

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-08/0190**  
**of 28 April 2021**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Würth Plastic Anchor W-UR / SHARK UR

Product family  
to which the construction product belongs

Plastic anchor for multiple use in concrete and masonry  
for non-structural applications

Manufacturer

Adolf Würth GmbH & Co. KG  
Reinhold-Würth-Straße 12-17  
74653 Künzelsau  
DEUTSCHLAND

Manufacturing plant

Werk 2

This European Technical Assessment  
contains

137 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

ETAG 020, March 2012,  
used as EAD according to Article 66 Paragraph 3 of  
Regulation (EU) No 305/2011.

This version replaces

ETA-08/0190 issued on 5 September 2017

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## Specific Part

### 1 Technical description of the product

The Würth plastic anchor in the range W-UR / SHARK UR 8 and W-UR / SHARK UR 10 is a plastic anchor consisting of a plastic sleeve made of polyamide and an accompanying specific screw of galvanised steel or of stainless steel.

The plastic sleeve is expanded by screwing in the specific screw which presses the sleeve against the wall of the drilled hole.

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 verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchors of at least 50 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 in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C 2

#### 3.2 Safety and accessibility (BWR 4)

Essential characteristic	Performance
Characteristic resistance for tension and shear loads	See Annexes C 1, C 16 – C 123
Edge distances and spacing	See Annex B 2, B 3
Displacements	See Annex C 2
Durability	See Annex B 1

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

In accordance with guideline for European technical approval ETAG 020, March 2012 used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011 the applicable European legal act is: 97/463/EC.

The system to be applied is: 2+

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document**

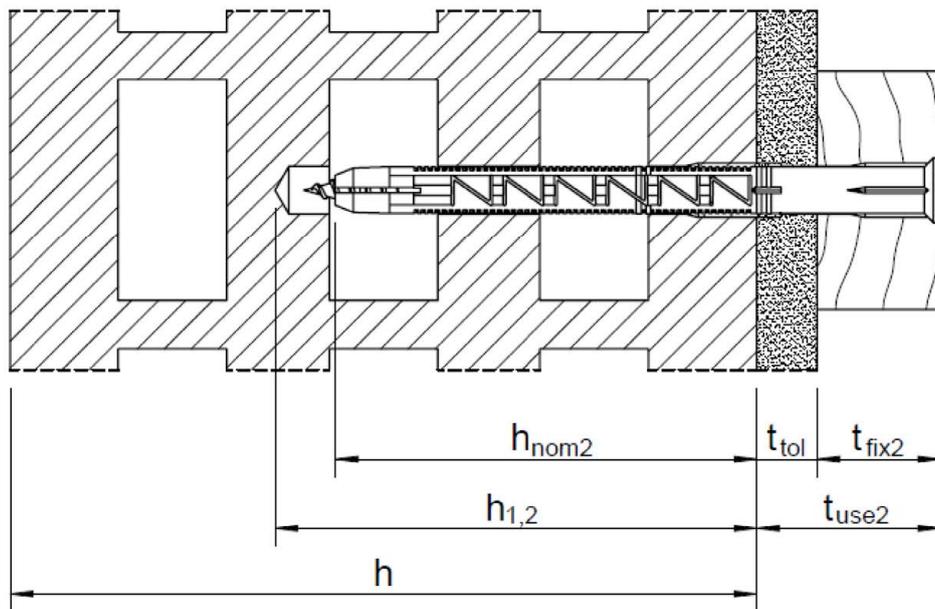
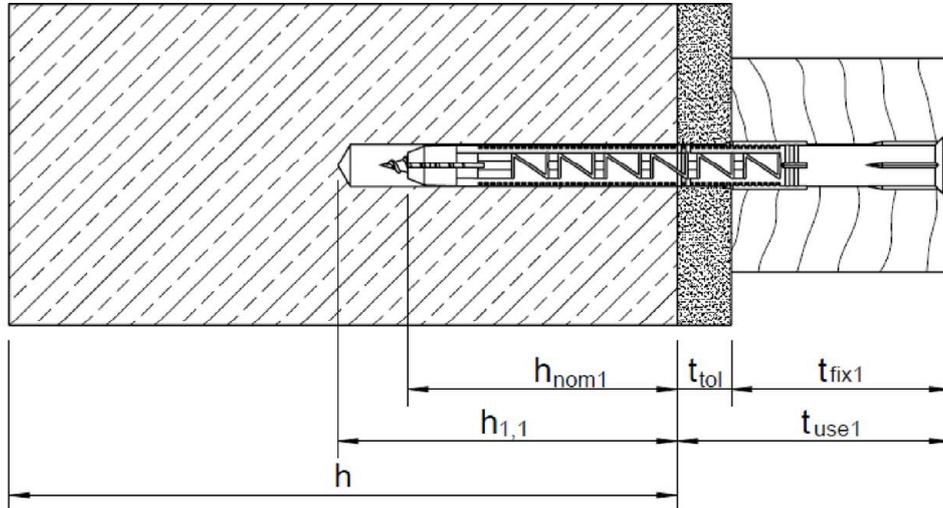
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 28 April 2021 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock  
Head of Section

*beglaubigt:*  
Ziegler

### Plastic Anchor W-UR 8 / SHARK UR 8 and W-UR 10 / SHARK UR 10 in-place installation



- $h_{nom1}$ : Overall plastic anchor embedment depth in the base material (1)
- $h_{nom2}$ : Overall plastic anchor embedment depth in the base material (2)
- $h_{1,1}$ : Depth of drill hole to deepest point (1)
- $h_{1,2}$ : Depth of drill hole to deepest point (2)
- $h$ : Thickness of member
- $t_{fix1}$ : Thickness of fixture (1)
- $t_{fix2}$ : Thickness of fixture (2)
- $t_{tol}$ : Thickness of non-load-bearing layer
- $t_{use1}$ : Useable length (1)
- $t_{use2}$ : Useable length (2)

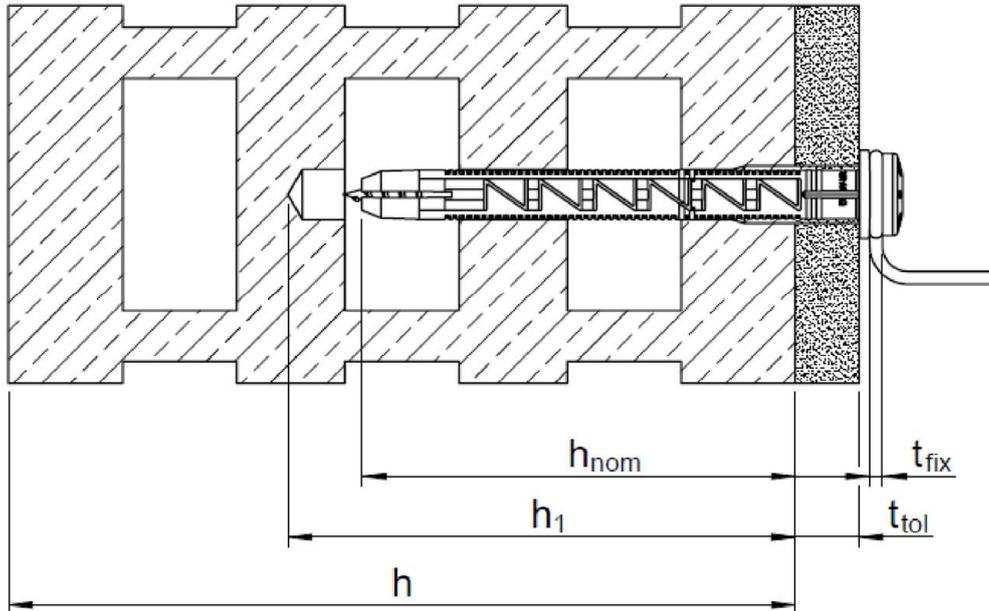
#### Würth Plastic Anchor W-UR / SHARK UR

##### Product description

Installed condition in-place installation

Annex A 1

**Plastic Anchor W-UR 8 / SHARK UR 8 Panhead for pre-positioned installation**



- $h_{nom}$ : Overall plastic anchor embedment depth in the base material
- $h_1$ : Depth of drill hole to deepest point
- $h$ : Thickness of member
- $t_{fix}$ : Thickness of fixture
- $t_{tol}$ : Thickness of non-load-bearing layer

**Würth Plastic Anchor W-UR / SHARK UR**

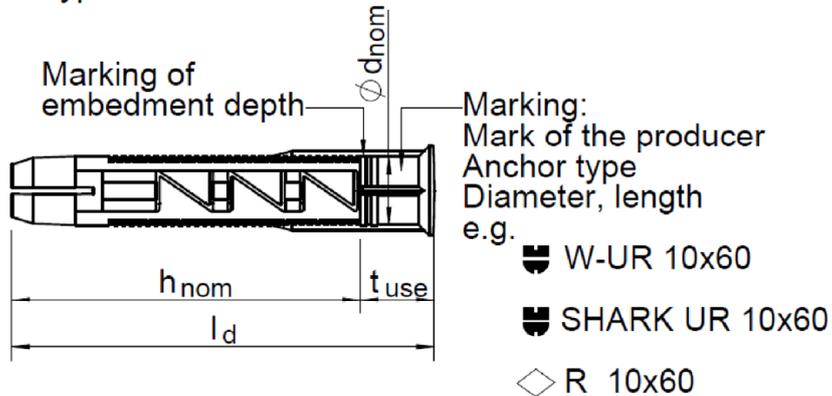
**Product description**

Installed condition pre-positioned installation

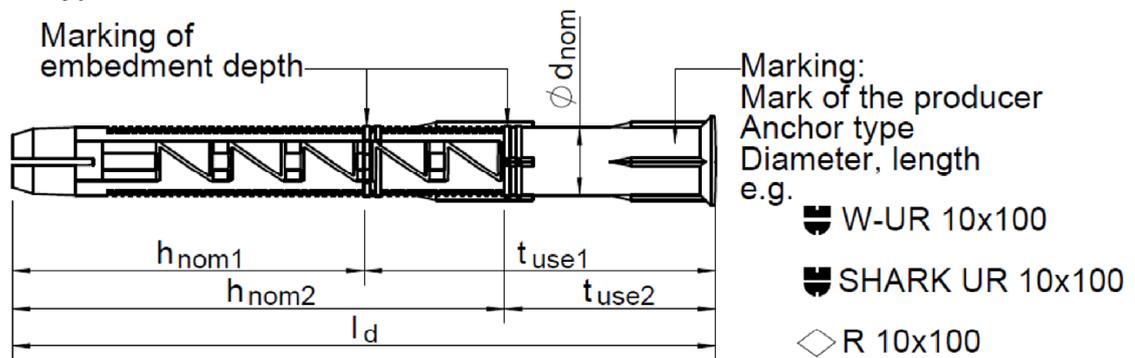
**Annex A 2**

## Plastic sleeve

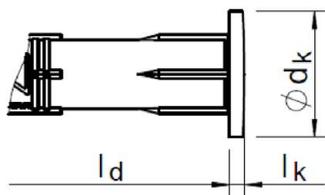
Anchor type SHARK UR 8x60 and 10x60 / W-UR 8x60 and 10x60



Anchor type SHARK UR 8 and 10 / W-UR 8 and 10



Anchor type SHARK UR F 8 / W-UR F 8  
and SHARK UR F 10 / W-UR F 10



### Würth Plastic Anchor W-UR / SHARK UR

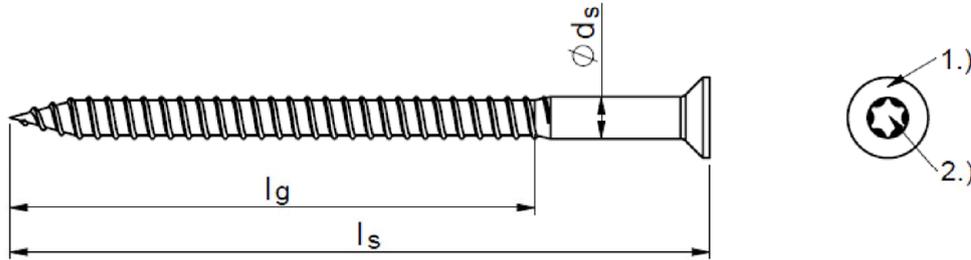
#### Product description

Anchor types – head versions of the sleeve  
Marking and dimensions

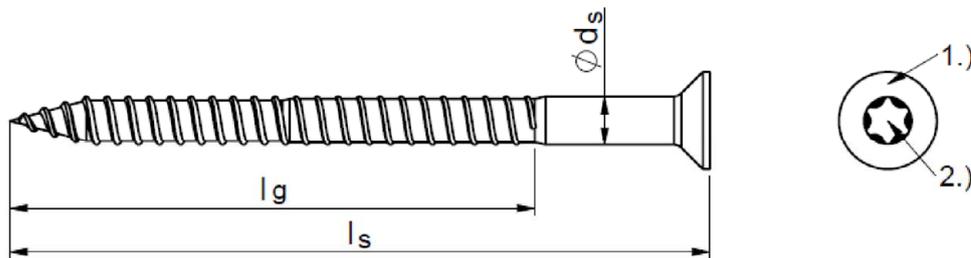
Annex A 3

## Special screw

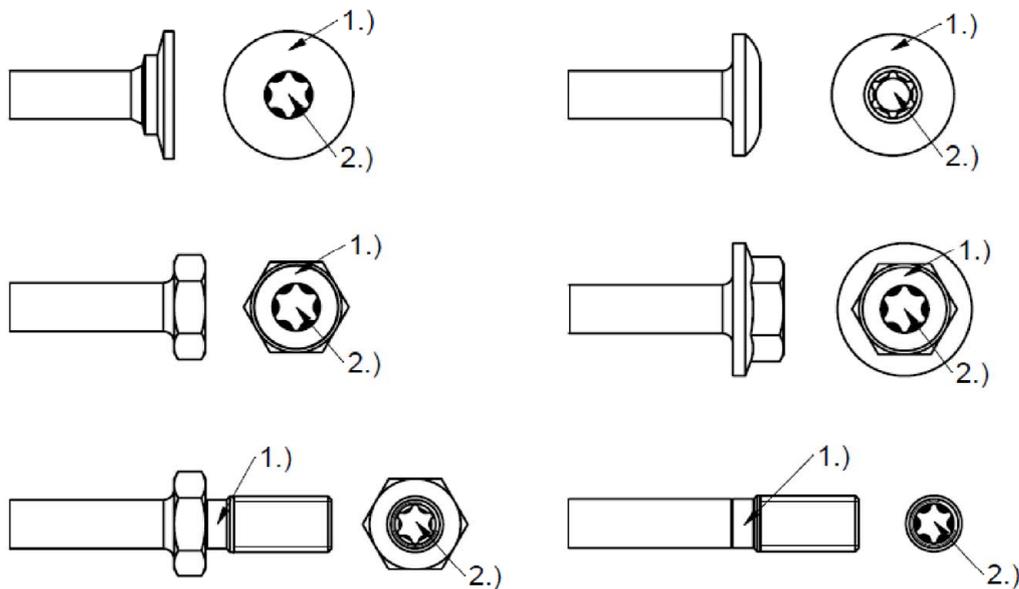
Special screw SHARK UR 8 / W-UR 8



Special screw SHARK UR 10 / W-UR 10



Heads for special screw SHARK UR / W-UR



1.) Marking: e.g. W-UR 10x100; \*, A4 or SHARK UR 10x100; \*, A4  
W-UR VM 10x100; \*, A4 or SHARK UR VM 10x100; \*, A4  
◇ R 10x100; \*, A4

2.) Optional with cross recess or hexagon nut without internal recess

### Würth Plastic Anchor W-UR / SHARK UR

#### Product description

Special screw, Stair bolt – head versions  
Marking and dimensions

Annex A 4

**Table A1: Anchor dimensions**

Anchor type		W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10	
Overall plastic anchor embedment depth in the base material	$h_{nom} \geq$ [mm]	50 ( $h_{nom1}$ )	70 ( $h_{nom2}$ )	50 ( $h_{nom1}$ )	70 ( $h_{nom2}$ )
<b>Plastic sleeve</b>					
Plastic sleeve diameter	$\varnothing d_{nom}$ [mm]	8		10	
Length of plastic sleeve	$l_d \geq$ [mm]	51	71	71	
Flat collar diameter	$\varnothing d_k$ [mm]	14		18	
Thickness of flat collar	$l_k \geq$ [mm]	1,6		2	
Thickness of fixture	$t_{use} \geq$ [mm]	1		1	
Thickness of fixture pre-positioned installation	$t_{fix} \geq$ [mm]	1		-	
<b>Special screw</b>					
Screw diameter	$d_s$ [mm]	6		7	
Length of screw in-place installation	$l_s$ [mm]	$l_d + 5$ mm		$l_d + 5$ mm	
Length of screw pre-positioned installation	$l_s$ [mm]	$l_d + t_{fix} + 5$ mm		-	
Length of thread in-place installation	$l_g$ [mm]	75		75	
Length of thread pre-positioned installation	$l_g$ [mm]	85		-	

**Table A2: Designation and materials**

Designation	Material
Plastic sleeve	Polyamid, colour brown and anthracite
Special screw	Galvanized steel acc. to EN ISO 4042:2018 Hot dip galvanized steel acc. to EN ISO 10684:2004 + AC:2009 Steel with non-electrolytically zinc flake coating acc. to EN ISO 10683:2018 Steel with zinc diffusion coating acc. to EN ISO 17668:2016 Stainless steel 1.4301, 1.4567 (A2) Stainless steel 1.4401, 1.4571 or 1.4578 (A4)

**Würth Plastic Anchor W-UR / SHARK UR**

**Product description**  
Anchor dimensions and materials

**Annex A 5**

### Specifications of intended use

#### Anchorage subject to:

- Static or quasi-static loads
- Multiple fixing of non-structural applications

#### Base materials:

- Reinforced or unreinforced normal weight concrete with strength classes  $\geq$  C12/15 (use category a), according to EN 206-1:2000 Annex C 1, precast or prestressed hollow core elements according to Annex C 118, Annex C 119, Annex C 120.
- Solid brick masonry (use category b) according to Annex C 16, Annex C 17, Annex C 78 - Annex C 80, Annex C 90 - Annex C 99. Note: The characteristic resistance is also valid for larger brick sizes and larger compressive strength of the masonry unit.
- Hollow brick masonry (use category c) according to Annex C 18 - Annex C 77, Annex C 81 - Annex C 89, Annex C 100 - Annex C 115.
- Autoclaved aerated concrete (use category d) according to Annex C 116, Annex C 117.
- Masonry lintel according to Annex C 122, Annex C 123.
- Mortar strength class of the masonry  $\geq$  M2,5 at minimum according to EN 998-2:2017 (EN 998-2:2010).
- For other base materials of the use categories a, b, c, d or masonry lintel the characteristic resistance of the anchor may be determined by job site tests according to ETAG 020, Annex B Edition March 2012.

#### Temperature range:

- Range b):  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$  (max. long term temperature  $+50^{\circ}\text{C}$  and max. short term temperature  $+80^{\circ}\text{C}$ )
- Range c):  $-40^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  (max. long term temperature  $+30^{\circ}\text{C}$  and max. short term temperature  $+50^{\circ}\text{C}$ )

#### Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (zinc coated steel, stainless steel A2 or A4).
- The specific screw made of zinc coated steel or stainless steel A2 may also be used in structures subject to external atmospheric exposure, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e. g. undercoating or body cavity protection for cars).
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel A4).
- Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

#### Design:

- The anchorages are designed in accordance with the ETAG 020, Annex C Edition March 2012 under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored, the nature and strength of the base materials and the dimensions of the anchorage members as well as of the relevant tolerances. The position of the anchor is indicated on the design drawings.
- Fasteners are only to be used for multiple use for non-structural application, according to ETAG 020 Edition March 2012.

#### Installation:

- Hole drilling by the drill modes according to Annex C 16 - Annex C 123.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site
- Installation temperature from W-UR 8 / SHARK UR 8:  $\geq -40^{\circ}\text{C}$ ; W-UR 10 / SHARK UR 10:  $\geq -20^{\circ}\text{C}$
- Exposure to UV due to solar radiation of the anchor not protected  $\leq$  6 weeks

### Würth Plastic Anchor W-UR / SHARK UR

Intended use  
Specifications

Annex B 1

**Table B1: Installation parameters**

Anchor type		W-UR 8 / SHARK UR 8	W-UR 10 / SHARK UR 10
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8,45	10,45
Depth of drill hole to deepest point <sup>1)</sup>	$h_f \geq$ [mm]	60 ( $h_{1,1}$ )	80 ( $h_{1,2}$ )
Overall plastic anchor embedment depth in the base material <sup>1), 2)</sup>	$h_{nom}$ [mm]	50 ( $h_{nom1}$ )	70 ( $h_{nom2}$ )
Diameter of clearance hole in the fixture in-place installation	$d_r \leq$ [mm]	8,5	10,5
Diameter of clearance hole in the fixture pre-positioned installation	$d_r \leq$ [mm]	7	-

<sup>1)</sup> See Annex A 1 and Annex A 2

<sup>2)</sup> For hollow and perforated masonry the influence of  $h_{nom} > 70$  mm (W-UR 8 / SHARK UR 8 and W-UR 10 / SHARK UR 10) has to be detected by job site tests according ETAG 020 Annex B.

For anchorages in hollow and perforated masonry variable set in the range  $h_{nom1} = 50$  mm  $\leq h_{nom} < 70$  mm =  $h_{nom2}$  the characteristic values  $F_{Rk}$  for  $h_{nom1} = 50$  mm may be taken without performing additional job site tests (compare Annex C 18, C 81, C 83, C 84, C 115).

For anchorages in hollow and perforated masonry with anchor type W-UR 8x60 / SHARK UR 8x60 and W-UR 10 / SHARK UR 10 ( $h_{nom} = 50$  mm) the influence  $50 < h_{nom} \leq 59$  mm always has to be detected by job site tests.

**Table B2: Minimum thickness of member, edge distance and anchor spacing in concrete**

		$h_{nom}$ [mm]	$h_{min}$ [mm]	$c_{cr,N}$ [mm]	$c_{min}$ [mm]	$s_{min}$ [mm]
<b>W-UR 8 / SHARK UR 8</b>	Concrete $\geq$ C16/20	= 50	100	40	40	40
	Concrete C12/15	= 50	100	55	55	55
	Concrete $\geq$ C16/20	> 50	100	50	50	50
	Concrete C12/15	> 50	100	70	70	70
<b>W-UR 10 / SHARK UR 10</b>	Concrete $\geq$ C16/20	= 50	80	50	50	60
	Concrete C12/15	= 50	80	70	70	85
	Concrete $\geq$ C16/20	> 50	100	100	70	50
	Concrete C12/15	> 50	100	140	100	70

**W-UR 8 / SHARK UR 8:** Fixing points with spacing  $a \leq 100$  mm are considered as a group with a max. characteristic resistance  $N_{Rk,p}$  acc. to Table C 2.1. For  $a > 100$  mm, the anchors are considered as single anchors, each with a characteristic resistance  $N_{Rk,p}$  acc. to Table C 2.1.

