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European Technical Assessment

ETA-08/0204 of 03/12/2018

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt
Product family to which the construction product belongs	Nailed-in plastic anchors for fixing of external thermal insulation composite systems with rendering in concrete and masonry
Manufacturer	MKaM Sp. z o.o. ul. Browarna 1 PL 65-823 Zielona Góra Poland
Manufacturing plant	MKaM Sp. z o.o. Zakład Produkcyjny Piaski 25 PL 66-008 Zielona Góra Poland
This European Technical Assessment contains	19 pages including 3 Annexes which form an integral part of this Assessment
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document EAD 330196-01-0604 "Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering"
This version replaces	ETA-08/0204 issued on 19/06/2013 ETA-09/0372 issued on 19/06/2013

Specific Part

1 Technical description of the product

The MKaM-ŁI3AΦ10 nailed in plastic anchor consists of ŁI3A anchor sleeve with a plate made of virgin polypropylene and an accompanying GW3A nail as an expansion pin made of the glass fibre reinforced polyamide.

The MKaM-ŁI3AΦ10Mt nailed in plastic anchor consists of ŁI3A anchor sleeve with a plate made of virgin polypropylene and an accompanying GW3AMt nail as expansion pin made of galvanized steel.

The MKaM-ŁI3ALΦ10 nailed in plastic anchor consists of ŁI3AL anchor sleeve with a plate made of virgin polypropylene and an accompanying GW3A nail as an expansion pin made of the glass fibre reinforced polyamide.

The MKaM-ŁI3ALΦ10Mt nailed in plastic anchor consists of ŁI3AL anchor sleeve with a plate made of virgin polypropylene and an accompanying GW3AMt nail as expansion pin made of galvanized steel.

The MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt anchors may in addition be combined with the additional plate MKaM-T-140, made of the polyamide or polypropylene.

The drawings and the description of the products are given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

The performances given in clause 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or Technical Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Performance of the product

3.1.1 Hygiene, health and the environment (BWR 3)

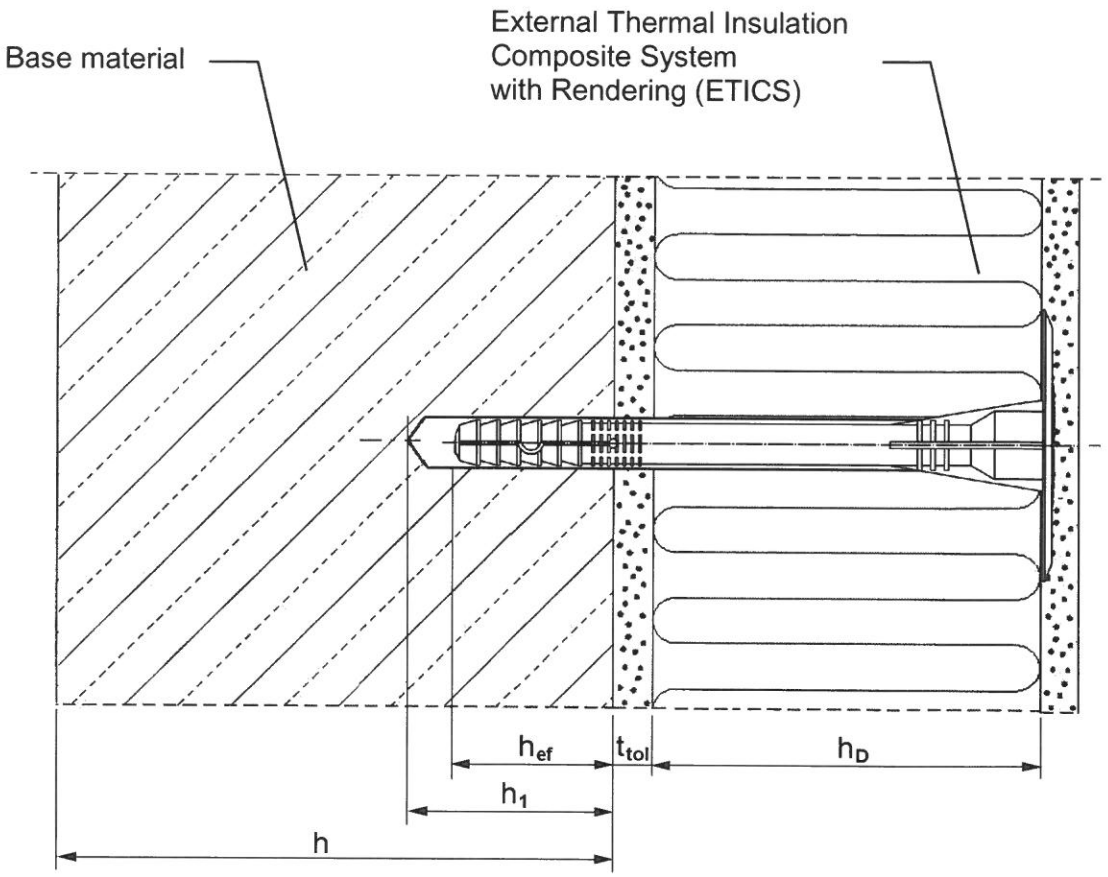
No performance assessed.

