

## ΔΗΛΩΣΗ ΕΠΙΔΟΣΕΩΝ

### DoP EA002

για MARMODOM HYDOM THERMAL Anchoring "ANCHORS HYDOM METAL", "ANCHORS HYDOM METAL R", "ANCHORS HYDOM METAL plus" (Πλαστικό αγκύριο για χρήση σε σκυρόδεμα και τούβλο).

1.	<u>Μοναδικός κωδικός ταυτοποίησης του τύπου του προϊόντος:</u>	DoP EA002	
2.	<u>Προβλεπόμενη(-ες) χρήση(-εις):</u>	Καρφωτό πλαστικό αγκύριο για στήριξη συστημάτων θερμοπρόσοψης σε σκυρόδεμα και τούβλο με σοβά, (βλέπε παράρτημα, ειδικά τα παραρτήματα B1 - B3).	
3.	<u>Κατασκευαστής:</u>	Eagle S.A. Βιομηχανική Ζώνη Δράμας 66100 ΔΡΑΜΑ ΕΛΛΑΔΑ	
4.	<u>Εξουσιοδοτημένος αντιπρόσωπος:</u>	-	
5.	<u>Σύστημα/συστήματα AVCP (αξιολόγηση και επαλήθευση της σταθερότητας της επίδοσης):</u>	2+	
6.	<u>Ευρωπαϊκό έγγραφο αξιολόγησης:</u> Ευρωπαϊκή τεχνική αξιολόγηση: Οργανισμός τεχνικής αξιολόγησης: Κοινοποιημένος(-οι) οργανισμός(-οι):	EAD 330196-01-0604, Edition 10/2017 ETA-23/0245; 2023-04-12 DIBt- Deutsches Institut für Bautechnik 2873 TU Darmstadt	
7.	<u>Δηλωθείσα(-ες) επίδοση(-εις):</u> <b>Ασφάλεια στη χρήση (BWR 4) Χαρακτηριστική αντοχή:</b>  <b>Μετατόπιση:</b>  <b>Ακαμψία δίσκου:</b>  <b>Εξοικονόμηση ενέργειας και συγκράτηση θερμότητας (BWR 6) Θερμική αγωγιμότητα:</b>	<b>Χαρακτηριστική εφελκυστική αντοχή:</b> <b>Ελάχιστη απόσταση από ακμή:</b> <b>Ελάχιστη απόσταση αγκυρίων:</b>  <b>Φορτίο εφελκυσμού με συντελεστή ασφαλείας:</b> <b>Μετατόπιση:</b>  <b>Διάμετρος δίσκου:</b> <b>Αντοχή δίσκου σε φορτίο:</b> <b>Ακαμψία δίσκου:</b>  <b>Σημειακή θερμική αγωγιμότητα αγκυρίου:</b> <b>Πάχος θερμοπρόσοψης:</b>	<b>Παράρτημα C1, C2</b> <b>Παράρτημα B2</b> <b>Παράρτημα B2</b>  <b>Παράρτημα C5</b> <b>Παράρτημα C5</b>  <b>Παράρτημα C4</b> <b>Παράρτημα C4</b> <b>Παράρτημα C4</b>  <b>Παράρτημα C3, C4</b> <b>Παράρτημα C3, C4</b>
8.	<u>Κατάλληλη τεχνική τεκμηρίωση και/ή ειδική τεχνική τεκμηρίωση:</u>	-	

Η επίδοση του προϊόντος που ταυτοποιείται ανωτέρω είναι σύμφωνη με τη (τις) δηλωθείσα(-ες) επίδοση(-εις). Αυτή η δήλωση επιδόσεων εκδίδεται σύμφωνα με τον Κανονισμό (ΕΕ) Αρ. 305/2011 με αποκλειστική ευθύνη του κατασκευαστή που προσδιορίζεται παραπάνω.

Υπογραφή για λογαριασμό και εξ ονόματος του κατασκευαστή από:

Αθανάσιος Λαζαρίδης

Δ/ντης Ελέγχου Ποιότητας / Έρευνας & Ανάπτυξης



Προσοτσάνη Δράμας, Ελλάδα

01/06/23

Αυτή η Δήλωση Επιδόσεων μεταφράστηκε σε διάφορες γλώσσες. Σε περίπτωση που υπάρχει αμφιβολία για τη μετάφραση, υπερισχύει πάντα η αγγλική έκδοση.

Το παράρτημα περιλαμβάνει προαιρετικές και συμπληρωματικές πληροφορίες στα αγγλικά, που ξεπερνούν τις (οριζόμενες σε άλλες γλώσσες) νόμιμες απαιτήσεις.

## Specific Part

### 1 Technical description of the product

The MARMODOM HYDOM THERMAL Anchoring ANCHORS HYDOM METAL 110-230 and ANCHORS HYDOM METAL plus 110-230 consists of an anchor sleeve with an enlarged shaft made of polypropylene (virgin material), an insulation plate made of glass fibre reinforced polyamide (virgin material) and a special compound nail consisting of two parts, one made of glass fibre reinforced polyamide for the shaft element and the other part made of galvanised steel.

The MARMODOM HYDOM THERMAL Anchoring ANCHORS HYDOM METAL 250-390 and ANCHORS HYDOM METAL R 250-310 consists of an anchor sleeve made of polypropylene (virgin material), a shaft part, whose the serrated expanding part is slotted, such as an insulation plate made of glass fibre reinforced polyamide (virgin material).

The MARMODOM HYDOM THERMAL Anchoring ANCHORS HYDOM METAL 250-390 and ANCHORS HYDOM METAL R 250-310 made of galvanised steel and is used together with a plastic cylinder made of glass fiber reinforced polyamide.

The MARMODOM HYDOM THERMAL Anchoring ANCHORS HYDOM METAL plus 250-390 consists of an anchor sleeve made of polypropylene (virgin material), a shaft part made of polyamide (virgin material), whose the serrated expanding part is slotted, an insulation plate made of glass fibre reinforced polyamide (virgin material) and a special compound nail consisting of two parts, one made of glass fibre reinforced polyamide for the shaft element and the other part made of galvanised steel.

All anchors may in addition be combined with the anchor plates DT 90, DT 110 and DT 140.

The product description is given in Annex A.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document

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

The verification and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchor of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, 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 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic load bearing capacity <ul style="list-style-type: none"><li>- Characteristic resistance under tension load</li><li>- Minimum edge distance and spacing</li></ul>	See Annex C 1 - C 2 See Annex B 2
Displacements	See Annex C 5
Plate stiffness	See Annex C 4

### 3.2 Energy economy and heat retention (BWR 6)

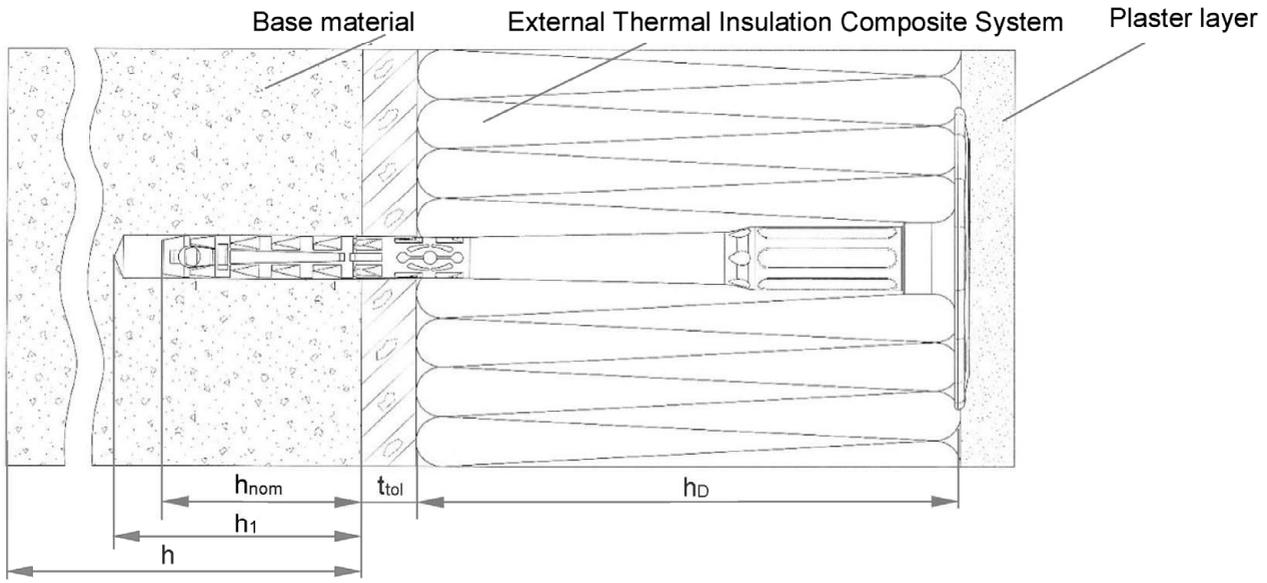
Essential characteristic	Performance
Point thermal transmittance	See Annex C 3 - C 4