**W-UR 10 / SHARK UR 10:** Fixing points with spacing  $a \leq 75$  mm are considered as a group with a max. characteristic resistance  $N_{Rk,p}$  acc. to Table C 2.1. For  $a > 75$  mm, the anchors are considered as single anchors, each with a characteristic resistance  $N_{Rk,p}$  acc. Table C 2.1.

**Würth Plastic Anchor W-UR / SHARK UR**

**Intended use**

Installation parameters, edge distances and spacings for use in concrete

**Annex B 2**

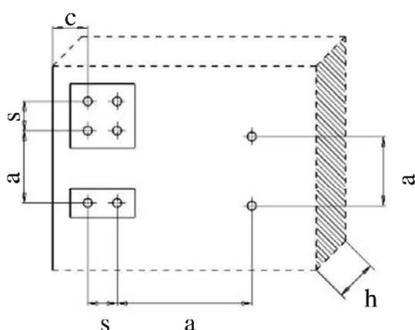
**Table B3: Minimum thickness of member, edge distance and anchor spacing in masonry**

		Masonry			
		W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10	
Overall plastic anchor embedment depth	$h_{nom}$ [mm]	50	70	50	70
Minimum thickness of member	$h_{min}$ [mm]	100 <sup>1)</sup>		100 <sup>1)</sup>	
<b>Single anchor</b>					
Minimum allowable spacing	$a_{min}$ [mm]	250		250	
Minimum allowable edge distance	$c_{min}$ [mm]	100 <sup>1)</sup>		100 <sup>1)</sup>	
<b>Anchor group</b>					
Spacing perpendicular to free edge	$s_{1,min}$ [mm]	- <sup>1)</sup>		100 <sup>1)</sup>	- <sup>1)</sup>
Spacing parallel to free edge	$s_{2,min}$ [mm]	- <sup>1)</sup>		100 <sup>1)</sup>	- <sup>1)</sup>
Minimum edge distance	$c_{min}$ [mm]	100 <sup>1)</sup>		100 <sup>1)</sup>	100 <sup>1)</sup>

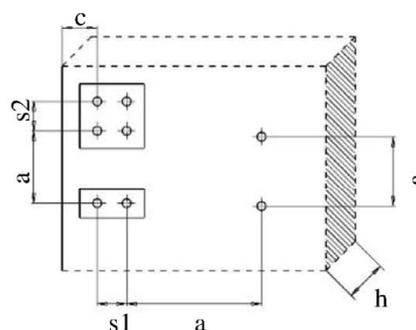
<sup>1)</sup>  $h_{min}$ ,  $c_{min}$ , and  $s_{min}$  depend on the brick size and/or on the brick: See the following Annex C 16 - Annex C 123.

**Table B4: Minimum thickness of member, edge distance and anchor spacing in autoclaved aerated concrete**

		Autoclaved aerated concrete				(Prefabricated) Reinforced AAC W-UR 10 / SHARK UR 10
		W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10		
	$f_{cm,decl}$ [N/mm <sup>2</sup> ]	≥ 2,0	≥ 6,6	≥ 2,0	≥ 6,6	≥ 1,5
<b>Single anchor</b>						
Minimum thickness of member	$h_{min}$ [mm]	100	115	100	175	175
Minimum spacing	$a_{min}$ [mm]	250	250	250	250	600
Minimum edge distance	$c_{min}$ [mm]	40	80	80	80	150
<b>Anchor group</b>						
Minimum thickness of member	$h_{min}$ [mm]	115	115	100	175	175
Spacing perpendicular to free edge	$s_{1,min}$ [mm]	80	130	100	100	100
Spacing parallel to free edge	$s_{2,min}$ [mm]	80	130	100	100	100
Minimum edge distance	$c_{min}$ [mm]	80	80	100	100	150



Concrete (Table B2)



Masonry (Table B3) and AAC (Table B4)

**Würth Plastic Anchor W-UR / SHARK UR**

**Intended use**

Installation parameters, edge distances and spacing for use in masonry and autoclaved aerated concrete

**Annex B 3**

**Installation instructions in-place installation for concrete and solid masonry or hollow masonry**

		<p>Drill the bore hole</p>
		<p>Clean the drilled bore hole</p>
		<p>Gently hammer the fastener into the hole</p>
		<p>Insert the special screw into the sleeve</p>
		<p>Tighten the screw until the head of the screw touches the sleeve. The anchor is correct mounted, if there is no turn-through of the plastic sleeve in the drill hole and if slightly move on turning of the screw is impossible after the complete turn-in of the screw.</p>

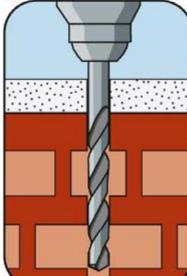
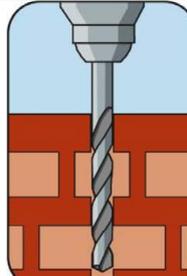
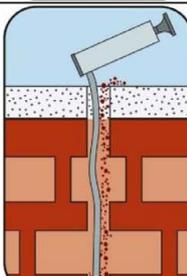
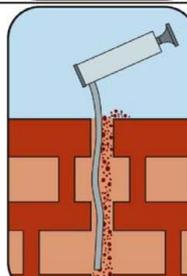
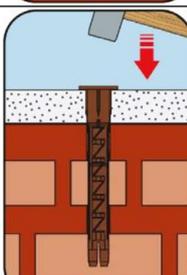
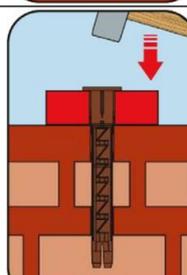
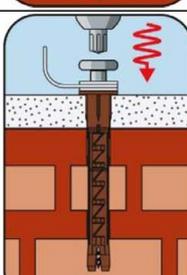
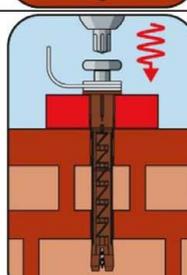
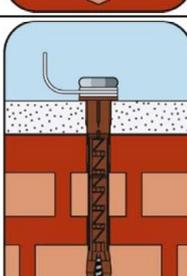
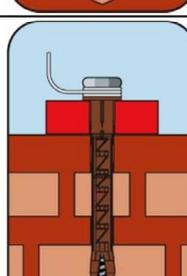
**Würth Plastic Anchor W-UR / SHARK UR**

**Intended use**

Installation instructions in-place installation

**Annex B 4**

**Installation instructions pre-positioned installation for concrete and solid masonry or hollow masonry**

		<p>Drill the bore hole</p>
		<p>Clean the drilled bore hole</p>
		<p>Insert the fastener through the attachment into the concrete/masonry using carefully a hammer</p>
		<p>Insert the special screw into the sleeve</p>
		<p>Tighten the screw until the head of the screw and the fixture touches the sleeve. The anchor is correct mounted, if there is no turn-through of the plastic sleeve in the drill hole and if slightly move on turning of the screw is impossible after the complete turn-in of the screw.</p>

**Würth Plastic Anchor W-UR / SHARK UR**

**Intended use**

Installation instructions pre-positioned installation

**Annex B 5**

**Table C 1.1: Characteristic resistance of the screw**

			Galvanized steel				Stainless Steel			
			W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10		W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10	
<b>Failure of expansion element (special screw)</b>										
Overall plastic anchor embedment depth	$h_{nom}$	[mm]	50	70	50	70	50	70	50	70
Characteristic tension resistance	$N_{Rk,s}$	[kN]	11.8		18.7		13.7		21.8	
Partial safety factor	$\gamma_{Ms}^{1)}$	[-]	1.5		1.5		1.87		1.87	
Characteristic shear resistance	$V_{Rk,s}$	[kN]	5.9		9.4		6.9		10.9	
Partial safety factor	$\gamma_{Ms}^{1)}$	[-]	1.25		1.25		1.56		1.56	
<b>Characteristic bending resistance of the special screw</b>										
Characteristic bending resistance	$M_{Rk,s}$	[Nm]	8.8		17.7		10.3		20.6	
Partial safety factor	$\gamma_{Ms}^{1)}$	[mm]	1.25		1.25		1.56		1.56	

<sup>1)</sup> In absence of other national regulations

**Table C 2.1: Characteristic resistance for pullout failure for use in concrete (hammer drilling)**

Anchor type			Galvanized steel				Stainless Steel				
			W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10		W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10		
<b>Pull-out failure (plastic sleeve)</b>			50	70	50	70	50	70	50	70	
<b>Concrete <math>\geq</math> C16/20</b>											
Characteristic resistance	$30^{\circ}C^{2)} / 50^{\circ}C^{3)}$	$N_{Rk,p}$	[kN]	4.0	6.0	3.0	4.0	4.0	6.0	3.0	4.0
	$50^{\circ}C^{2)} / 80^{\circ}C^{3)}$	$N_{Rk,p}$	[kN]	3.5	5.0	2.5	3.5	3.5	5.0	2.5	3.5
Partial safety factor	$\gamma_{Mc}^{1)}$	[-]	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
<b>Concrete C12/15</b>											
Characteristic resistance	$30^{\circ}C^{2)} / 50^{\circ}C^{3)}$	$N_{Rk,p}$	[kN]	3.0	4.0	2.0	2.5	3.0	4.0	2.0	2.5
	$50^{\circ}C^{2)} / 80^{\circ}C^{3)}$	$N_{Rk,p}$	[kN]	2.5	3.5	2.0	2.5	2.5	3.5	2.0	2.5
Partial safety factor	$\gamma_{Mc}^{1)}$	[-]	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	

<sup>1)</sup> In absence of other national regulations

<sup>2)</sup> Maximum long term temperature

<sup>3)</sup> Maximum short term temperature

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

Characteristic resistance of the screw

Characteristic resistance for pullout failure for use in concrete

**Annex C 1**

**Table C 3.1: Displacements<sup>1)</sup> under tension and shear loading in concrete, masonry and autoclaved aerated concrete**

Anchor type	$h_{nom}$ [mm]	Tension load			Shear load		
		$F^{2)}$ [kN]	$\delta_{N0}$ [mm]	$\delta_{N\infty}$ [mm]	$F^{2)}$ [kN]	$\delta_{V0}$ [mm]	$\delta_{V\infty}$ [mm]
<b>W-UR 8 / SHARK UR 8</b> Concrete $\geq$ C16/20	50	1.8	0.26	0.52	1.8	0.96	1.44
<b>W-UR 8 / SHARK UR 8</b> Concrete $\geq$ C16/20	70	2.4	0.35	0.7	2.4	0.93	1.86
<b>W-UR 10 / SHARK UR 10</b> Concrete $\geq$ C16/20	50	1.19	0.48	0.96	1.19	0.51	0.77
<b>W-UR 10 / SHARK UR 10</b> Concrete $\geq$ C16/20	70	1.8	0.16	0.32	1.8	1.18	1.76

<sup>1)</sup> Valid for all ranges of temperatures

<sup>2)</sup> Intermediate values by linear interpolation

**Table C 4.1: Characteristic values under fire exposure in concrete C20/25 to C50/60 in any load direction, no permanent centric tension load and without lever arm, fastening of facade systems**

Anchor type	Fire resistance class	$F_{Rk,fi}$
<b>W-UR 10 / SHARK UR 10</b>	R 90	0.8kN

**Würth Plastic Anchor W-UR / SHARK UR**

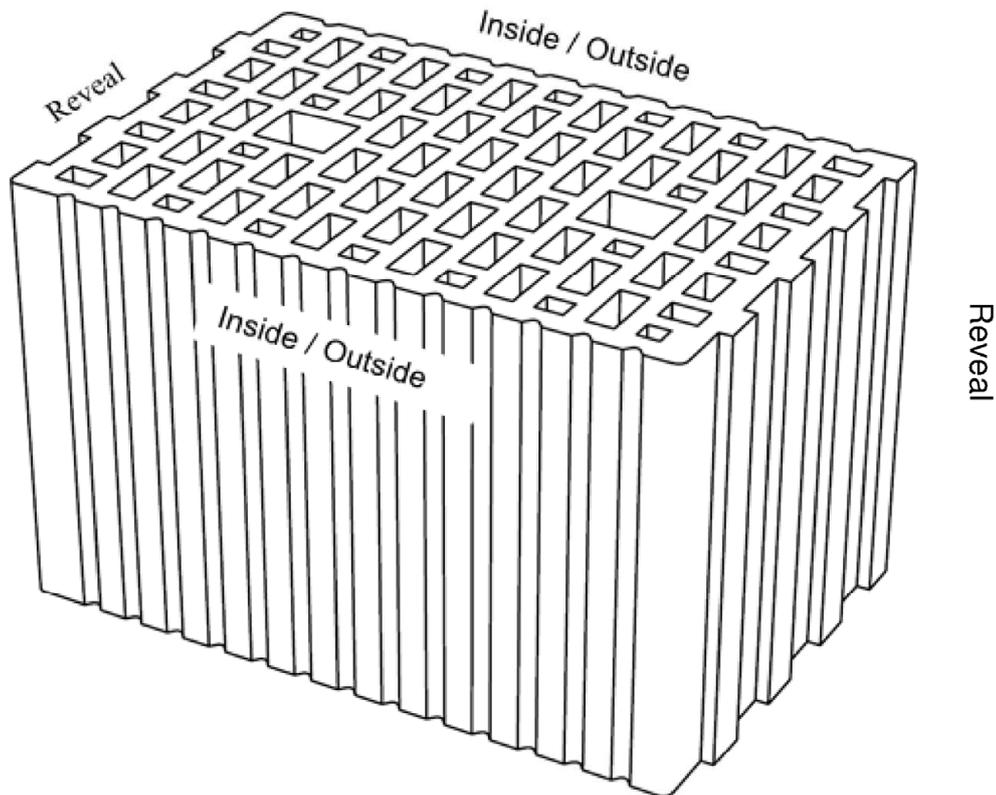
**Performances**

Displacements under tension and shear for concrete, masonry and autoclaved aerated concrete, characteristic resistance under fire exposure in concrete

**Annex C 2**

### Footnotes for Annex C 16 - Annex C 123

- 1) Characteristic resistance  $F_{Rk}$  for tension, shear or combined tension and shear loading.  
The characteristic resistance is valid for single plastic anchor or for a group of two or four plastic anchors with spacing equal or larger than the minimum spacing  $s_{min}$  according to Annex B 2 (concrete) and Annex B 3 (masonry). The specific conditions for the design method have to be considered according to ETAG 020 Annex C.
- 2) Absence of other national regulations.
- 3) Maximum long term temperature.
- 4) Maximum short term temperature.
- 5) The given values  $F_{Rk}$  in this column are valid for the embedment depth in the range  $50 \text{ mm} \leq h_{nom} < 70 \text{ mm}$  (see Annex B 2). For plastic anchors, W-UR 8 / SHARK UR 8 and W-UR 10 / SHARK UR 10 set variable in this range no additional job site tests have necessarily to be performed.
- 6) Installation site see picture (e.g Hollow brick).



- 7) The characteristic resistance  $F_{Rk}$  for load direction V only (only valid for a single anchor or for a group of two anchors with spacing  $s_{min} \geq 250 \text{ mm}$  for shear loads without lever arm in the reveal side).
- 8) For masonry units with a lower compressive strength (= measured mean compressive strength) than the mean compressive strength given in Table Annex C 4 – Annex C123 (= mean compressive strength (table)) the characteristic resistance  $F_{Rk}$ , measured shall be calculated according to the following equation:

$$F_{Rk,measured} = F_{Rk}(table) \cdot \left( \frac{\text{measured mean compressive strength}}{\text{mean compressive strength (table)}} \right)$$

- 9) No performance assessed.

### Würth Plastic Anchor W-UR / SHARK UR

Performances  
Footnotes

Annex C 3

<b>Table C 5.1: Base material: Concrete, solid masonry</b>					
<b>Base material:</b>	<b>Format</b>	<b>Minimum dimensions</b> [mm]	<b>Mean compressive strength acc. to EN 771</b> [N/mm <sup>2</sup> ]	<b>Bulk density</b> [kg/dm <sup>3</sup> ]	<b>Annex</b>
<b>Concrete</b>					
<b>Concrete ≥ C12/15</b>					<b>Annex C 1</b>
<b>Solid masonry</b>					
<b>Solid brick Mz</b> acc. to EN 771-1:2011+A1:2015	≥ NF	240x 115x 71	45.0 35.0 25.0 20.0 12.5	≥ 1.8	<b>Annex C 16</b>  771-1-020 771-1-008
	≥ 3DF	240x 175x 113	25.0 20.0 15.0 12.5	≥ 2.0	<b>Annex C 17</b>  771-1-041
<b>Sand-lime solid brick KS</b> acc. to EN 771-2:2011+A1:2015	≥ NF	240x 115x 71	35.0 25.0 20.0 15.0 12.5	≥ 2.0	<b>Annex C 78</b>  771-2-002
<b>Sand-lime solid brick KS</b> acc. to EN 771-2:2011+A1:2015	≥ 4DF	248x 115x 248	25.0 20.0 15.0 12.5	≥ 1.8	<b>Annex C 79</b>  771-2-045
<b>Sand-lime solid brick Silka XL Basic, Sand-lime solid brick Silka XL Plus</b> acc. to EN 771-2:2011+A1:2015 Z-17.1-997:2016-09		248x 175x 498	35.0 25.0 20.0 15.0	≥ 2.0	<b>Annex C 80</b>  771-2-010
<b>Concrete solid block - Vbn</b> acc. to EN 771-3:2011+A1:2015	≥ NF	240x 115x 71	35.0 25.0 20.0 15.0 10.0	≥ 2.0	<b>Annex C 90</b>  771-3-004
<b>Lightweight concrete solid brick e.g. Bisoclassic V</b> acc. to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ NF	240x 115x 71	5.0 2.5	≥ 0.9	<b>Annex C 91</b>  771-3-008
<b>Lightweight concrete solid brick e.g. BisoBims V</b> acc. to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ NF	240x 115x 71	5.0 2.5	≥ 1.2	<b>Annex C 92</b>  771-3-007
<b>Würth Plastic Anchor W-UR / SHARK UR</b>					<b>Annex C 4</b>
<b>Performances</b> Concrete, Solid masonry (use category "b"), Format, minimum dimensions, Mean compressive strength, Bulk density, Annex					

Base material:	Format	Minimum dimensions [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Lightweight concrete solid brick V and Vbl e.g. Bisophon</b> acc. to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ 3DF	240x 175x 113	25.0 20.0 15.0 12.5 10.0	≥ 2.0	<b>Annex C 93</b>  771-3-017
<b>Lightweight concrete solid block V P 2.0 - 0.55 e.g. Bisoplan</b> acc. to EN 771-3:2011+A1:2015; Z-17.1-778:2019-10 Bisotherm GmbH	≥ 5DF	123x 300x 248	2.5 2.0	≥ 0.65	<b>Annex C 94</b>  771-3-032
<b>Lightweight concrete solid block V P 4.0 - 0.65 e.g. Bisoplan</b> acc. to EN 771-3:2011+A1:2015; Z-17.1-778:2019-10 Bisotherm GmbH	≥ 5DF	123x 300x 248	5.0 2.5	≥ 0.8	<b>Annex C 95</b>  771-3-033
<b>Lightweight concrete solid block V 6 - 0.80 e.g. Bisotherm Bisoclassic</b> acc. to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ 5DF	123x 300x 248	2.5 2.0	≥ 0.9	<b>Annex C 96</b>  771-3-035
<b>Lightweight concrete solid block – Vbl</b> EN 771-3:2011+A1:2015 e.g. Liapor Massive Wall Liapor GmbH & Co. KG	≥ 24DF	500x 365x 238	2.5	≥ 0.6	<b>Annex C 97</b>  LAC2
<b>Lightweight concrete solid block – Vbl</b> acc. to EN 771-3:2011+A1:2015 Z-17.1-839:2014-10 e.g. Liapor Compact Liapor GmbH & Co. KG Meier Betonwerke GmbH	≥ 16DF	500x 240x 240	2.5	≥ 0.65	<b>Annex C 98</b>  771-3-012
<b>Concrete solid block – Vbn</b> acc. to EN 771-3:2011+A1:2015 e.g. Liapor Element Wall Liapor GmbH & Co. KG	≥ 12DF	500x 175x 238	12.5 10.0 7.5	≥ 1.4	<b>Annex C 99</b>  LC16/18

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

Solid masonry (use category "b"), Format, minimum dimensions, Mean compressive strength, Bulk density, Annex

**Annex C 5**

Table C 6.1: Base material: Hollow or perforated masonry

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Hollow or perforated masonry</b>					
Hollow brick HLz acc. to EN 771-1:2011+A1:2015 e.g. Wienerberger GmbH e.g. Schlagmann Baustoffwerke GmbH & Co. KG	2DF	240x 115x 113	25.0 20.0 15.0	≥ 1.2	<b>Annex C 18</b> 771-1-002 771-1-021
	12DF	373x 240x 238	12.5 10.5 8.4 6.3	≥ 1.2	<b>Annex C 19</b> 771-1-010 771-1-036
Hollow brick POROTON Plan T8 acc. to EN 771-1:2011+A1:2015, Z-17.1-1085:2016-02 Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	7.5	≥ 0.6	<b>Annex C 20</b> 771-1-057 771-1-097
Hollow brick POROTON Planziegel T14 acc. to EN 771-1:2011+A1:2015, Z-17.1-625:2015-04 Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	7.5 5.0	≥ 0.7	<b>Annex C 21</b> 771-1-019
Hollow brick POROTON Planziegel T18 acc. to EN 771-1:2011+A1:2015; Z-17.1-678:2017-11 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	9DF	373x 175x 249	12.5 10.0 7.5	≥ 0.8	<b>Annex C 22</b> 771-1-125
Hollow brick POROTON T7-36.5-PF acc. to EN 771-1:2011+A1:2015; Z-17.1-1103:2014-04 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	7.5	≥ 0.5	<b>Annex C 23</b> 771-1-093
Hollow brick POROTON T8-30.0-P Hollow brick POROTON T9-30.0-P acc. to T8: EN 771-1:2011+A1:2015; Z-17.1-982:2014-12 T9: EN 771-1:2011+A1:2015; Z-17.1-674:2020-01 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	5.0	≥ 0.6	<b>Annex C 24</b> 771-1-022
Hollow brick POROTON T8-36.5-MW acc. to EN 771-1:2011+A1:2015; Z-17.1-1041:2020-04 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	7.5 5.0	≥ 0.65	<b>Annex C 25</b> 771-1-042
Hollow brick POROTON T9-36.5-P acc. to EN 771-1:2011+A1:2015; Z-17.1-674: 2020-01 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	5.0	≥ 0.6	<b>Annex C 26</b> 771-1-003 771-1-007
Hollow brick POROTON Planziegel T10 acc. to EN 771-1:2011+A1:2015; Z-17.1-889:2011-04 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	7.5	≥ 0.7	<b>Annex C 27</b> 771-1-033