3.1.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance	Annex C1 and C2
Edge distances and spacing	Annex B2
Plate stiffness	Annex C3
Displacements	Annex C4 and C5

3.1.3 Energy economy and heat retention (BWR 6)

No performance assessed.



Intended Use

Fixing of external thermal insulation composite systems in concrete and masonry

Legend

h_{ef} = effective anchorage depth

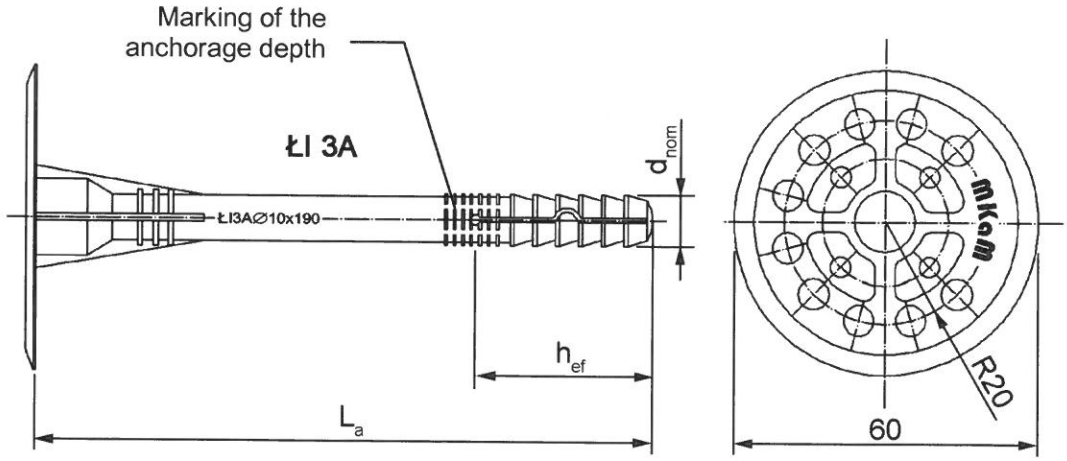
h_1 = depth of drill hole in base material

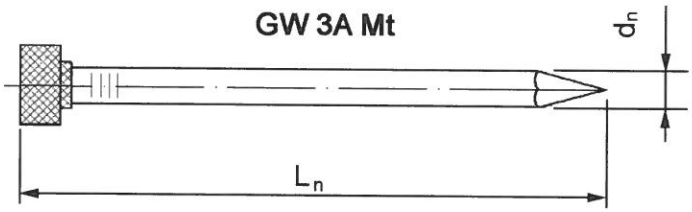
h = thickness of base material

h_D = thickness of insulation material

t_{tol} = thickness of equalizing and/or non-load-bearing layer

MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt	**Annex A1** of European Technical Assessment ETA-08/0204
Product description Installation conditions	





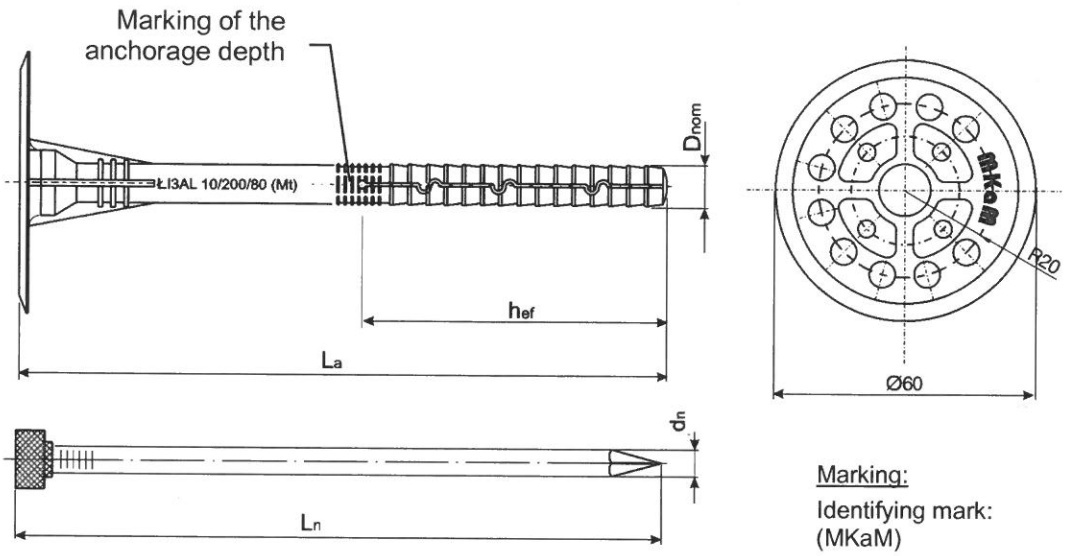
Marking:
Identifying mark:
(MKaM)
Sleeve type:
(ŁI3A)
Length of anchor:
(e.g. 190)
Nominal diameter:
d_{nom} (ϕ10)