### 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

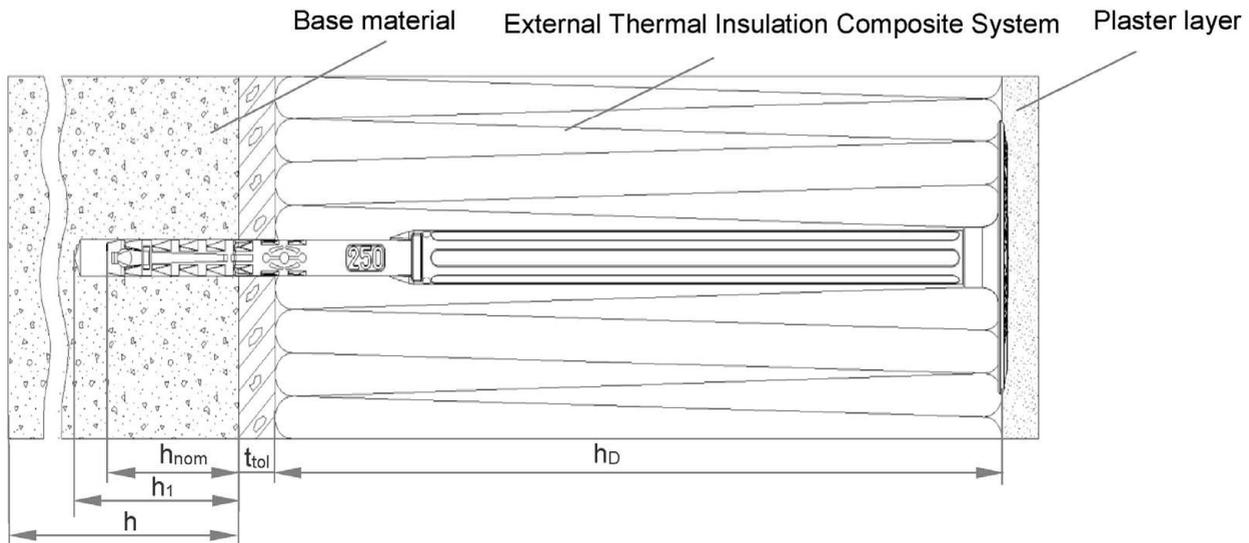
In accordance with EAD No. 330196-01-0604, the applicable European legal act is: [97/463/EC].

The system to be applied is: 2+

**ANCHORS HYDOM METAL 11 cm – 23 cm / ANCHORS HYDOM METAL plus 11 cm – 23 cm / mounting on the surface**



**ANCHORS HYDOM METAL 25 cm – 39 cm / ANCHORS HYDOM METAL R 25 cm – 31 cm / ANCHORS HYDOM METAL plus 25 cm – 39 cm / mounting on the surface**



**Legend**

- $h_{nom}$  = Overall plastic anchor embedment depth in the base material
- $h_1$  = Depth of drilled hole to deepest point
- $h$  = Thickness of member (wall)
- $h_D$  = Thickness of insulation material
- $t_{tol}$  = Thickness of equalising layer and / or non-load-bearing coating

Figures not to scale

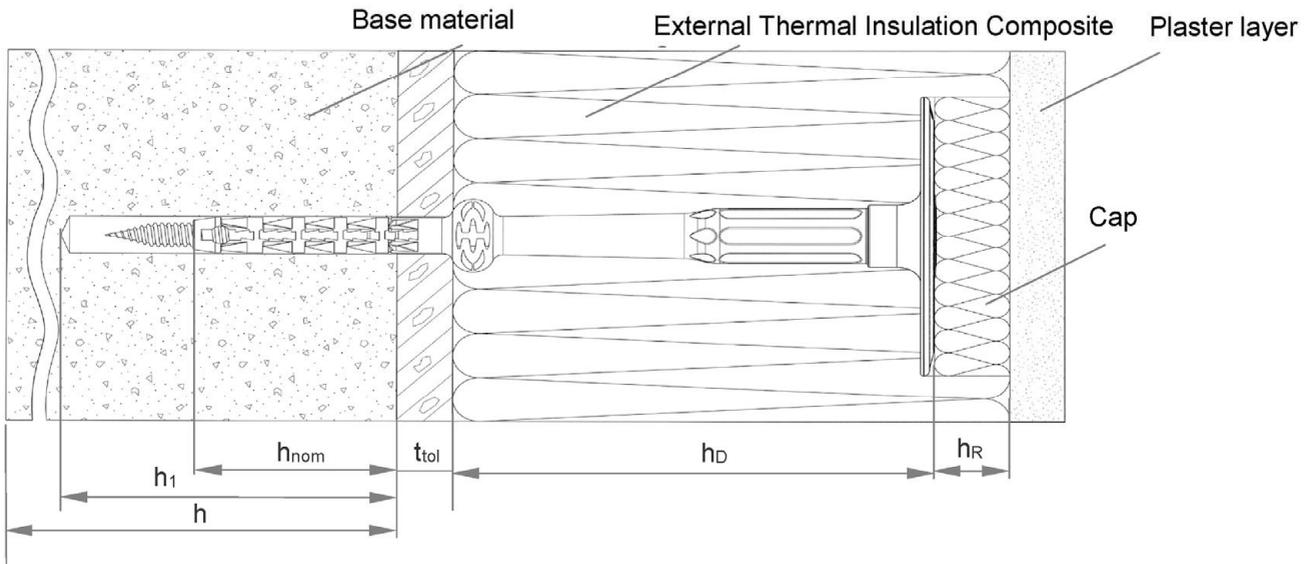
**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

**Product description**

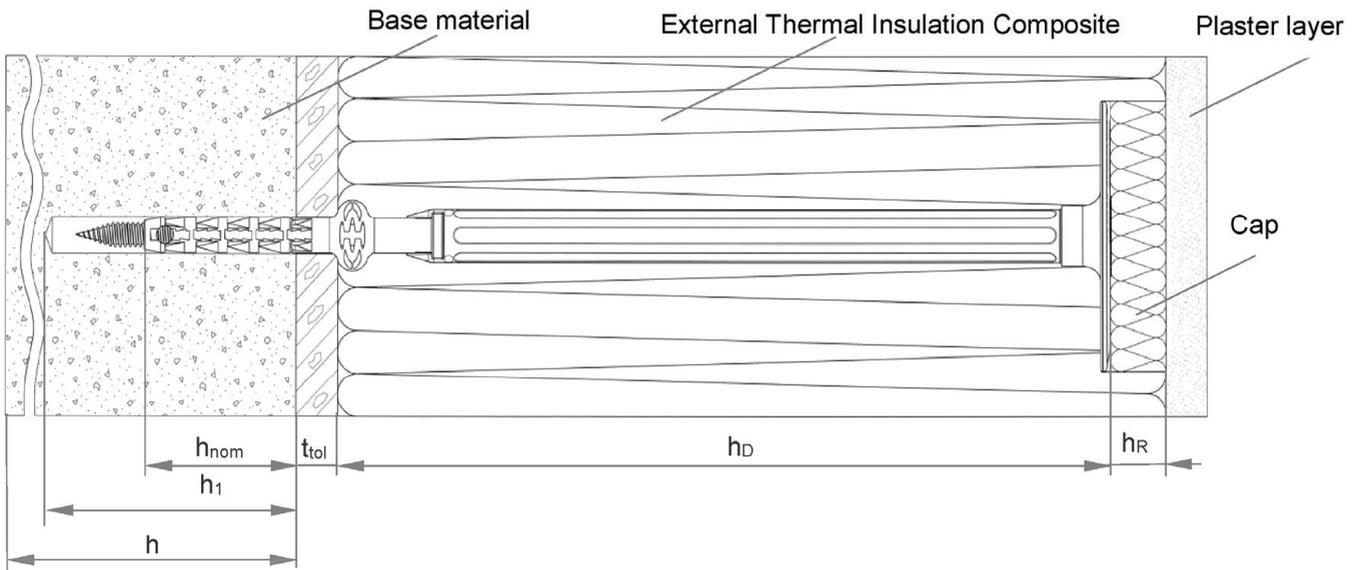
Installed anchor – mounting on the surface

**Annex A 1**  
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## ANCHORS HYDOM METAL plus 11 cm – 23 cm / countersunk mounting



## ANCHORS HYDOM METAL plus 25 cm – 39 cm / countersunk mounting



### Legend

- $h_{nom}$  = Overall plastic anchor embedment depth in the base material
- $h_1$  = Depth of drilled hole to deepest point
- $h$  = Thickness of member (wall)
- $h_D$  = Thickness of insulation material
- $h_R$  = Thickness of cap
- $t_{tol}$  = Thickness of equalising layer and / or non-load-bearing coating