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

Hollow or perforated masonry (use category "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex

**Annex C 6**

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Hollow brick POROTON S8</b> acc. to EN 771-1:2011+A1:2015; Z-17.1-1120:2019-03 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	10.0	≥ 0.7	<b>Annex C 28</b>  771-1-103
<b>Hollow brick POROTON S9 MV</b> acc. to EN 771-1:2011+A1:2015; Z- Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	12.5 10.0	≥ 0.9	<b>Annex C 29, Annex C 30</b>  771-1-134
<b>Hollow brick POROTON S10</b> acc. to EN 771-1:2011+A1:2015; Z-17.1-1017:2019-05 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	10.0 7.5	≥ 0.8	<b>Annex C 31</b>  771-1-032
<b>Hollow brick POROTON S11-30.0-P</b> acc. to EN 771-1:2011+A1:2015; Z-17.1-812:2020-01 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	7.5 5.0	≥ 0.8	<b>Annex C 32</b>  771-1-025
<b>Hollow brick POROTON S11-36.5-P</b> acc. to EN 771-1:2011+A1:2015; Z-17.1-812: 2020-01 Wienerberger Ziegel GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	7.5	≥ 0.9	<b>Annex C 33</b>  771-1-009
<b>Hollow brick for ceiling DIN 4160-BN 0.8-530-250-210 (System Filigran)</b> e.g. Wienerberger GmbH	16DF	252x 530x 210	5.0	≥ 0.65	<b>Annex C 34</b>  771-1-031
<b>Hollow brick POROTHERM 25-38 N+F</b> acc. to EN 771-1:2011+A1:2015 Wienerberger Ziegelindustrie GmbH; Austria	14DF	375x 250x 249	10.0 7.5	≥ 0.8	<b>Annex C 35</b>  771-1-005
<b>Hollow brick Blocchi Leggeri</b> acc. to EN 771-1:2011+A1:2015 Wienerberger Brunori s.r.l.; Italy	5DF	248x 115x 335	7.5 5.0	≥ 0.6	<b>Annex C 36</b>  771-1-012
<b>Hollow brick for ceiling Blocchi per solaio a travetti</b> acc. to EN 771-1:2011+A1:2015 Wienerberger Tacconi s.r.l.; Italy	7DF	416x 123x 245	12.5 10.0 7.5	≥ 0.55	<b>Annex C 37</b>  771-1-011
<b>Hollow brick MURBRIC T20 and R20</b> acc. to EN 771-1:2011+A1:2015 e.g. Wienerberger SAS; France	15DF	T20: and R20: 500x200x 249	12.5 10.0	≥ 0.7	<b>Annex C 38</b>  771-1-018
<b>Hollow brick MURBRIC Traditionnel Poteau T20</b> acc. to EN 771-1:2011+A1:2015 e.g. Wienerberger SAS; France	12DF	448x 195x 238	10.0 7.5	≥ 0.7	<b>Annex C 39</b>  771-1-013

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

Hollow or perforated masonry (use category "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex

**Annex C 7**

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Hollow brick POROTHERM T30 and R30</b> acc. to EN 771-1:2011+A1:2015 e.g. Wienerberger SAS; France	16DF	T30: / R30: 373x 300x 249	10.0 7.5	≥ 0.7	<b>Annex C 40</b>  771-1-014
<b>Hollow brick UNIPOR W07 SILVACOR</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1162:2019-08 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	5.0	≥ 0.55	<b>Annex C 41</b>  771-1-109
<b>Hollow brick UNIPOR W07 CORISO</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1056:2020-11 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	5.0	≥ 0.55	<b>Annex C 42</b>  771-1-112
<b>Hollow brick UNIPOR W07 CORISO (special shaped)</b> acc. to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	10.0 7.5 5.0	≥ 0.7	<b>Annex C 43</b>  771-1-126
<b>Hollow brick UNIPOR WS08 CORISO / UNIPOR WS08 SILVACOR</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1114:2019-12; Z-17.1-1191:2019-01 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	10.0 7.5	≥ 0.65	<b>Annex C 44</b>  771-1-114
<b>Hollow brick UNIPOR W08 Novatherm</b> acc. to EN 771-1:2011+A1:2015; ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	7.5	≥ 0.6	<b>Annex C 45</b>  771-1-119
<b>Hollow brick UNIPOR WS09 CORISO</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1066:2020-04 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	10.0 7.5	≥ 0.7	<b>Annex C 46</b>  771-1-115
<b>Hollow brick UNIPOR WH09 Planziegel</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1042:2015-09 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	7.5 5.0	≥ 0.6	<b>Annex C 47</b>  771-1-120
<b>Hollow brick UNIPOR WH10 Planziegel</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1042:2015-09 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	7.5	≥ 0.65	<b>Annex C 48</b>  771-1-121
<b>Hollow brick UNIPOR WS10 CORISO</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1021:2016-10 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	15.0 10.0	≥ 0.9	<b>Annex C 49</b>  771-1-116
<b>Hollow brick UNIPOR WS11 CORISO</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1011:2014-04 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	238x 365x 249	10.0	≥ 0.85	<b>Annex C 50</b>  771-1-026
<b>Würth Plastic Anchor W-UR / SHARK UR</b>				<b>Annex C 8</b>	
<b>Performances</b> Hollow or perforated masonry (use category "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex					

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Hollow brick UNIPOR WS14</b> <b>Hollow brick UNIPOR WS12 CORISO</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-883:2005-07 ZIZ Ziegel-Innovations-Zentrum GmbH	10DF	248x 300x 249	15.0 12.5	≥ 0.8	<b>Annex C 51</b>  771-1-016
<b>Hollow brick UNIPOR W14</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-679:2013-01 Z-17.1-636:2016-04 ZIZ Ziegel-Innovations-Zentrum GmbH	10DF	W14 Plan / W14- Block: 248x300x 249	7.5	≥ 0.7	<b>Annex C 52</b>  771-1-015
<b>UNIPOR WS CORISO (special shaped)</b> acc. to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	250x 365x 250	10.0 7.5 5.0	≥ 0.75	<b>Annex C 53</b>  771-1-137
<b>UNIPOR WS CORISO (special shaped)</b> acc. to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	6DF	123x 365x 249	12.5 10.0 7.5	≥ 0.85	<b>Annex C 54</b>  771-1-136
<b>UNIPOR CORISO 6DF EWS 365 (special shaped)</b> acc. to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	6DF	118x 365x 249	12.5 10.0 7.5	≥ 0.9	<b>Annex C 55</b>  771-1-077
<b>UNIPOR CORISO 6DF EW 365 (special shaped)</b> acc. to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	6DF	118x 365x 249	7.5 5.0	≥ 0.65	<b>Annex C 56</b>  771-1-074
<b>UNIPOR W08, WH09, WH10 (special shaped)</b> acc. to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	248x 365x 249	7.5 5.0	≥ 0.65	<b>Annex C 57</b>  771-1-122
<b>Hollow brick ThermoPlan MZ7</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1016:2009-10 Mein Ziegelhaus GmbH & Co. KG	10DF	248x 300x 249	7.5	≥ 0.6	<b>Annex C 58</b>  771-1-052
<b>Hollow brick ThermoPlan MZ70</b> acc. to EN 771-1:2011+A1:2015; Z-17.1-1084:2020-01 Mein Ziegelhaus GmbH & Co. KG	12DF	248x 365x 249	7.5	≥ 0.5	<b>Annex C 59</b>  771-1-100
<b>Hollow brick ThermoPlan MZ70 (special shaped)</b> acc. to EN 771-1:2011+A1:2015; Mein Ziegelhaus GmbH & Co. KG	12DF	248x 365x 249	10.0 7.5	≥ 0.6	<b>Annex C 60</b>  771-1-098
<b>Würth Plastic Anchor W-UR / SHARK UR</b>					<b>Annex C 9</b>
<b>Performances</b> Hollow or perforated masonry (use category "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex					

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Hollow brick ThermoPlan MZ8</b> acc. to EN 771-1:2011+A1:2015; Z-17.1-906:2017-06 Mein Ziegelhaus GmbH & Co. KG	12DF	248x 365x 249	7.5	≥ 0.65	<b>Annex C 61</b> 771-1-023
<b>Hollow brick ThermoPlan MZ10</b> acc. to EN 771-1:2011+A1:2015; Z-17.1-1015:2017-05 Mein Ziegelhaus GmbH & Co. KG	10DF	248x 300x 249	10.0 7.5	≥ 0.75	<b>Annex C 62</b> 771-1-034
<b>Hollow brick ThermoPlan MZ (special shaped)</b> acc. to EN 771-1:2011+A1:2015; Mein Ziegelhaus GmbH & Co. KG	6DF	119x 365x 249	7.5	≥ 0.8	<b>Annex C 63</b> 771-1-081
<b>Hollow brick ThermoPlan S8/9/SX (special shaped)</b> acc. to EN 771-1:2011+A1:2015; Mein Ziegelhaus GmbH & Co. KG	12DF	248x 365x 249	10.0 7.5	≥ 0.7	<b>Annex C 64</b> 771-1-101
<b>Hollow brick ThermoPlan S8/9/SX (special shaped)</b> acc. to EN 771-1:2011+A1:2015; Mein Ziegelhaus GmbH & Co. KG	6DF	123x 365x 249	12.5 10.0 7.5	≥ 0.8	<b>Annex C 65</b> 771-1-102
<b>Hollow brick ThermoPlan TS<sup>2</sup></b> acc. to EN 771-1:2011+A1:2015 Z-17.1-993:2015-09 Mein Ziegelhaus GmbH & Co. KG	9DF	373x 175x 249	16.7 12.5 10.4 8.3	≥ 0.85	<b>Annex C 66</b> 771-1-024
<b>Hollow brick ThermoPlan TS 13</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-914:2011-03 Mein Ziegelhaus GmbH & Co. KG	10DF	247x 300x 249	10.0 7.5	≥ 0.8	<b>Annex C 67</b> 771-1-035
<b>Hollow brick THERMOPOR ISO-PD Plus</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-840:2015-04 Thermopor Ziegel-Kontor Ulm GmbH	10DF	247x 300x 249	10.0 7.5	≥ 0.7	<b>Annex C 68</b> 771-1-028
<b>Hollow brick THERMOPOR TV 7-Plan</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1005:2018-11 Thermopor Ziegel-Kontor Ulm GmbH	12DF	247x 365x 249	5.0	≥ 0.5	<b>Annex C 69</b> 771-1-030
<b>Hollow brick THERMOPOR TV 9-Plan</b> acc. to EN 771-1:2011+A1:2015 Z-17.1-1006:2019-01 Thermopor Ziegel-Kontor Ulm GmbH	10DF	247x 300x 249	12.5 10.0 7.5	≥ 0.75	<b>Annex C 70</b> 771-1-029
<b>Hollow brick Plan TV Aero</b> acc. to EN 771-1:2011+A1:2015 Otto Staudacher Vertriebs GmbH	12DF	247x 365x 249	7.5 5.0	≥ 0.75	<b>Annex C 71</b> 771-1-127
<b>Würth Plastic Anchor W-UR / SHARK UR</b>					<b>Annex C 10</b>
<b>Performances</b> Hollow or perforated masonry (use category "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex					

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
Hollow brick Kellerer ZMK-P 7.5 acc. to EN 771-1:2011+A1:2015 Z-17.1-1012:2016-06 Ziegelsysteme Michael Kellerer GmbH & Co. KG	12DF	247x 365x 249	5.0	≥ 0.6	<b>Annex C 72</b>  771-1-068
Hollow brick Kellerer ZMK X6 acc. to EN 771-1:2011+A1:2015 Z-17.1-1067:2020-04 Ziegelsysteme Michael Kellerer GmbH & Co. KG	10DF	247x 300x 249	5.0	≥ 0.55	<b>Annex C 73</b>  771-1-049
Hollow brick Kellerer ZMK TX8 acc. to EN 771-1:2011+A1:2015 Z-17.1-1068:2020-04 Ziegelsysteme Michael Kellerer GmbH & Co. KG	10DF	247x 300x 249	7.5	≥ 0.6	<b>Annex C 74</b>  771-1-050
Hollow brick Ederplan XV 7.5 S acc. to EN 771-1:2011+A1:2015 Z-17.1-1175:02.2018-10 Ziegelwerk Freital Eder GmbH	10DF	200x 365x 249	7.5 5.0	≥ 0.75	<b>Annex C 75</b>  771-1-130
Hollow brick Eder XP 9 acc. to EN 771-1:2011+A1:2015 Z-17.1-892:2017-07 Ziegelwerk Freital Eder GmbH	10DF	200x 365x 249	10.0 7.5	≥ 0.7	<b>Annex C 76</b>  771-1-131
Hollow brick Ladrillo P NV R150 acc. to EN 771-1:2011+A1:2015 Ceramica La Corona, S.A.; Spain	2DF	278x 135x 95	35.0 25.0 15.0	≥ 1.2	<b>Annex C 77</b>  771-1-017
Sand-lime perforated brick KS L acc. to EN 771-2:2011+ A1:2015	2DF	240x 115x 113	20.0 15.0 12.5 10.0	≥ 1.4	<b>Annex C 81</b>  771-2-003 771-2-004
Sand-lime perforated brick KS L acc. to EN 771-2:2011+ A1:2015 e.g. Xella Deutschland GmbH	8DF	248x 240x 238	20.0 15.0 12.5 10.0	≥ 1.4	<b>Annex C 82</b>  771-2-005 771-2-013
Sand-lime perforated brick KS L acc. to EN 771-2:2011+ A1:2015	12DF	377x 240x 238	15.0 12.5 10.0	≥ 1.4	<b>Annex C 83, 84</b>  771-2-001
Sand-lime perforated brick KS L acc. to EN 771-2:2011+ A1:2015 e.g. Xella Deutschland GmbH	9DF	373x 175x 238	25.0 20.0 15.0	≥ 1.4	<b>Annex C 85</b>  771-2-008
Sand-lime perforated brick KSL-R(P) acc. to EN 771-2:2011+ A1:2015 e.g. H+H Deutschland GmbH	6DF	248x 175x 248	15.0 12.5 10.0	≥ 1.6	<b>Annex C 86</b>  771-2-039

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

Hollow or perforated masonry (use category "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex

**Annex C 11**

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Sand-lime perforated brick KS L</b> acc. to EN 771-2:2011+ A1:2015 e.g. H+H Deutschland GmbH	8DF	248x 240x 248	15.0 12.5 10.0	≥ 1.4	<b>Annex C 87</b> 771-2-040
<b>Sand-lime perforated brick KS L</b> acc. to EN 771-2:2011+ A1:2015 e.g. H+H Deutschland GmbH	12DF	498x 175x 249	15.0 12.5 10.0	≥ 1.2	<b>Annex C 88</b> 771-2-044
<b>Sand-lime perforated brick KS-NT</b> BMO KS-Vertrieb Bielefeld-Münster-Osnabrück GmbH & Co. KG	4DF	248x 115x 248	20.0 15.0 12.5	≥ 1.2	<b>Annex C 89</b> 771-2-009
<b>Hollow brick lightweight concrete 1K Hbl4</b> acc. to EN 771-3:2011+A1:2015; e.g. Stark Betonwerk GmbH & Co. KG	12DF	490x 175x 238	2.5	≥ 1.2	<b>Annex C 100</b> 771-3-002
<b>Hollow brick lightweight concrete 3K Hbl2</b> acc. to EN 771-3:2011+A1:2015; e.g. Heinzmann Baustoffe GmbH, Liapor GmbH & Co. KG	16DF	495x 240x 240	2.5	≥ 0.7	<b>Annex C 101</b> 771-3-005
<b>Hollow brick lightweight concrete Liapor-Super-K</b> acc. to EN 771-3:2011+A1:2015; Z-17.1-501:2006-03 Liapor GmbH & Co. KG	16DF	495x 240x 240	2.5	≥ 0.8	<b>Annex C 102</b> 771-3-006
<b>Hollow brick lightweight concrete Liapor PLANstein-SL-PLUS Hbl 2</b> acc. to EN 771-3:2011+A1:2015; Z-17.1-501:2006-03 e.g. E. KNOBEL GmbH & Co.KG	12DF	245x 365x 248	2.0	≥ 0.55	<b>Annex C 103</b> 771-3-018
<b>Hollow brick lightweight concrete Liapor PLANstein-SL-PLUS Hbl 6</b> acc. to EN 771-3:2011+A1:2015; Z-17.1-501:2006-03 e.g. E. KNOBEL GmbH & Co.KG	12DF	245x 365x 248	5.0 2.5	≥ 0.9	<b>Annex C 104</b> 771-3-020
<b>Hollow brick concrete 2K Hbn</b> acc. to EN 771-3:2011+A1:2015; e.g. Stark Betonwerk GmbH & Co. KG	12DF	365x 240x 248	7.5 5.0 2.5	≥ 1.2	<b>Annex C 105</b> 771-3-011
<b>Hollow brick lightweight concrete Gisoton Wärme Dämm Block</b> acc. to Z-17.1-873:2005-11 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co.	15DF	360x 300x 250	2.5	≥ 0.8	<b>Annex C 106</b> 771-3-009
<b>Hollow brick lightweight concrete GisoPLAN therm 25/10</b> acc. to Z-17.1-672:2015-03 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co	6DF	300x 150x 248	7.5 5.0	≥ 1.3	<b>Annex C 107</b> 771-3-037
<b>Würth Plastic Anchor W-UR / SHARK UR</b>				<b>Annex C 12</b>	
<b>Performances</b> Hollow or perforated masonry (use category "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex					

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Hollow brick lightweight concrete GISOTON Thermo-Schallstein</b> acc. to Z-15.2-18:2021-02 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co	12DF	375x 249x 248	2.5	≥ 0.55	<b>Annex C 108</b>  771-3-038
<b>Hollow brick lightweight concrete Gisoton Thermo Schall</b> acc. to Z-15.2-18: 2021-02 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co.	21DF	500x 300x 250	2.5 1.8	≥ 0.45	<b>Annex C 109</b>  771-3-010 771-3-036
<b>Hollow brick lightweight concrete Bisoplan 09 Super 1.6-0.4</b> acc. to EN 771-3:2011+A1:2015; Z-17.1-1003:2014-08 e.g. Bisotherm GmbH	12DF	247x 365x 249	1.8	≥ 0.65	<b>Annex C 110</b>  771-3-029
<b>Hollow brick lightweight concrete Bisoplan 10 Hbl-P 2.0-0.45</b> acc. to EN 771-3:2011+A1:2015 e.g. Bisotherm GmbH	10DF	247x 300x 249	2.0	≥ 0.6	<b>Annex C 111</b>  771-3-034
<b>Hollow brick lightweight concrete Bisomark<sup>Tec</sup></b> acc. to Z-17.1-1026:2015-05 e.g. Bisotherm GmbH	20DF	497x 300x 249	2.5	≥ 0.7	<b>Annex C 112</b>  771-3-015
<b>Hollow brick lightweight concrete Bisotherm Hbl-P 4.0 - 0.50</b> acc. to Z-17.1-1029:2015-05 e.g. Bisotherm GmbH	12DF	247x 365x 249	2.0	≥ 0.55	<b>Annex C 113</b>  771-3-030
<b>Hollow brick lightweight concrete Bisotherm Bisomark plus 4/06 (special shaped)</b> e.g. Bisotherm GmbH	12DF	247x 365x 249	2.5 2.0	≥ 0.65	<b>Annex C 114</b>  771-3-031
<b>Hollow brick lightweight concrete SEPA Blocs Creux</b> acc. to EN 771-3:2011+A1:2015 e.g. SEPA-Alsace Groupe (France)	11DF	500x 200x 200	5.0	≥ 0.9	<b>Annex C 115</b>  771-3-025

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

Hollow or perforated masonry (use category "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex

**Annex C 13**

**Table C 7.1: Base material: Autoclaved aerated concrete**

Base material:	Format	Minimum dimensions [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Autoclaved aerated concrete</b> acc. to EN 771-4:2015		499x100x 249	2,0 - 7,0	≥ 0.3	<b>Annex C 116</b>
<b>Reinforced components autoclaved aerated concrete</b> acc. to EN 12602:2016		-	1,5 - 6,0	≥ 0.4	<b>Annex C 117</b>

**Table C 8.1: Base material: Precast or prestressed hollow core elements**

Base material:	Format	Minimum dimensions [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Precast prestressed hollow core elements VMM-L SCD 20</b> acc. to Z-15.10-276:2015-08 e.g. Ketonía GmbH		1200x 800x 200	C45/55	≥ 2.4	<b>Annex C 118</b>
<b>Precast prestressed hollow core elements VMM-L EPD 32</b> acc. to Z-15.10-276:2015-08 e.g. Ketonía GmbH		1200x 800x 320	C45/55	≥ 2.4	<b>Annex C 119</b>
<b>Precast prestressed hollow core elements VMM-VSD 16</b> acc. to Z-15.10-276:2015-08 e.g. Ketonía GmbH		1200x 400x 160	C45/55	≥ 2.4	<b>Annex C 120</b>

**Table C 9.1: Base material: Gypsum blocks**

Base material:	Format	Minimum dimensions [mm]	Minimum compressive strength acc. to EN 12859 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Gypsum blocks: MultiGips R.max acoustic panel</b> acc. to EN 12859:2011-05		500x 500x 100	11.7	≥ 1.2	<b>Annex C 121</b>

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

Autoclaved aerated concrete, precast or prestressed hollow core elements, gypsum blocks: Format, minimum dimensions, Mean compressive strength, Bulk density, Annex

