innovative approach to thermal protection of buildings. WK THERM fasteners combine the features of metal and plastic pin fasteners. Extended 25 mm plastic head of the metal pin complies with most recent European standards. It also eliminates heat loss through the so-called "thermal bridge".

WK THERM fasteners offer state-of-the-art fixing solutions for thermal insulation systems.



UP TO 50%
REDUCED DRILL
HOLE DEPTH



Improved and shorter expansion zone greatly reduces the depth of the drill hole (even by 55mm) and the drilling time. It also ensures secure installation in both solid materials (concrete, ceramic brick) and hollow walls (chequer brick and silica brick).

Special design of the pin's head and the additional sealing eliminate thermal bridging which frequently occurs in fasteners with metal nail. Hence, this significantly improves the insulation performance of the fixing.

WK THERM 8

Hammer driven fastener with metal pin and short expansion zone



NEW!



Description

Universal fastener for fastening polystyrene and mineral wool

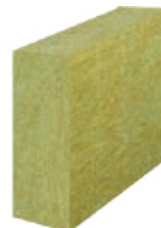
Type of insulation material with which the fastener is to be used



Polystyrene foam EPS



Polystyrene foam EPS



Mineral wool

ETAG 014 use cat.

A	B	C
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks

Features and advantages of the product



Metal nail's head sealed in plastic

Very low point thermal transmittance (0.002 W/K) enhances the heat transfer coefficient of the whole barrier and additionally protects the nail against corrosion



Innovative design of the plug

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar. Greater stiffness of the support washer means better holding power of the material fixture.



Short expansion zone, 8mm diameter

New expansion zone provides for maximum strength of the fastener with a minimum workload and maintaining low equipment outlays.

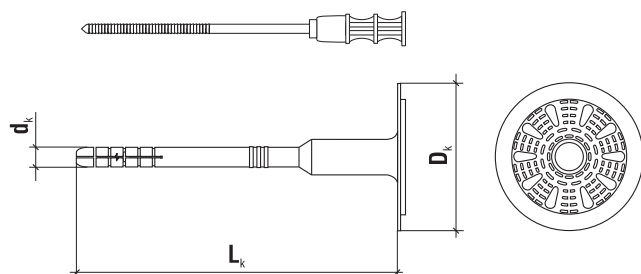


Screw-in fixing

Screw-in parameters and provides for flush fitting of the fastener with the insulation material. These fasteners are real time-savers.

WK THERM 8


Hammer driven fastener with metal pin and short expansion zone



Product marking

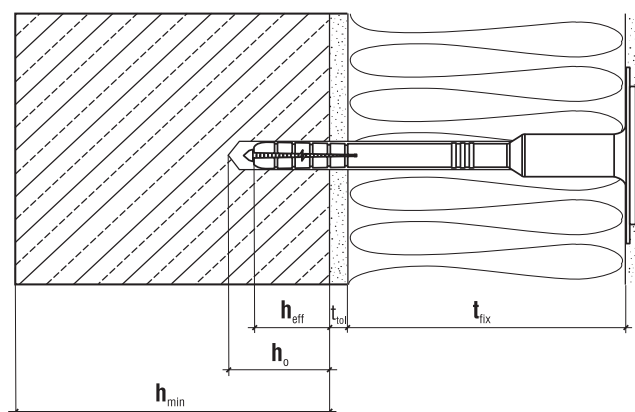
WK THERM	08	095	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
Ø8	WK THERM08095(200)	8x95	60	80	40	60	200
	WK THERM08115(200)	8x115	80	100	60	80	200
	WK THERM08135(200)	8x135	100	120	80	100	200
	WK THERM08155(200)	8x155	120	140	100	120	200
	WK THERM08175(200)	8x175	140	160	120	140	200
	WK THERM08195(200)	8x195	160	180	140	160	200
	WK THERM08215(100)	8x215	180	200	160	180	100
	WK THERM08235(100)	8x235	200	220	180	200	100
	WK THERM08255(100)	8x255	220	240	200	220	100
	WK THERM08275(100)	8x275	240	260	220	240	100
	WK THERM08295(100)	8x295	260	280	240	260	100

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	25
Drilled hole depth	h_o [mm]	35
Thermal conductivity	λ [W/K]	0,002
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C
Plug material	-	PE
Pin material	-	Carbon steel, nylon + GF coated head
European Technical Approval	-	ETA-11/0232



WK THERM 8

Hammer driven fastener with metal pin and short expansion zone

RESISTANCE

ETAG 014 use cat.	Substrate	Density [kg/dm ³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	1,20
A	Concrete >C16/20	≥ 2,30	1,50
B	Solid clay bricks	≥ 1,70	1,50
B	Calcium silica solid brick	≥ 2,00	1,50
C	Calcium silicate hollow blocks	≥ 1,60	1,20
C	Perforated solid brick	≥ 0,95	0,60
C	Vertically perforated ceramic blocks	≥ 0,80	0,60

Partial safety factor for anchor resistance $\gamma_m=2$ (valid in absence of national regulations)

INSTALLATION DATA

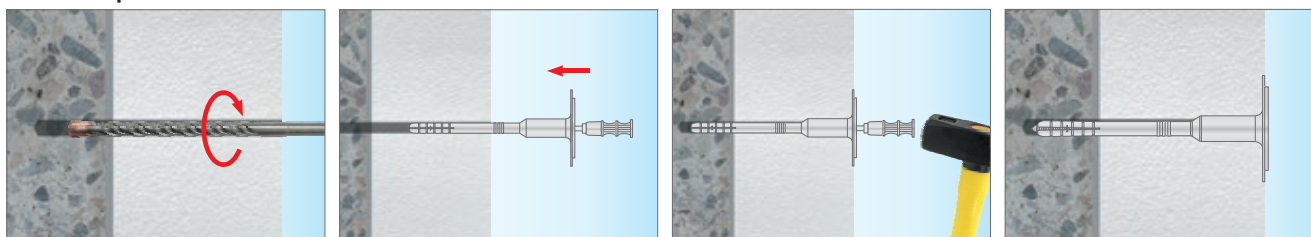
Fastener type	WK THERM 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

WK THERM 8

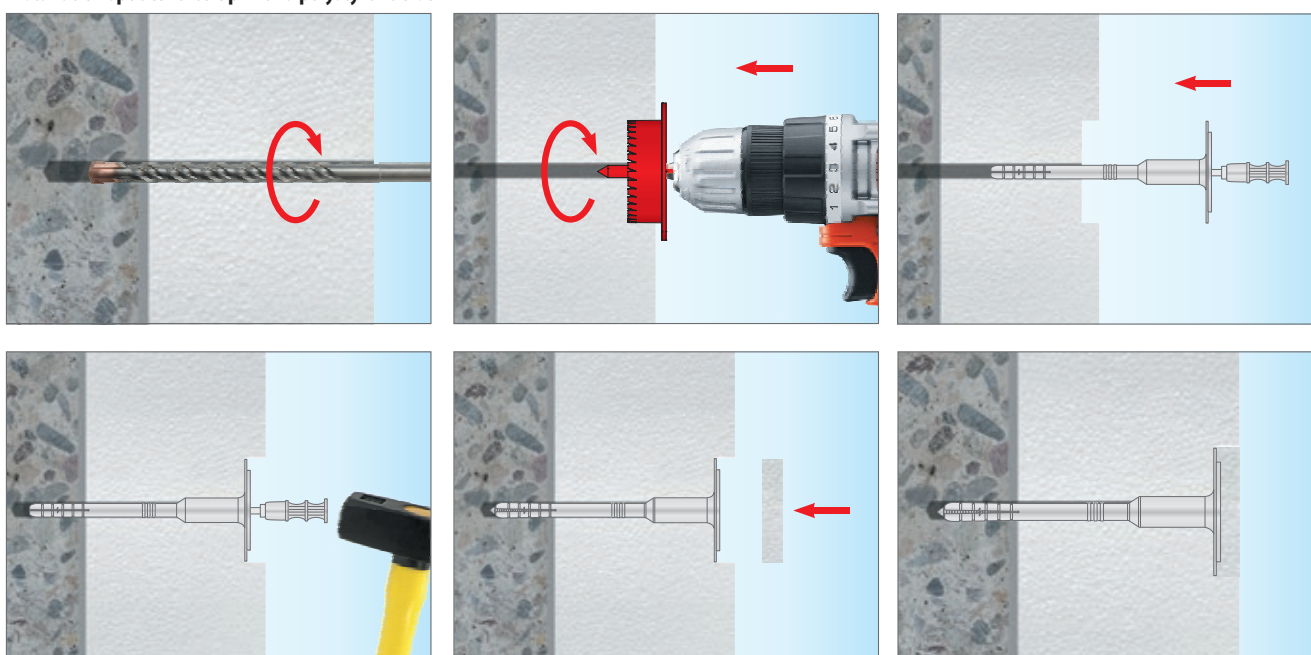
PULL-TRough TEST INSULATION SAMPLE [kN]

R panel	EPS 035/60 mm	EPS 040/60 mm
	0,47 [kN]	0,47 [kN]

Installation spot visible



Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22



Support washer

TDX-90, TDX-140

diameters $\varnothing 90$ mm, $\varnothing 140$ mm

Specifications:

- Support plate with diameter of 90 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic
- Support plate with diameter of 140 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic



Our products are packed in tough boxes made of coloured corrugated cardboard

NEW!



WK THERM-S 8

Screwed-in anchor
with metal pin and short
expansion zone Ø 8 mm



ETAG 014 A B C D E

anchorage
depth of
only

25
mm

universal
application for
many substrates

ETAG 014
A B C D E

insulation
materials with
thicknesses
of up

260
mm

FASTENERS FOR EXTERNAL THERMAL INSULATION SYSTEMS

FASTENERS WITH METAL PIN

Wkręt-met®
KLIMAS

Metal pin
with
25 mm nylon
head

0,002
[W/K]

particularly recommended
for **porous mineral
insulation** materials where
hammer drive or
countersinking fasteners
cannot be used

watch video

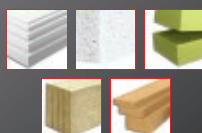


wkręt-met.com/wktherm-s



screw-in
TORX 40

universal
application for
many thermal
insulation
materials



can be used
in stone
glued to
the insulation
layer

WK THERM-S 8

Screwed-in fastener with metal pin and short expansion zone



TX-40



NEW!