Figures not to scale

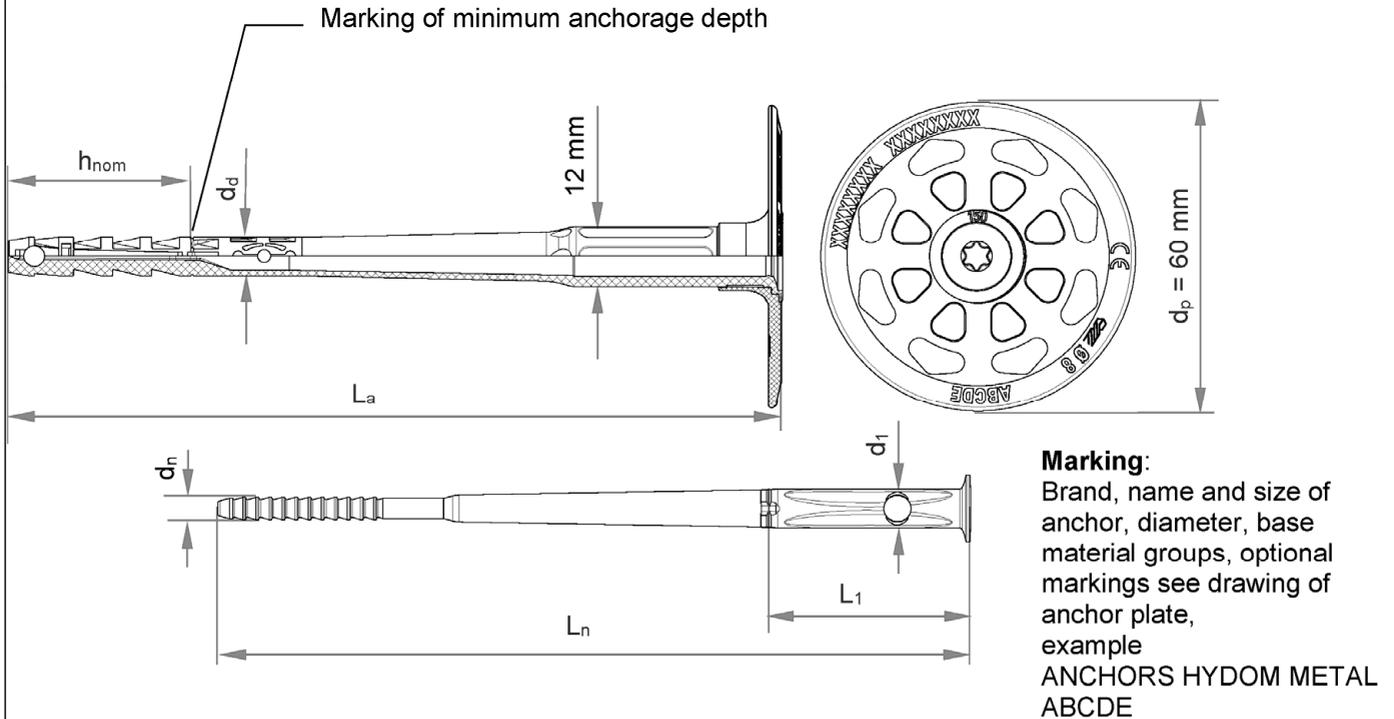
**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

### Product description

Installed anchor – mounting on the surface

**Annex A 2**  
Appendix 4 / 20

## ANCHORS HYDOM METAL 11 cm – 23 cm



Various length of the anchors are possible.

e.g. for ANCHORS HYDOM METAL 11 cm – 23 cm:

$$110 \text{ mm} \geq L_a \leq 230 \text{ mm}$$

$$L_a = L_n + 4 \text{ mm}$$

**Table A3.1: Dimensions ANCHORS HYDOM METAL 11 cm – 23 cm**

Anchor type	Anchor sleeve		Specific compound nail		
	$d_d$ [mm]	$h_{nom}$ [mm]	$d_n$ [mm]	$L_1$ [mm]	$d_1$ [mm]
ANCHORS HYDOM METAL 11 cm – 23 cm	8	35/55 <sup>1)</sup>	4,4	40	8

<sup>1)</sup> Only valid for base material group “E”.

Determination of maximum thickness of insulation:

$$\text{maximum } h_D = L_a - h_{nom} - t_{tol}$$

e.g. for ANCHORS HYDOM METAL 15 cm:

$$L_a = 148 \text{ mm}, h_{nom} = 35 \text{ mm}, t_{tol} = 10 \text{ mm}$$

$$\text{maximum } h_D = 148 - 35 - 10 = 103 \text{ mm}$$

$$\rightarrow \text{recommended } h_D = 100 \text{ mm}$$

Figures not to scale

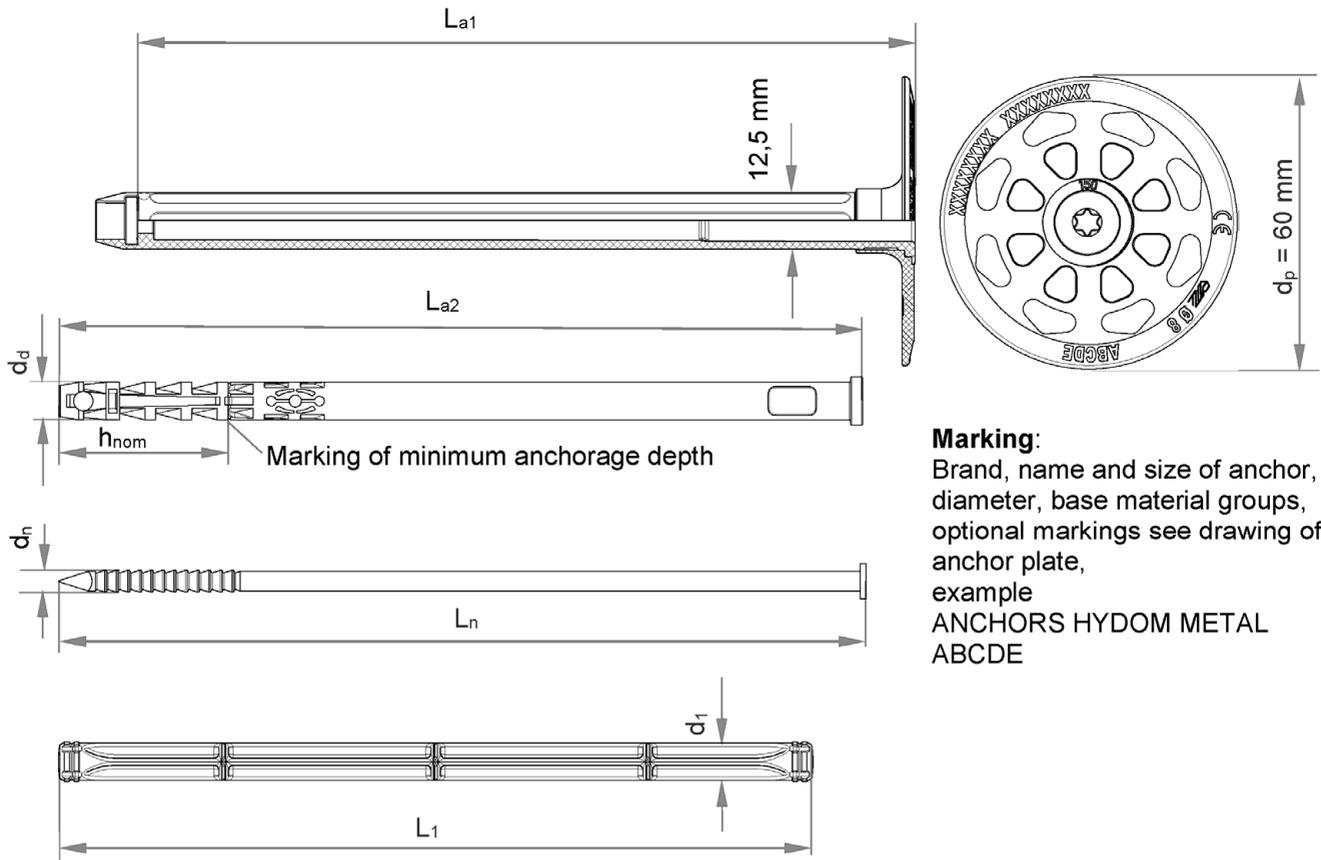
**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

**Product description**

Dimensions ANCHORS HYDOM METAL 11 cm – 23 cm

**Annex A 3**  
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# ANCHORS HYDOM METAL 25 cm – 39 cm



### Marking:

Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example ANCHORS HYDOM METAL ABCDE

Various length of the anchors are possible.

e.g. for ANCHORS HYDOM METAL 25 cm – 39 cm:

$$250 \text{ mm} \geq L_{a1} + L_{a2} \leq 390 \text{ mm}$$

$$L_a = L_{a1} + L_{a2} = L_n + 160,5 \text{ mm}$$

**Table A4.1: Dimensions ANCHORS HYDOM METAL 25 cm – 39 cm**

Anchor type	Shaft		Anchor sleeve		Nail		Plastic cylinder	
	$L_{a1}$ [mm]	$d_d$ [mm]	$h_{nom}$ [mm]	$L_{a2}$ [mm]	$d_n$ [mm]	$L_n$ [mm]	$L_1$ [mm]	$d_1$ [mm]
ANCHORS HYDOM METAL 25 cm – 39 cm	161	8	35/55 <sup>1)</sup>	87 - 247	4,5	$(L_{a1} + L_{a2}) - 160,5$	157	8

<sup>1)</sup> Only valid for base material group "E".