**Annex C 14**

**Table C 10.1: Base material: Masory lintel**

Base material:	Format	Measurement [mm]	Mean compressive strength acc. to EN 771 [N/mm <sup>2</sup> ]	Bulk density [kg/dm <sup>3</sup> ]	Annex
<b>Rastersturz HLz</b> acc. to Z-17.1-981:2018-12 e.g. Ziegelwerk Turber GmbH		115x 113x > 250	7.5	≥ 1.6	<b>Annex C 122</b>
<b>Dämmsturz HLz</b> acc. to Z-17.1-981:2018-12 e.g. Ziegelwerk Turber GmbH		365x 113x > 250	5.0	≥ 1.4	<b>Annex C 123</b>

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

Masonry lintel: Format, Measurement, Mean compressive strength, Bulk density, Annex

**Annex C 15**

**Base material solid masonry: Solid brick Mz, NF**

**Table C 11.1.1: Brick data**

Description of brick	771-1-020 771-1-008		Mz
	Type of brick		
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.8
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Format (measurement)		[mm]	$\geq$ NF ( $\geq$ 240x115x71)
Minimum thickness of member	$h_{\min} =$	[mm]	115

**Table C 11.1.2 Installation parameters**

Anchor size		8		10		
Installation site <sup>6)</sup>		Inside / Outside		Inside / Outside		
Drill hole diameter	$d_0 =$	[mm]	8	10		
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45	10.45		
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	60	80	60	80
Drill method		[-]	Hammer drilling		Hammer drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	50	70	50	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5		10.5	
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$	[mm]	80 / 80		80 / 80	
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	100		100	

**Table C 11.1.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8		10		
Installation site <sup>6)</sup>		Inside / Outside		Inside / Outside		
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	50	70	50	70
Mean compressive strength acc. to EN 771						
Solid brick Mz, $\geq 54.81 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	4.5	6.5	<sup>9)</sup>	6.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	3.5	5.5	<sup>9)</sup>	5.5
Solid brick Mz, $\geq 45.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	3.5	5.0	2.0	5.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	3.0	4.5	1.2	4.5
Solid brick Mz, $\geq 35.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	3.0	4.0	1.5	4.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	2.0	3.5	0.9	3.5
Solid brick Mz, $\geq 25.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	2.0	3.0	1.2	3.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.5	2.5	0.75	2.5
Solid brick Mz, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.5	2.0	0.9	2.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.2	2.0	0.6	2.0
Solid brick Mz, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	0.9	1.5	0.5	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.75	1.2	0.4	1.2
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5			

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Solid masonry: Solid brick Mz, NF  
Brick data, installation parameters, characteristic resistance

**Annex C 16**

**Base material solid masonry: Solid brick Mz, 3DF**

**Table C 11.2.1: Brick data**

Description of brick		771-1-041	Mz
Type of brick			Solid brick Mz
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	2.0
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			e.g. Wienerberger GmbH
Format (measurement)		[mm]	$\geq 3DF (\geq 240 \times 175 \times 113)$
Minimum thickness of member	$h_{\min} =$	[mm]	175 (Reveal = 240)

**Table C 11.2.2 Installation parameters**

Anchor size		8	
Installation site <sup>6)</sup>		Inside / Outside	Reveal
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$	[mm]	100 / 100
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	100
			50

**Table C 11.2.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	
Installation site <sup>6)</sup>		Inside / Outside	Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Mean compressive strength acc. to EN 771			
Solid brick Mz, $\geq 33.70 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	5.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	4.0
Solid brick Mz, $\geq 25.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	4.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	3.0
Solid brick Mz, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	3.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	2.5
Solid brick Mz, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	2.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	2.0
Solid brick Mz, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

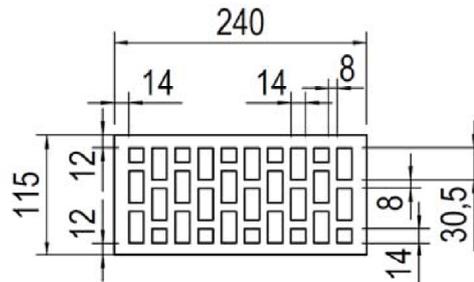
**Performances**  
Solid masonry: Solid brick Mz, 3DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 17**

**Base material hollow masonry: Hollow brick HLz, 2DF**

**Table C 11.3.1: Brick data**

Description of brick		771-1-002; 771-1-021	HLz
Type of brick			Hollow brick HLz
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		1.2
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			e.g. Wienerberger GmbH
Format (measurement)	[mm]		2DF (240x115x113)
Minimum thickness of member	$h_{min} =$ [mm]		115



**Table C 11.3.2: Installation parameters**

Anchor size			8	10
Installation site <sup>6)</sup>			Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]		8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]		8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]		60   80	60   80
Drill method	[-]		Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		50   70	50   70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]		8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]		100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]		100	100

**Table C 11.3.3: Characteristic resistance  $F_{Rk}^{1)5)8)}$  in [kN] for single anchor**

Anchor size			8		10	
Installation site <sup>6)</sup>			Inside / Outside		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom}$ [mm]		$\geq 50^{5)}$	= 70	$\geq 50^{5)}$	= 70
Mean compressive strength acc. to EN 771						
Hollow brick HLz, $\geq 31.07 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]		9)	2.5	1.5	2.5
	$F_{Rk}, 50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]		9)	1.5	0.9	2.0
Hollow brick HLz, $\geq 27.18 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]		1.5	9)	9)	9)
	$F_{Rk}, 50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]		1.2	9)	9)	9)
Hollow brick HLz, $\geq 25.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]		1.2	2.0	1.2	2.0
	$F_{Rk}, 50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]		0.9	1.5	0.9	1.5
Hollow brick HLz, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]		0.9	1.5	1.2	1.5
	$F_{Rk}, 50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]		0.75	1.2	0.75	1.2
Hollow brick HLz, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]		0.75	1.2	0.75	1.2
	$F_{Rk}, 50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]		0.6	0.75	0.5	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]		2.5			

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

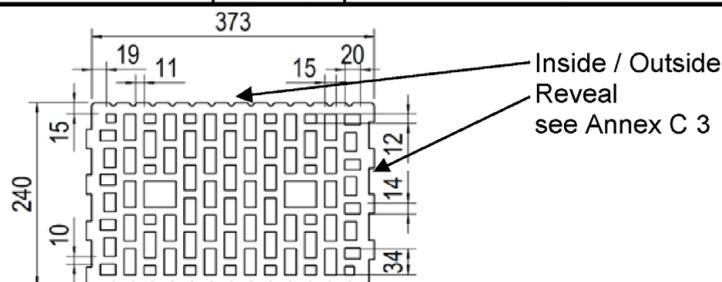
**Performances**  
Hollow brick HLz, 2DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 18**

**Base material hollow masonry: Hollow brick HLz, 12DF**

**Table C 11.4.1: Brick data**

Description of brick	771-1-010; 771-1-036	HLz
Type of brick		Hollow brick HLz
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	1.2
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		e.g. Schlagmann Baustoffwerke
Format (measurement)	[mm]	12DF (373x240x238)



**Table C 11.4.2: Installation parameters**

Anchor size		8			10
		Inside / Outside	Reveal		Inside / Outside
Installation site <sup>6)</sup>					
Drill hole diameter	$d_0 =$ [mm]		8		10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]		8.45		10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]		80		80
Drill method	[-]		Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70		70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]		8.5		10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100/100	130/250	90/250	100/100
Minimum edge distance	$c_{min} \geq$ [mm]	45	65	45	100

**Table C 11.4.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size		8			10
		Inside / Outside	Reveal		Inside / Outside
Installation site <sup>6)</sup>					
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70		70
Characteristic resistance for single anchor	[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	$F_{Rk}^{1)}$
Mean compressive strength acc. to EN 771					
Hollow brick HLz, $\geq 13.02$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	1.2	<sup>9)</sup>	1.5	2.0
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	1.2	<sup>9)</sup>	1.5	1.5
Hollow brick HLz, $\geq 12.5$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	1.2	2.0	1.5	2.0
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	1.2	2.0	1.5	1.2
Hollow brick HLz, $\geq 10.5$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.9	2.0	1.2	1.5
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.9	2.0	1.2	1.2
Hollow brick HLz, $\geq 8.4$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.9	2.0	0.9	1.2
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.9	2.0	0.9	0.9
Hollow brick HLz, $\geq 6.3$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.6	1.2	0.75	0.9
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.6	1.2	0.75	0.6
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]		2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

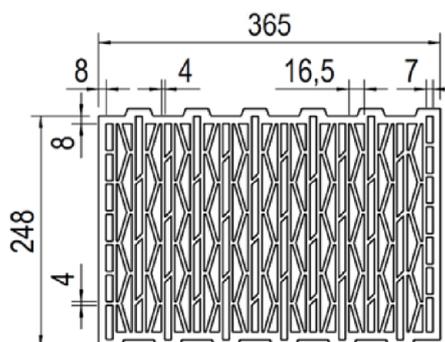
**Performances**  
Hollow brick HLz, 12DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 19**

**Base material hollow masonry: POROTON Plan T8**

**Table C 11.5.1 Brick data**

Description of brick		771-1-057; 771-1-097	POROTON Plan T8
Type of brick			Hollow brick POROTON Plan T8
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1085:2016-02
Producer of brick			Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)		[mm]	12DF (248x365x249)



**Table C 11.5.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	125

**Table C 11.5.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
POROTON Plan T8, $\geq 10.12 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	<sup>9)</sup> 0.75
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	<sup>9)</sup> 0.6
POROTON Plan T8, $\geq 9.43 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.4
POROTON Plan T8, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	0.4
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.3
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

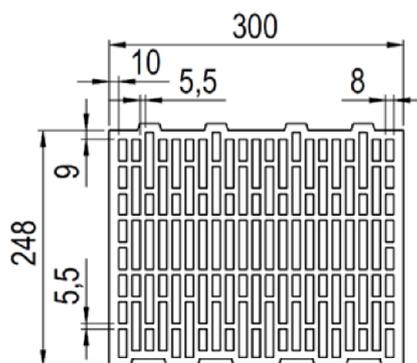
**Performances**  
**Hollow brick POROTON Plan T8**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 20**

**Base material hollow masonry: POROTON Planziegel T14, 10DF**

**Table C 11.6.1 Brick data**

Description of brick		771-1-019	POROTON Planziegel T14
Type of brick			Hollow brick POROTON Planziegel T14
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-625:2015-04
Producer of brick			Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)		[mm]	10DF (248x300x249)



**Table C 11.6.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.6.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
POROTON Planziegel T14, $\geq 7.94 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5
POROTON Planziegel T14, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5
POROTON Planziegel T14, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.4
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.3
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

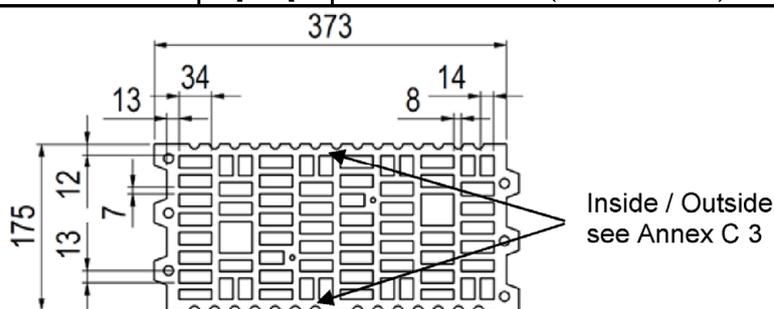
**Performances**  
Hollow brick POROTON Planziegel T14, 10DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 21**

**Base material hollow masonry: POROTON Planziegel T18, 9DF**

**Table C 11.7.1 Brick data**

Description of brick		771-1-125	POROTON Planziegel T18	
Type of brick			Hollow brick POROTON Planziegel T18	
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.8	
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-678:2017-11	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		9DF (373x175x249)	



**Table C 11.7.2: Installation parameters**

Anchor size		8	
Installation site <sup>6)</sup>		Inside / Outside	
Drill hole diameter	$d_0 =$ [mm]	8	
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	
Drill method	[-]	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	200 / 250	
Minimum edge distance	$c_{min} \geq$ [mm]	100	

**Table C 11.7.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	
Installation site <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	
Mean compressive strength acc. to EN 771			
POROTON Planziegel T18, $\geq 14.24 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6	
POROTON Planziegel T18, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.75	
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6	
POROTON Planziegel T18, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6	
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.5	
POROTON Planziegel T18, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.5	
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.4	
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Hollow brick POROTON Planziegel T18, 9DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 22**

Base material hollow masonry: POROTON-T7-36.5-PF

Table C 11.8.1: Brick data

Description of brick	771-1-093	POROTON-T7-36.5-PF	
Type of brick		Hollow brick POROTON-T7-36.5-PF	
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.5	
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1.1103:2014-04	
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]	12DF (248x365x249)	

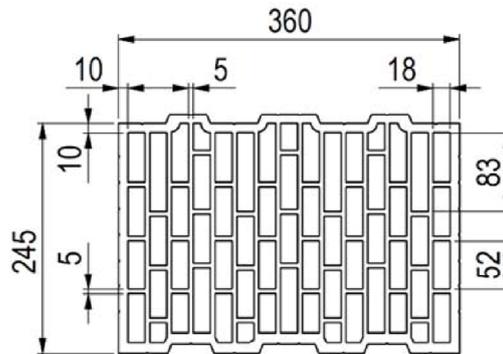


Table C 11.8.2: Installation parameters

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

Table C 11.8.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Mean compressive strength acc. to EN 771			
POROTON-T7-36.5-P, $\geq 10.09 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.75	0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6	0.6
POROTON-T7-36.5-P, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6	0.6
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.4	0.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

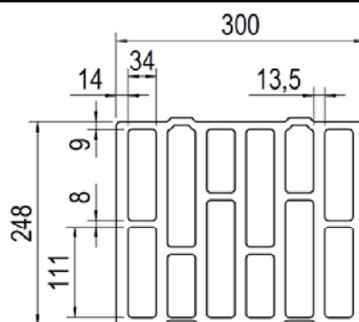
Performances  
Hollow brick: POROTON-T7-36.5-PF  
Brick data, Installation parameters, Characteristic resistance

Annex C 23

**Base material hollow masonry: POROTON-T8-30.0-P and POROTON-T9-30.0-P**

**Table C 11.9.1: Brick data**

Description of brick	771-1-022	POROTON-T8-30.0-P and POROTON-T9-30.0-P	
Type of brick		Hollow brick T8-30.0-P and T9-30.0-P	
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.6	
Standard, approval/type-approval		T8: EN 771-1:2011+A1:2015; Z-17.1-982:2014-12 T9: EN 771-1:2011+A1:2015; Z-17.1-674:2020-01	
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]	10DF (248x300x249)	



**Table C 11.9.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$ [mm]		8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]		8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]		80
Drill method	[-]		Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]		8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]		100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]		100

**Table C 11.9.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70
Mean compressive strength acc. to EN 771			
POROTON-T8-30.0-P, POROTON-T9-30.0-P, $\geq 6.54 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.9
POROTON-T8-30.0-P, POROTON-T9-30.0-P, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.75
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]		2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

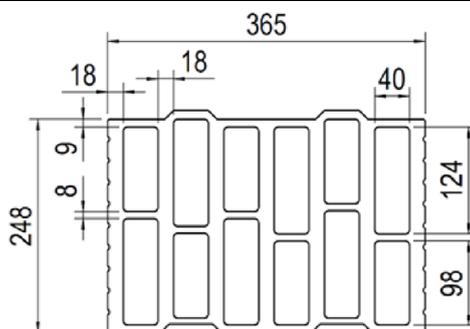
**Performances**  
Hollow brick: POROTON-T8-30.0-P, POROTON-T9-30.0-P  
Brick data, Installation parameters, Characteristic resistance

**Annex C 24**

**Base material hollow masonry: POROTON-T8-36.5-MW**

**Table C 11.10.1: Brick data**

Description of brick	771-1-042	POROTON-T8-36.5-MW
Type of brick		Hollow brick POROTON-T8-36.5-MW
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-1041:2012-07
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover
Format (measurement)	[mm]	12DF (248x365x249)
Minimum thickness of member	$h_{min} =$ [mm]	365



**Table C 11.10.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.10.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Mean compressive strength acc. to EN 771			
POROTON-T8-36.5-MW, $\geq 9.54 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.5	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2	1.5
POROTON-T8-36.5-MW, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.2	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.9	0.9
POROTON-T8-36.5-MW, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.9	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.6	0.75
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

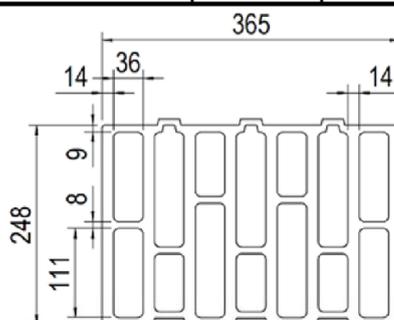
**Performances**  
Hollow brick: POROTON-T8-36.5-MW  
Brick data, Installation parameters, Characteristic resistance

**Annex C 25**

**Base material hollow masonry: POROTON T9-36.5-P**

**Table C 11.11.1: Brick data**

Description of brick		771-1-003; 771-1-007		POROTON T9-36.5-P	
Type of brick		Hollow brick POROTON T9-36.5-P			
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.6			
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-674:2020-01			
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn		
Format (measurement)	[mm]	12DF (248x365x249)			



**Table C 11.11.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.11.3: Characteristic resistance  $F_{RK}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Mean compressive strength acc. to EN 771			
POROTON T9-36.5-P, $\geq 6.84 \text{ N/mm}^2$	$F_{RK}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	9)	1.5
	$F_{RK}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	9)	0.9
POROTON T9-36.5-P, $\geq 6.09 \text{ N/mm}^2$	$F_{RK}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5	9)
	$F_{RK}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9	9)
POROTON T9-36.5-P, $\geq 5.0 \text{ N/mm}^2$	$F_{RK}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2	0.9
	$F_{RK}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9	0.75
Partial safety factor	$\gamma_{Mm}^2)$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

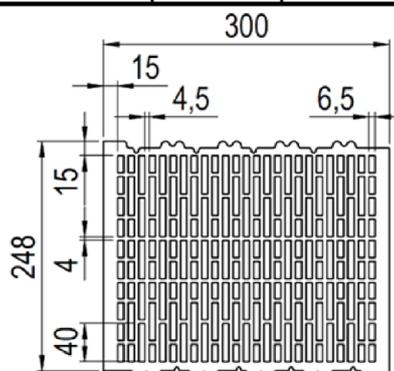
**Performances**  
Hollow brick: POROTON T9-36.5-P  
Brick data, Installation parameters, Characteristic resistance

**Annex C 26**

**Base material hollow masonry: POROTON Planziegel T10**

**Table C 11.12.1: Brick data**

Description of brick		771-1-033	POROTON Planziegel T10	
Type of brick			Hollow brick POROTON Planziegel T10	
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7	
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-889:2011-04	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)		[mm]	10DF (248x300x249)	



**Table C 11.12.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.12.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
POROTON Planziegel T10-30, $\geq 8.23 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5
POROTON Planziegel T10-30, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.4
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

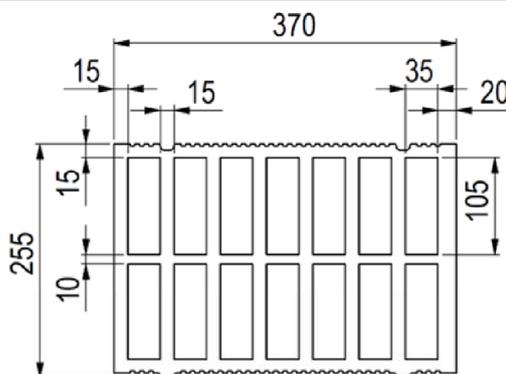
**Performances**  
Hollow brick: POROTON Planziegel T10  
Brick data, Installation parameters, Characteristic resistance

**Annex C 27**

**Hollow brick Base material hollow masonry: POROTON S8**

**Table C 11.13.1: Brick data**

<b>Description of brick</b>	771-1-103	<b>POROTON S8</b>	
Type of brick		Hollow brick POROTON S8	
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.7	
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-1120:2019-03	
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]	12DF (248x365x249)	



**Table C 11.13.2: Installation parameters**

<b>Anchor size</b>		<b>8</b>
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100

**Table C 11.13.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

<b>Anchor size</b>		<b>8</b>
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>
Mean compressive strength acc. to EN 771		
<b>POROTON S8-365,</b> <b><math>\geq 10.11</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	2.0
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	1.5
<b>POROTON S8-365,</b> <b><math>\geq 10.0</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	2.0
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	1.2
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

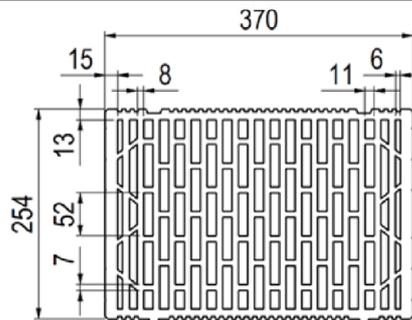
**Performances**  
**Hollow brick: POROTON S8**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 28**

**Base material hollow masonry: POROTON S9 MV**

**Table C 11.14.1: Brick data**

Description of brick	771-1-134	POROTON S9 MV	
Type of brick		Hollow brick POROTON S9 MV	
Bulk density $\rho \geq$ [kg/dm <sup>3</sup> ]		0.9	
Standard, approval/type-approval		EN 771-1:2011+A1:2015;	
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]	12DF (248x365x249)	



**Table C 11.14.2: Installation parameters**

Anchor size			8	
Installation site <sup>6)</sup>			Inside / Outside	Reveal
Drill hole diameter $d_0 =$ [mm]			8	
Cutting diameter of drill bit $d_{cut} \leq$ [mm]			8.45	
Depth of drill hole to deepest point $h_1 \geq$ [mm]			80	
Drill method			Rotary drilling	
Overall plastic anchor embedment depth $h_{nom} =$ [mm]			70	
Diameter of clearance hole in the fixture $d_f \leq$ [mm]			8.5	
Spacing perpendicular / parallel to free edge $s_{1,min}/s_{2,min}$ [mm]			200 / 250	170 / 250
Minimum edge distance $c_{min} \geq$ [mm]			100	85