Table A2: MKaM-ŁI3AΦ10Mt anchor types and dimensions [mm]

Anchor type	Anchor sleeve				Expansion pin	
	d_{nom}	L_a	D	$h_{ef\ (AB)}$	d_n	L_n
ŁI3A/10/90	10	90	60	45	5,0	90
ŁI3A/10/110	10	110	60	45	5,0	110
ŁI3A/10/120	10	120	60	45	5,0	120
ŁI3A/10/135	10	135	60	45	5,0	135
ŁI3A/10/140	10	140	60	45	5,0	140
ŁI3A/10/150	10	150	60	45	5,0	150
ŁI3A/10/160	10	160	60	45	5,0	160
ŁI3A/10/170	10	170	60	45	5,0	170
ŁI3A/10/180	10	180	60	45	5,0	180
ŁI3A/10/190	10	190	60	45	5,0	190
ŁI3A/10/200	10	200	60	45	5,0	200
ŁI3A/10/220	10	220	60	45	5,0	220
ŁI3A/10/240	10	240	60	45	5,0	240
ŁI3A/10/260	10	260	60	45	5,0	260

$h_{ef\ (AB)}$ – for anchors in the base material category A and B
Determination of maximum thickness of insulation material: $h_D = L_a - t_{tol} - h_{ef}$

MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt	**Annex A3** of European Technical Assessment ETA-08/0204
Product description Marking and dimensions of the MKaM-ŁI3AΦ10Mt anchors	



Marking:

Identifying mark: (MKaM)

Sleeve type: (ŁI3AL)

Length of anchor: (e.g. 200)

Nominal diameter: d_{nom} (ϕ10)

Table A4: MKaM-ŁI3ALΦ10Mt anchor types and dimensions [mm]

Anchor type	Anchor sleeve				Expansion pin	
	d_{nom}	L_a	D	$h_{ef\ (CDE)}$	d_n	L_n
ŁI3AL/10/160	10	160	60	80	5,0	160
ŁI3AL/10/180	10	180	60	80	5,0	180
ŁI3AL/10/200	10	200	60	80	5,0	200
ŁI3AL/10/220	10	220	60	80	5,0	220
ŁI3AL/10/260	10	260	60	80	5,0	260

$h_{ef\ (CDE)}$ – for anchors in the base material category C, D and E

Determination of maximum thickness of insulation material: $h_D = L_a - t_{tol} - h_{ef}$

MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt	Annex A6 of European Technical Assessment ETA-08/0204
Product description Marking and dimensions of the MKaM-ŁI3ALΦ10Mt anchors	