Determination of maximum thickness of insulation:

$$\text{maximum } h_D = L_a - h_{nom} - t_{tol}$$

e.g. for ANCHORS HYDOM METAL 33 cm:

$$L_a = 328 \text{ mm}, h_{nom} = 35 \text{ mm}, t_{tol} = 10 \text{ mm}$$

$$\text{maximum } h_D = 328 - 35 - 10 = 283 \text{ mm}$$

$$\rightarrow \text{recommended } h_D = 280 \text{ mm}$$

Figures not to scale

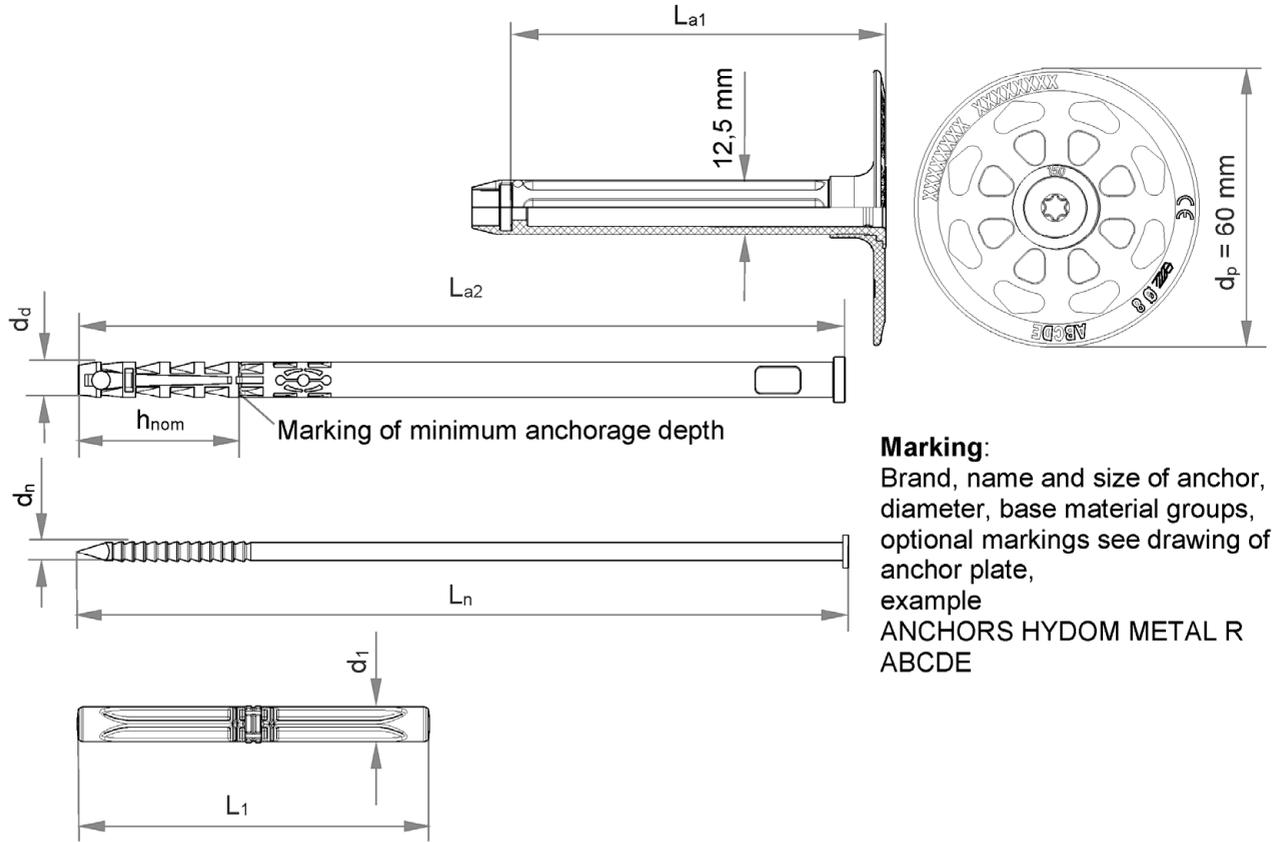
**MARMODOM HYDOM THERMAL Anchoring "ANCHORS HYDOM METAL" "ANCHORS HYDOM METAL R" | "ANCHORS HYDOM METAL plus"**

### Product description

Dimensions ANCHORS HYDOM METAL 25 cm – 39 cm

**Annex A 4**  
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# ANCHORS HYDOM METAL R 25 cm – 31 cm



### Marking:

Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example ANCHORS HYDOM METAL R ABCDE

Various length of the anchors are possible.

z. B. für ANCHORS HYDOM METAL R 25 cm – 31 cm:  
 $250 \text{ mm} \geq L_{a1} + L_{a2} \leq 310 \text{ mm}$   
 $L_a = L_{a1} + L_{a2} = L_n + 80,5 \text{ mm}$

**Table A5.1: Dimensions ANCHORS HYDOM METAL R 25 cm – 31 cm**

Anchor type	Shaft		Anchor sleeve		Nail		Plastic cylinder	
	$L_{a1}$ [mm]	$d_d$ [mm]	$h_{nom}$ [mm]	$L_{a2}$ [mm]	$d_n$ [mm]	$L_n$ [mm]	$L_1$ [mm]	$d_1$ [mm]
ANCHORS HYDOM METAL R 25 cm – 31 cm	81	8	35/55 <sup>1)</sup>	167 - 247	4,5	$(L_{a1}+L_{a2}) - 80,5$	77	8

<sup>1)</sup> Only valid for base material group “E”.

Determination of maximum thickness of insulation:

$$\text{maximum } h_D = L_a - h_{nom} - t_{tol}$$

e.g. for ANCHORS HYDOM METAL R 25 cm:

$$L_a = 248 \text{ mm}, h_{nom} = 35 \text{ mm}, t_{tol} = 10 \text{ mm}$$

$$\text{maximum } h_D = 248 - 35 - 10 = 203 \text{ mm}$$

→ recommended  $h_D = 200 \text{ mm}$

Figures not to scale

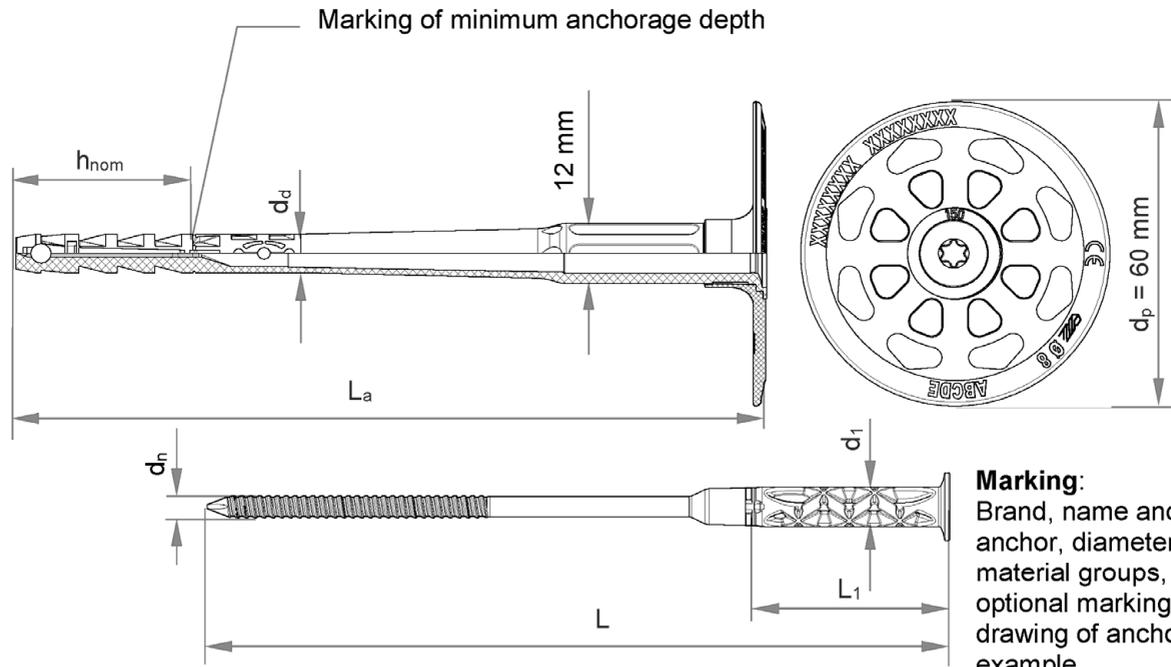
**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
 “ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

### Product description

Dimensions ANCHORS HYDOM METAL R 25 cm – 31 cm

**Annex A 5**  
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# ANCHORS HYDOM METAL plus 11 cm – 23 cm



**Marking:**  
 Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example  
 ANCHORS HYDOM METAL plus ABCDE

Various length of the anchors are possible.

e.g. for ANCHORS HYDOM METAL plus 11 cm – 23 cm:  
 $110 \text{ mm} \geq L_a \leq 230 \text{ mm}$   
 $L_a = L_n + 1,5 \text{ mm}$

**Table A6.1: Dimensions ANCHORS HYDOM METAL plus 11 cm – 23 cm**

Anchor type	Anchor sleeve		Specific compound nail			
	$d_d$ [mm]	$h_{nom}$ [mm]	$d_n$ [mm]	$L_n$ [mm]	$L_1$ [mm]	$d_1$ [mm]
ANCHORS HYDOM METAL plus 11 cm – 23 cm	8	35/55 <sup>1)</sup>	4,3	$L_a - 1,5$	40	8

<sup>1)</sup> Only valid for base material group “D” and “E”.