**Table C 11.14.3: Characteristic resistance  $F_{RK}^{1)7)8)}$  in [kN] for single anchor**

Anchor size			8	
Installation site <sup>6)</sup>			Inside / Outside	Reveal
Overall plastic anchor embedment depth $h_{nom} =$ [mm]			70	
Characteristic resistance for single anchor [kN]			$F_{RK}^{1)}$	$F_{RK}^{7)}$
Mean compressive strength acc. to EN 771				
POROTON S9 MV, $\geq 13.53 \text{ N/mm}^2$	$F_{RK}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		2.0	2.0
	$F_{RK}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		1.5	2.0
POROTON S9 MV, $\geq 12.5 \text{ N/mm}^2$	$F_{RK}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		2.0	2.0
	$F_{RK}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		1.2	2.0
POROTON S9 MV, $\geq 10.0 \text{ N/mm}^2$	$F_{RK}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.5	1.5
	$F_{RK}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.9	1.5
Partial safety factor $\gamma_{Mm}^{2)}$ [-]			2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

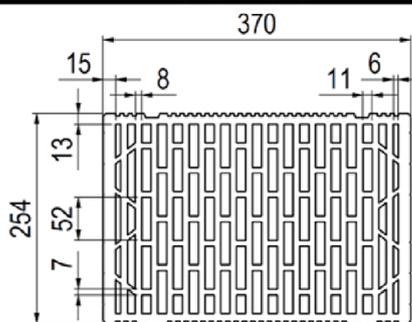
**Performances**  
Hollow brick: POROTON S9 MV  
Brick data, Installation parameters, Characteristic resistance

**Annex C 29**

**Base material hollow masonry: POROTON S9 MV**

**Table C 11.15.1: Brick data**

Description of brick	771-1-134	POROTON S9 MV	
Type of brick		Hollow brick POROTON S9 MV	
Bulk density $\rho \geq$ [kg/dm <sup>3</sup> ]		0.9	
Standard, approval/type-approval		EN 771-1:2011+A1:2015;	
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]	12DF (248x365x249)	



**Table C 11.15.2: Installation parameters**

Anchor size			10	
Installation site <sup>6)</sup>			Inside / Outside	Reveal
Drill hole diameter $d_0 =$ [mm]			10	
Cutting diameter of drill bit $d_{cut} \leq$ [mm]			10.45	
Depth of drill hole to deepest point $h_1 \geq$ [mm]			80	
Drill method			Rotary drilling	
Overall plastic anchor embedment depth $h_{nom} =$ [mm]			70	
Diameter of clearance hole in the fixture $d_f \leq$ [mm]			10.5	
Spacing perpendicular / parallel to free edge $s_{1,min}/s_{2,min}$ [mm]			150 / 250	180 / 250
Minimum edge distance $c_{min} \geq$ [mm]			75	90

**Table C 11.15.3: Characteristic resistance  $F_{RK}$ <sup>1)7)8)</sup> in [kN] for single anchor**

Anchor size			10	
Installation site <sup>6)</sup>			Inside / Outside	Reveal
Overall plastic anchor embedment depth $h_{nom} =$ [mm]			70	
Characteristic resistance for single anchor [kN]			$F_{RK}^{1)}$	$F_{RK}^{7)}$
Mean compressive strength acc. to EN 771				
POROTON S9 MV, $\geq 13.53 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]		2.0	1.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]		2.0	1.5
POROTON S9 MV, $\geq 12.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]		1.5	1.2
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]		1.5	1.2
POROTON S9 MV, $\geq 10.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]		1.5	0.9
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]		1.5	0.9
Partial safety factor $\gamma_{Mm}^{2)}$			2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

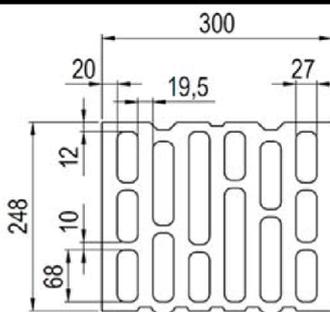
**Performances**  
Hollow brick: POROTON S9 MV  
Brick data, Installation parameters, Characteristic resistance

**Annex C 30**

**Base material hollow masonry: POROTON S10**

**Table C 11.16.1: Brick data**

Description of brick	771-1-032	POROTON S10	
Type of brick		Hollow brick POROTON S10	
Bulk density $\rho \geq$ [kg/dm <sup>3</sup> ]		0.8	
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-1017:2019-05	
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]	10DF (248x300x249)	



**Table C 11.16.2: Installation parameters**

Anchor size	8		
Installation site <sup>6)</sup>		Inside / Outside	Reveal
Drill hole diameter $d_0 =$ [mm]		8	
Cutting diameter of drill bit $d_{cut} \leq$ [mm]		8.45	
Depth of drill hole to deepest point $h_1 \geq$ [mm]		80	
Drill method	[-]	Rotary drilling	
Overall plastic anchor embedment depth $h_{nom} =$ [mm]		70	
Diameter of clearance hole in the fixture $d_f \leq$ [mm]		8.5	
Spacing perpendicular / parallel to free edge $s_{1,min}/s_{2,min}$ [mm]		100 / 100	80 / 250
Minimum edge distance $c_{min} \geq$ [mm]		50	40

**Table C 11.16.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size	8		
Installation site <sup>6)</sup>		Inside / Outside	Reveal
Overall plastic anchor embedment depth $h_{nom} =$ [mm]		70	
Characteristic resistance for single anchor [kN]		$F_{Rk}^{1)}$	$F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771			
POROTON S10, $\geq 11.91 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5	0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2	0.9
POROTON S10, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2	0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9	0.9
POROTON S10, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	0.6
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.75	0.6
Partial safety factor $\gamma_{Mm}^{2)}$ [-]		2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

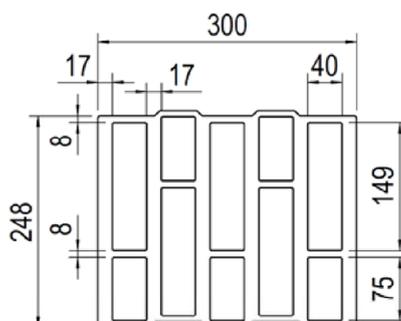
**Performances**  
Hollow brick: POROTON S10  
Brick data, Installation parameters, Characteristic resistance

**Annex C 31**

**Base material hollow masonry: POROTON-S11-30.0-P**

**Table C 11.17.1: Brick data**

Description of brick		771-1-025	POROTON-S11-30.0-P	
Type of brick			Hollow brick S11-30.0-P	
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.8	
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-812:2020-01	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		10DF (248x300x249)	



**Table C 11.17.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.17.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Mean compressive strength acc. to EN 771			
POROTON-S11-30.0-P, $\geq 9.4 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.5	2.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5	1.5
POROTON-S11-30.0-P, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.0	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5	1.2
POROTON-S11-30.0-P, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

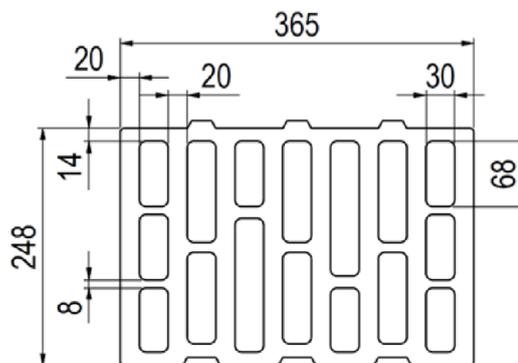
**Performances**  
Hollow brick: POROTON-S11-30.0-P  
Brick data, Installation parameters, Characteristic resistance

**Annex C 32**

**Base material hollow masonry: POROTON-S11-36.5-P**

**Table C 11.18.1: Brick data**

<b>Description of brick</b>		771-1-009	<b>POROTON-S11-36.5-P</b>	
Type of brick			Hollow brick S11-36.5-P	
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.9	
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-812:2020-01	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)		[mm]	12DF (248x365x249)	



**Table C 11.18.2: Installation parameters**

<b>Anchor size</b>		<b>8</b>	<b>10</b>
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.18.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

<b>Anchor size</b>		<b>8</b>	<b>10</b>
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>	<b>70</b>
Mean compressive strength acc. to EN 771			
<b>POROTON-S11-36.5-P,</b> $\geq 9.7 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.5	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	2.5	1.5
<b>POROTON-S11-36.5-P,</b> $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.0	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5	1.2
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

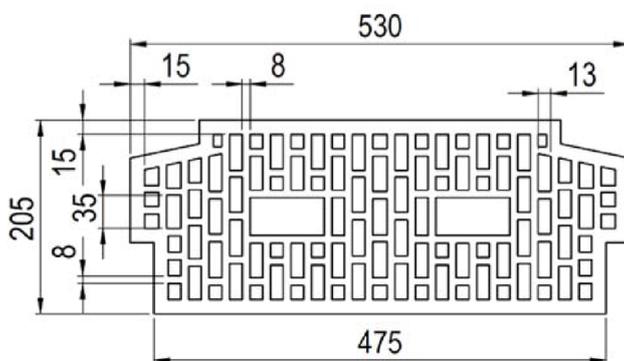
**Performances**  
**Hollow brick: POROTON-S11-36.5-P**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 33**

**Base material hollow brick: Brick for ceiling (System Filigran)**

**Table C 11.19.1: Brick data**

Description of brick	771-1-031	Brick for ceiling (System Filigran) DIN 4160-BN 0.8-530-250-210
Type of brick		Brick for ceiling
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval		-
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover
Format (measurement)	[mm]	16DF (252x530x210)



**Table C 11.19.2: Installation parameters**

Anchor size		8	10
Installation site		bottom view	
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	100 / 100	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.19.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site		bottom view	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Mean compressive strength acc. to EN 771			
<b>Brick für ceiling (system Filigran), <math>\geq 7.38</math> N/mm<sup>2</sup></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9	1.2
<b>Brick für ceiling (system Filigran), <math>\geq 5.0</math> N/mm<sup>2</sup></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.75	0.9
Partial safety factor	$\gamma_{Mm}^2)$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

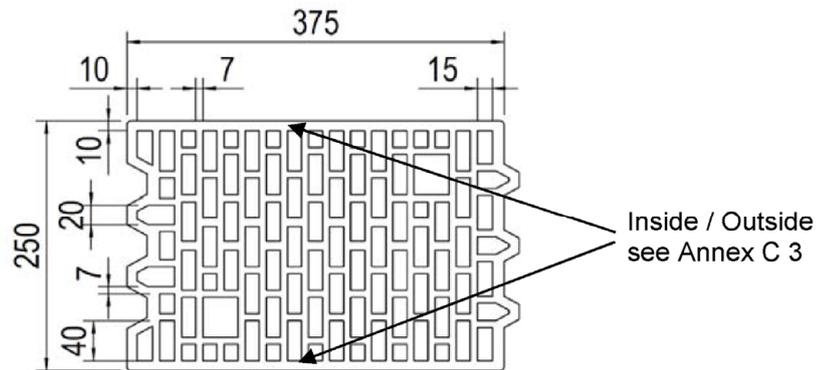
**Performances**  
Hollow brick: Brick for ceiling (System Filigran)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 34**

**Base material hollow masonry: POROTHERM 25-38 N+F**

**Table C 11.20.1: Brick data**

Description of brick		771-1-005	<b>POROTHERM 25-38 N+F</b>
Type of brick			Hollow brick POROTHERM 25-38 N+F
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.8
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger Ziegelindustrie GmbH Hauptstraße A-2332 Hennersdorf, Austria
Format (measurement)	[mm]		14DF (375x250x249)



**Table C 11.20.2: Installation parameters**

Anchor size		<b>8</b>	<b>10</b>
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.20.3: Characteristic resistance  $F_{RK}^{1)8)}$  in [kN] for single anchor**

Anchor size		<b>8</b>	<b>10</b>
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>	<b>70</b>
Mean compressive strength acc. to EN 771			
<b>POROTHERM 25-38 N+F,</b> <b><math>\geq 10.36 \text{ N/mm}^2</math></b>	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.2	1.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.9	1.2
<b>POROTHERM 25-38 N+F,</b> <b><math>\geq 10.0 \text{ N/mm}^2</math></b>	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.2	1.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.9	1.2
<b>POROTHERM 25-38 N+F,</b> <b><math>\geq 7.5 \text{ N/mm}^2</math></b>	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.9	1.2
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.6	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

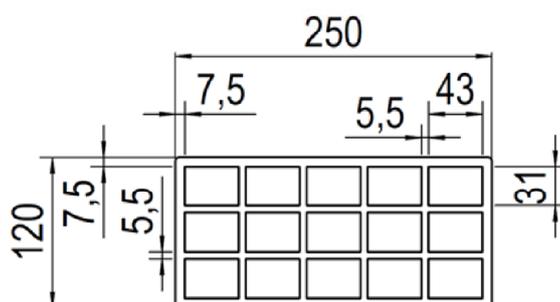
**Performances**  
**Hollow brick: POROTHERM 25-38 N+F**  
 Brick data, Installation parameters, Characteristic resistance

**Annex C 35**

**Base material hollow masonry: Blocchi Leggeri**

**Table C 11.21.1: Brick data**

Description of brick		771-1-012	Blocchi Leggeri
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger Brunori s.r.l. Via Ringhiera 1 I-40020 Mordano (Bologna) fraz. Bubano Italy
Format (measurement)		[mm]	5DF (248x115x335)



**Table C 11.21.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	125

**Table C 11.21.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	<b>70</b>
Mean compressive strength acc. to EN 771			
Blocchi Leggeri, $\geq 8.99 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
Blocchi Leggeri, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5
Blocchi Leggeri, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.3
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

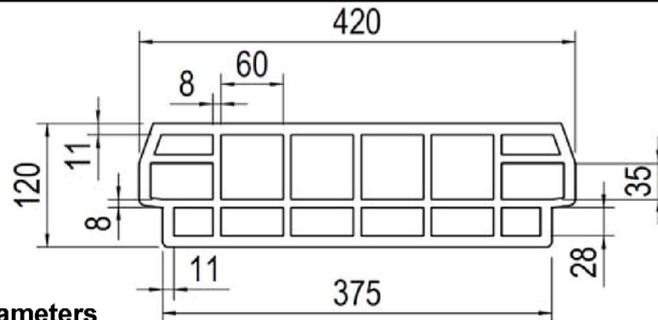
**Performances**  
**Hollow brick: Blocchi Leggeri**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 36**

**Hollow brick for ceiling: Blocchi per solaio a travetti**

**Table C 11.22.1: Brick data**

Description of brick	771-1-011	Blocchi per solaio a travetti
Type of brick		Hollow brick for ceiling
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.55
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Wienerberger Tacconi s.r.l. Via Ringhiera 1 I-40020 Mordano (Bologna) fraz. Bubano Italy, Werk Terni
Format (measurement)	[mm]	7DF (416x123x245)



**Table C 11.22.2: Installation parameters**

Anchor size		8	10
Installation site		bottom view	bottom view
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.22.3: Characteristic resistance  $F_{RK}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site		bottom view	bottom view
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Mean compressive strength acc. to EN 771			
Blocchi per solaio a travetti, $\geq 14.81 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.5	1.2
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2	0.9
Blocchi per solaio a travetti, $\geq 12.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.2	1.2
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.9	0.75
Blocchi per solaio a travetti, $\geq 10.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.9	0.9
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.75	0.6
Blocchi per solaio a travetti, $\geq 7.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.75	0.6
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.6	0.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

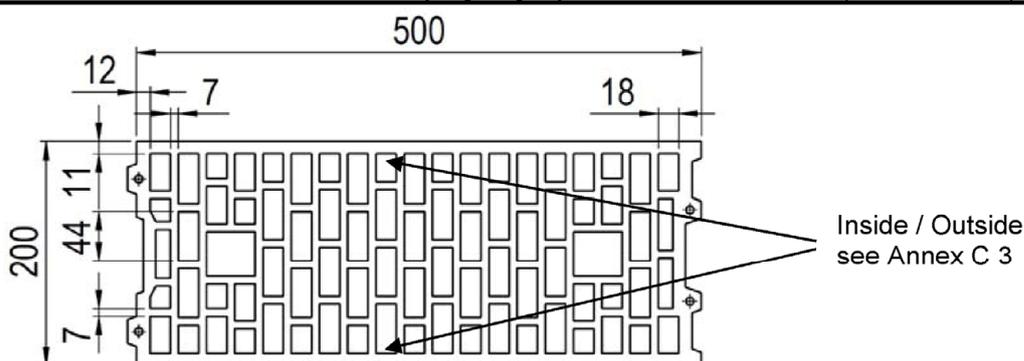
**Performances**  
**Hollow brick: Blocchi per solaio a travetti**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 37**

**Base material hollow masonry: POROTHERM MURBRIC T20 and R20**

**Table C 11.23.1: Brick data**

Description of brick	771-1-018	POROTHERM MURBRIC T20 and R20
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		e.g. Wienerberger SAS 8, Rue du Canal - Achenheim 67087 Strasbourg, France
Format (measurement)	[mm]	T20; R 20: 15DF (500x200x249)



**Table C 11.23.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.23.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
<b>POROTHERM MURBRIC T20 and R20, <math>\geq 14.39</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$	[kN]	0.9
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$	[kN]	0.75
<b>POROTHERM MURBRIC T20 and R20, <math>\geq 12.5</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$	[kN]	0.75
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$	[kN]	0.6
<b>POROTHERM MURBRIC T20 and R20, <math>\geq 10.0</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$	[kN]	0.6
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$	[kN]	0.5
Partial safety factor	$\gamma_{Mm^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

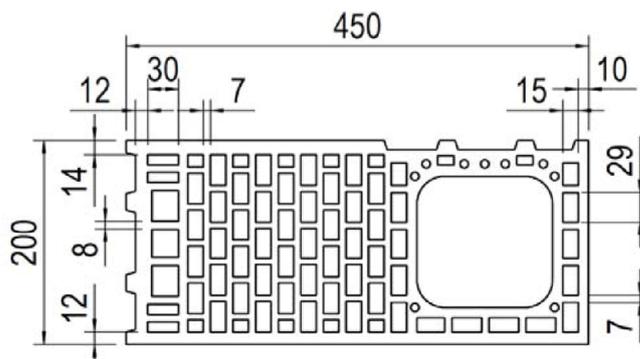
**Performances**  
Hollow brick: POROTHERM MURBRIC T20 and R20  
Brick data, Installation parameters, Characteristic resistance

**Annex C 38**

**Base material hollow masonry: POROTHERM MURBRIC Traditionnel Poteau T20**

**Table C 11.24.1: Brick data**

Description of brick		771-1-013	POROTHERM MURBRIC Poteau T20
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			e.g. Wienerberger SAS 8, Rue du Canal - Achenheim 67087 Strasbourg, France
Format (measurement)		[mm]	12DF (448x195x238)



**Table C 11.24.2: Installation parameters**

Anchor size			8	10
Installation site <sup>6)</sup>			Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	80
Drill method		[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

**Table C 11.24.3: Characteristic resistance  $F_{RK}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8	10
Installation site <sup>6)</sup>			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	70
Mean compressive strength acc. to EN 771				
POROTHERM MURBRIC Poteau T20, $\geq 10.86$ N/mm <sup>2</sup>	$F_{RK, 30^\circ C^3) / 50^\circ C^4)$	[kN]	0.9	0.9
	$F_{RK, 50^\circ C^3) / 80^\circ C^4)$	[kN]	0.6	0.9
POROTHERM MURBRIC Poteau T20, $\geq 10.0$ N/mm <sup>2</sup>	$F_{RK, 30^\circ C^3) / 50^\circ C^4)$	[kN]	0.9	0.9
	$F_{RK, 50^\circ C^3) / 80^\circ C^4)$	[kN]	0.6	0.9
POROTHERM MURBRIC Poteau T20, $\geq 7.5$ N/mm <sup>2</sup>	$F_{RK, 30^\circ C^3) / 50^\circ C^4)$	[kN]	0.6	0.6
	$F_{RK, 50^\circ C^3) / 80^\circ C^4)$	[kN]	0.5	0.6
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

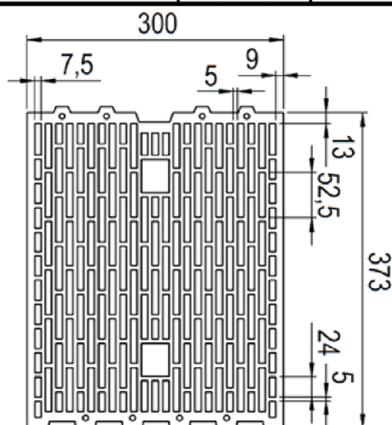
**Performances**  
Hollow brick: POROTHERM MURBRIC T20  
Brick data, Installation parameters, Characteristic resistance

**Annex C 39**

**Base material hollow masonry: POROTHERM T30 and POROTHERM R30**

**Table C 11.25.1: Brick data**

Description of brick		771-1-014	POROTHERM T30 and R30
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger SAS 8, Rue du Canal - Achenheim 67087 Strasbourg, France
Format (measurement)	[mm]		T30; R30: 16DF (373x300x249)



**Table C 11.25.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100

**Table C 11.25.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>
Mean compressive strength acc. to EN 771		
POROTHERM T30 and R30, $\geq 10.47 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.4
POROTHERM T30 and R30, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.4
POROTHERM T30 and R30, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.4
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.3
Partial safety factor	$\gamma_{Mm}^2)$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

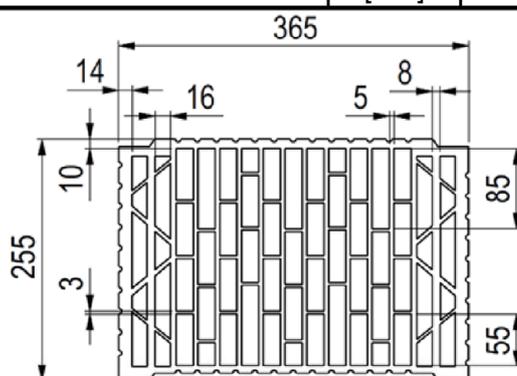
**Performances**  
Hollow brick: POROTHERM T30 and POROTHERM R30  
Brick data, Installation parameters, Characteristic resistance

**Annex C 40**

**Base material hollow masonry: UNIPOR W07 SILVACOR**

**Table C 11.26.1: Brick data**

Description of brick		771-1-109	UNIPOR W07 SILVACOR
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.55
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1162:2019-08
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]		12DF (247x365x249)



**Table C 11.26.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100

**Table C 11.26.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Mean compressive strength acc. to EN 771		
UNIPOR W07 SILVACOR, $\geq 6.24 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.75
UNIPOR W07 SILVACOR, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