Description

Universal screwed-in fastener for all substrates

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS



Polystyrene foam EPS



Mineral wool

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



Metal nail's head sealed in plastic

Very low point thermal transmittance (0.002W/K) enhances the heat transfer coefficient of the whole barrier and additionally protects the nail against corrosion



Screw-in fixing, TORX-40

Screw-driven fastener recommended for use in brittle materials to avoid damaging of the substrate with a hammer. Screw-driven nail guarantees achieving best strength parameters and facilitates flush fitting of the fastener with the insulation material. These fasteners are real time-savers



Innovative design of the plug

Large amount of pocket adhesives on the support washer increases the adhesiveness of the mortar. Greater stiffness of the support washer means better holding power of the material fixture

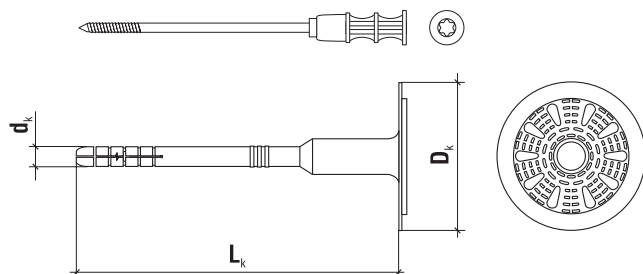


Short expansion zone, 8 mm diameter.

New expansion zone provides for maximum strength of the fastener with a minimum workload and maintaining low equipment outlays

WK THERM-S 8


Screwed-in fastener with metal pin and short expansion zone



Product marking

WK THERM-S	08	095	(200)
Fastener type	Diameter	Length	Number of pieces in a box

PRODUCT RANGE

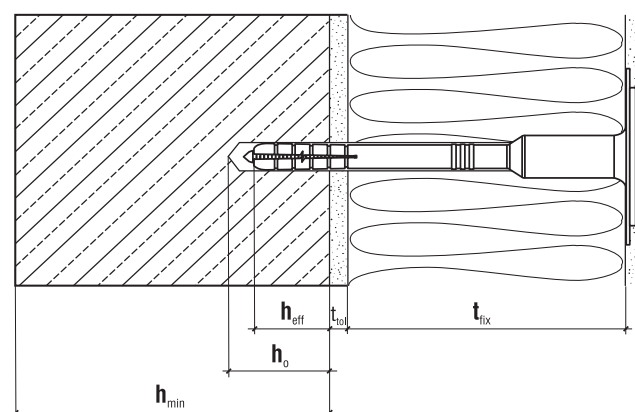
	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]				Pcs 
			New buildings		Old buildings		
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster		
			without cutter	with cutter	without cutter	with cutter	
ø8	WK THERM-S-08095(200)	8x95	60/20*	80/40*	40/-*	60/20*	200
	WK THERM-S-08115(200)	8x115	80/40*	100/60*	60/20*	80/40*	200
	WK THERM-S-08135(200)	8x135	100/60*	120/80*	80/40*	100/60*	200
	WK THERM-S-08155(200)	8x155	120/80*	140/100*	100/60*	120/80*	200
	WK THERM-S-08175(200)	8x175	140/100*	160/120*	120/80*	140/100*	200
	WK THERM-S-08195(200)	8x195	160/120*	180/140*	140/100*	160/120*	200
	WK THERM-S-08215(100)	8x215	180/140*	200/160*	160/120*	180/140*	100
	WK THERM-S-08235(100)	8x235	200/160*	220/180*	180/140*	200/160*	100
	WK THERM-S-08255(100)	8x255	220/180*	240/200*	200/160*	220/180*	100
	WK THERM-S-08275(100)	8x275	240/200*	260/220*	220/180*	240/200*	100
	WK THERM-S-08295(100)	8x295	260/220*	280/240*	240/200*	260/220*	100

* - ETAG 014, use category E (aerated concrete)

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	25/65*
Drilled hole depth	h_o [mm]	35/75*
Thermal conductivity	λ [W/K]	0,002
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PE
Pin material	-	Carbon steel, nylon + GF coated head
European Technical Approval	-	ETA-13/0724

* - ETAG 014, use category E (aerated concrete)



WK THERM-S 8

Screwed-in fastener with metal pin and short expansion zone

RESISTANCE

ETAG 014 use cat.	Substrate	Density [kg/dm ³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	1,20
A	Concrete >C16/20	≥ 2,30	1,50
B	Solid clay bricks	≥ 1,70	1,50
B	Calcium silica solid brick	≥ 2,00	1,50
C	Calcium silicate hollow blocks	≥ 1,60	0,90
C	Perforated solid brick	≥ 0,95	0,75
D	Lightweight concrete blocks LAC	≥ 0,80	0,90
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,60
E	Autoclaved aerate concrete AAC7	≥ 0,65	1,20

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

INSTALLATION DATA

Fastener type	WK THERM-S 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

WK THERM-S 8

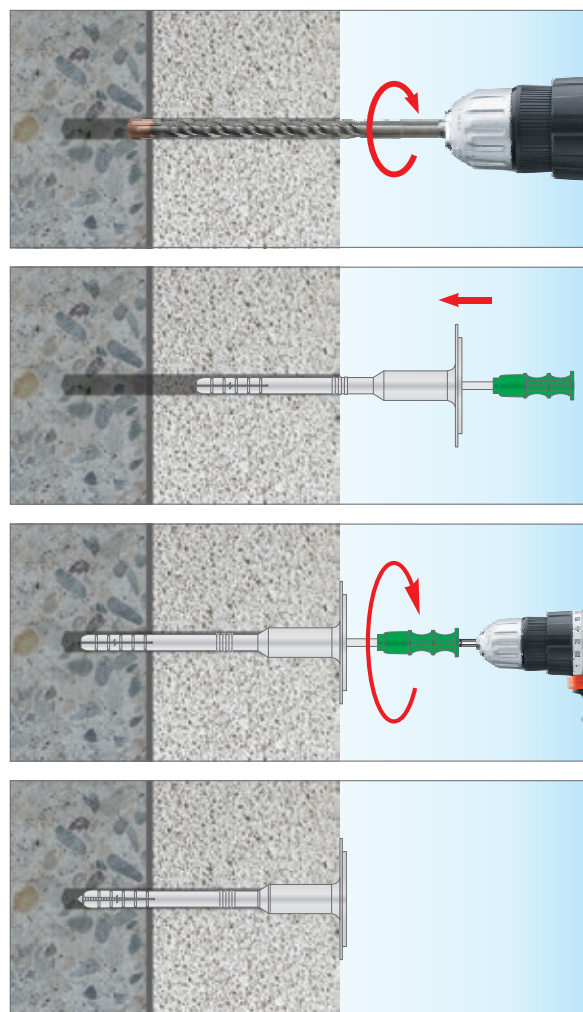
PULL-THROUGH TEST INSULATION SAMPLE [kN]

R panel	EPS 035/60 mm	EPS 040/60 mm
	0,47 [kN]	0,47 [kN]

Installation spot visible - an example of a typical application of screw-in WK THERM-S fixing in Multipor insulation material



Installation spot visible



INSTALLATION ACCESSORIES

Plastic cutter for cutting holes in polystyrene

WK-FT

diameter $\varnothing 66,7$ mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar

Polystyrene disc (white, graphite)

KS, KSG

dimension $\varnothing 67 \times 17$ mm

Specifications:

- Polystyrene disc (white, graphite) for covering up work holes in polystyrene - installation spot covered up; to be used with anchors see Table no. 3 page 22

Support washer

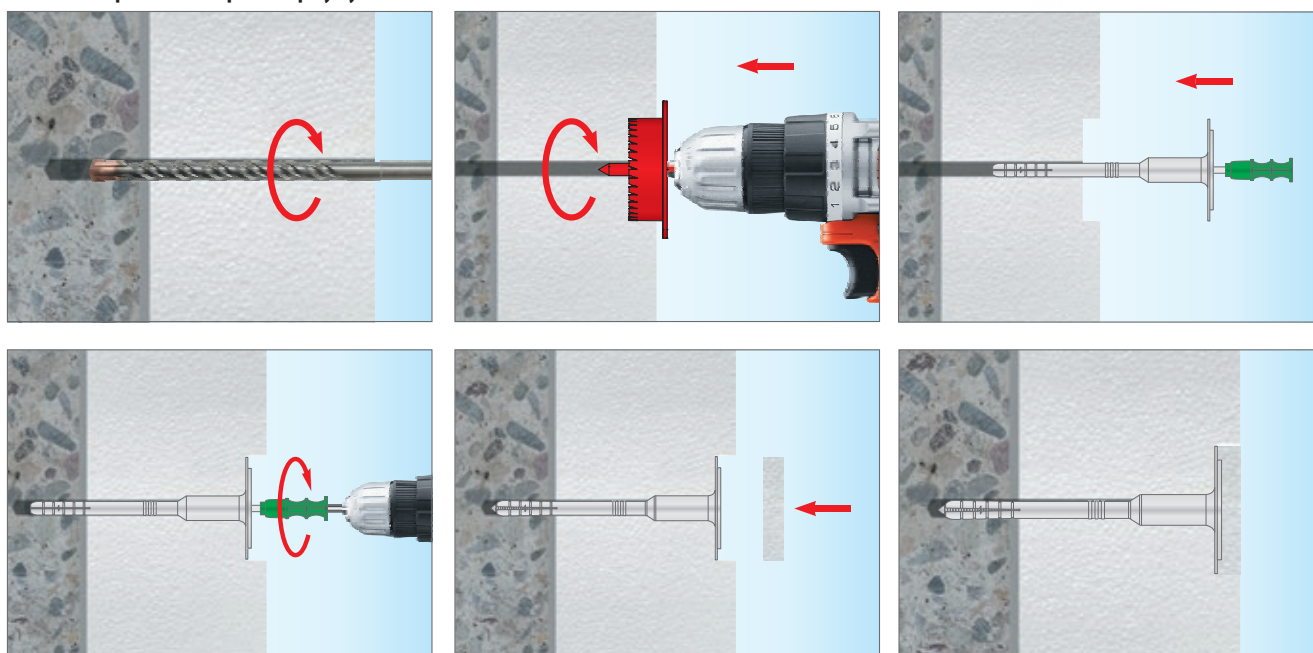
TDX-90, TDX-140

diameters $\varnothing 90$ mm, $\varnothing 140$ mm

Specifications:

- Support plate with diameter of 90 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic
- Support plate with diameter of 140 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic

Installation spot covered up with a polystyrene disc



NEW!

ECO-DRIVE S

Innovative screwed-in
anchor with metal pin,
short expansion zone
Ø 8 mm

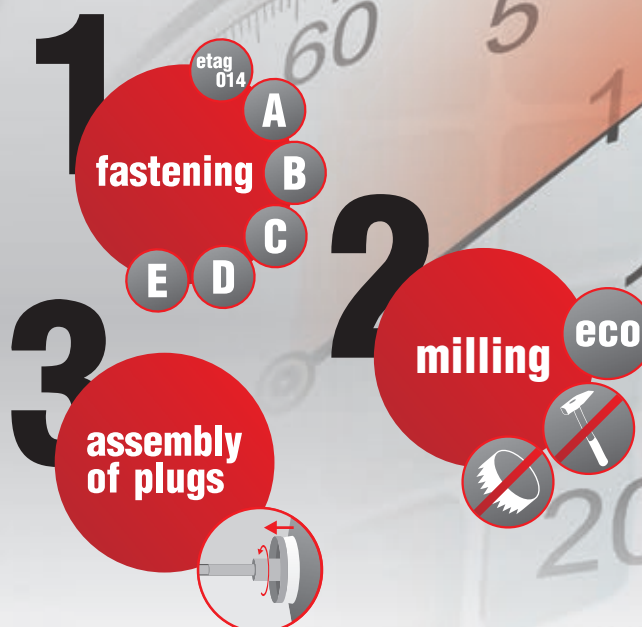


ETAG 014 ABCDE



Installation:
quick & easy
even less
than 10 secs

3 actions at the same time



NEW!