Determination of maximum thickness of insulation:

$$\text{maximum } h_D = L_a - h_{nom} - t_{tol}$$

e.g. for ANCHORS HYDOM METAL plus 15 cm:

$$L_a = 148 \text{ mm}, h_{nom} = 35 \text{ mm}, t_{tol} = 10 \text{ mm}$$

$$\text{maximum } h_D = 148 - 35 - 10 = 103 \text{ mm}$$

→ recommended  $h_D = 100 \text{ mm}$

Figures not to scale

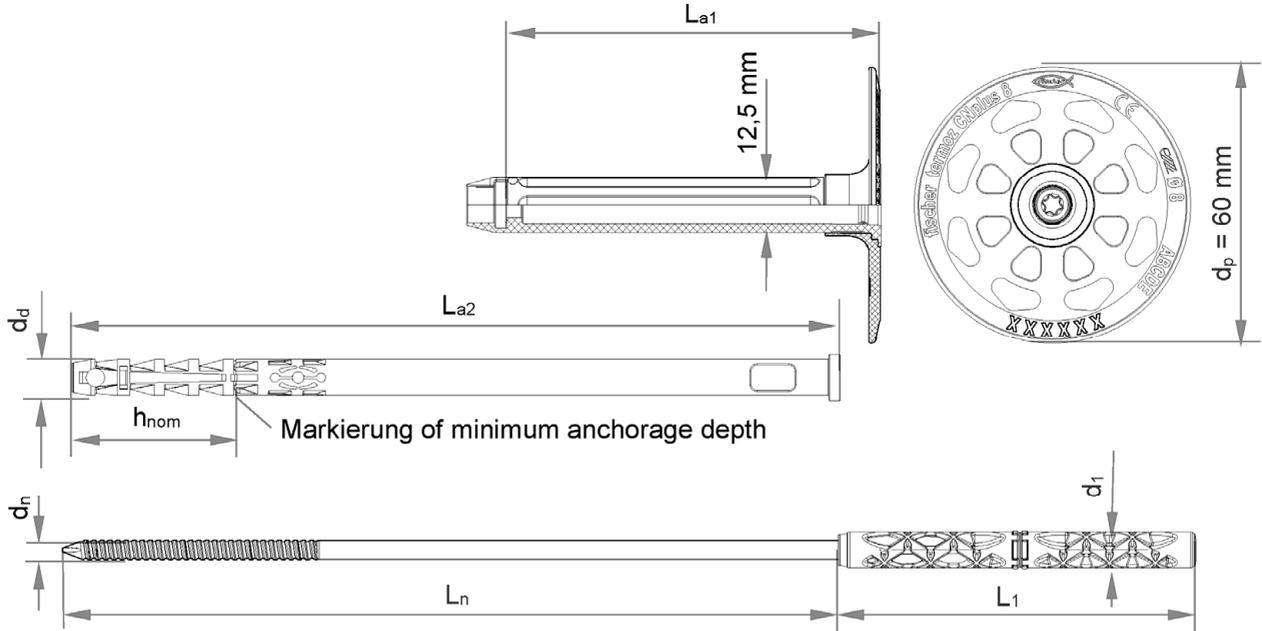
**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
 “ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

**Product description**

Dimensions ANCHORS HYDOM METAL plus 11 cm – 23 cm

**Annex A 6**  
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# ANCHORS HYDOM METAL plus 25 cm – 31 cm



Various length of the anchors are possible.

e.g. for ANCHORS HYDOM METAL plus 25 cm – 31 cm:  
 $250 \text{ mm} \geq L_{a1} + L_{a2} \leq 310 \text{ mm}$   
 $L_a = L_{a1} + L_{a2} = L_n + 79,5 \text{ mm}$

### Marking:

Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example ANCHORS HYDOM METAL plus ABCDE

**Table A7.1: Dimensions ANCHORS HYDOM METAL plus 25 cm – 31 cm**

Anchor type	Shaft		Anchor sleeve		Specific compound nail			
	$L_{a1}$ [mm]	$d_d$ [mm]	$h_{nom}$ [mm]	$L_{a2}$ [mm]	$d_n$ [mm]	$L_n$ [mm]	$L_1$ [mm]	$d_1$ [mm]
ANCHORS HYDOM METAL plus 25 cm – 31 cm	81	8	35/55 <sup>1)</sup>	167 - 247	4,3	$(L_{a1}+L_{a2}) - 79,5$	77,5	8

<sup>1)</sup> Only valid for base material group “D” and “E”.

Determination of maximum thickness of insulation:

$$\text{maximum } h_D = L_a - h_{nom} - t_{tol}$$

e.g. for ANCHORS HYDOM METAL plus 25 cm:

$$L_a = 248 \text{ mm}, h_{nom} = 35 \text{ mm}, t_{tol} = 10 \text{ mm}$$

$$\text{maximum } h_D = 248 - 35 - 10 = 203 \text{ mm}$$

→ recommended  $h_D = 200 \text{ mm}$

Figures not to scale

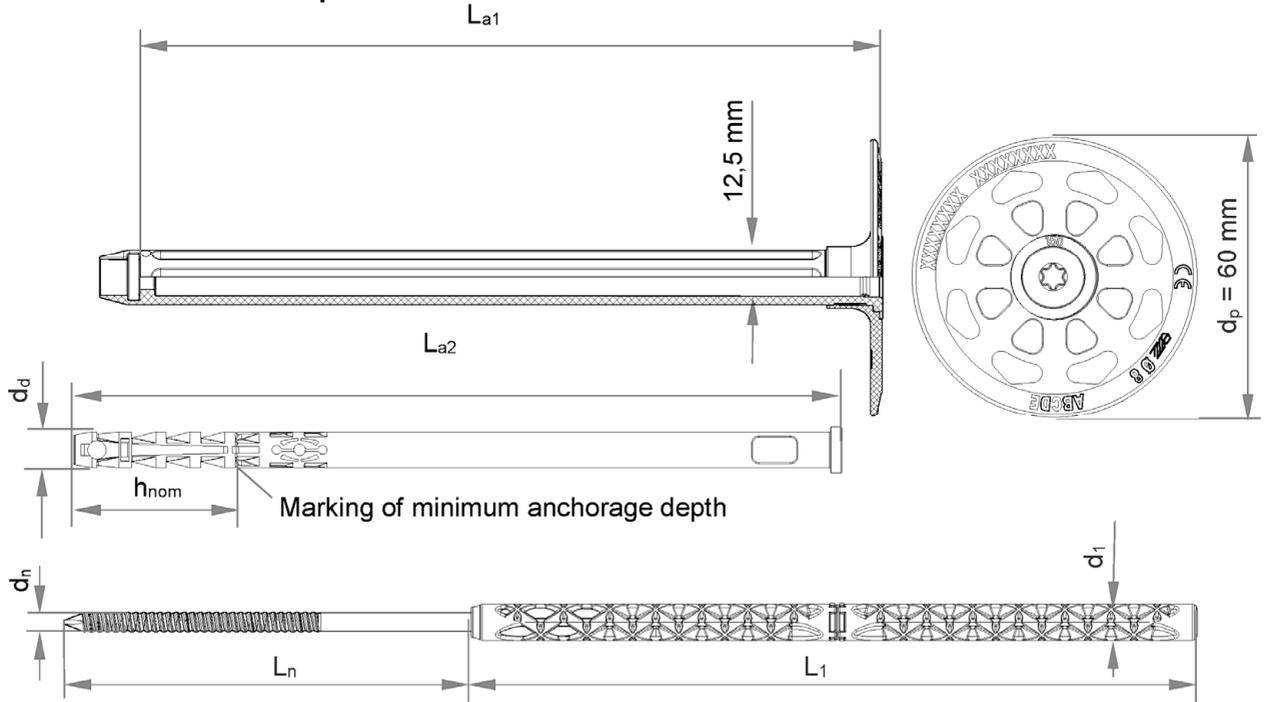
**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
 “ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

### Product description

Dimensions ANCHORS HYDOM METAL plus 25 cm – 31 cm

**Annex A 7**  
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# ANCHORS HYDOM METAL plus 33 cm – 39 cm



Various length of the anchors are possible.

e.g. for ANCHORS HYDOM METAL plus 33 cm – 39 cm:  
 $330 \text{ mm} \geq L_{a1} + L_{a2} \leq 390 \text{ mm}$   
 $L_a = L_{a1} + L_{a2} = L_n + 159,5 \text{ mm}$

**Marking:**  
 Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate,  
 example  
 ANCHORS HYDOM METAL plus ABCDE

**Table A8.1: Dimensions ANCHORS HYDOM METAL plus 33 cm – 39 cm**

Anchor type	Shaft		Anchor sleeve			Specific compound nail		
	$L_{a1}$ [mm]	$d_d$ [mm]	$h_{nom}$ [mm]	$L_{a2}$ [mm]	$d_n$ [mm]	$L_n$ [mm]	$L_1$ [mm]	$d_1$ [mm]
ANCHORS HYDOM METAL plus 33 cm – 39 cm	161	8	35/55 <sup>1)</sup>	167 - 247	4,3	$(L_{a1}+L_{a2}) - 159,5$	157,5	8

<sup>1)</sup> Only valid for base material group “D” and “E”.