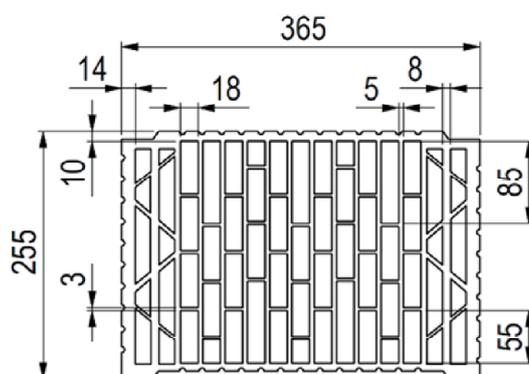
**Performances**  
Hollow brick: UNIPOR W07 SILVACOR  
Brick data, Installation parameters, Characteristic resistance

**Annex C 41**

**Base material hollow masonry: UNIPOR W07 CORISO**

**Table C 11.27.1: Brick data**

Description of brick		771-1-112	UNIPOR W07 CORISO
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.55
Standard, approval/type-approval			EN 771-1:2011+A1:2015, Z-17.1-1056:2020-11
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	12DF (247x365x249)



**Table C 11.27.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.27.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
UNIPOR WS11 CORISO, $\geq 6.24 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.75
UNIPOR WS11 CORISO, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

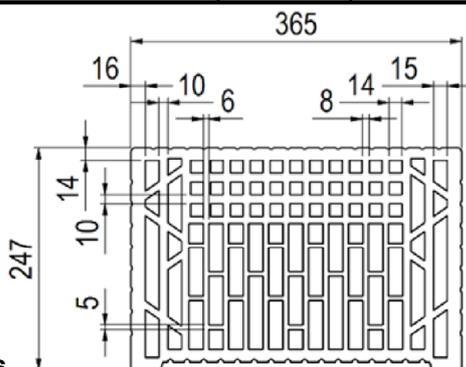
**Performances**  
Hollow brick: UNIPOR W07 CORISO  
Brick data, Installation parameters, Characteristic resistance

**Annex C 42**

**Base material hollow masonry: UNIPOR W07 CORISO (special shaped)**

**Table C 11.28.1: Brick data**

Description of brick	771-1-126	UNIPOR W07 CORISO (special shaped)
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	12DF (247x365x249)



**Table C 11.28.2: Installation parameters**

Anchor size	8		
Installation site <sup>6)</sup>		Reveal	
Drill hole diameter	$d_0 =$ [mm]	8	
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	
Drill method	[-]	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	140 / 250	250 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	70	185

**Table C 11.28.3: Characteristic resistance  $F_{Rk}^{7)8)}$  in [kN] for single anchor**

Anchor size	8		
Installation site <sup>6)</sup>		Reveal	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	
Characteristic resistance for single anchor	[kN]	$F_{Rk}^{7)}$	$F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771			
UNIPOR W07 CORISO, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.0	3.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	2.0	3.0
UNIPOR W07 CORISO, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5	2.0
UNIPOR W07 CORISO, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

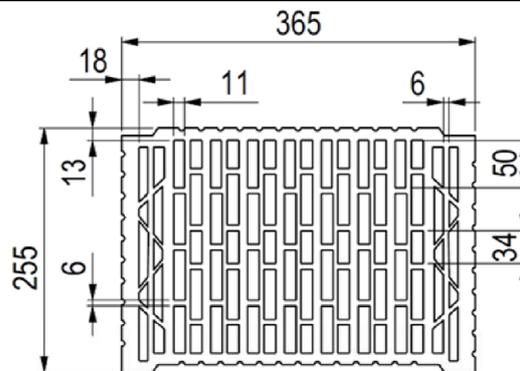
**Performances**  
Hollow brick: UNIPOR W07 CORISO (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 43**

**Base material hollow masonry: UNIPOR WS08 CORISO and UNIPOR WS08 SILVACOR**

**Table C 11.29.1: Brick data**

Description of brick		UNIPOR WS08 CORISO UNIPOR WS08 SILVACOR
Type of brick	771-1-114	Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-1114:2019-12; Z-17.1-1191:2019-01
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	12DF (247x365x249)



**Table C 11.29.2: Installation parameters**

Anchor size		8		
Installation site <sup>6)</sup>		Inside / Outside	Reveal	
Drill hole diameter	$d_0 =$ [mm]	8		
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45		
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	0		
Drill method	[-]	Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70		
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250	140 / 250	180 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	70	90

**Table C 11.29.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size		8		
Installation site <sup>6)</sup>		Inside / Outside	Reveal	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70		
Characteristic resistance for single anchor	[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	$F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771				
UNIPOR WS08 CORISO, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	0.9	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.75	0.9	1.5
UNIPOR WS08 CORISO, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.75	0.6	0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6	0.6	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

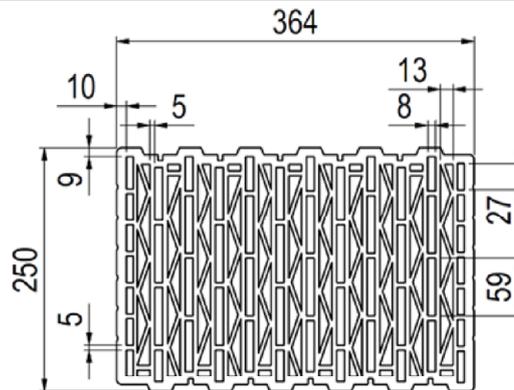
**Performances**  
Hollow brick: UNIPOR WS08 CORISO and SILVACOR  
Brick data, Installation parameters, Characteristic resistance

**Annex C 44**

**Base material hollow masonry: UNIPOR W08 NOVATHERM**

**Table C 11.30.1: Brick data**

Description of brick		771-1-119	UNIPOR W08 NOVATHERM
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	12DF (247x365x249)



**Table C 11.30.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	250 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	125

**Table C 11.30.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
UNIPOR W08 NOVATHERM, $\geq 8.65 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.4
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.3
UNIPOR W08 NOVATHERM, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.4
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.3
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

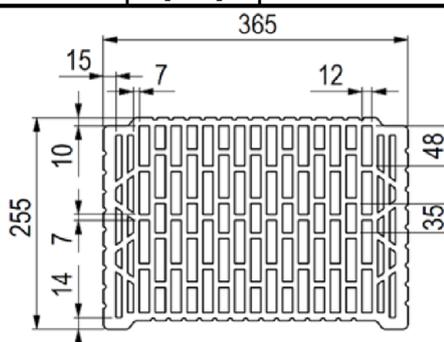
**Performances**  
Hollow brick: UNIPOR W08 NOVATHERM  
Brick data, Installation parameters, Characteristic resistance

**Annex C 45**

**Base material hollow masonry: UNIPOR WS09 CORISO**

**Table C 11.31.1: Brick data**

Description of brick		771-1-115	UNIPOR WS09 CORISO
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1066:2020-04
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	12DF (247x365x249)



**Table C 11.31.2: Installation parameters**

Anchor size		8		10
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	80
Drill method		[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	150 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	75

**Table C 11.31.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size		8		10
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	<b>70</b>	<b>70</b>
Characteristic resistance for single anchor		[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771				
<b>UNIPOR WS09 CORISO,</b> <b><math>\geq 10.0 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.2	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.9	1.5
<b>UNIPOR WS09 CORISO,</b> <b><math>\geq 7.5 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	0.9	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.6	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

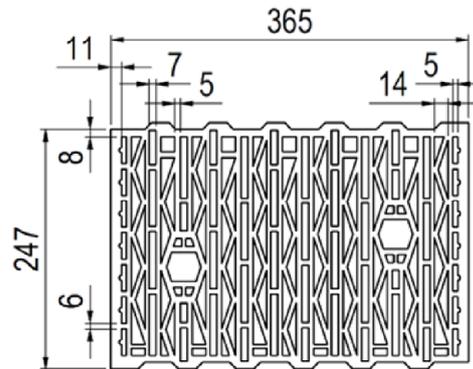
**Performances**  
**Hollow brick: UNIPOR WS09 CORISO**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 46**

**Base material hollow masonry: UNIPOR WH09 Planziegel**

**Table C 11.32.1: Brick data**

Description of brick	771-1-120	UNIPOR WH09 Planziegel
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-1042:2015-09
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	12DF (247x365x249)



**Table C 11.32.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.32.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
UNIPOR WH09 Planziegel, $\geq 7.8 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.6
UNIPOR WH09 Planziegel, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.5
UNIPOR WH09 Planziegel, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	0.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.4
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

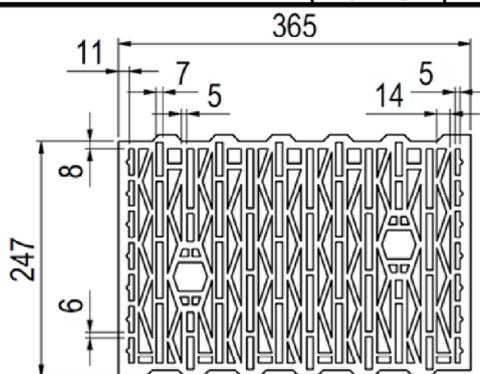
**Performances**  
Hollow brick: UNIPOR WH09 Planziegel  
Brick data, Installation parameters, Characteristic resistance

**Annex C 47**

**Base material hollow masonry: UNIPOR WH10 Planziegel**

**Table C 11.33.1: Brick data**

Description of brick	771-1-121	UNIPOR WH10 Planziegel
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-1042:2015-09
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	12DF (247x365x249)



**Table C 11.33.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.33.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>	<b>70</b>
Mean compressive strength acc. to EN 771			
<b>UNIPOR WH10 Planziegel,</b> <b><math>\geq 9.15</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.75	0.6
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.6	0.5
<b>UNIPOR WH10 Planziegel,</b> <b><math>\geq 7.5</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.6	0.5
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.5	0.4
Partial safety factor	$\gamma_{Mm^2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

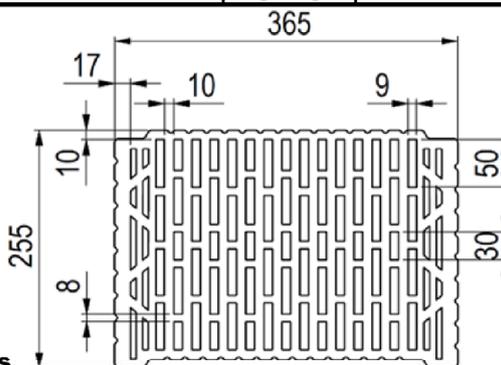
**Performances**  
Hollow brick: UNIPOR WH10 Planziegel  
Brick data, Installation parameters, Characteristic resistance

**Annex C 48**

**Base material hollow masonry: UNIPOR WS10 CORISO**

**Table C 11.34.1: Brick data**

Description of brick	771-1-116	UNIPOR WS10 CORISO
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm <sup>3</sup> ]		0.9
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-1021:2016-10
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	12DF (247x365x249)



**Table C 11.34.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter $d_0 =$ [mm]			8
Cutting diameter of drill bit $d_{cut} \leq$ [mm]			8.45
Depth of drill hole to deepest point $h_1 \geq$ [mm]			80
Drill method			Rotary drilling
Overall plastic anchor embedment depth $h_{nom} =$ [mm]			70
Diameter of clearance hole in the fixture $d_f \leq$ [mm]			8.5
Spacing perpendicular / parallel to free edge $s_{1,min}/s_{2,min}$ [mm]			120 / 240
Minimum edge distance $c_{min} \geq$ [mm]			60

**Table C 11.34.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth $h_{nom} =$ [mm]			70
Mean compressive strength acc. to EN 771			
UNIPOR WS10 CORISO, $\geq 19.18 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		1.5
UNIPOR WS10 CORISO, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		1.2
UNIPOR WS10 CORISO, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.9
Partial safety factor $\gamma_{Mm}^{2)}$			2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

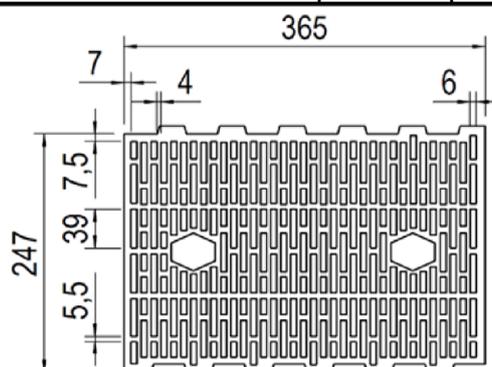
**Performances**  
Hollow brick: UNIPOR WS10 CORISO  
Brick data, Installation parameters, Characteristic resistance

**Annex C 49**

**Base material hollow masonry: UNIPOR WS11 CORISO**

**Table C 11.35.1: Brick data**

Description of brick		771-1-026	UNIPOR WS11 CORISO
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.85
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1011:2014-04
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	12DF (238x365x249)



**Table C 11.35.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.35.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
UNIPOR WS11 CORISO, $\geq 10.86 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.75
UNIPOR WS11 CORISO, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

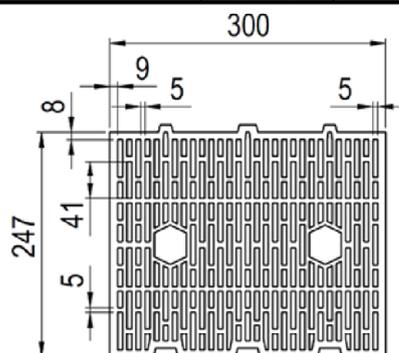
**Performances**  
Hollow brick: UNIPOR WS11 CORISO  
Brick data, Installation parameters, Characteristic resistance

**Annex C 50**

**Base material hollow masonry: UNIPOR WS14 and UNIPOR WS12 CORISO**

**Table C 11.36.1: Brick data**

Description of brick		771-1-016	UNIPOR WS14 and UNIPOR WS12 CORISO
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-883:2005-07
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	10DF (248x300x249)



**Table C 11.36.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 100 / 100
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.36.3: Characteristic resistance  $F_{Rk}$ <sup>18)</sup> in [kN] for single anchor**

Anchor size		8
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Installation site <sup>6)</sup>		Inside / Outside
<b>UNIPOR WS14 and UNIPOR WS12 CORISO, <math>\geq 16.57</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$	[kN] 1.2
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$	[kN] 0.9
<b>UNIPOR WS14 and UNIPOR WS12 CORISO, <math>\geq 15.0</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$	[kN] 0.9
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$	[kN] 0.75
<b>UNIPOR WS14 and UNIPOR WS12 CORISO, <math>\geq 12.5</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$	[kN] 0.9
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$	[kN] 0.6
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

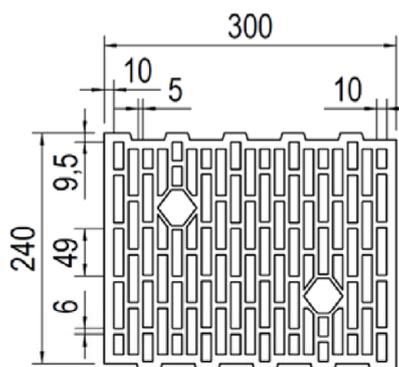
**Performances**  
Hollow brick: UNIPOR WS14 and UNIPOR WS12 CORISO  
Brick data, Installation parameters, Characteristic resistance

**Annex C 51**

**Base material hollow masonry: UNIPOR W14**

**Table C 11.37.1: Brick data**

Description of brick	771-1-015	UNIPOR W14
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval		EN 771-1:2011+A1:2015, W14-Plan: Z-17.1-679:2013-01, W14-Block: Z-17.1-636:2016-04
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	10DF (248x300x249)



**Table C 11.37.2: Installation parameters**

Anchor size	8	
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100

**Table C 11.37.3: Characteristic resistance  $F_{Rk}$ <sup>18)</sup> in [kN] for single anchor**

Anchor size	8	
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Mean compressive strength acc. to EN 771		
UNIPOR W14, $\geq 8.03$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$ [kN]	0.6
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$ [kN]	0.5
UNIPOR W14, $\geq 7.5$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$ [kN]	0.6
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$ [kN]	0.4
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

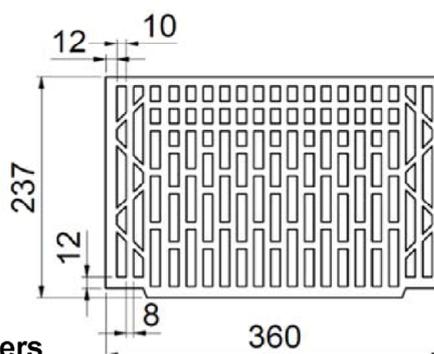
**Performances**  
Hollow brick: UNIPOR W14  
Brick data, Installation parameters, Characteristic resistance

**Annex C 52**

**Base material hollow masonry: UNIPOR WS CORISO (special shaped)**

**Table C 11.38.1: Brick data**

Description of brick		771-1-137	UNIPOR WS CORISO (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.75
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	12DF (250x365x250)



**Table C 11.38.2: Installation parameters**

Anchor size		8	10		
Installation site <sup>6)</sup>		Reveal	Reveal		
Drill hole diameter	$d_0 =$	[mm]	8	10	
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45	10.45	
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	80	
Drill method		[-]	Rotary drilling	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	70	
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	10.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		140 / 250	180 / 250	140 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	70	90	90

**Table C 11.38.3: Characteristic resistance  $F_{Rk}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size		8	10		
Installation site <sup>6)</sup>		Reveal	Reveal		
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	<b>70</b>	<b>70</b>	
Characteristic resistance for single anchor		[kN]	$F_{Rk}^{7)}$	$F_{Rk}^{7)}$	$F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771					
<b>UNIPOR WS CORISO 12DF,</b> <b><math>\geq 12.5 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	4.0	3.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.0	4.0	3.0
<b>UNIPOR WS CORISO 12DF,</b> <b><math>\geq 10.0 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5	3.0	2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	3.0	2.5
<b>UNIPOR WS CORISO 12DF,</b> <b><math>\geq 7.5 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	2.0	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2	2.0	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

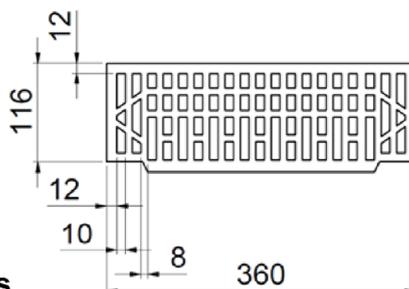
**Performances**  
**Hollow brick: UNIPOR WS CORISO (special shaped)**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 53**

**Base material hollow masonry: UNIPOR WS CORISO (special shaped)**

**Table C 11.39.1: Brick data**

Description of brick		771-1-136	UNIPOR WS CORISO (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.85
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]		6DF (123x365x249)



**Table C 11.39.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Reveal
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	250 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	70      90

**Table C 11.39.3: Characteristic resistance  $F_{Rk}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Reveal
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Characteristic resistance for single anchor	[kN]	$F_{Rk}$ <sup>7)</sup>
Mean compressive strength acc. to EN 771		
UNIPOR WS CORISO 6DF, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.5      3.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	2.5      3.0
UNIPOR WS CORISO 6DF, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.0      2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	2.0      2.5
UNIPOR WS CORISO 6DF, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5      2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5      2.0
UNIPOR WS CORISO 6DF, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2      1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2      1.5
Partial safety factor	$\gamma_{Mm}^2)$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

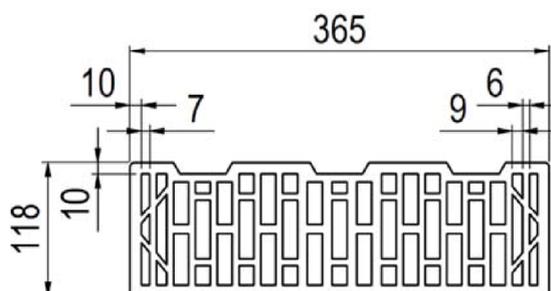
**Performances**  
Hollow brick: UNIPOR WS CORISO (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 54**

**Base material hollow masonry: UNIPOR 6DF EWS 365 (special shaped)**

**Table C 11.40.1: Brick data**

Description of brick		771-1-077	UNIPOR 6DF EWS 365 (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.9
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]		6DF (118x365x249)



**Table C 11.40.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Reveal
Drill hole diameter	$d_0 =$ [mm]		8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]		8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]		80
Drill method	[-]		Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]		8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]		130 / 250
Minimum edge distance	$c_{min} \geq$ [mm]		65

**Table C 11.40.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70
Mean compressive strength acc. to EN 771			
UNIPOR 6DF EWS 365 $\geq 12.7 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.9
UNIPOR 6DF EWS 365 $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.75
UNIPOR 6DF EWS 365 $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.6
UNIPOR 6DF EWS 365 $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]		2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

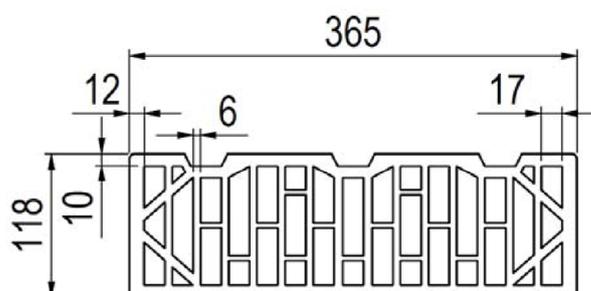
**Performances**  
Hollow brick: UNIPOR 6DF EWS 365 (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 55**

**Base material hollow masonry: UNIPOR 6DF EW 365 (special shaped)**

**Table C 11.41.1: Brick data**

Description of brick		771-1-074	UNIPOR 6DF EW 365 (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	6DF (118x365x249)



**Table C 11.41.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Reveal
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	130 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	65

**Table C 11.41.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
UNIPOR 6DF EW 365, $\geq 8.89 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
UNIPOR 6DF EW 365, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
UNIPOR 6DF EW 365, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.4
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

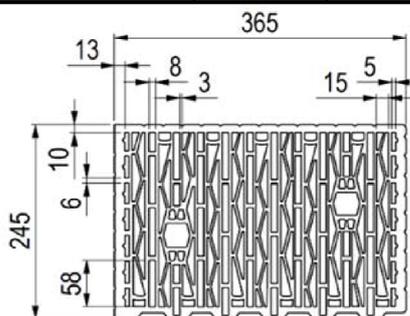
**Performances**  
Hollow brick: UNIPOR 6DF EW 365 (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 56**

**Base material hollow masonry: UNIPOR W08, WH09, WH10 (special shaped)**

**Table C 11.42.1: Brick data**

Description of brick	771-1-122	UNIPOR W08, WH09, WH10 (special shaped)
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	12DF (248x365x249)



**Table C 11.42.2: Installation parameters**

Anchor size	8		
Installation site <sup>6)</sup>		Reveal	
Drill hole diameter	$d_0 =$ [mm]	8	
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	
Drill method	[-]	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	210 / 250	250 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	105	135