ECO-DRIVE

Innovative screwed-in
anchor with metal pin,
short expansion zone
Ø 8 mm



insulating
materials
up to **360mm**
thick!

innovative
telescopic
design

anchorage
depth
35mm*
only

* ETAG 014: A B C D



ETAG 014 | A B C D E



ECO-DRIVE 8

Screwed-in fastener with metal pin and telescopic design support washer



Description

Universal fastener for fastening of polystyrene

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



Screw-in fixing, TORX-40

Screw-driven fastener recommended for use in brittle materials to avoid damaging of the substrate with a hammer. Screw-driven nail guarantees achieving best strength parameters and provides for flush fitting of the fastener with the insulation material. These fasteners are real time-savers



Modern telescopic design

Combination of telescopic design and a cutting washer offers a most advanced fastener on the market for covered up installation spot which eliminates the use of cutter and reduces pollution with polystyrene dust



Polystyrene disc

Fasteners are supplied with polystyrene discs, which seriously shortens installation work, eliminates thermal bridging and ensures good aesthetics of the outer layer

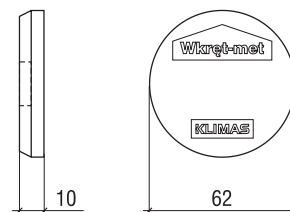
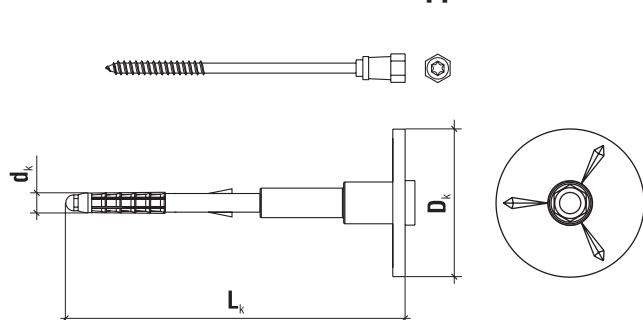


Pre-assembled fasteners

Screw-in parameters and provides for flush fitting of the fastener with the insulation material. These fasteners are real time-savers

ECO-DRIVE 8

Screwed-in fastener with metal pin and telescopic design support washer



Product marking

ECODRIVE	08	150	(100)
Fastener type	Diameter	Length	Number of pieces in a box

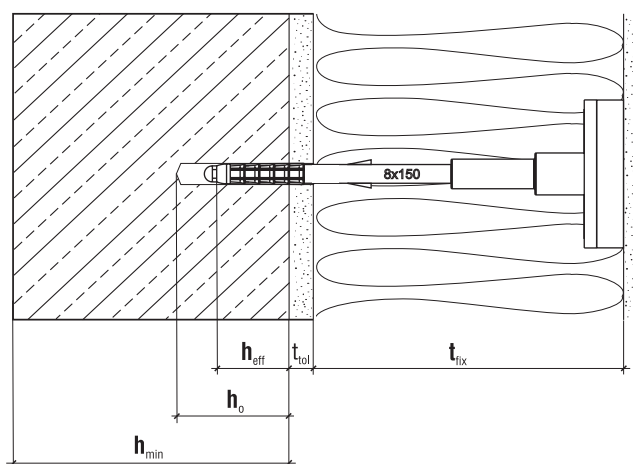
PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]			Pcs
			New buildings		Old buildings	
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster	
			Cat. A B C D	Cat. E	Cat. A B C D	
Ø8	ECODRIVE-08150(100)	8x150	80	60	60	100
	ECODRIVE-08170(100)	8x170	100	80	80	100
	ECODRIVE-08190(100)	8x190	120	100	100	100
	ECODRIVE-08210(100)	8x210	140	120	120	100
	ECODRIVE-08230(100)	8x230	160	140	140	100
	ECODRIVE-08250(100)	8x250	180	160	160	100
	ECODRIVE-08270(100)	8x270	200	180	180	100
	ECODRIVE-08290(100)	8x290	220	200	200	100
	ECODRIVE-08310(100)	8x310	240	220	220	100
	ECODRIVE-08330(100)	8x330	260	240	240	100
	ECODRIVE-08350(100)	8x350	280	260	260	100
	ECODRIVE-08370(100)	8x370	300	280	280	100
	ECODRIVE-08390(100)	8x390	320	300	300	100
	ECODRIVE-08410(100)	8x410	340	320	320	100
	ECODRIVE-08430(100)	8x430	360	340	340	100

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	35/55*
Drilled hole depth	h_o [mm]	45/65*
Thermal conductivity	λ [W/K]	0,002
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PA
Pin material	-	Carbon steel, nylon + GF coated head
European Technical Approval	-	ETA-13/0107

* - ETAG 014, use category E (aerated concrete)



ECO-DRIVE 8

Screwed-in fastener with metal pin and telescopic design support washer

RESISTANCE

ETAG 014 use cat.	Substrate	Density [kg/dm³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	1,20
A	Concrete >C16/20	≥ 2,30	1,50
B	Solid clay bricks	≥ 2,00	1,50
B	Calcium silica solid brick	≥ 2,00	1,50
C	Calcium silicate hollow blocks	≥ 1,60	1,50
C	Perforated solid brick	≥ 1,20	1,50
C	Lightweight concrete hollow blocks	≥ 0,80	1,50
D	Lightweight concrete blocks LAC	≥ 1,05	0,90
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,60
E	Autoclaved aerate concrete AAC7	≥ 0,65	1,20

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

INSTALLATION DATA

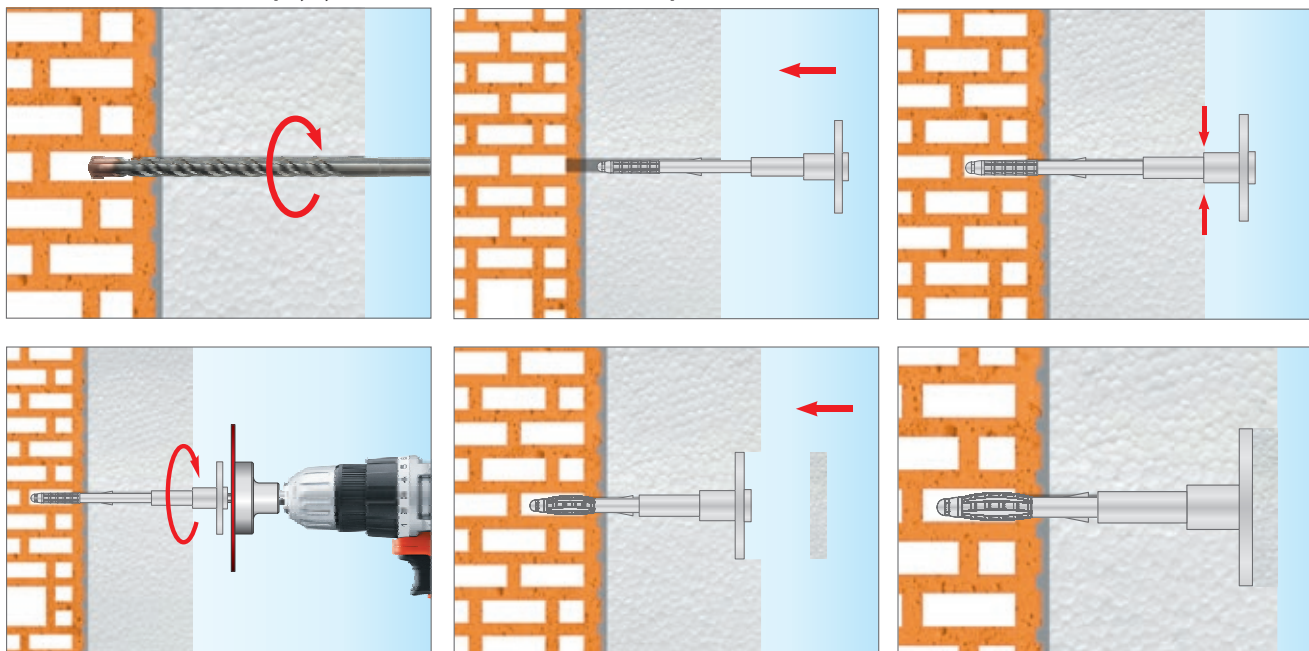
Fastener type	ECO-DRIVE 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

ECO-DRIVE 8

PULL-THROUGH TEST INSULATION SAMPLE [kN]

R panel	EPS 035/80 mm	EPS 040/80 mm
	0,54 [kN]	0,49 [kN]

installation of a fastener with a polystyrene or mineral wool disc – installation spot covered



INSTALLATION ACCESSORIES

Setting tool (for ECO-DRIVE 8)

EDST

diameter \varnothing 120 mm, TORX 40

Specifications:

- ECO-DRIVE 8, ECO-DRIVE S 8 and DRIVE S setting tool - see Table no. 3 page 22

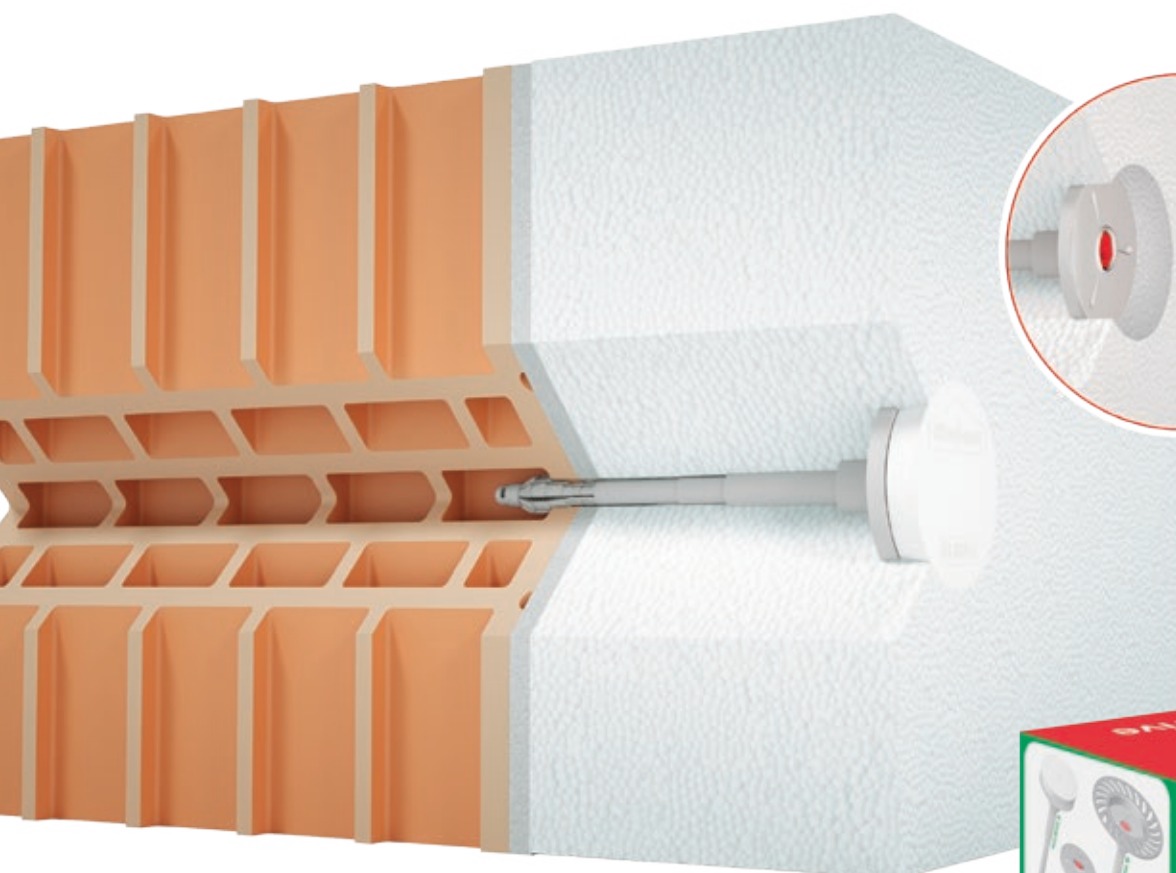


Polystyrene disc (for ECO-DRIVE 8)

EDKS-white*, EDKSG-graphite**

Specifications:

- * - supplied with fastener
- ** - on order



Our products are packed in tough boxes
made of coloured corrugated cardboard



ECO-DRIVE S 8

Screw-in fastener with metal pin and telescopic design support washer



Description

Innovative fastener for fastening of polystyrene in all substrates

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



Screw-in fixing, TORX-40

Screw-driven fastener recommended for use in brittle materials to avoid damaging of the substrate with a hammer. Screw-driven nail guarantees achieving best strength parameters and facilitates flush fitting of the fastener with the insulation material. These fasteners are real time-savers



Modern telescopic design

Combination of telescopic design and a cutting washer offers a most advanced fastener on the market for covered up installation spot which eliminates the use of cutter and reduces pollution with polystyrene dust



Polystyrene disc

Fasteners are supplied with polystyrene discs, which seriously shortens installation work, eliminates thermal bridging and ensures good aesthetics of the outer layer

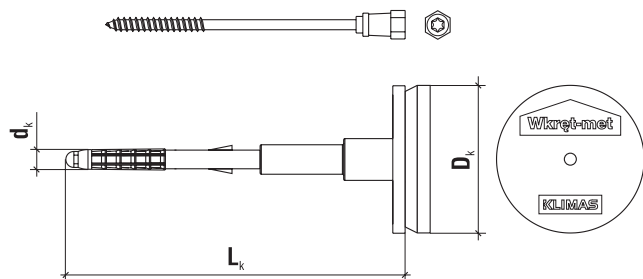


Pre-assembled fasteners

Screw-in parameters and provides for flush fitting of the fastener with the insulation material. These fasteners are real time-savers

ECO-DRIVE S 8

Screwed-in fastener with metal pin and telescopic design support washer



Product marking

ECODRIVE S	08	150	(100)
Fastener type	Diameter	Length	Number of pieces in a box

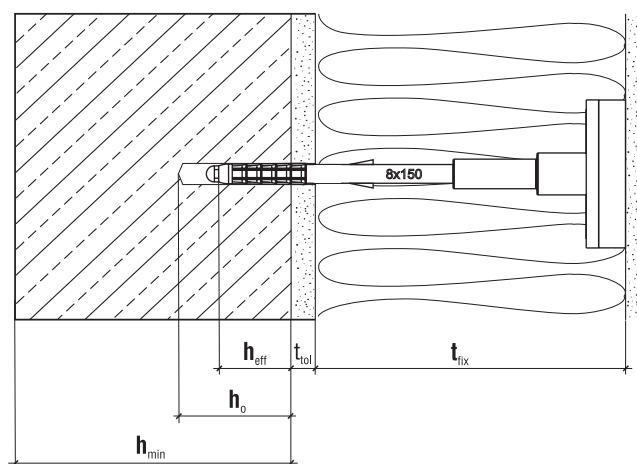
PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]			Pcs
			New buildings		Old buildings	
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster	
			Cat. A B C D	Cat. E	Cat. A B C D	
Ø8	ECODRIVE-S-08150(100)	8x150	80	60	60	100
	ECODRIVE-S-08170(100)	8x170	100	80	80	100
	ECODRIVE-S-08190(100)	8x190	120	100	100	100
	ECODRIVE-S-08210(100)	8x210	140	120	120	100
	ECODRIVE-S-08230(100)	8x230	160	140	140	100
	ECODRIVE-S-08250(100)	8x250	180	160	160	100
	ECODRIVE-S-08270(100)	8x270	200	180	180	100
	ECODRIVE-S-08290(100)	8x290	220	200	200	100
	ECODRIVE-S-08310(100)	8x310	240	220	220	100
	ECODRIVE-S-08330(100)	8x330	260	240	240	100
	ECODRIVE-S-08350(100)	8x350	280	260	260	100
	ECODRIVE-S-08370(100)	8x370	300	280	280	100
	ECODRIVE-S-08390(100)	8x390	320	300	300	100
	ECODRIVE-S-08410(100)	8x410	340	320	320	100
	ECODRIVE-S-08430(100)	8x430	360	340	340	100

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	35/55*
Drilled hole depth	h_o [mm]	45/65*
Thermal conductivity	λ [W/K]	0,002
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PA
Pin material	-	Carbon steel, nylon + GF coated head
European Technical Approval	-	ETA-13/0107

* - ETAG 014, use category E (aerated concrete)



ECO-DRIVE S 8 Screwed-in fastener with metal pin and telescopic design support washer

RESISTANCE

ETAG 014 use cat.	Substrate	Density [kg/dm³]	Characteristic pull-out resistance
A	Concrete C12/15	≥ 1,80	1,20
A	Concrete >C16/20	≥ 2,30	1,50
B	Solid clay bricks	≥ 2,00	1,50
B	Calcium silica solid brick	≥ 2,00	1,50
C	Calcium silicate hollow blocks	≥ 1,60	1,50
C	Perforated solid brick	≥ 1,20	1,50
C	Lightweight concrete hollow blocks	≥ 0,80	1,50
D	Lightweight concrete blocks LAC	≥ 1,05	0,90
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,60
E	Autoclaved aerate concrete AAC7	≥ 0,65	1,20

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

INSTALLATION DATA

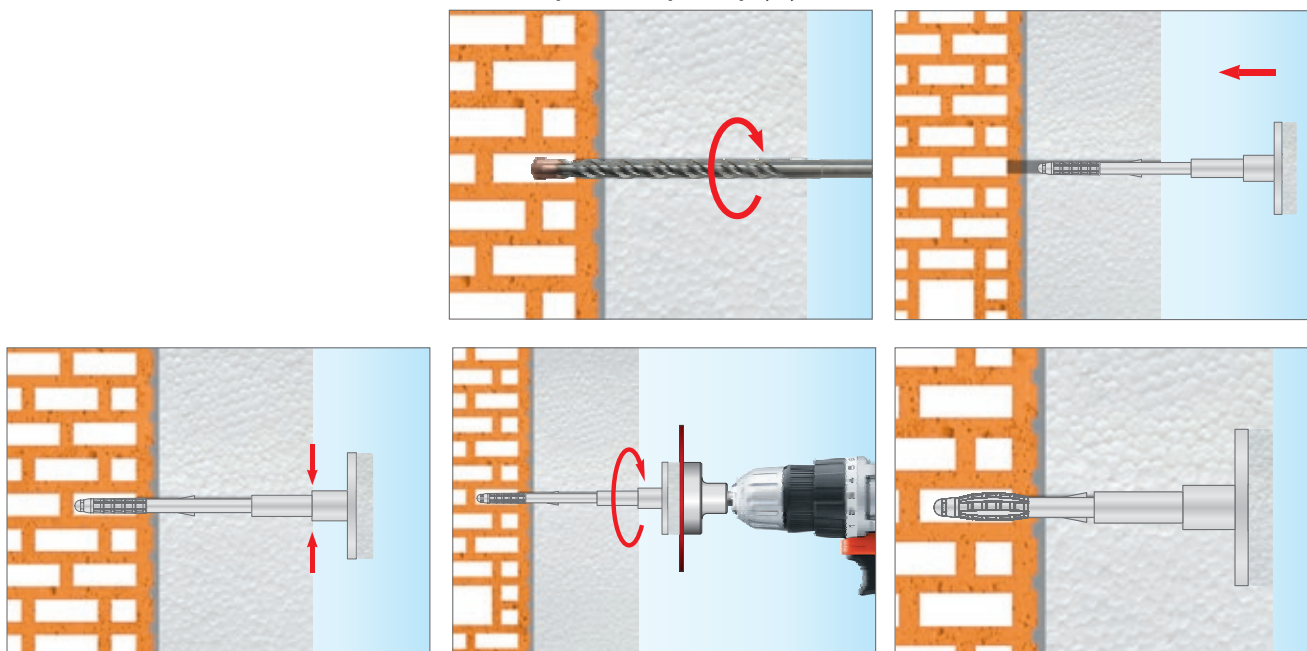
Fastener type	ECO-DRIVE S 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

ECO-DRIVE S 8

PULL-THROUGH TEST INSULATION SAMPLE [kN]

R panel	EPS 035/80 mm	EPS 040/80 mm
	0,54 [kN]	0,49 [kN]

Installation spot covered up with a polystyrene disc



INSTALLATION ACCESSORIES

Setting tool (for ECO-DRIVE 8)

EDST

diameter \varnothing 120 mm, TORX 40

Specifications:

- ECO-DRIVE 8, ECO-DRIVE S 8 and Drive S setting tool - see Table no. 3 page 22



**watch
video**



wkręt-met.com/eco-drive_pl



ECO-DRIVE W 8

Screw-in anchor with metal pin and telescopic design support washer for mineral wool



Description

Universal screwed-in fastener for fastening of mineral wool

Type of insulation material with which the fastener is to be used



Mineral wool

ETAG 014 use cat.