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

e.g. for ANCHORS HYDOM METAL plus 33 cm:

$L_a = 328 \text{ mm}$ ,  $h_{nom} = 35 \text{ mm}$ ,  $t_{tol} = 10 \text{ mm}$

maximum  $h_D = 328 - 35 - 10 = 283 \text{ mm}$   
 $\rightarrow$  recommended  $h_D = 280 \text{ mm}$

Figures not to scale

**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
 “ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

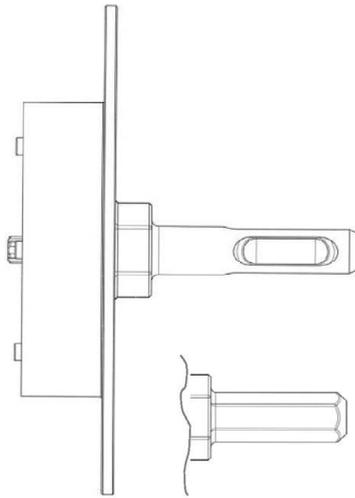
**Product description**

Dimensions ANCHORS HYDOM METAL plus 33 cm – 39 cm

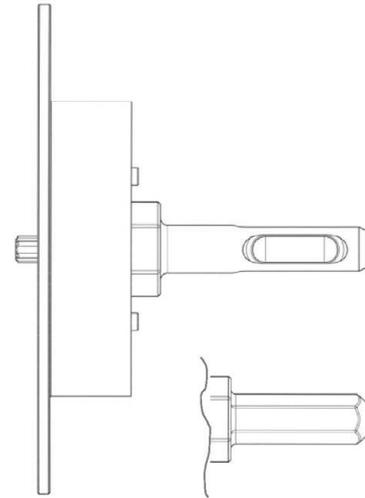
**Annex A 8**  
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# Setting tool with SDS adapter or hexagonal adapter for ANCHORS HYDOM METAL plus

## Countersunk setting<sup>1)</sup>

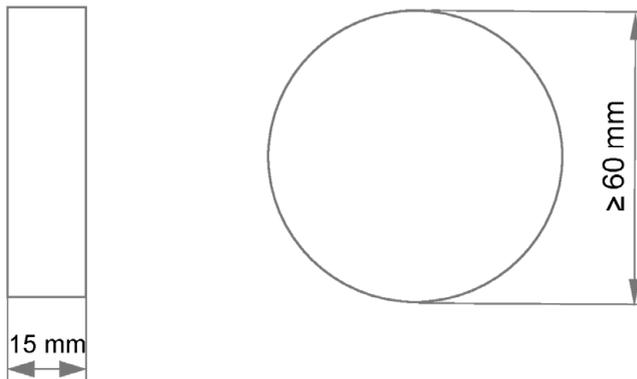


## Optional: plain surface setting



<sup>1)</sup> Alternatively, it is possible to mill the insulation material with a standard, market-available milling tool.

## Cap



Figures not to scale

**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

### Product description

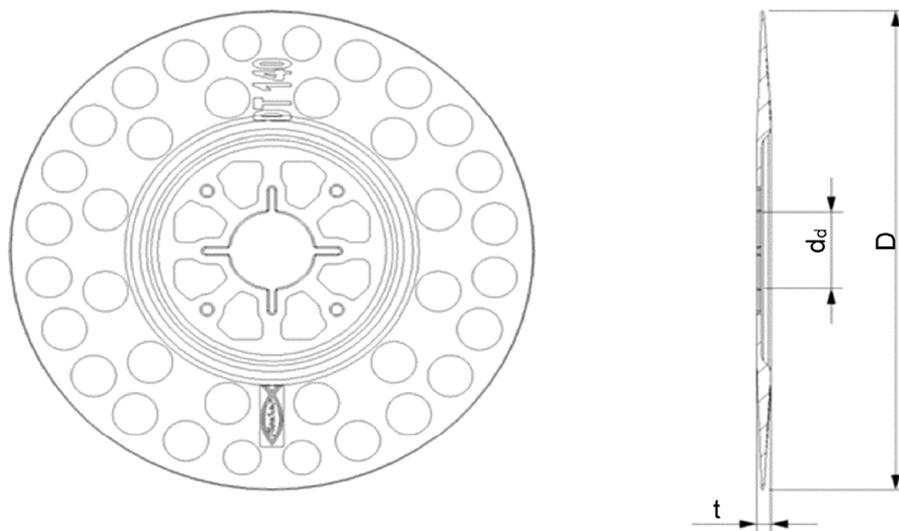
Setting tool and dimensions of cap for ANCHORS HYDOM METAL plus

**Annex A 9**  
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**Table A10.1: Materials**

Designation	Material
Anchor sleeve	PP, colour: grey
Shaft ANCHORS HYDOM METAL 25 cm – 39 cm or ANCHORS HYDOM METAL R 25 cm – 31 cm or ANCHORS HYDOM METAL plus 25 cm – 39 cm	PA6 GF, colour: grey
Plastic cylinder ANCHORS HYDOM METAL 25 cm – 39 cm or ANCHORS HYDOM METAL R 25 cm – 31 cm	PA6 GF
Specific nail ANCHORS HYDOM METAL 25 cm – 39 cm or ANCHORS HYDOM METAL R 25 cm – 31 cm	Galvanised steel with Zn5/Ag or Zn5/An as per EN ISO 4042
Specific compound nail ANCHORS HYDOM METAL 11 cm – 23 cm or ANCHORS HYDOM METAL plus 11 cm – 23 cm or ANCHORS HYDOM METAL plus 25 cm – 39 cm	PA6 GF (plastic part of compound nail) with galvanised steel Zn5/Ag or Zn5/An as per EN ISO 4042
Cap	Polystyrene; mineral wood, soft wood fibre
Anchor plate / slip-on plate	PA6 GF, colour: grey, yellow, red, orange, green, blue, mocca-latte, black

**Drawing of the slip-on plate (e.g. DT 140)**



**Table A10.2: Slip-on plate, dimensions and material**

Slip-on plate	D [mm]	d <sub>dt</sub> [mm]	t [mm]
DT 90 / 110 / 140	90 / 110 / 140	22,5	3,9

Figures not to scale

**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

**Product description**

Material, Slip on plate dimensions and material combined with ANCHORS HYDOM METAL, ANCHORS HYDOM METAL R, ANCHORS HYDOM METAL plus

**Annex A 10**  
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## Specifications of intended use

### Anchorage subject to:

- The anchor may only be used for transmission of wind suction loads and shall not be used for the transmission of dead loads of the external thermal insulation composite system (ETICS).

### Base materials:

- Compacted normal weight concrete without fibres, strength classes  $\geq$  C12/15 (base material group "A"), in accordance with EN 206, see Annex C 1 and C 2.
- Solid brick masonry (base material group "B") as per EN 771-1, EN 771-2 or EN 771-3, see Annex C 1 and C 2.
- Hollow brick masonry (base material group "C"), as per EN 771-1, EN 771-2 or EN 771-3, see Annex C 1 and C 2.
- Prefabricated reinforced components of lightweight aggregate concrete with open structure (base material group "D") as per EN 1520, see Annex C 1 and C 2.
- Unreinforced autoclaved aerated concrete (base material group "E") as per EN 771-4, see Annex C 1 and C 2.
- For other comparable base materials of the base material group "A", "B", "C", "D" and "E" the characteristic resistance of the anchor may be determined by job site tests in accordance with EOTA Technical Report TR 051.

### Temperature Range:

- 0 °C to + 40 °C (max. short term temperature + 40 °C and max. long term temperature + 24 °C) of the base material.

### Design:

- The anchorages are designed under the responsibility of an engineer experienced in anchorages and masonry work with the partial safety factors for material related resistances  $\gamma_M = 2,0$  and for action loads  $\gamma_F = 1,5$  in absence of other national regulations.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchors is indicated on the design drawings.
- Fasteners are only to be used for multiple fixings of external thermal insulation composite system.

### Installation:

- Drilling method according to Annex C 1 and C 2.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on the site.
- Installation temperature from 0 °C to + 40 °C.
- Exposure to UV due to solar radiation of the anchor not protected by rendering  $\leq$  6 weeks.

**MARMODOM HYDOM THERMAL Anchoring "ANCHORS HYDOM METAL"  
"ANCHORS HYDOM METAL R" | "ANCHORS HYDOM METAL plus"**

**Intended Use**  
Specification

**Annex B 1**  
Appendix 13 / 20

**Table B2.1: Installation parameters for base material groups “A” concrete, “B” solid bricks, “C” hollow or perforated bricks, “D” lightweight aggregate concrete and “E” autoclaved aerated concrete – flush mounting**

Anchor type		ANCHORS HYDOM METAL ANCHORS HYDOM METAL R ANCHORS HYDOM METAL plus
Nominal drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8,45
Depth of drilled hole to deepest point	$h_1 \geq$ [mm]	45/55 <sup>1)</sup> /65 <sup>2)</sup>
Overall plastic anchor embedment depth in the base material	$h_{nom} \geq$ [mm]	35/45 <sup>1)</sup> /55 <sup>2)</sup>

<sup>1)</sup> Only ANCHORS HYDOM METAL plus valid for weather shells (thin concrete slabs) :  $35 \text{ mm} \leq h_{nom} \leq 45 \text{ mm}$ .

<sup>2)</sup> ANCHORS HYDOM METAL | ANCHORS HYDOM METAL R : Only valid for base material group “E”.

ANCHORS HYDOM METAL plus: Only valid for base material group “D” and “E”.

