



Declaration of Performance

DoP no. 0793-CPR-8.1-33



1. Unique Identification code of the product-type: **KEIL undercut anchor KH**
2. Type number: **KH 7; KH 10; KH 15**
3. Intended use or uses of the construction product: **Anchor for the rear fixing of facades panels made of selected natural stones according to EN 1469:2015**
4. Manufacturer: **KEIL Befestigungstechnik GmbH, Olpener Str. 13a, 51766 Engelskirchen, GERMANY, www.keil.pro**
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-06/0253**
Technical Assessment Body: **DIBt**
Notified Body: **0793 – Güteschutz Beton**
9. Declared Performance:

Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic resistance to breakout or pull-out failure under tension load	See Annex C 1 and C 2
Characteristic resistance to breakout or pull-out failure under shear load	See Annex C 1 and C 2
Characteristic resistance to breakout or pull-out failure under combined tension and shear load	See Annex C 1 and C 2
Edge distance and spacing	See Annex C 1
Durability	Corrosion Resistance Class (CRC) III in accordance with EN 1993-1-4:2015
Characteristic resistance to steel failure under tension and shear load	See Annex C 2

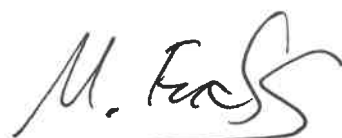
Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1

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:



Gerda Söhngen
Managing Director
Engelskirchen, 04.10.2021



Markus Fuchs
Quality Manager

Characteristic load-bearing capacity of the anchor

Table C1: Characteristic values for facade panels and reveal panels

Natural stone		Epprechtstein yellow	Padang light	Sto-Kilzinger Sandstein
Country of origin		Germany	China	Poland
Petrographic description		granite	granite	sandstone
Embedment depth	$h_s =$ [mm]	15	10	15
Edge distance	$a_r \geq$ [mm]	100	50	100
Spacing	$a \geq$ [mm]	120	80	120
Characteristic resistance				
under tension load	$N_{Rk} =$ [kN]	4,6	3,6	2,9
under shear load	$V_{Rk} =$ [kN]	5,1	4,2	3,0
Combined tension and shear load				
Value for tri-linear function	X [-]	1,2	1,2	1,2

Table C2: Characteristic values for facade panels made of slate CS 50, SIN 120 und SIN 150

		CS 50 ¹⁾		SIN 120 ¹⁾	SIN 150 ¹⁾
Country of origin		Brasilia		Spain	Spain
Petrographic description		slate		slate	slate
Embedment depth	$h_s =$ [mm]	7			
Edge distance	$a_r \geq$ [mm]	50	100	50	
Spacing	$a \geq$ [mm]	100	200	100	
Characteristic resistance					
Characteristic resistance to tension load	$N_{Rk} =$ [kN]	1,1	1,5	1,3	1,2
Characteristic resistance to shear load	$V_{Rk} =$ [kN]	1,6	1,9	2,7	3,0
Combined tension and shear load					
Value for tri-linear function	X [-]	1,0	1,0	1,0	1,0

¹⁾ According to Table B3

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Performance
Characteristic resistance

Annex C 1

Table C3: Characteristic values for facade panels made of slate Primero Vulcano Schiefer

Country of origin		Spain
Petrographic description		slate
Embedment depth	$h_s =$ [mm]	15
Edge distance	$a_r \geq$ [mm]	50
Spacing	$a \geq$ [mm]	100
Characteristic resistance		
Characteristic resistance to tension load	$N_{Rk} =$ [kN]	4,2
Characteristic resistance to shear load	$V_{Rk} =$ [kN]	6,0
Combined tension and shear load		
Value for tri-linear function	X [-]	1,2

¹⁾ According to Table B4

Table C4: Characteristic resistance for steel failure

Characteristic resistance			
Characteristic resistance under tension load	$N_{Rk,s}$ [kN]		14,1
Partial safety factor for tension load	$\gamma_{Ms}^{1)}$ [-]		1,87
Characteristic resistance under shear load	$V_{Rk,s}$ [kN]		7,0
Partial safety factor	$\gamma_{Ms}^{1)}$ [-]		1,56

¹⁾ In absence of national regulations.

Table C5: reduction factor α_{TR}

Reduction factor	α_{TR} [-]	1,0
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Performance
Characteristic resistance and α_{TR}

Annex C2