**Table C 11.42.3: Characteristic resistance  $F_{Rk}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size	8		
Installation site <sup>6)</sup>		Reveal	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	
Characteristic resistance for single anchor	[kN]	$F_{Rk}$ <sup>7)</sup>	$F_{Rk}$ <sup>7)</sup>
Mean compressive strength acc. to EN 771			
UNIPOR W08, WH09, WH10, $\geq 9.08 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2	1.5
UNIPOR W08, WH09, WH10, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9	1.2
UNIPOR W08, WH09, WH10, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

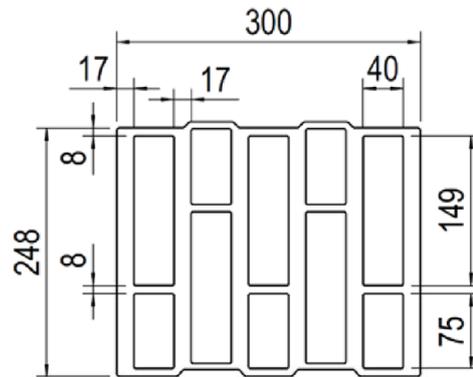
**Performances**  
Hollow brick: UNIPOR W08, WH09, WH10 (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 57**

**Base material hollow masonry: ThermoPlan MZ7**

**Table C 11.43.1: Brick data**

Description of brick		771-1-052	ThermoPlan MZ7
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1016:2009-10
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	10DF (248x300x249)



**Table C 11.43.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm]
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]
Depth of drill hole to deepest point	$h_1 \geq$	[mm]
Drill method		[-]
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]
Minimum edge distance	$c_{min} \geq$	[mm]

**Table C 11.43.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]
Mean compressive strength acc. to EN 771		
<b>ThermoPlan MZ7,</b> <b><math>\geq 8.42</math> N/mm</b>	$F_{Rk}, 30^\circ C^3) / 50^\circ C^4)$	[kN]
	$F_{Rk}, 50^\circ C^3) / 80^\circ C^4)$	[kN]
<b>ThermoPlan MZ7,</b> <b><math>\geq 7.5</math> N/mm<sup>2</sup></b>	$F_{Rk}, 30^\circ C^3) / 50^\circ C^4)$	[kN]
	$F_{Rk}, 50^\circ C^3) / 80^\circ C^4)$	[kN]
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

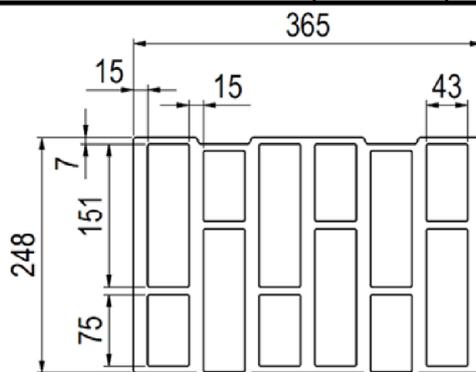
**Performances**  
**Hollow brick: ThermoPlan MZ7**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 58**

**Base material hollow masonry: ThermoPlan MZ70**

**Table C 11.44.1: Brick data**

Description of brick	771-1-100	ThermoPlan MZ70
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.5
Standard, approval/type-approval		EN 771-1:2011+A1:2015, Z-17.1-1084:2020-01
Producer of brick		Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)	[mm]	12DF (248x365x249)



**Table C 11.44.2: Installation parameters**

Anchor size	8	
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100

**Table C 11.44.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size	8	
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Mean compressive strength acc. to EN 771		
ThermoPlan MZ70, $\geq 7.62$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.9
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.75
ThermoPlan MZ70, $\geq 7.5$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.9
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.75
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

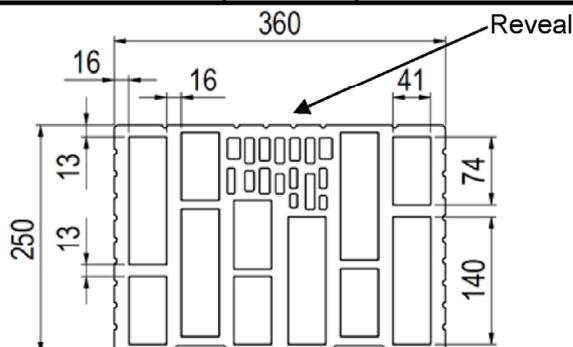
**Performances**  
**Hollow brick: ThermoPlan MZ70**  
 Brick data, Installation parameters, Characteristic resistance

**Annex C 59**

**Base material hollow masonry: ThermoPlan MZ70 (special shaped)**

**Table C 11.45.1: Brick data**

Description of brick	771-1-098	ThermoPlan MZ70 (special shaped)
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)	[mm]	12DF (248x365x249)



**Table C 11.45.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Reveal
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	250 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	135

**Table C 11.45.3: Characteristic resistance  $F_{Rk}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Reveal
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Characteristic resistance for single anchor	[kN]	$F_{Rk}$ <sup>7)</sup>
Mean compressive strength acc. to EN 771		
ThermoPlan MZ70, $\geq 10.21$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$ [kN]	4.0
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$ [kN]	4.0
ThermoPlan MZ70, $\geq 10.0$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$ [kN]	3.5
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$ [kN]	3.5
ThermoPlan MZ70, $\geq 7.5$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$ [kN]	3.0
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$ [kN]	3.0
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

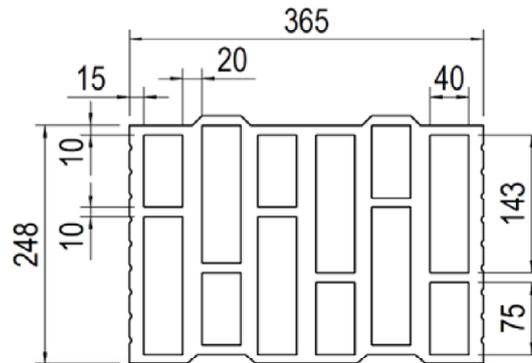
**Performances**  
Hollow brick: ThermoPlan MZ70 (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 60**

**Base material hollow masonry: ThermoPlan MZ8**

**Table C 11.46.1: Brick data**

Description of brick		771-1-023	ThermoPlan MZ8
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-906:2017-06
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	12DF (248x365x249)



**Table C 11.46.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 100 / 100
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.46.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Mean compressive strength acc. to EN 771		
ThermoPlan MZ8, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN] 1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN] 0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

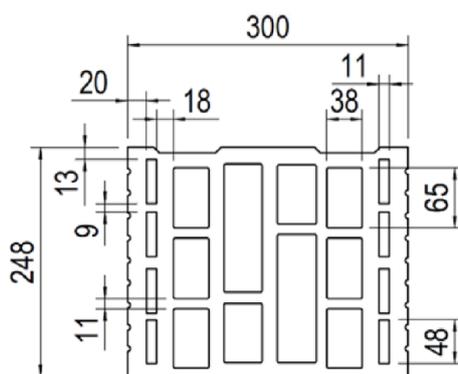
**Performances**  
Hollow brick: ThermoPlan MZ8  
Brick data, Installation parameters, Characteristic resistance

**Annex C 61**

**Base material hollow masonry: ThermoPlan MZ10**

**Table C 11.47.1: Brick data**

Description of brick		771-1-034	ThermoPlan MZ10
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.75
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1015:2017-05
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	10DF (248x300x249)



**Table C 11.47.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 100 / 100
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.47.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Mean compressive strength acc. to EN 771		
<b>ThermoPlan MZ10,</b> $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 1.5
<b>ThermoPlan MZ10,</b> $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 1.2
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

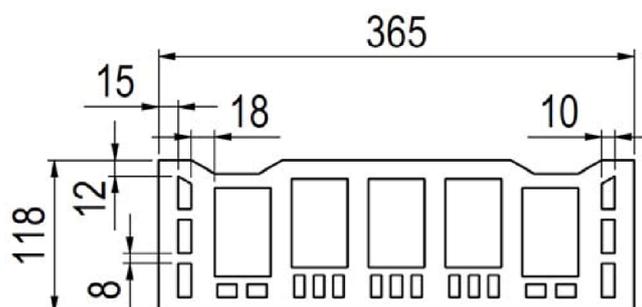
**Performances**  
Hollow brick: ThermoPlan MZ10  
Brick data, Installation parameters, Characteristic resistance

**Annex C 62**

**Base material hollow masonry: ThermoPlan MZ (special shaped)**

**Table C 11.48.1: Brick data**

Description of brick		771-1-081	ThermoPlan MZ (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	6DF (119x365x249)



**Table C 11.48.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Reveal	Reveal
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	110 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	55

**Table C 11.48.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Characteristic resistance for single anchor		[kN]	$F_{Rk}^{1)}$
Mean compressive strength acc. to EN 771			$F_{Rk}^{7)}$
<b>ThermoPlan MZ,</b> <b><math>\geq 8.01 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	2.0
<b>ThermoPlan MZ,</b> <b><math>\geq 7.5 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	2.0
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

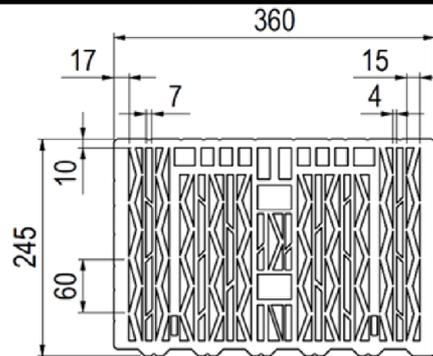
**Performances**  
**Hollow brick: ThermoPlan MZ (special shaped)**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 63**

**Base material hollow masonry: ThermoPlan S8/S9/SX (special shaped)**

**Table C 11.49.1: Brick data**

Description of brick	771-1-101	ThermoPlan S8/S9/SX (special shaped)
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)	[mm]	12DF (248x365x249)



**Table C 11.49.2: Installation parameters**

Anchor size			8		
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Reveal
Drill hole diameter	$d_0 =$ [mm]		8		
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]		8.45		
Depth of drill hole to deepest point	$h_1 \geq$ [mm]		80		
Drill method	[-]		Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70		
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]		8.5		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		200 / 250	160 / 250	250 / 250
Minimum allowable edge distance	$c_{min} \geq$ [mm]		100	80	130

**Table C 11.49.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size			8		
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70		
Characteristic resistance for single anchor	[kN]		$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	$F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771					
ThermoPlan S8/S9/SX, $\geq 10.55 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.2	1.2	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.75	1.2	2.0
ThermoPlan S8/S9/SX, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.2	1.2	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.75	1.2	2.0
ThermoPlan S8/S9/SX, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		0.75	0.9	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.6	0.9	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]		2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

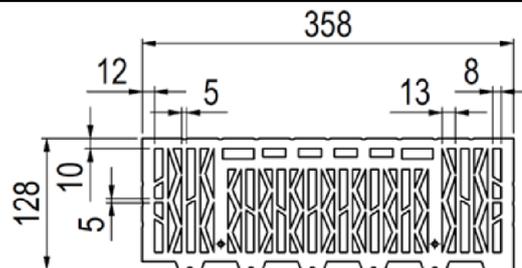
**Performances**  
Hollow brick: ThermoPlan S8/S9/SX (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 64**

**Base material hollow masonry: ThermoPlan S8/S9/SX (special shaped)**

**Table C 11.50.1: Brick data**

Description of brick		771-1-102	ThermoPlan S8/S9/SX (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.8
Standard, approval/type-approval			EN 771-1:2011+A1:2015;
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)	[mm]		6DF (123x365x249)



**Table C 11.50.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Reveal
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	170 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	85

**Table C 11.50.3: Characteristic resistance  $F_{Rk}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Reveal
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>
Characteristic resistance for single anchor	[kN]	$F_{Rk}$ <sup>7)</sup>
Mean compressive strength acc. to EN 771		
ThermoPlan S8/S9/SX, $\geq 14.31 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5
ThermoPlan S8/S9/SX, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5
ThermoPlan S8/S9/SX, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2
ThermoPlan S8/S9/SX, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9
Partial safety factor	$\gamma_{Mm}^2)$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

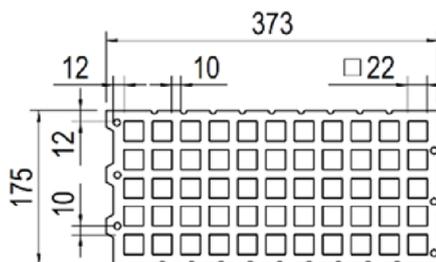
**Performances**  
Hollow brick: ThermoPlan S8/S9/SX (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 65**

**Base material hollow masonry: ThermoPlan TS<sup>2</sup>**

**Table C 11.51.1: Brick data**

Description of brick		771-1-024	ThermoPlan TS <sup>2</sup>
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.85
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-993:2015-09
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)	[mm]		9DF (373x175x249)



**Table C 11.51.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.51.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>	<b>70</b>
Mean compressive strength acc. to EN 771			
ThermoPlan TS <sup>2</sup> , $\geq 17.32 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.0	2.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2	1.5
ThermoPlan TS <sup>2</sup> , $\geq 16.7 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.5	2.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2	1.5
ThermoPlan TS <sup>2</sup> , $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.2	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.9	1.2
ThermoPlan TS <sup>2</sup> , $\geq 10.4 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.9	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.6	0.9
ThermoPlan TS <sup>2</sup> , $\geq 8.3 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.9	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.6	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

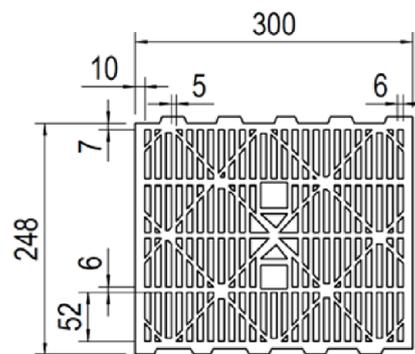
**Performances**  
Hollow brick: ThermoPlan TS<sup>2</sup>  
Brick data, Installation parameters, Characteristic resistance

**Annex C 66**

**Base material hollow masonry: ThermoPlan TS 13**

**Table C 11.52.1: Brick data**

Description of brick		771-1-035	ThermoPlan TS 13
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-914:2011-03
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	10DF (247x300x249)



**Table C 11.52.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.52.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
ThermoPlan TS 13, $\geq 11.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.75
ThermoPlan TS 13, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
ThermoPlan TS 13, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

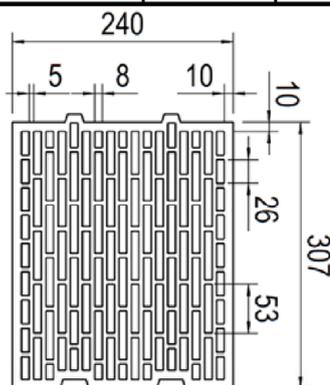
**Performances**  
Hollow brick: ThermoPlan TS 13  
Brick data, Installation parameters, Characteristic resistance

**Annex C 67**

**Base material hollow masonry: THERMOPOR ISO-PD Plus**

**Table C 11.53.1: Brick data**

Description of brick		771-1-028	THERMOPOR ISO-PD Plus
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.7
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-840:2015-04
Producer of brick			Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Format (measurement)	[mm]		10DF (247x300x249)



**Table C 11.53.2: Installation parameters**

<b>Anchor size</b>		<b>8</b>
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100

**Table C 11.53.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

<b>Anchor size</b>		<b>8</b>
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>
Mean compressive strength acc. to EN 771		
<b>THERMOPOR ISO-PD Plus,</b> <b><math>\geq 10.73 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.75
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6
<b>THERMOPOR ISO-PD Plus,</b> <b><math>\geq 10.0 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.5
<b>THERMOPOR ISO-PD Plus,</b> <b><math>\geq 7.5 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.4
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

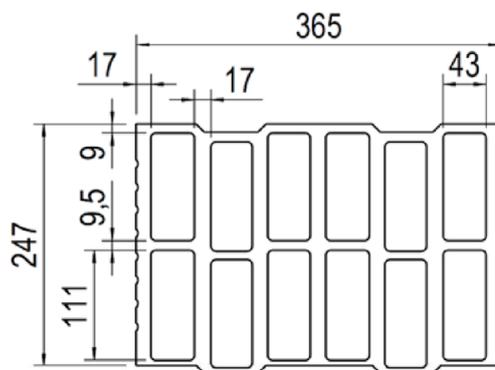
**Performances**  
**Hollow brick: THERMOPOR ISO-PD Plus**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 68**

**Base material hollow masonry: THERMOPOR TV 7-Plan**

**Table C 11.54.1: Brick data**

Description of brick	771-1-030	THERMOPOR TV 7-Plan
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.5
Standard, approval/type-approval		EN 771-1:2011+A1:2015, Z-17.1-1005:2018-11
Producer of brick		Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Format (measurement)	[mm]	12DF (247x365x249)



**Table C 11.54.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_o =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.54.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
THERMOPOR TV 7-Plan, $\geq 5.59$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$	[kN]	0.9
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$	[kN]	0.9
THERMOPOR TV 7-Plan, $\geq 5.0$ N/mm <sup>2</sup>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$	[kN]	0.9
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

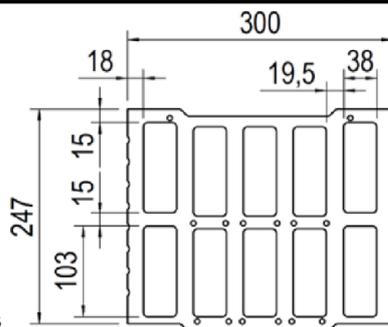
**Performances**  
Hollow brick: THERMOPOR TV 7-Plan  
Brick data, Installation parameters, Characteristic resistance

**Annex C 69**

**Base material hollow masonry: THERMOPOR TV 9-Plan**

**Table C 11.55.1: Brick data**

Description of brick	771-1-029	THERMOPOR TV 9-Plan
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.75
Standard, approval/type-approval		EN 771-1:2011+A1:2015; Z-17.1-1006:2019-01
Producer of brick		Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Format (measurement)	[mm]	10DF (247x300x249)



**Table C 11.55.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.55.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
<b>THERMOPOR TV 9-Plan,</b> $\geq 13.75 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5
<b>THERMOPOR TV 9-Plan,</b> $\geq 12.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5
<b>THERMOPOR TV 9-Plan,</b> $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2
<b>THERMOPOR TV 9-Plan,</b> $\geq 7.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

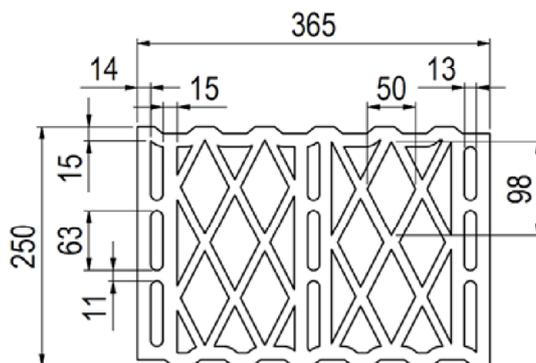
**Performances**  
Hollow brick: THERMOPOR TV 9-Plan  
Brick data, Installation parameters, Characteristic resistance

**Annex C 70**

**Base material hollow masonry: THERMOPOR Plan TV Aero**

**Table C 11.56.1: Brick data**

Description of brick	771-1-127	THERMOPOR Plan TV Aero
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Otto Staudacher Vertriebs GmbH St.-Leonhard-Str. 86483 Balzhausen
Format (measurement)	[mm]	12DF (247x365x249)



**Table C 11.56.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.56.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>	<b>70</b>
Mean compressive strength acc. to EN 771			
<b>THERMOPOR Plan TV Aero,</b> <b><math>\geq 9.36 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.75	0.75
<b>THERMOPOR Plan TV Aero,</b> <b><math>\geq 7.5 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6	0.6
<b>THERMOPOR Plan TV Aero,</b> <b><math>\geq 5.0 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.4	0.4
Partial safety factor	$\gamma_{Mm}^2)$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

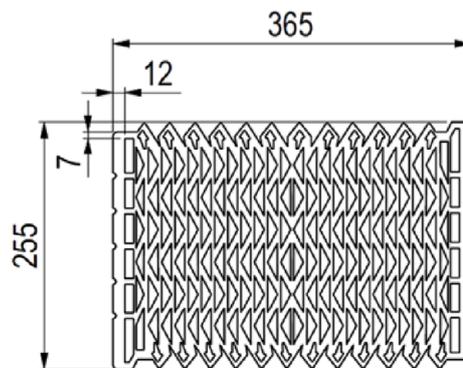
**Performances**  
**Hollow brick: THERMOPOR Plan TV Aero**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 71**

**Base material hollow masonry: Kellerer ZMK-P 7.5**

**Table C 11.57.1: Brick data**

Description of brick		771-1-068	Kellerer ZMK-P 7.5
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1012:2016-06
Producer of brick			Ziegelsystem Michael Kellerer GmbH & Co KG Ziegeleistraße 13 D-82281 Egenhofen
Format (measurement)		[mm]	12DF (247x365x249)



**Table C 11.57.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 200 / 250
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.57.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Mean compressive strength acc. to EN 771		
Kellerer ZMK-P 7.5, $\geq 6.83 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.75
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.6
Kellerer ZMK-P 7.5, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.4
Partial safety factor	$\gamma_{Mm}^2)$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

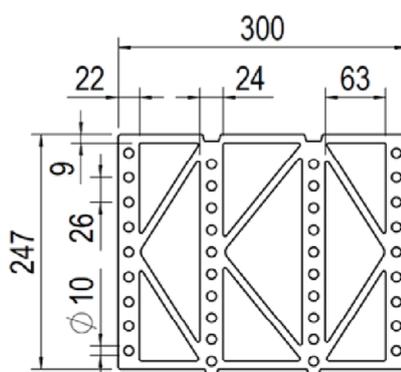
**Performances**  
Hollow brick: Kellerer ZMK-P-7.5  
Brick data, Installation parameters, Characteristic resistance

**Annex C 72**

**Base material hollow masonry: Kellerer ZMK X6**

**Table C 11.58.1: Brick data**

Description of brick		771-1-049	Kellerer ZMK X6
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.55
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1067:2020-04
Producer of brick			Ziegelsystem Michael Kellerer GmbH & Co KG Ziegeleistraße 13 D-82281 Egenhofen
Format (measurement)		[mm]	10DF (247x300x249)



**Table C 11.58.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 100 / 100
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.58.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Mean compressive strength acc. to EN 771		
Kellerer ZMK X6, $\geq 7.22 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 1.2
Kellerer ZMK X6, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.75
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.75
Partial safety factor	$\gamma_{Mm}^2)$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