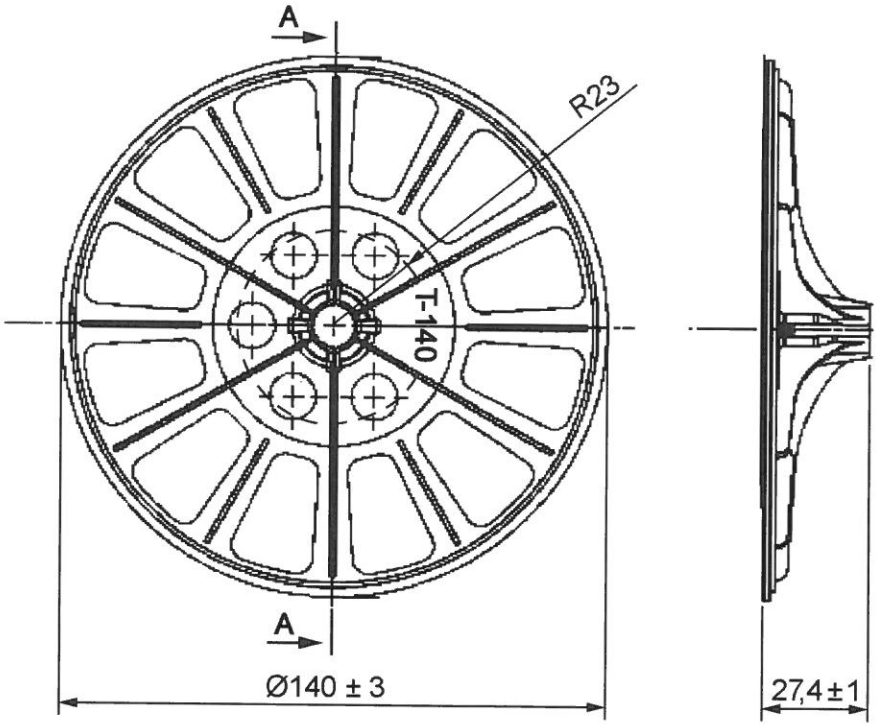


Table A6: Additional plate MKaM-T-140

Plate type	Outer diameter [mm]	Material
MKaM-T-140	140	Polyamide PA6, white or polypropylene, white

MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt	**Annex A8** of European Technical Assessment ETA-08/0204
Product description Additional plate MKaM-T-140 used in combination with MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt anchor sleeve	

Table B1: Installation characteristics of MKaM-ŁI3AΦ10 and MKaM ŁI3AΦ10Mt

Anchor type		MKaM-ŁI3AΦ10 and MKaM-ŁI3AΦ10Mt
Nominal diameter of drill bit	d_0 [mm]	10
Cutting diameter of drill bit	d_{cut} [mm]	≤ 10,45
Depth of drill hole for base material category A and B	h_1 [mm]	≥ 50
Effective anchorage depth for base material category A and B	h_{ef} [mm]	≥ 45

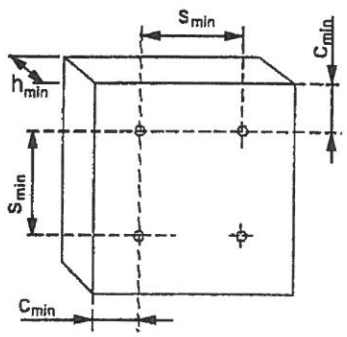
Table B2: Installation characteristics of MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt

Anchor type		MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt
Nominal diameter of drill bit	d_0 [mm]	10
Cutting diameter of drill bit	d_{cut} [mm]	≤ 10,45
Depth of drill hole for base material category C, D and E	h_1 [mm]	≥ 85
Effective anchorage depth for base material category C, D and E	h_{ef} [mm]	≥ 80

Table B3: Minimum thickness of base material, edge distance and spacing

Anchor type		MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt
Minimum thickness of base material	h_{min} [mm]	100
Minimum spacing	s_{min} [mm]	100
Minimum edge distance	c_{min} [mm]	100

Diagram of spacing



MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt	Annex B2 of European Technical Assessment ETA-08/0204
Intended use Installation characteristics, minimum thickness of base material, edge distance and spacing	

Table C1: Characteristic resistance to tension loads N_{Rk} in concrete and in masonry for single MKaM-ŁI3AΦ10 and MKaM-ŁI3AΦ10Mt anchors

Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	Referring standard	N_{Rk} [kN]		Drill method
				MKaM-ŁI3AΦ10	MKaM-ŁI3AΦ10Mt	
Concrete C12/15 (use category A)			EN 206	0,25	0,30	hammer
Concrete C20/25 ÷ C50/60 (use category A)			EN 206	0,30	0,40	hammer
Clay bricks (use category B)	≥ 1,74	≥ 23,9	EN 771-1	0,30	0,40	hammer
Partial safety factor for anchor resistance, γ_M (1)	2,0					
(1) in the absence of the other national regulations						

Table C3: Plate stiffness according to EOTA Technical Report TR 026

Anchor type	Diameter of the anchor plate d_{plate} [mm]	Characteristic load resistance of the anchor plate [kN]	Plate stiffness [kN/mm]
MKaM-ŁI3AΦ10, MKaM-ŁI3AΦ10Mt, MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt	60	1,53	0,30

Table C5: Displacements for MKaM-ŁI3ALΦ10 and MKaM-ŁI3ALΦ10Mt anchors

Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	$\frac{N_{Rk}}{3}$ [kN]		$\delta\left(\frac{N_{Rk}}{3}\right)$ [mm]	
			MKaM-ŁI3AL Φ10	MKaM-ŁI3AL Φ10Mt	MKaM-ŁI3AL Φ10	MKaM-ŁI3AL Φ10Mt
Horizontally perforated porosited blocks (use category C); the minimum wall thickness 12 mm	≥ 0,71	≥ 12,5	0,10	0,10	0,50	0,30
Lightweight aggregate concrete solid blocks (use category D)	≥ 1,20	≥ 13,1	0,17	0,20	0,70	0,90
Autoclaved aerated concrete blocks (use category E)	≥ 0,60	≥ 5,5	0,13	0,17	0,60	0,80