**Table B2.2: Installation parameters for base material groups “A” concrete, “B” solid bricks, “C” hollow or perforated bricks, “D” lightweight aggregate concrete and “E” autoclaved aerated concrete – countersunk mounting**

Anchor type		ANCHORS HYDOM METAL plus
Nominal drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8,45
Depth of drilled hole to deepest point	$h_1 \geq$ [mm]	60/70 <sup>1)</sup> /80 <sup>2)</sup>
Overall plastic anchor embedment depth in the base material	$h_{nom} \geq$ [mm]	35/45 <sup>1)</sup> /55 <sup>2)</sup>

<sup>1)</sup> Valid for weather shell (thin concrete slabs):  $35 \text{ mm} \leq h_{nom} \leq 45 \text{ mm}$ .

<sup>2)</sup> Only valid for base material group “D” and “E”.

**Table B2.3: Minimum thickness of member, edge distances and spacing in all regulated base material groups**

Anchor type		ANCHORS HYDOM METAL ANCHORS HYDOM METAL R ANCHORS HYDOM METAL plus
Minimum thickness of member	$h_{min} =$ [mm]	100
Minimum spacing	$s_{min} =$ [mm]	100
Minimum edge distance	$c_{min} =$ [mm]	100

**Scheme of edge distances and spacing**  
for base material group “A”, concrete, group “B” solid bricks, group “C” hollow or perforated masonry, group “D” lightweight aggregate concrete, group “E” autoclaved aerated concrete

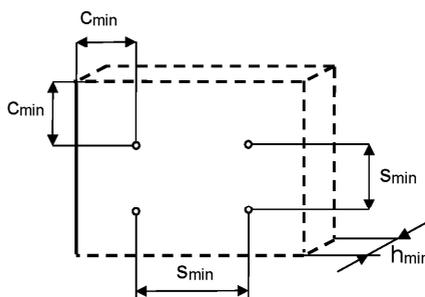


Figure not to scale

**MARMODOM HYDOM THERMAL Anchoing “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

**Intended Use**

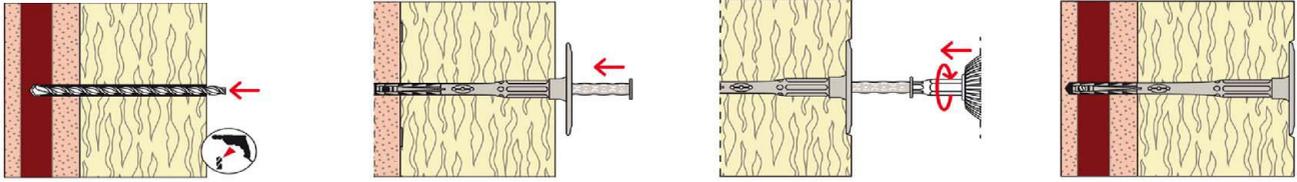
Installation parameters

Minimum thickness of member, edge distances and spacing

**Annex B 2**  
Appendix 14 / 20

## Installation instruction

### Setting of anchor (plain surface setting) by machine / ANCHORS HYDOM METAL plus



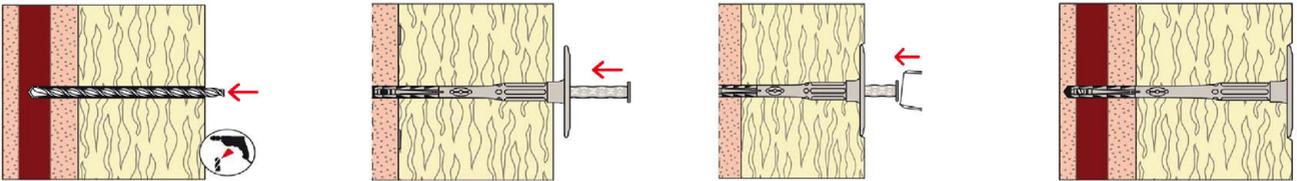
1. Drill hole by corresponding drilling method

2. Insert anchor manually

3. Set anchor by machine

4. Correctly installed anchor

### Setting of anchor (plain surface setting) by hammer / ANCHORS HYDOM METAL | ANCHORS HYDOM METAL R | ANCHORS HYDOM METAL plus



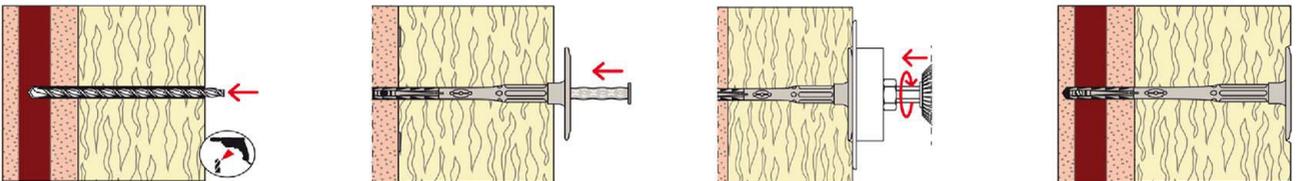
1. Drill hole by corresponding drilling method

2. Insert anchor manually

3. Set anchor by hammer blows

4. Correctly installed anchor

### Setting of anchor (plain surface setting) by setting tool / ANCHORS HYDOM METAL plus



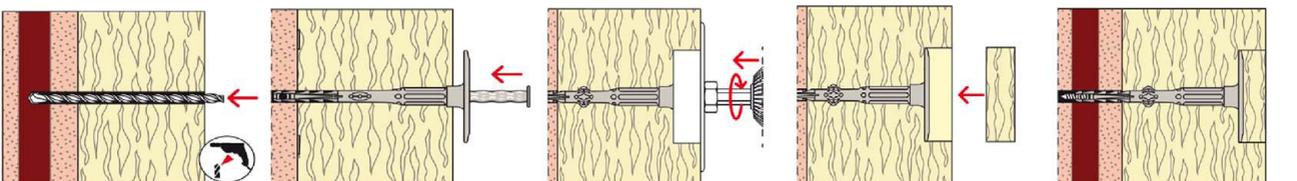
1. Drill hole by corresponding drilling method

2. Insert anchor manually

3. Set anchor by setting tool with the machine

4. Correctly installed anchor

### Setting of anchor (countersunk mounting) by setting tool / ANCHORS HYDOM METAL plus



1. Drill hole by corresponding drilling method

2. Insert anchor manually

3. Set anchor by setting tool with the machine

4. Put on cap

5. Correctly installed anchor

**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

**Intended Use**  
Installation instruction

**Annex B 3**  
Appendix 15 / 20

**Table C1.1: Characteristic resistance  $N_{Rk}$  to tension loads for single anchor  
ANCHORS HYDOM METAL and ANCHORS HYDOM METAL R**

Base material	Group	Bulk density $\rho$ [kg/dm <sup>3</sup> ]	Mean compressive strength / minimum compressive strength single brick as per EN 771 <sup>5)</sup> [N/mm <sup>2</sup> ]	Remarks	Drilling method <sup>1)</sup>	Characteristic resistance to tension loads  $N_{Rk}$ [kN]
Concrete, C12/15 - C50/60 as per EN 206	A	-	-	-	H	<b>0,90</b>
Solid Clay bricks, Mz as per EN 771-1	B <sup>2)</sup>	≥ 2,0	15/12	-	H	<b>0,90</b>
Calcium silicate solid bricks, KS as per EN 771-2	B <sup>2)</sup>	≥ 1,8	15/12	-	H	<b>0,90</b>
Solid concrete blocks, Vbn as per EN 771-3	B <sup>2)</sup>	≥ 2,0	25/20	-	H	<b>0,75</b>
Lightweight concrete blocks, Vbl as per EN 771-3	B <sup>2)</sup>	≥ 1,4	10/8	-	H	<b>0,60</b>
Vertically perforated clay bricks, HLz as per EN 771-1	C <sup>3)</sup>	≥ 1,0	15/12	Exterior web thickness ≥ 15 mm.	R	<b>0,60</b>
Hollow calcium silicate brick, KSL as per EN 771-2	C <sup>3)</sup>	≥ 1,4	15/12	Exterior web thickness ≥ 23 mm.	H	<b>0,50</b>
			25/20			<b>0,75</b>
Lightweight concrete hollow blocks, Hbl as per EN 771-3	C <sup>3)</sup>	≥ 1,2	12,5/10	Exterior web thickness ≥ 38 mm.	H	<b>0,60</b>
Lightweight aggregate concrete, LAC as per EN 1520 / EN 771-3	D <sup>3)</sup>	≥ 0,8	7,5/6	Min. thickness of brick h = 100 mm or min. exterior web thickness t = 50 mm.	H	<b>0,40</b>
			5/4			<b>0,60</b>
Unreinforced autoclaved aerated concrete members, AAC as per EN 771-4	E	> 0,4	7,5/6	-	R	<b>0,30<sup>4)</sup></b>
		> 0,6	5/4	-		<b>0,30<sup>4)</sup></b>

<sup>1)</sup> H = Hammer drilling, R = Rotary drilling.

<sup>2)</sup> Vertically perforation ≤ 15%; cross section reduced by perforation vertically to the resting area.

<sup>3)</sup> Vertically perforation > 15 % and ≤ 50 %, cross section reduced by perforation vertically to the resting area.

<sup>4)</sup> Only valid for  $h_{nom} \geq 55$  mm.

<sup>5)</sup> The compressive strength of the single brick must not be less than 80% of the mean compressive strength.

