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PRODUCT DATA SHEET – LFN-10

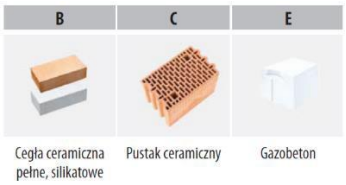
Section 1. PRODUCT DESCRIPTION

HAMMER DRIVEN FASTENER WITH PLASTIC PIN AND EXTENDED EXPANSION ZONE – LFN-10

Hammer driven fastener with plastic pin and extended expansion zone LFN-10 is made from polyethylene, and the pin from glass fibre-reinforced polyamide which improves its strength. Fastener LFN-10 should be used to transfer loads of wind suction forces and applied as an additional mechanical fixing for the whole system, recommended for:

- **EPS polystyrene**
- **XPS polystyrene**

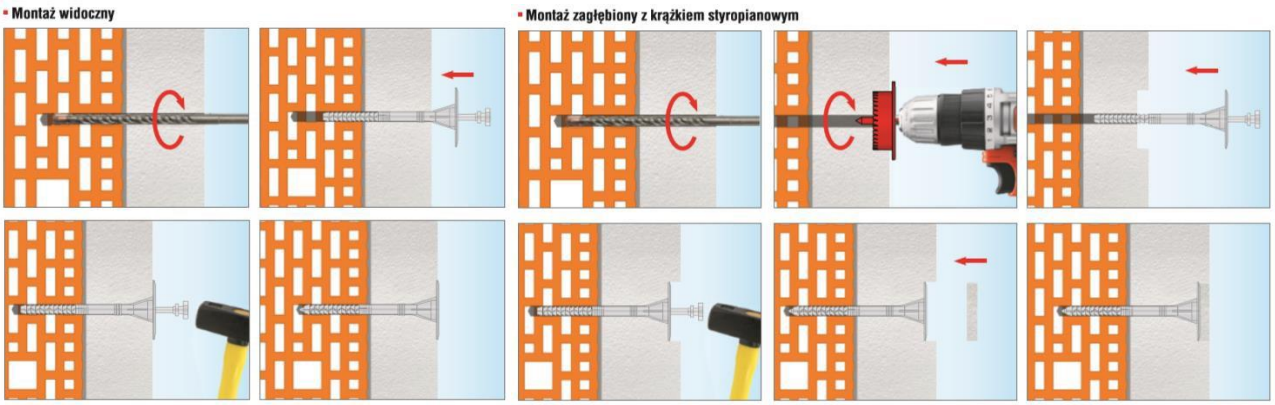
Types of substrates on which fastener LFN-10 can be installed according to ETAG 014:



Fasteners hold European Technical Assessment: ETA-17/0450

Section 2. METHOD OF INSTALLATION

1. Before installation identify the substrate and select suitable fasteners
2. Select adequate length of the fastener so that expansion zone is in the construction material of the wall
3. Minimum length of the fastener is: $L_d=t_{fix}+t_{tol}+h_{eff}$, where: t_{fix} - thickness of insulation material to be fixed, t_{tol} - thickness of sub-crusts (adhesive + existing plaster), h_{eff} - depth of fastener anchorage in the substrate (given in the sheet and in Technical Approval)
4. Before installation prepare the substrate as recommended by ETICS manufacturer
5. Fix thermal insulation panels correctly using an adhesive
6. Diameter of drilled holes should match diameter of the fasteners used
7. Drilled holes in substrates of solid materials should be deeper by min. 10 mm compared to the fastener anchorage depth
8. Clean the holes drilled in solid materials of drillings with a back and forth motion of the drill at a reduced speed, repeating it four times
9. Drill the holes in substrates of hollowed bricks without impact as this will cause breakage of inner walls of the substrate and reduce pull-out resistance of fasteners
10. Number of fasteners per 1m^2 should be defined in thermal insulation design. Recommended number of fasteners: FOR POLYSTYRENE:
    - up to the height of 15m from the ground, as minimum use 6pcs/m^2 in the middle area of a wall and 8pcs/m^2 in a corner area
    - above 15m from the ground, as minimum use 8pcs/m^2 in the middle area of a wall and 10pcs/m^2 in a corner area
    Recommendation shall not replace thermal insulation design!!
11. Fix the fasteners so that the installation spot matches the area where adhesive is placed on a thermal insulation panel
12. Embed the fastener body so that the fastener washer is faced with thermal insulation material
13. Then drive the fastener pin to firmly attach the fastener
14. Do not drive fasteners in when the pin is already driven as otherwise they may break
15. Fasteners can be installed in cut holes using plastic cutter for cutting holes in polystyrene **WK-FT** – so-called immersed mount