A	B	C	D	E
Concrete	Solid clay bricks, Calcium silicate bricks	Porous blocks	Elements on LAC lightweight aggregate	Aerated concrete

Features and advantages of the product



Screw-in anchor

Screw-driven fastener recommended for use in brittle materials to avoid damaging of the substrate with a hammer. Screw-driven nail guarantees achieving best strength parameters and facilitates flush fitting of the fastener with the insulation material. These fasteners are real time-savers



Modern telescopic design

Combination of telescopic design and a cutting washer offers a most advanced fastener on the market with covered up installation spot which eliminates the use of cutter and reduces pollution with polystyrene dust



Mineral wool disc

Fasteners come with mineral wool discs, which are used to complete the installation process by covering the fasteners. This eliminates thermal bridging and ensures good aesthetics of the outer layer

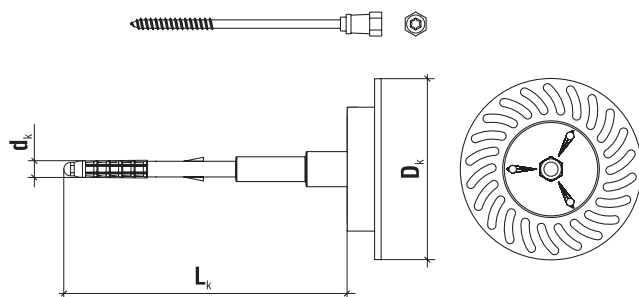


Pre-assembled fasteners

Screw-in parameters and provides for flush fitting of the fastener with the insulation material. These fasteners are real time-savers

ECO-DRIVE W 8

Screwed-in anchor with metal pin and telescopic design support washer for mineral wool



Product marking

ECODRIVE W	08	150	(100)
Fastener type	Diameter	Length	Number of pieces in a box

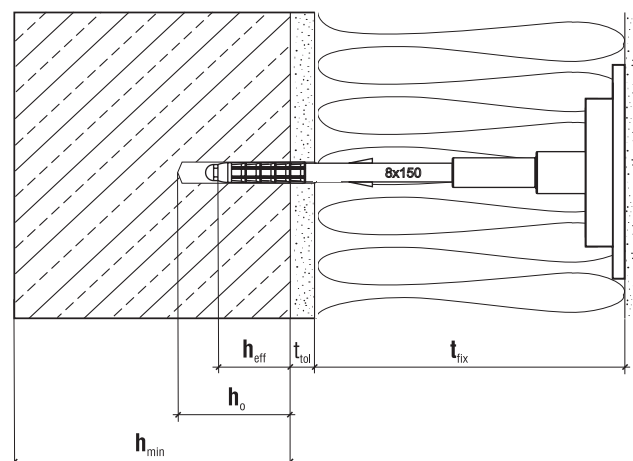
PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]			Pcs
			New buildings		Old buildings	
			t_{tol} adhesive layer of 10 mm		t_{tol} adhesive layer of 10 mm + 20 mm of old plaster	
			Cat. A B C D	Cat. E	Cat. A B C D	
Ø8	ECODRIVE-W-08150(50)	8x150	80	60	60	50
	ECODRIVE-W-08170(50)	8x170	100	80	80	50
	ECODRIVE-W-08190(50)	8x190	120	100	100	50
	ECODRIVE-W-08210(50)	8x210	140	120	120	50
	ECODRIVE-W-08230(50)	8x230	160	140	140	50
	ECODRIVE-W-08250(50)	8x250	180	160	160	50
	ECODRIVE-W-08270(50)	8x270	200	180	180	50
	ECODRIVE-W-08290(50)	8x290	220	200	200	50
	ECODRIVE-W-08310(50)	8x310	240	220	220	50
	ECODRIVE-W-08330(50)	8x330	260	240	240	50
	ECODRIVE-W-08350(50)	8x350	280	260	260	50
	ECODRIVE-W-08370(50)	8x370	300	280	280	50
	ECODRIVE-W-08390(50)	8x390	320	300	300	50
	ECODRIVE-W-08410(50)	8x410	340	320	320	50
	ECODRIVE-W-08430(50)	8x430	360	340	340	50

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	110
Anchorage depth	h_{eff} [mm]	35/55*
Drilled hole depth	h_o [mm]	45/65*
Thermal conductivity	λ [W/K]	0,002
Washer stiffness	S [kN/mm]	0,60
Use categories	-	A B C D E
Plug material	-	PA
Pin material	-	Carbon steel, nylon + GF coated head
European Technical Approval	-	ETA-13/0107

* - ETAG 014, use category E (aerated concrete)



ECO-DRIVE W 8

**Screwed-in anchor with metal pin and telescopic design
support washer for mineral wool**

RESISTANCE

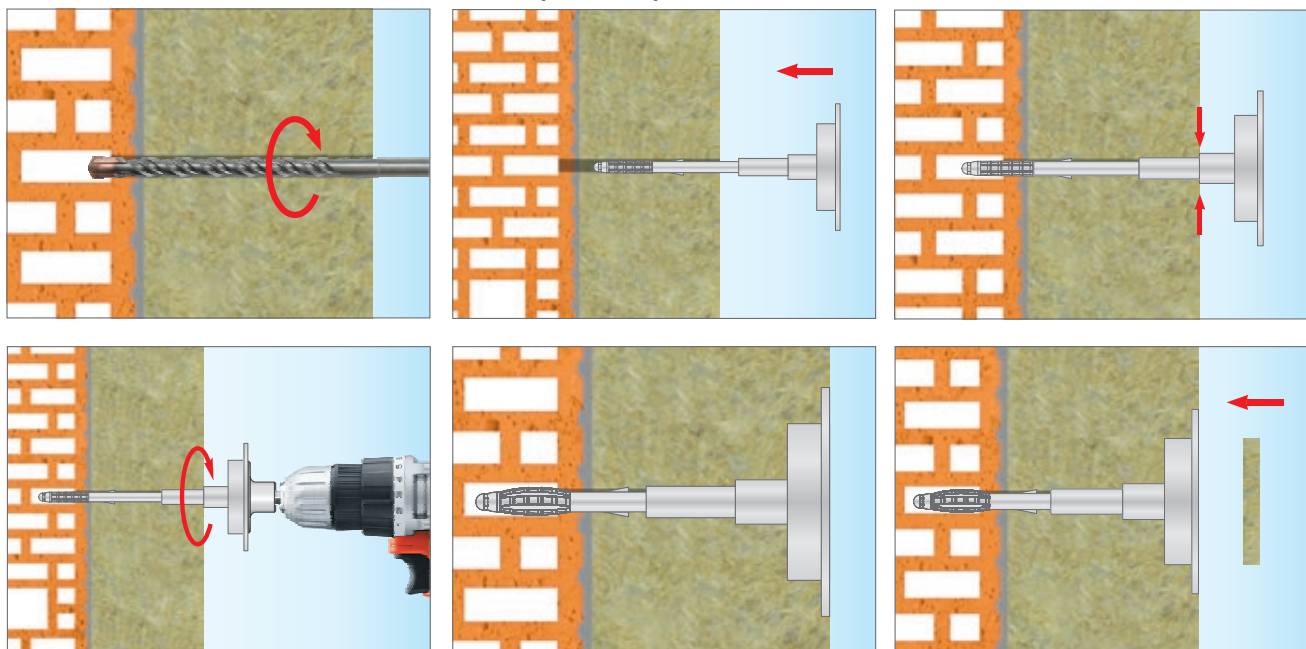
ETAG 014 use cat.	Substrate	Density [kg/dm³]	Charac- teristic pull-out resis- tance
A	Concrete C12/15	≥ 1,80	1,20
A	Concrete >C16/20	≥ 2,30	1,50
B	Solid clay bricks	≥ 2,00	1,50
B	Calcium silica solid brick	≥ 2,00	1,50
C	Calcium silicate hollow blocks	≥ 1,60	1,50
C	Perforated solid brick	≥ 1,20	1,50
C	Lightweight concrete hollow blocks	≥ 0,80	1,50
D	Lightweight concrete blocks LAC	≥ 1,05	0,90
E	Autoclaved aerate concrete AAC2	≥ 0,35	0,60
E	Autoclaved aerate concrete AAC7	≥ 0,65	1,20

Partial safety factor for anchor resistance $\gamma_m = 2$ (valid in absence of national regulations)

INSTALLATION DATA

Fastener type	ECO-DRIVE W 8
Min. base material thickness h_{min} [mm]	100
Minimum anchor spacing L_{os} [mm]	100
Minimum edge distance C_{min} [mm]	100

Installation of a fastener with a mineral wool disc – installation spot covered up



INSTALLATION ACCESSORIES

Setting tool (for ECO-DRIVE W)

EDST-W

diameter \varnothing 65 mm

Specifications:

- ECO-DRIVE W 8 i DRIVE W setting tool - see Table no. 3 page 22



Mineral wool disc (for ECO-DRIVE W)

EDKW

diameter \varnothing 67 mm

Specifications:

- Mineral wool disc density 135 kg/m³



Special cutting edges
provide for flush fitting of the support washer with the surface of mineral wool layer



Wkręt-met[®]

