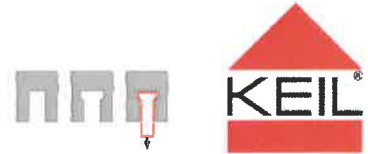




Declaration of Performance

DoP no. 0793-CPR-8.1-13



1. Unique Identification code of the product-type: **KEIL undercut anchor KH for porcelain stoneware "Laminam"**
2. Type number: **KH 5,5; KH 7; KH 8,5**
3. Intended use or uses of the construction product: **Fastener for the rear fixing of facade panels made of ceramic plates (stoneware) according to EN 14411:2012**
4. Manufacturer: **Laminam spa, Via Ghiarola Nuova 258, 41042 FIORANO MODENESE (MO), ITALY**
5. Authorised representative: -
6. System or systems of assessment and verification of constancy of performance: **System 2+**
7. Harmonised Standard: -
8. European evaluation document: **EAD 330030-00-0601**
European Technical Assessment: **ETA-16/0317**
Technical Assessment Body: **DIBt**
Notified Body: **0793 – Güteschutz Beton**

9. Declared Performance:

Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic resistance for tension and shear loads	See Annex C 1
Anchor distances and dimensions of members	See Annex C 1

Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Fasteners satisfy requirements for Class A 1
Resistance to fire	No performance determined (NPD)

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4. Signed for and on behalf of the manufacturer by:

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Christian Schmidt
Managing Director
Engelskirchen, 10.10.2019

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Dipl.-Ing. Georg Miebach
Product Manager

Table C1: Characteristic values for the design of the anchor and façade panel

characteristic values of façade panel	strength class			Class A	Class B	Class C
	char. resistance to bending stress	$\sigma_{Rk} =$	[N/mm ²]	35,0	40,0	45,0
	partial safety factor ¹⁾	$\gamma_M =$	[-]	1,8		
	modulus of elasticity	$E =$	[N/mm ²]	30000		
	poisson's ratio	$\nu =$	[-]	0,2		
	specific weight	$\gamma =$	[kN/m ³]	25,0		
characteristic values of anchor	anchorage depth	$h_s =$	[mm]	5,5	7,0	8,5
	panel thickness	$h \geq$	[mm]	8,0	9,5	11,0
	Characteristic resistance to tension load ²⁾	Class A	$N_{Rk} =$ [kN]	1,0	1,5	2,7
		Class B		1,1	1,6	2,8
		Class C		1,2	1,7	3,0
	characteristic resistance to shear load ²⁾	Class A	$V_{Rk} =$ [kN]	2,0	2,2	2,4
		Class B		2,1	2,3	2,5
		Class C		2,2	2,4	2,6
	edge distance ^{3) 4)}	$a_r \geq$	[mm]	100		
	spacing	$a \geq$	[mm]	200		
	partial safety factor ¹⁾	$\gamma_M =$	[-]	1,8		

¹⁾ In absence of other national regulations.

²⁾ in case of coincident stress of an anchor due to tension and shear load the equation according to Annex B 4 shall be observed

³⁾ The edge distance may be reduced to 50 mm. For edge distances $50 \text{ mm} \leq a_r \leq 100 \text{ mm}$ the characteristic values of resistance for shear loads shall be reduced by the factor $a_r/100$ [a_r in mm]; in case of different edge distances the smaller value is decisive

⁴⁾ For small fitted pieces, differential and fill-in pieces the edge distance and spacing shall be chosen constructively

KEIL undercut anchor KH for porcelain stoneware "Laminam"

Performances

Characteristic values for the design of the anchor and façade panel

Annex C 1