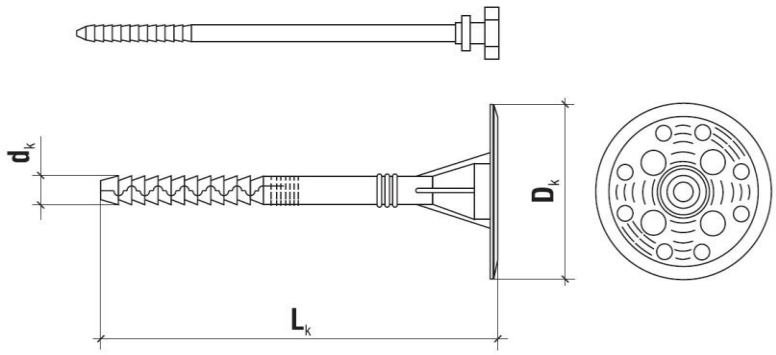


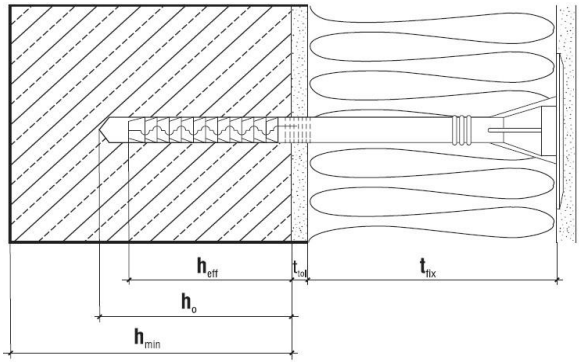
Section 3. TECHNICAL DATA

TECHNICAL PARAMETERS		
Parameter	Unit	Value
Plug diameter	d_k [mm]	10
Plate diameter	D_k [mm]	60
Anchorage depth	h_{eff} [mm]	70
Drilled hole depth	h_0 [mm]	75
Thermal conductivity	χ [W/K]	0.000
Plate stiffness	S [kN/mm]	0.3
Use categories	[-]	B C E
Plug material	[-]	PE
Pin material	[-]	PA + GF
European Technical Assessment	[-]	ETA-17/0450

STRENGTH PARAMETERS			
Substrate category	Substrate	Density [kg/dm³]	Characteristic pull-out resistance [kN]
B	Solid clay brick	≥ 2.00	0.75
C	Calcium silicate solid bricks	≥ 1.60	0.50
C	Perforated brick	≥ 1.20	0.80
C	Porotherm 25	≥ 0.80	0.50
E	Autoclaved aerated concrete AAC2	≥ 0.35	0.30
E	Autoclaved aerated concrete AAC7	≥ 0.65	0.85

Partial safety factor γ_M=2 in absence of regulations





SELECTION TABLE						
Product code	Fastener diameter and length (d_k x L_k)	Insulation material thickness t_{fix} [mm]				Number of pieces in a box
		New buildings (t_{tol} adhesive layer of 10mm		Old buildings (t_{tol} adhesive layer of 10mm + 20mm of old plaster		
		Without cutter	With cutter	Without cutter	With cutter	
LFN-10140	10x140	60	80	40	60	200
LFN-10160	10x160	80	100	60	80	200
LFN-10180	10x180	100	120	80	100	200
LFN-10200	10x200	120	140	100	120	200
LFN-10220	10x220	140	160	120	140	100
LFN-10260	10x260	180	200	160	180	100
LFN-10300	10x300	220	240	200	220	100

Section 4. REMARKS

1. All previous versions of this Product Data Sheet shall cease to be valid
2. Data given in this Product Data Sheet is in accordance with current knowledge and published in good faith. KLIMAS Sp. z o.o. is not responsible for correctness and quality of the fixing if recommendations regarding method of use and installation are not followed.