KLIMAS

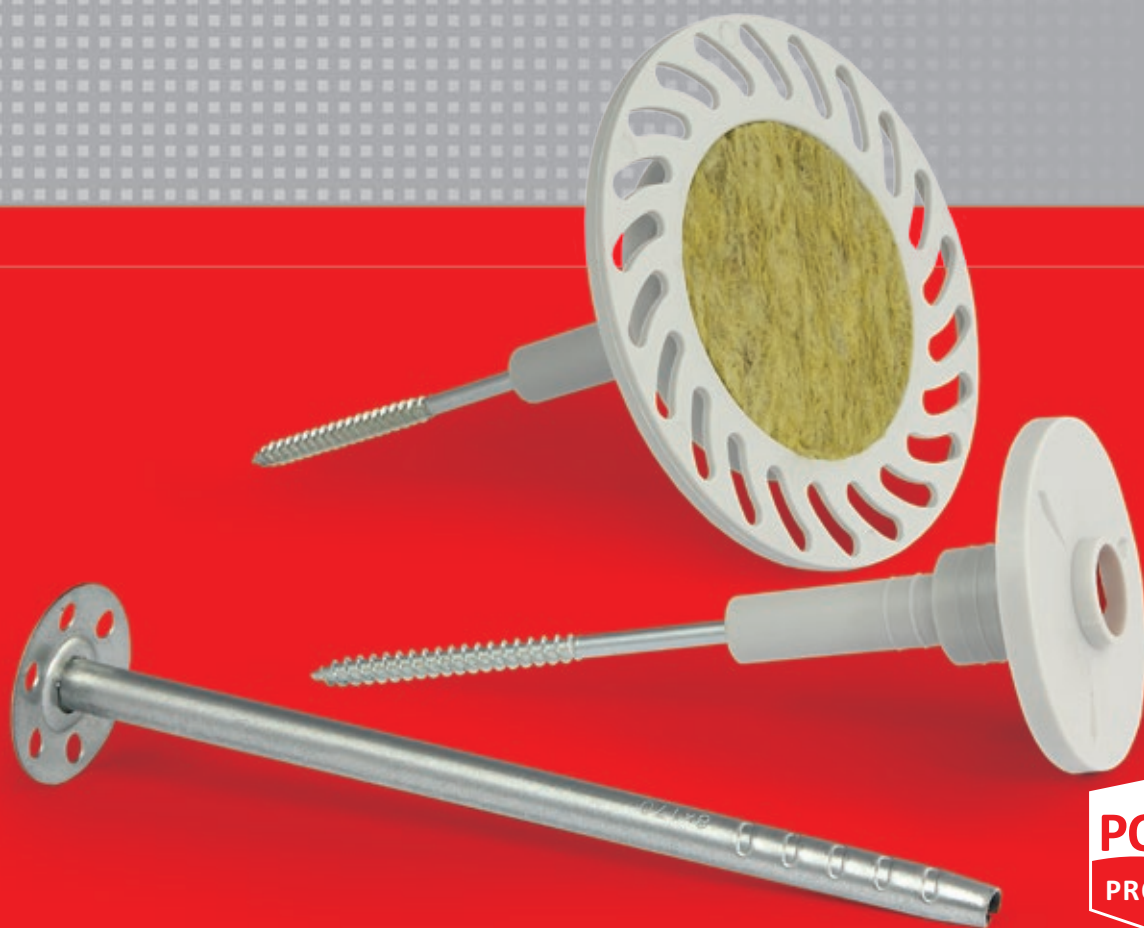


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**SPECIAL FASTENERS
FOR EXTERNAL
THERMAL INSULATION SYSTEMS**

PRODUCTION PROGRAMME



DRIVE W

Screwed-in fastener for fastening of mineral wool in wooden substrate



Description

Universal screwed-in fastener for fastening of mineral wool

Type of insulation material with which the fastener is to be used



Mineral wool

Substrate



Timber

Features and advantages of the product



Innovative construction of pressure flange

Simple and fast assembly of mineral wool without the need to apply additional pressure plates. Very rigid flange of a diameter of 110 mm guarantees a certain pressure of insulation material



Mineral wool disc

Minimizes the formation of thermal bridges on the facade, increases the aesthetics of the insulation executed



Pin threaded for use in timber

Reliable installation in timber



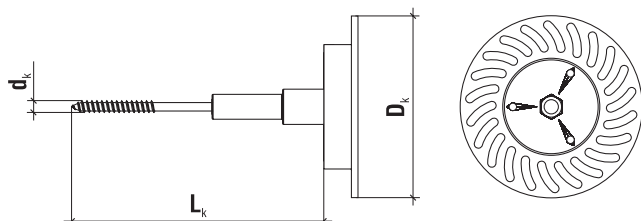
Pocket adhesives

Very good adhesiveness of the mortar



DRIVE W

Screwed-in fastener for fastening of mineral wool in wooden substrate




Product marking

DRIVE W	06	120	(50)
Fastener type	Diameter	Length	Number of pieces in a box



PRODUCT RANGE

		Screw dimen- sions $d_k \times L_k$ [mm]	Insula- tion material thickness [mm]	Pcs 
ø6	DRIVE-W-06120(50)	6x110	90	50
	DRIVE-W-06140(50)	6x130	110	50
	DRIVE-W-06160(50)	6x150	130	50
	DRIVE-W-06180(50)	6x170	150	50
	DRIVE-W-06200(50)	6x190	170	50
	DRIVE-W-06220(50)	6x210	190	50
	DRIVE-W-06240(50)	6x230	210	50
	DRIVE-W-06260(50)	6x250	230	50
	DRIVE-W-06280(50)	6x270	250	50
	DRIVE-W-06300(50)	6x290	270	50
	DRIVE-W-06320(50)	6x310	290	50

Installation accessories

Setting tool
(for ECO-DRIVE W)

Mineral wool disc
(for ECO-DRIVE W)

EDST-W

EDKW



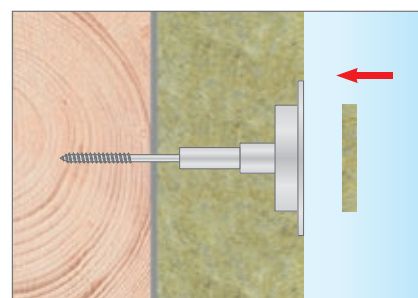
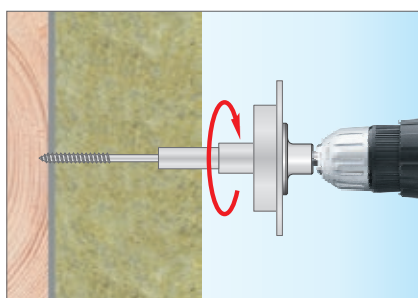
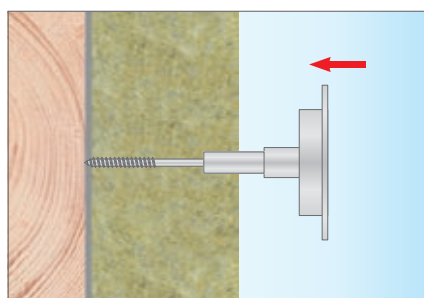
DESIGN PULL-OUT RESISTANCE [KN]

Substrate	Anchorage depth [mm]	Design resistance
Timber C22	25	1,62
Timber C22	40	1,62

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	6
Washer diameter	D_k [mm]	110
Anchorage depth	h_{eff} [mm]	25/40
Plug material	-	PA
Pin material	-	Carbon steel, nylon + GF coated head
Technical Approval	-	AT-15-9228/13

installation of a fastener with mineral wool disc – installation spot covered up



DRIVE S

Screwed-in fastener for fastening of polystyrene foam in wooden substrate



Description

Innovative fastener for fastening of polystyrene

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS

Substrate



Timber

Features and advantages of the product



Innovative design

Facilitates fast and easy installation of polystyrene in wooden substrate



Polystyrene disc

Eliminates thermal bridging on the facade and enhances aesthetics of the connection



TORX drive in the pin's head

Screw-in installation, no hammer action



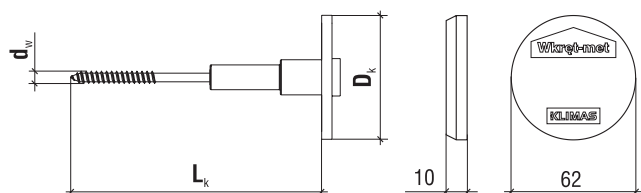
Pin threaded for use in timber

Reliable installation in timber



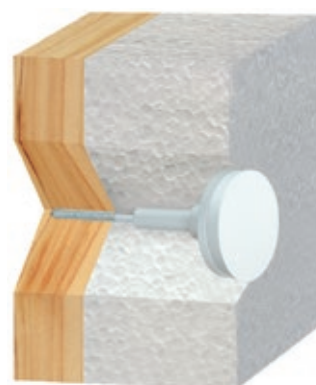
DRIVE S

Screwed-in fastener for fastening of polystyrene foam in wooden substrate




Product marking

DRIVE S	06	120	(50)
Fastener type	Diameter	Length	Number of pieces in a box



PRODUCT RANGE

		Screw dimen- sions $d_k \times L_k$ [mm]	Insula- tion material thickness [mm]	Pcs 
06	DRIVE-S-06120(100)	6x110	90	100
	DRIVE-S-06140(100)	6x130	110	100
	DRIVE-S-06160(100)	6x150	130	100
	DRIVE-S-06180(100)	6x170	150	100
	DRIVE-S-06200(100)	6x190	170	100
	DRIVE-S-06220(100)	6x210	190	100
	DRIVE-S-06240(100)	6x230	210	100
	DRIVE-S-06260(100)	6x250	230	100
	DRIVE-S-06280(100)	6x270	250	100
	DRIVE-S-06300(100)	6x290	270	100
	DRIVE-S-06320(100)	6x310	290	100

Installation accessories

Setting tool
(for ECO-DRIVE W)

Polystyrene disc
(for ECO-DRIVE S)

EDST

EDKS*, EDKSG**



* - white ** - graphite (to order)

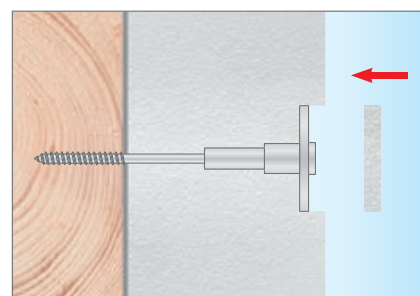
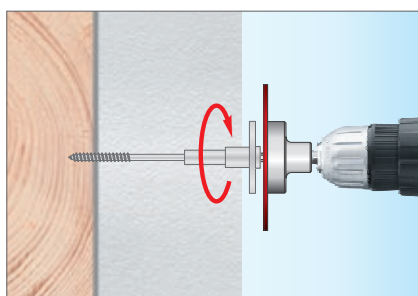
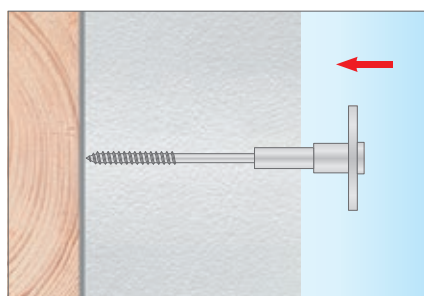
DESIGN PULL-OUT RESISTANCE [KN]

Substrate	Anchorage depth [mm]	Design resistance
Timber C22	25	1,62
Timber C22	40	1,62

TECHNICAL DATA

Parameter	Unit	Value
Plug diameter	d_k [mm]	6
Washer diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	25/40
Plug material	-	PA
Pin material	-	Carbon steel, nylon + GF coated head
Technical Approval	-	AT-15-9228/13

Installation spot covered up with a polystyrene disc



TD-060, TDP-060

Special screwed-in fastener with screw



Description

Special screwed-in fastener with steel screw for fastening of mineral wool and polystyrene in wooden and steel sheet substrates

Type of insulation material with which the fastener is to be used



Polystyrene foam

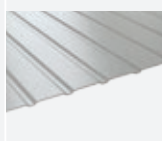


Mineral wool

Substrate

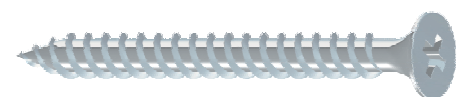


Timber

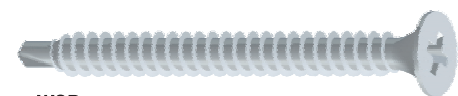


Steel sheet

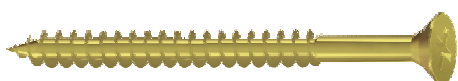
Features and advantages of the product



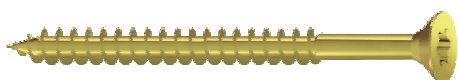
WDB



WSR



KDH



KDH-T



Support washer design

Universal application for installing commonly-used insulation material in timber and steel sheet substrates