**MARMODOM HYDOM THERMAL Anchoing “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R“ | “ANCHORS HYDOM METAL plus“**

**Performances**

Characteristic resistance to tension load  
ANCHORS HYDOM METAL and ANCHORS HYDOM METAL R

**Annex C 1**  
Appendix 16 / 20

**Table C2.1: Characteristic resistance  $N_{Rk}$  to tension loads for single anchor  
ANCHORS HYDOM METAL plus**

Base material	Group	Bulk density $\rho$ [kg/dm <sup>3</sup> ]	Mean compressive strength / minimum compressive strength single brick as per EN 771 <sup>5)</sup> [N/mm <sup>2</sup> ]	Remarks	Drilling method <sup>1)</sup>	Characteristic resistance to tension loads  $N_{Rk}$ [kN]
Concrete, C12/15 - C50/60 as per EN 206	A	-	-	-	H	<b>0,90</b>
Weather resistant concrete shell $\geq$ C20/25 as per EN 206	A	-	-	$h \geq 42$ mm; $t_{fix} \geq 35$ mm.	H	<b>0,90</b>
Solid clay bricks, Mz as per EN 771-1	B <sup>2)</sup>	$\geq 1,8$	25/20	-	H	<b>0,90</b>
Calcium silicate solid bricks, KS as per EN 771-2	B <sup>2)</sup>	$\geq 1,8$	25/20	-	H	<b>0,90</b>
Solid concrete blocks, Vbn as per EN 771-3	B <sup>2)</sup>	$\geq 2,0$	25/20	-	H	<b>0,90</b>
Lightweight concrete blocks, Vbl as per EN 771-3	B <sup>2)</sup>	$\geq 1,6$	12,5/10	-	H	<b>0,75</b>
Vertically perforated clay bricks, Hlz as per EN 771-1	C <sup>3)</sup>	$\geq 1,6$	15/12	-	R	<b>0,50</b>
		$\geq 1,0$	60/48	-		<b>0,75</b>
Hollow calcium silicate brick, KSL as per EN 771-2	C <sup>3)</sup>	$\geq 1,4$	20/16	Exterior web thickness $\geq 16$ mm.	H	<b>0,50</b>
Lightweight concrete hollow blocks, Hbl as per EN 771-2	C <sup>3)</sup>	$\geq 1,2$	12,5/10	Exterior web thickness $\geq 38$ mm.	H	<b>0,60</b>
Lightweight aggregate concrete, LAC as per EN 1520 / EN 771-3	D <sup>3)</sup>	$\geq 0,9$	7,5/6	Minimum thickness of brick $h = 100$ mm or Minimum exterior web thickness $t = 50$ mm.	H	<b>0,40<sup>4)</sup></b>
Unreinforced autoclaved aerated concrete members, AAC as per EN 771-4	E	$> 0,4$	5/4	-	R	<b>0,30<sup>4)</sup></b>

<sup>1)</sup> H = Hammer drilling, R = Rotary drilling.

<sup>2)</sup> Vertically perforation  $\leq 15\%$ ; cross section reduced by perforation vertically to the resting area.

<sup>3)</sup> Vertically perforation  $> 15\%$  and  $\leq 50\%$ , cross section reduced by perforation vertically to the resting area.

<sup>4)</sup> Only valid for  $h_{nom} \geq 55$  mm.

<sup>5)</sup> The compressive strength of the single brick must not be less than 80% of the mean compressive strength.

**MARMODOM HYDOM THERMAL Anchoing “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R“ | “ANCHORS HYDOM METAL plus“**

**Performances**

Characteristic resistance to tension load ANCHORS HYDOM METAL plus

**Annex C 2**  
Appendix 17 / 20

**Table C3.1: Point thermal transmittance according to EOTA Technical Report TR 025 ANCHORS HYDOM METAL and ANCHORS HYDOM METAL R**

Anchor type	Thickness of insulation material $h_D$ [mm]	Point thermal transmittance $\chi$ [W/K]
ANCHORS HYDOM METAL 11 cm – 23 cm	60 - 80	0,001
	> 80 - 180	0,000
ANCHORS HYDOM METAL 25 cm – 35 cm	200 - 300	0,000
ANCHORS HYDOM METAL 37 cm – 39 cm	> 300 - 340	0,001
ANCHORS HYDOM METAL R 25 cm – 31 cm	200 - 260	0,001

**Table C3.2: Point thermal transmittance according to EOTA Technical Report TR 025 ANCHORS HYDOM METAL plus / countersunk setting**

Thickness of insulation material $h_D$ [mm]	Point thermal transmittance $\chi$ [W/K] Base material group				
	A	B	C	D	E
60	0,001	0,001	0,001	0,001	0
80					0,001
100					
120					
140					
160					
180	0,002				
200					
220	0,001				
240					
260	0,001				
280		0			
300	0,001	0,001	0,001	0	
320					
340			1)	1)	

1) No performance assessed.

**MARMODOM HYDOM THERMAL Anchoing “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

**Performances**  
Point thermal transmittance

**Annex C 3**  
Appendix 18 / 20

**Table C4.1: Point thermal transmittance according to EOTA Technical Report TR 025  
ANCHORS HYDOM METAL plus / countersunk setting**

Thickness of insulation material $h_D$ [mm]	Point thermal transmittance $\chi$ [W/K]				
	Base material group				
	A	B	C	D	E
80	0,001	0	0	0	0
100		0,001	0,001	0,001	0,001
120					
140					
160	0,002	0,002	0,001	0,001	0,001
180					
200	0,001	0,001	0,001	0,001	0,001
220					
240					
260					
280	0	0	0	0	0
300	0,001	0,001	0	0	0
320					
340			0,001		

1) No performance assessed.

**Table C4.2: Plate stiffness according to EOTA Technical Report TR 026**

Anchor type	Max. size of the anchor plate $d_p$ [mm]	Load resistance of the anchor plate [kN]	Plate stiffness $c$ [kN/mm]
ANCHORS HYDOM METAL ANCHORS HYDOM METAL R ANCHORS HYDOM METAL plus	60	1,7	0,6

**MARMODOM HYDOM THERMAL Anchoring “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R” | “ANCHORS HYDOM METAL plus”**

**Performances**  
Point thermal transmittance  
Plate stiffness

**Annex C 4**  
Appendix 19 / 20

**Table C5.1: Displacements of ANCHORS HYDOM METAL and ANCHORS HYDOM METAL R**

Base material	Mean compressive strength / minimum compressive strength single brick as per EN 771 <sup>1)</sup> [N/mm <sup>2</sup> ]	Tension load N [kN]	Displacements $\Delta\delta_N$ [mm]
Concrete, C12/15 - C50/60 as per EN 206	-	0,30	< 0,30
Solid Clay bricks, Mz as per EN 771-1	15/12	0,30	< 0,50
Calcium silicate solid bricks, KS as per EN 771-2	15/12	0,30	< 0,30
Solid concrete blocks, Vbn as per EN 771-3	25/20	0,25	< 0,30
Lightweight concrete blocks, Vbl as per EN 771-3	10/8	0,20	< 0,20
Vertically perforated clay, HLz bricks as per EN 771-1	15/12	0,20	< 0,20
Hollow calcium silicate brick, KSL as per EN 771-2	15/12	0,25	< 0,30
	25/20	0,15	< 0,20
Lightweight concrete hollow blocks, Hbl as per EN 771	12,5/10	0,20	< 0,20
Lightweight aggregate concrete, LAC as per EN 1520 / EN 771-3	5/4	0,13	< 0,30
	7,5/6	0,20	< 0,30
Autoclaved aerated concrete members, AAC as per EN 771-4	5/4	0,10	< 0,30
	7,5/6	0,13	< 0,20

<sup>1)</sup> The compressive strength of the single brick must not be less than 80% of the mean compressive strength.

**Table C5.2: Displacements of ANCHORS HYDOM METAL plus**

Base material	Mean compressive strength / minimum compressive strength single brick as per EN 771 <sup>1)</sup> [N/mm <sup>2</sup> ]	Tension load N [kN]	Displacements $\Delta\delta_N$ [mm]
Concrete, C12/15 - C50/60 as per EN 206	-	0,30	< 0,10
Weather resistant concrete shell $\geq$ C20/25 as per EN 206	-	0,30	< 0,10
Solid Clay bricks, Mz as per EN 771-1	25/20	0,30	< 0,20
Calcium silicate solid bricks, KS as per EN 771-2	25/20	0,30	< 0,20
Solid concrete blocks, Vbn as per EN 771-3	25/20	0,30	< 0,20
Lightweight concrete blocks, Vbl as per EN 771-3	12,5/10	0,25	< 0,10
Vertically perforated clay, HLz bricks as per EN 771-1	15/12	0,17	< 0,10
Hollow calcium silicate brick, KSL as per EN 771-2	60/48	0,25	< 0,20
Hollow calcium silicate bricks, KSL as per EN 771-2	20/16	0,17	< 0,10
Lightweight concrete hollow blocks, Hbl as per EN 771	12,5/10	0,20	< 0,10
Lightweight aggregate concrete, LAC as per EN 1520 / EN 771-3	7,5/6	0,13	< 0,20
Autoclaved aerated concrete members, AAC as per EN 771-4	5/4	0,10	< 0,10

<sup>1)</sup> The compressive strength of the single brick must not be less than 80% of the mean compressive strength.

**MARMODOM HYDOM THERMAL Anchoing “ANCHORS HYDOM METAL”  
“ANCHORS HYDOM METAL R“ | “ANCHORS HYDOM METAL plus“**

**Performances**  
Displacements

**Annex C 5**  
Appendix 20 / 20