Holding plate

To be used with a wide range of screws –allows for installing insulation materials of different thicknesses



Washer-integrated cap

Minimizes thermal bridging and seals connections

FASTENERS FOR EXTERNAL THERMAL INSULATION SYSTEMS

SPECIAL FASTENERS

Wkręt-met®
KLIMAS

PRODUCT RANGE

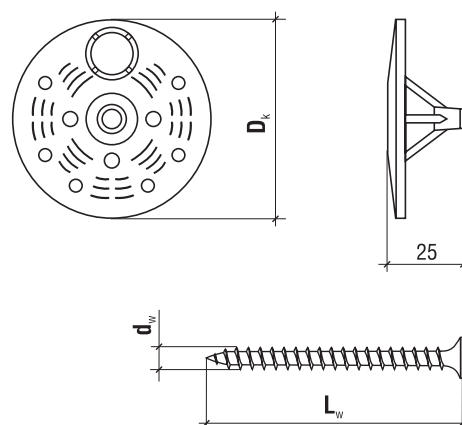
Insulation material thickness [mm]	Washer	Steel sheet < 0,88mm	Steel sheet > 0,88mm	Timber, OSB, Cement board
		WDB	WSR	KDHT/KDH
30	TD-60, TDP-60	WDB-48050	WSR-48050	KDHT/KDH-05060
40	TD-60, TDP-60	WDB-48060	WSR-48060	KDHT/KDH-05070
50	TD-60, TDP-60	WDB-48070	WSR-48070	KDHT/KDH-05080
60	TD-60, TDP-60	WDB-48080	WSR-48080	KDHT/KDH-05090
70	TD-60, TDP-60	WDB-48090	WSR-48090	KDHT/KDH-05100
80	TD-60, TDP-60	WDB-48100	WSR-48100	KDHT/KDH-06110
90	TD-60, TDP-60	WDB-48120	WSR-48120	KDHT/KDH-06120
100	TD-60, TDP-60	WDB-48120	WSR-48120	KDHT/KDH-06140
110	TD-60, TDP-60	WDB-48140	WSR-48140	KDHT/KDH-06140
120	TD-60, TDP-60	WDB-48140	WSR-48140	KDHT/KDH-06160
130	TD-60, TDP-60	WDB-48160	WSR-48160	KDHT/KDH-06160
140	TD-60, TDP-60	WDB-48160	WSR-48160	KDHT/KDH-06180
150	TD-60, TDP-60	WSR-48200	WSR-48200	KDHT/KDH-06180
160	TD-60, TDP-60	WSR-48200	WSR-48200	KDHT/KDH-06200
170	TD-60, TDP-60	WSR-48200	WSR-48200	KDHT/KDH-06200
180	TD-60, TDP-60	WSR-48200	WSR-48200	KDHT/KDH-06200
190	TD-60, TDP-60	WSR-48200	WSR-48200	-

Product marking

TD	060
Fastener type/material NYLON	Diameter

Product marking

TDP	060
Fastener type/material PE POLIETYLEN	Diameter



TECHNICAL DATA

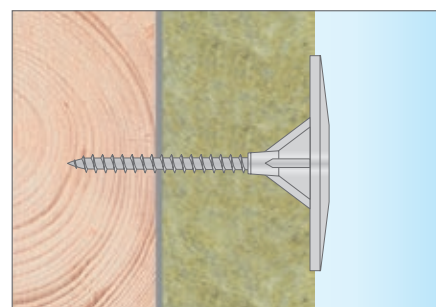
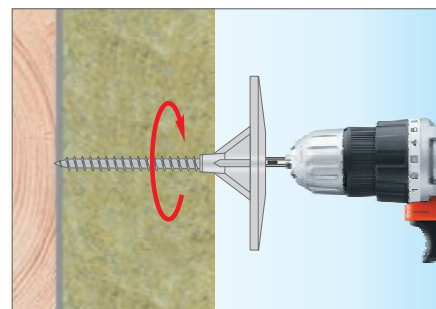
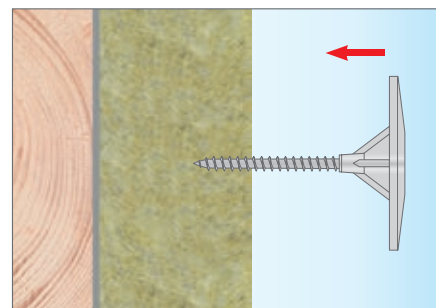
Parameter	Unit	Steel sheet < 0,88mm	Steel sheet > 0,88mm	Timber, OSB board, Cement board
Plug diameter	d_w [mm]	4,8	4,8	5,0/6,0
Washer diameter	D_k [mm]	64	64	64
Anchorage depth	h_{eff} [mm]	20	20	30 : 12,5 : 18*
Plug material	-	Poliamid PA/ Polipropylen PP	Poliamid PA/ Polipropylen PP	Poliamid PA/ Polipropylen PP
Pin material	-	Zinc plated steel	Zinc plated steel	Zinc plated steel
Technical Approval	-	AT-15-9228/13	AT-15-9228/13	AT-15-9228/13

* - Timber, OSB board

DESIGN PULL-OUT RESISTANCE [kN]

Substrate	Substrate thickness [mm]	Product marking	Design resistance kN	Product marking	Design resistance kN
Steel sheet profile	0,5	WDB	0,24	WSR	0,21
Steel sheet profile	0,75	WDB	0,40	WSR	0,55
Steel sheet profile	0,88	WDB	0,68	WSR	0,87
Steel sheet profile	1,0	-	-	WSR	1,03
Steel sheet profile	1,25	-	-	WSR	1,23
Timber C22	30,0	KDH 5,0	1,19	KDH 6,0	1,55
Timber C22	42,0	KDH 5,0	2,12	KDH 6,0	2,77
OSB board	12,5	KDH 5,0	0,31	KDH 6,0	0,35
OSB board	18,0	KDH 5,0	0,47	KDH 6,0	0,51
Fibreboard	12,5	KDH 5,0	0,32	KDH 6,0	0,22

Installation spot visible



TD-090, TDP-090

Special fastener with frame plug for fixing mineral wool and polystyrene foam in concrete



Description

Special fastener with frame plug

Type of insulation material with which the fastener is to be used



Polystyrene foam EPS



Mineral wool

Substrate



Concrete



Solid clay bricks,
Calcium silicate
bricks



Porous blocks

Features and advantages of the product



Washer plate

Reduced surface of the washer plate. Openings ensure better mortar adhesiveness



Washer plate drive

facilitates using a variety of nails



Plug

Screwing the plug in ensures reliable fixing in the substrate



KPS-FAST S 10

SM/SMN 10



TD-090 + SMN-10100



TD-090 + KPS-FAST-10100

FASTENERS FOR EXTERNAL THERMAL INSULATION SYSTEMS

SPECIAL FASTENERS

Wkręt-met
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PRODUCT RANGE

Insulation material thickness [mm]	Washer	Substrate	
		Concrete, Solid clay bricks, Calcium silicate bricks	Concrete, Solid clay bricks, Calcium silicate bricks, Porous blocks, aerated concrete
		PLUG $d_w \times L_w$ [mm]	PLUG $d_w \times L_w$ [mm]
30	TD-090, TDP-090	SM (SMN) 10080	KPS-FAST 10100 S
40	TD-090, TDP-090	SM (SMN) 100100	KPS-FAST 10120 S
50	TD-090, TDP-090	SM (SMN) 10100	KPS-FAST 10120 S
60	TD-090, TDP-090	SM (SMN) 10120	KPS-FAST 10140 S
70	TD-090, TDP-090	SM (SMN) 10120	KPS-FAST 10140 S
80	TD-090, TDP-090	SM (SMN) 10140	KPS-FAST 10160 S
90	TD-090, TDP-090	SM (SMN) 10140	KPS-FAST 10160 S
100	TD-090, TDP-090	SM (SMN) 10160	KPS-FAST 10180 S
110	TD-090, TDP-090	SM (SMN) 10160	KPS-FAST 10180 S
120	TD-090, TDP-090	SM (SMN) 10180	KPS-FAST 10200 S
130	TD-090, TDP-090	SM (SMN) 10180	KPS-FAST 10200 S
140	TD-090, TDP-090	SM (SMN) 10200	KPS-FAST 10230 S
150	TD-090, TDP-090	SM (SMN) 10200	KPS-FAST 10230 S
160	TD-090, TDP-090	SM (SMN) 10220	KPS-FAST 10230 S
170	TD-090, TDP-090	SM (SMN) 10220	KPS-FAST 10260 S
180	TD-090, TDP-090	-	KPS-FAST 10260 S
190	TD-090, TDP-090	-	KPS-FAST 10260 S
220	-	-	KPS-FAST 10300 S

TECHNICAL DATA

Parameter	Unit	KPS-FAST 10 S	SM / SMN 10
Plug diameter	d_w [mm]	10	10
Washer diameter	D_k [mm]	90	90
Anchorage depth	h_{eff} [mm]	70	50
Depth of drilled hole	[mm]	80	60
Plug material	-	Poliamid PA/Polipropylen PP	Poliamid PA/Polipropylen PP
Pin material	-	Zinc plated steel	Zinc plated steel
Technical Approval	-	AT-15-9228/13	AT-15-9228/13

DESIGN PULL-OUT RESISTANCE [kN]

Substrate	Product marking	Design resistance kN	Product marking	Design resistance kN
Concrete C 20/25	KPS FAST 10 S	6,14	SM 10 / SMN 10	0,89 / 1,08
Solid clay bricks	KPS FAST 10 S	3,79	SM 10 / SMN 10	0,45 / 1,34
Calcium silicate bricks	KPS FAST 10 S	3,72	SM 10 / SMN 10	0,45 / 1,34
Aerated concrete 350	KPS FAST 10 S	0,18	SMN 10	-
Aerated concrete 650	KPS FAST 10 S	0,86	SMN 10	0,44
Vertical perforated porosited block	KPS FAST 10 S	0,81	SMN 10	-
Vertical perforated ceramic block	KPS FAST 10 S	0,48	SMN 10	-

Product marking

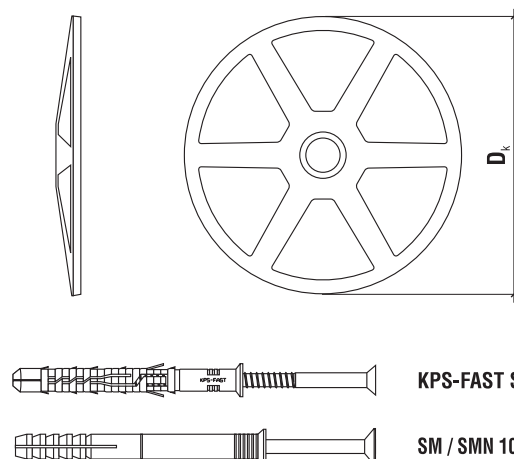
TD
Fastener type/material NYLON

090
Diameter

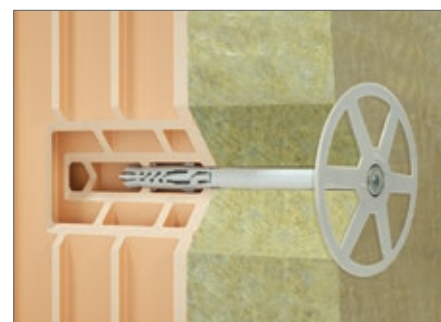
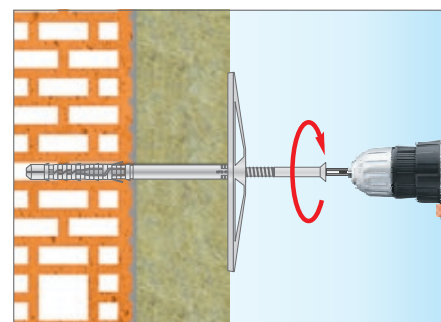
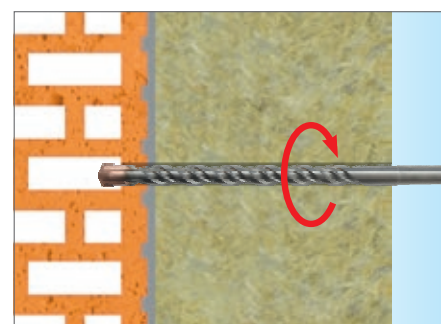
Product marking

TDP
Fastener type/material PE POLIETYLEN

090
Diameter



Installation spot visible



MLN

special fastener - metal, hammer driven for mineral wool



Description

Universal metal fastener for installation of mineral wool

Type of insulation material with which the fastener is to be used



Mineral wool

Substrate



Concrete



Solid clay bricks,
Calcium silicate
bricks



Aerated concrete

Features and advantages of the product



Fastener material - steel

Non-combustible anchor, suitable for use in buildings taller than 25 m



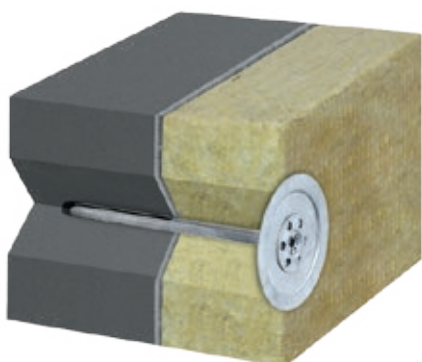
Steel washer

Increased holding power in the insulation material

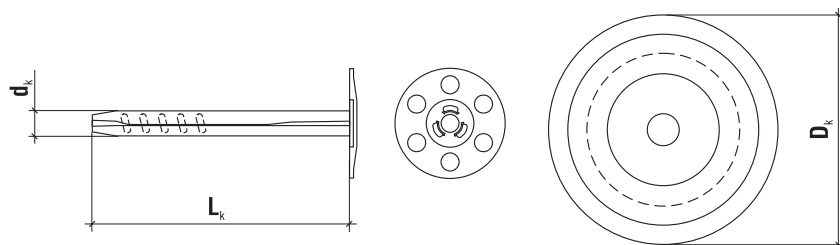


Zinc-plated fixing

High corrosion resistance




MLN special fastener - metal, hammer driven for mineral wool



Product marking

MLN	08	140
Fastener type	Diameter	Length

PRODUCT RANGE

	Code	$d_k \times L_k$ [mm]	Insulation material thickness t_{fix} [mm]		Pcs 
			New buildings	Old buildings	
			t_{tol} adhesive layer of 10 mm	t_{tol} adhesive layer of 10 mm + 20 mm of old plaster	
ø8	MLN08140	8x140	80	60	250
	MLN08170	8x170	110	90	250
	MLN08200	8x200	140	120	250

TECHNICAL DATA

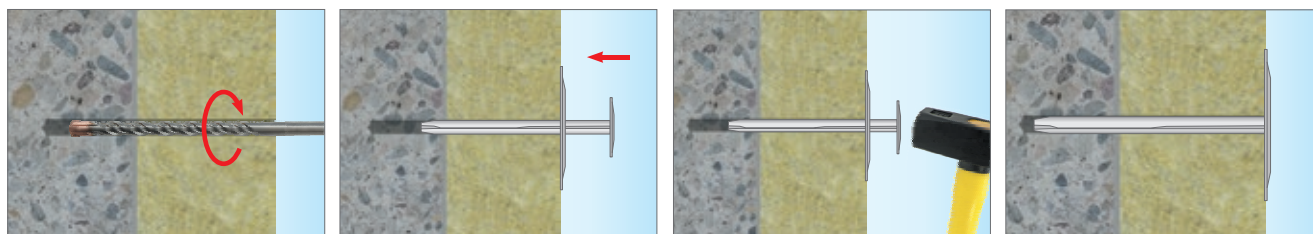
Parameter	Unit	Value
Plug diameter	d_k [mm]	8
Washer diameter	D_k [mm]	70
Anchorage depth	h_{eff} [mm]	50
Drilled hole depth	h_o [mm]	60
Washer material	-	Zinc plated steel
Pin material	-	Zinc plated steel
Technical Approval	-	AT-15-7960/2009

Resistance

Substrate	Density [kg/dm³]	Characteristic pull-out resistance
Concrete C20/25 - C50/C60	≥ 2,30	0,95
Solid clay bricks	≥ 2,00	0,85
Calcium silica solid brick	≥ 2,00	0,95
Autoclaved aerate concrete	≥ 0,65	0,50

Partial safety factor for anchor resistance $Y_m = 2$ (valid in absence of national regulations)

Installation spot visible





Plastic cutter for cutting holes in polystyrene

WK-FT

diameter \varnothing 66,7 mm

Specifications:

- Plastic cutter for cutting holes in polystyrene insulation material for insertion of polystyrene disc
- Controlled cutting depth flange collar



Polystyrene disc (white, graphite)

KS, KSG

dimension \varnothing 67 x 17 mm

Specifications:

- Polystyrene disc white/graphite* for covering up work holes in polystyrene - installation spot covered up; to be used with anchors- see Table no. 3 page 22

*- on order



Polystyrene disc (for ECO-DRIVE 8)

EDKS-white*, EDKSG-graphite**

Specifications:

* - supplied with fastener

** - on order



Support washer

TDX-90, TDX-140

diameters \varnothing 90 mm, \varnothing 140 mm

Specifications:

- Support plate with diameter of 90 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic
- Support plate with diameter of 140 mm for final securing touches in installation of mineral wool (including Lamella), to be used with anchors see Table no. 3 page 22
- Fibreglass reinforced plastic

Setting tool (ECO-DRIVE 8)

EDST

diameter \varnothing 120 mm, TORX 40

Specifications:

- Eco-drive 8, eco-drive S 8 and Drive S setting tool - see Table no. 3 page 22



Setting tool (ECO-DRIVE W)

EDST-W

diameter \varnothing 65 mm

Specifications:

- ECO-DRIVE W 8 i DRIVE W setting tool - see Table no. 3 page 22



Mineral wool disc (for ECO-DRIVE W)

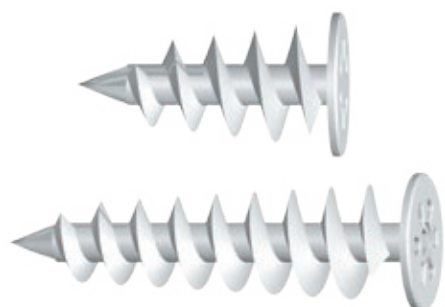
EDKW

diameter \varnothing 67 mm

Specifications:

- Mineral wool disc, density 135 kg/m³





Screwed-in helical fastener

WK-DS

diameter \varnothing 28 mm

Specifications:

- Screwed-in helical fastener for fixing lightweight components (max. 5 kg per fastener)
- to polystyrene insulation walls
- Fastened with a screw with diameter of 4.5 mm



Spacer and levelling washers

DW

dimension \varnothing 40 x 40 mm

Specifications:

- Spacer and levelling washers for starting panels
- Colour-coded thickness of spacer washers



Expansion plug with collar

SMNKC

diameters \varnothing 6, \varnothing 8 mm

Specifications:

- Hammer driven expansion plug with cylindrical collar for fixing thermal insulation stop beads



Stop bead connection

LLC

dimension \varnothing 30 x 30 mm

Specifications:

- Fastener for connecting insulation board starting panels lengthwise



PU adhesive for foamed polystyrene THERMO STYRO FIX

KST-750

capacity 750 ml

Specifications:

- Polyurethane adhesive for polystyrene, excellent adhesion to the substrate and polystyrene
- Layer of the adhesive from 3 mm to 15 mm
- Filling up the spaces between polystyrene boards
- Protection from the occurrence of thermal bridging in the filled-up spaces between polystyrene boards
- Application temperature range from +5°C to +30°C

Glassfibre mesh

SWS-145, SWS-145 Z

dimension 110 cm x 50 cm

Specifications:

- Glassfibre mesh - SWS-145 (white), SWS-145 Z (yellow)
- Protects thermal insulation material on the facade from mechanical damage
- Transmits thermal stresses occurring on the facade
- Protects the facade from cracking
- Effective mesh width 100 cm



Expansion plug with eye hook

HOX-14, HOX-16

diameters \varnothing 14 mm \varnothing 16 mm

Specifications:

- Specifications: Intended for fastening of construction scaffolding elements in the substrate

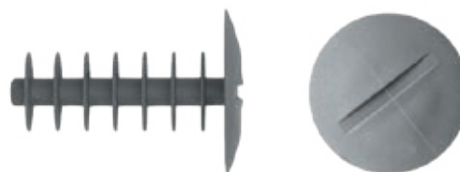
Plastic disc for covering HOX eye-hook holes

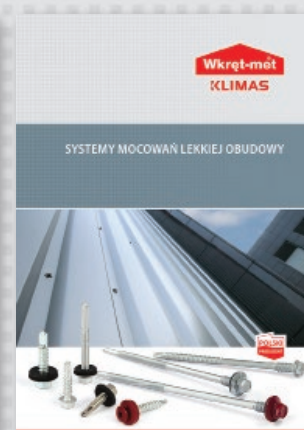
ZHO

diameter \varnothing 14 mm

Specifications:

- Plastic disc for covering HOX eye-hook holes
- Available in 3 colours
- Paintable
- Outer disc diameter 28 mm





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