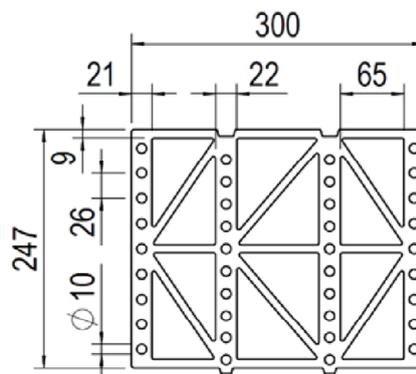
**Performances**  
Hollow brick: Kellerer ZMK X6  
Brick data, Installation parameters, Characteristic resistance

**Annex C 73**

**Base material hollow masonry: Kellerer ZMK TX8**

**Table C 11.59.1: Brick data**

Description of brick		771-1-050	Kellerer ZMK TX8
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.6
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1068:2020-04
Producer of brick			Ziegelsystem Michael Kellerer GmbH & Co KG Ziegeleistraße 13 D-82281 Egenhofen
Format (measurement)	[mm]		10DF (247x300x249)



**Table C 11.59.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100

**Table C 11.59.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70
Mean compressive strength acc. to EN 771		
Kellerer ZMK TX8, $\geq 7.66 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2
Kellerer ZMK TX8, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

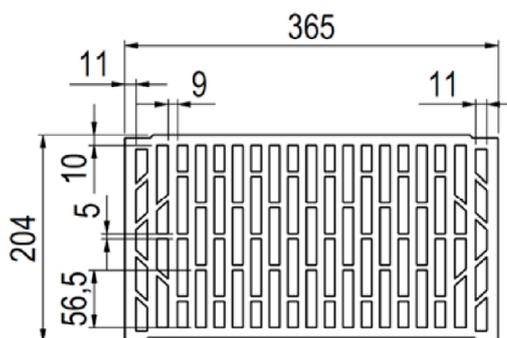
**Performances**  
Hollow brick: Kellerer ZMK TX8  
Brick data, Installation parameters, Characteristic resistance

**Annex C 74**

**Base material hollow masonry: Eder XV 7.5 S**

**Table C 11.59.4: Brick data**

Description of brick		771-1-130	Eder XV 7.5 S
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.75
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-1175:2018-10
Producer of brick			Ziegelwerk Freital Eder GmbH Wilsdruffer Straße 25 01705 Freital
Format (measurement)		[mm]	10DF (200x365x249)



**Table C 11.59.5: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.59.6: Characteristic resistance  $F_{RK}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
Eder XV 7.5 S, $\geq 9.16 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	2.0
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.5
Eder XV 7.5 S, $\geq 7.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.2
Eder XV 7.5 S, $\geq 5.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.2
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

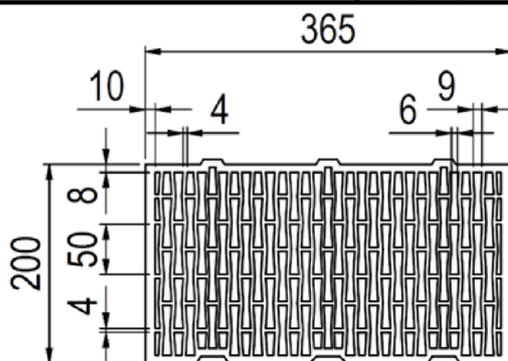
**Performances**  
Hollow brick: Eder XV 7.5 S  
Brick data, Installation parameters, Characteristic resistance

**Annex C 75**

**Base material hollow masonry: Eder XP 9**

**Table C 11.61.1: Brick data**

Description of brick		771-1-131	Eder XP 9
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval			EN 771-1:2011+A1:2015; Z-17.1-892:2017-07
Producer of brick			Ziegelwerk Freital Eder GmbH Wilsdruffer Straße 25 01705 Freital
Format (measurement)		[mm]	10DF (200x365x249)



**Table C 11.61.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.61.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
<b>Eder XP 9,</b> $\geq 11.53 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
<b>Eder XP 9,</b> $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5
<b>Eder XP 9,</b> $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.4
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

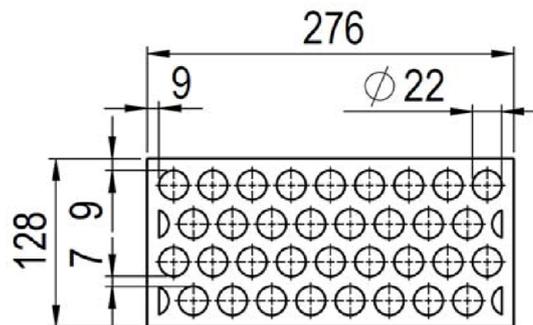
**Performances**  
**Hollow brick: Eder XP 9**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 76**

**Base material hollow masonry: Ladrillo P NV R150**

**Table C 11.62.1: Brick data**

Description of brick		771-1-017	Hollow brick Ladrillo P NV R150
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.2
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Ceramica La Corona, S.A. Carreta de Caldes, km 8, 9 08420 Canovelles, Spain
Format (measurement)		[mm]	2DF (278x135x95)



**Table C 11.62.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 100 / 100
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.62.3: Characteristic resistance  $F_{RK}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Installation site <sup>6)</sup>		Inside / Outside
Mean compressive strength acc. to EN 771		
Ladrillo P NV R150, $\geq 46.17 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 2.0
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 1.2
Ladrillo P NV R150, $\geq 35.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 1.2
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.9
Ladrillo P NV R150, $\geq 25.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.9
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.75
Ladrillo P NV R150, $\geq 15.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.6
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

**Hollow brick: Ladrillo P NV R150**

Brick data, Installation parameters, Characteristic resistance

**Annex C 77**

**Base material solid masonry, sand-lime solid brick: KS, NF**

**Table C 11.63.1: Brick data**

Description of brick		771-2-002	KS	
Type of brick			Sand-lime solid brick	
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	2.0	
Standard, approval/type-approval			EN 771-2:2011+A1:2015	
Producer of brick			-	
Format (measurement)		[mm]	$\geq$ NF ( $\geq$ 240x115x71)	
Minimum thickness of member	$h_{\min} =$	[mm]	115	

**Table C 11.63.2: Installation parameters**

Anchor size			8		10	
Installation site <sup>6)</sup>			Inside / Outside		Inside / Outside	
Drill hole diameter	$d_0 =$	[mm]	8		10	
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45		10.45	
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	60	80	60	80
Drill method		[-]	Hammer drilling		Hammer drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	50	70	50	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5		10.5	
Spacing perpendicular to free edge	$s_{1,\text{min}}$	[mm]	100		100	100
Spacing parallel to free edge	$s_{2,\text{min}}$	[mm]	100		100	100
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	100		100	100

**Table C 11.63.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8		10	
Installation site <sup>6)</sup>			Inside / Outside		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	50	70	50	70
Mean compressive strength acc. to EN 771						
Sand-lime solid brick KS, $\geq 40.71 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.5	5.5	4.0	6.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.0	5.5	2.5	4.0
Sand-lime solid brick KS, $\geq 35.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.0	4.5	3.5	5.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.5	4.5	2.0	3.5
Sand-lime solid brick KS, $\geq 25.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	3.5	2.5	3.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	3.5	1.5	2.5
Sand-lime solid brick KS, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	2.5	2.0	3.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	2.5	1.2	2.0
Sand-lime solid brick KS, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	2.0	1.5	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	2.0	0.9	1.5
Sand-lime solid brick KS, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	1.5	1.2	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	1.5	0.75	1.2
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5			

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

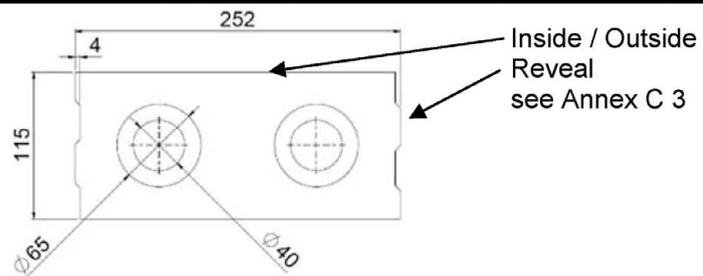
**Performances**  
Sand-lime solid brick: KS, NF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 78**

**Base material solid masonry, sand-lime solid brick: KS, 4DF**

**Table C 11.64.1: Brick data**

Description of brick		771-2-045	KS
Type of brick			Sand-lime solid brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		1.8
Standard, approval/type-approval			EN 771-2:2011+A1:2015
Producer of brick			-
Format (measurement)	[mm]		$\geq 4DF (\geq 248 \times 115 \times 248)$
Minimum thickness of member	$h_{min} =$ [mm]		115 (Reveal = 248)



**Table C 11.64.2: Installation parameters**

Anchor size		8		10
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8		10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45		10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80		80
Drill method	[-]	Hammer drilling		Hammer drilling
Overall plastic anchor embedment depth	$h_{nom} \geq$ [mm]	70		70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5		10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250	70 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	35	100

**Table C 11.64.3: Characteristic resistance  $F_{RK}^{1)8)}$  in [kN] for single anchor**

Anchor size		8		10
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} \geq$ [mm]	70		70
Mean compressive strength acc. to EN 771				
Sand-lime solid brick KS, $\geq 26.93 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.0	2.0	3.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.5	2.0	2.5
Sand-lime solid brick KS, $\geq 25.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.0	2.0	3.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2	2.0	2.5
Sand-lime solid brick KS, $\geq 20.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.5	1.5	2.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2	1.5	2.0
Sand-lime solid brick KS, $\geq 15.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.2	1.2	2.0
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.9	1.2	1.5
Sand-lime solid brick KS, $\geq 12.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.9	0.9	1.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.6	0.9	1.2
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Sand-lime solid brick: KS, 4DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 79**

**Base material solid masonry, sand-lime solid brick: Silka XL Basic, Silka XL Plus**

**Table C 11.65.1: Brick data**

Description of brick		771-2-010	Silka XL Basic, Silka XL Plus
Type of brick			Sand-lime solid brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		2.0
Standard, approval/type-approval			EN 771-2:2011+A1:2015; Z-17.1-997:2016-09
Producer of brick			Xella Deutschland GmbH Dr.-Hammacher-Str. 49 D-47119 Duisburg
Format (measurement)	[mm]		$\geq 248 \times 175 \times 498$
Minimum thickness of member	$h_{\min} =$ [mm]		175

**Table C 11.65.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{\text{cut}} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Hammer drilling	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$ [mm]	100 / 100	100 / 100
Minimum edge distance	$c_{\text{min}} \geq$ [mm]	50	50

**Table C 11.65.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside Reveal	Inside / Outside Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]	<b>70</b>	<b>70</b>
Mean compressive strength acc. to EN 771			
Sand-lime solid brick Silka XL Basic, Silka XL Plus, $\geq 39.06 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	5.0	6.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	5.0	6.0
Sand-lime solid brick Silka XL Basic, Silka XL Plus, $\geq 35.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	4.5	5.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	4.5	5.5
Sand-lime solid brick Silka XL Basic, Silka XL Plus, $\geq 25.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	3.0	4.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	3.0	4.0
Sand-lime solid brick Silka XL Basic, Silka XL Plus, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.5	3.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	2.5	3.0
Sand-lime solid brick Silka XL Basic, Silka XL Plus, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.0	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	2.0	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

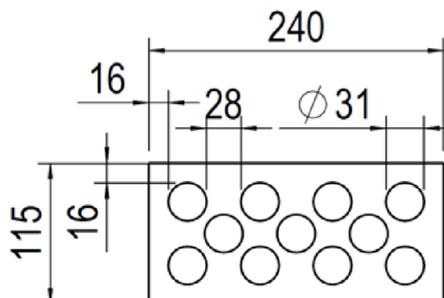
**Performances**  
Sand-lime solid brick: Silka XL Basic, Silka XL Plus  
Brick data, Installation parameters, Characteristic resistance

**Annex C 80**

**Base material hollow masonry, sand-lime perforated brick: KS L, 2DF**

**Table C 11.66.1: Brick data**

Description of brick	771-2-003 771-2-004	KS L
Type of brick		Sand-lime perforated brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	1.4
Standard, approval/type-approval		EN 771-2:2011+ A1:2015
Producer of brick		-
Format (measurement)	[mm]	2DF (240x115x113)



**Table C 11.66.2: Installation parameters**

Anchor size		8	10
Installation site <sup>5)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	60   80	60   80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	50   70	50   70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.66.3: Characteristic resistance  $F_{Rk}^{1)5)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>5)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom}$ [mm]	$\geq 50^{5)}$   = 70	$\geq 50^{5)}$   = 70
Mean compressive strength acc. to EN 771			
Sand-lime perforated brick KS L, $\geq 22.61 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5   2.5	2.0   2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2   2.5	1.2   2.5
Sand-lime perforated brick KS L, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5   2.0	1.5   2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2   2.0	0.9   2.0
Sand-lime perforated brick KS L, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9   1.5	1.2   1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9   1.5	0.75   1.5
Sand-lime perforated brick KS L, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9   1.2	0.9   1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.75   1.2	0.6   1.2
Sand-lime perforated brick KS L, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.75   0.9	0.9   0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6   0.9	0.6   0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

**Sand-lime perforated brick: KS L, 2DF**

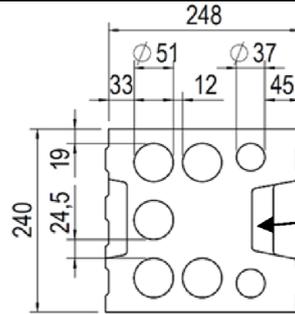
Brick data, Installation parameters, Characteristic resistance

**Annex C 81**

**Base material hollow masonry, sand-lime perforated brick: KS L, 8DF**

**Table C 11.67.1: Brick data**

Description of brick		771-2-005 771-2-013	KS L
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		1.4
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			e.g. Xella Deutschland GmbH
Format (measurement)	[mm]		8DF (248x240x238)



**Installation site Reveal:**  
Setting the anchor in the area of the handle hole is not permitted!

**Table C 11.67.2: Installation parameters**

Anchor size			8	10	
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]		8	10	
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]		8.45	10.45	
Depth of drill hole to deepest point	$h_1 \geq$ [mm]		80	80	
Drill method	[-]		Rotary drilling	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70	70	
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]		8.5	10.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]		100 / 100	90 / 250	100 / 100
Minimum edge distance	$c_{min} \geq$ [mm]		60	45	100

**Table C 11.67.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8	10	
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		70	70	70
Mean compressive strength acc. to EN 771					
Sand-lime perforated brick KS L, $\geq 21.11 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		2.0	<sup>9)</sup>	2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		1.5	<sup>9)</sup>	2.0
Sand-lime perforated brick KS L, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		2.0	<sup>9)</sup>	2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		1.5	<sup>9)</sup>	1.5
Sand-lime perforated brick KS L, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.5	2.0	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		1.2	2.0	1.2
Sand-lime perforated brick KS L, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		1.2	2.0	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.9	2.0	0.9
Sand-lime perforated brick KS L, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		0.9	1.5	1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.75	1.5	0.9
Partial safety factor	$\gamma_{Mm}^2)$ [-]		2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

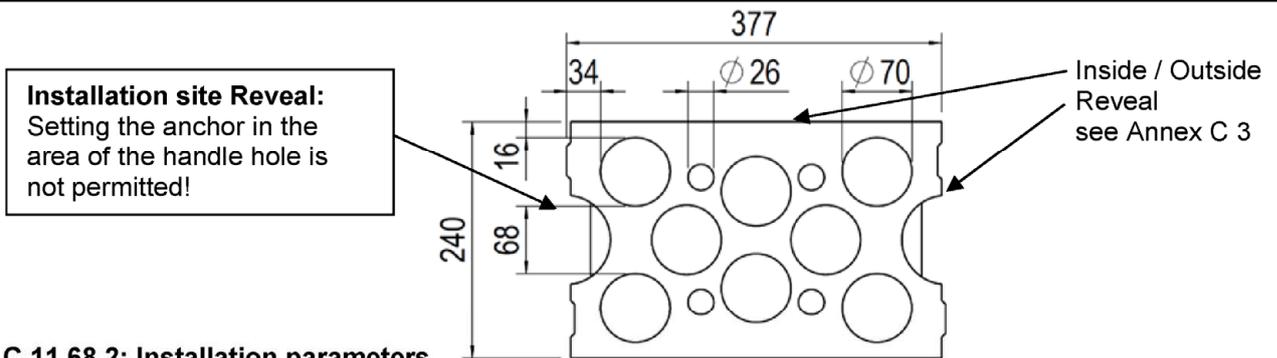
**Performances**  
Sand-lime perforated brick: KS L, 8DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 82**

**Base material hollow masonry, sand-lime perforated brick: KS L, 12DF**

**Table C 11.68.1: Brick data**

Description of brick		771-2-001	KS L
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.4
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			-
Format (measurement)		[mm]	12DF (377x240x238)



**Table C 11.68.2: Installation parameters**

Anchor size			8		
Installation site <sup>6)</sup>			Inside / Outside	Reveal	
Drill hole diameter	$d_o =$	[mm]	8		
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45		
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	60	80	80
Drill method		[-]	Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	50	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250	100 / 250
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100	100	50

**Table C 11.68.3: Characteristic resistance  $F_{Rk}$ <sup>1)5)8)</sup> in [kN] for single anchor**

Anchor size			8		
Installation site <sup>6)</sup>			Inside / Outside	Reveal	
Overall plastic anchor embedment depth	$h_{nom}$	[mm]	$\geq 50^5)$	= 70	
Mean compressive strength acc. to EN 771					
Sand-lime perforated brick KS L, $\geq 18.85 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	3.0	
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	2.0	
Sand-lime perforated brick KS L, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5	2.5	
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2	1.5	
Sand-lime perforated brick KS L, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	2.0	
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	1.5	
Sand-lime perforated brick KS L, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9	1.5	
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.75	1.2	
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

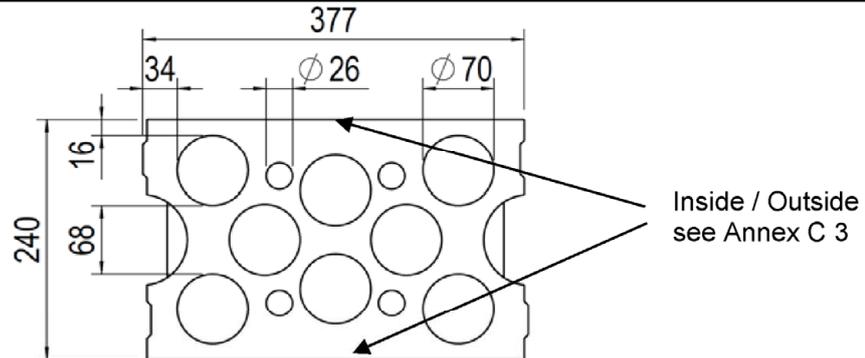
**Performances**  
Sand-lime perforated brick: KS L, 12DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 83**

**Base material hollow masonry, sand-lime perforated brick KS L, 12DF**

**Table C 11.68.4: Brick data**

Description of brick		771-2-001	KS L
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.4
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			-
Format (measurement)		[mm]	12DF (377x240x238)



**Table C 11.68.5: Installation parameters**

Anchor size		10	
Installation site <sup>6)</sup>		Inside / Outside	
Drill hole diameter	$d_0 =$	[mm]	10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	10.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	60   80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	50   70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250   200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100   100

**Table C 11.68.6: Characteristic resistance  $F_{Rk}$ <sup>1)5)8)</sup> in [kN] for single anchor**

Anchor size		10	
Installation site <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom}$	[mm]	$\geq 50$ <sup>5)</sup>   = 70
Mean compressive strength acc. to EN 771			
Sand-lime perforated brick KS L, $\geq 18.85 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5   2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9   1.5
Sand-lime perforated brick KS L, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2   2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.75   1.2
Sand-lime perforated brick KS L, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2   1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6   0.9
Sand-lime perforated brick KS L, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9   1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5   0.9
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

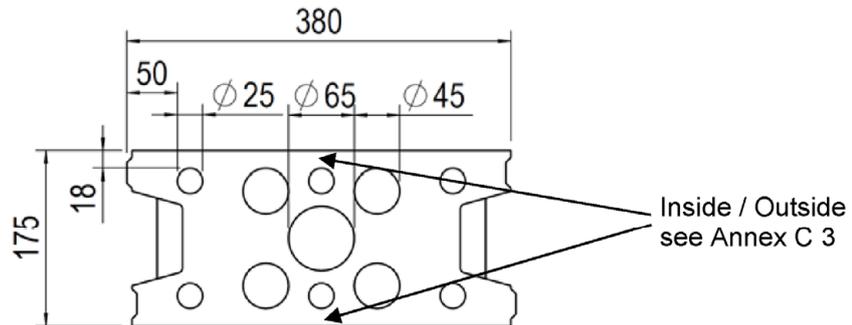
**Performances**  
Sand-lime perforated brick: KS L, 12DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 84**

**Base material hollow masonry, sand-lime perforated brick: KS L, 9DF**

**Table C 11.69.1: Brick data**

Description of brick		771-2-008	KS L
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.4
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			Xella Deutschland GmbH Dr.-Hammacher-Str. 49 D-47119 Duisburg
Format (measurement)		[mm]	9DF (373x175x238)



**Table C 11.69.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 100 / 100
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.69.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Mean compressive strength acc. to EN 771		
Sand-lime perforated brick KS L, $\geq 31.90 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 1.2
Sand-lime perforated brick KS L, $\geq 25.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.9
Sand-lime perforated brick KS L, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.75
Sand-lime perforated brick KS L, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.75
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.6
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

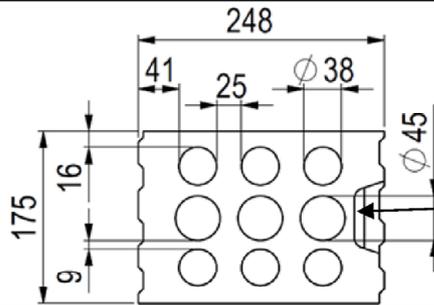
**Performances**  
Sand-lime perforated brick: KS L, 9DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 85**

**Base material hollow masonry, sand-lime perforated brick: KSL-R(P)**

**Table C 11.70.1: Brick data**

Description of brick		771-2-039	KSL-R(P)
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		1.6
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			H+H Deutschland GmbH Industriestr. 3, 23829 Wittenborn
Format (measurement)	[mm]		6DF (248x175x248)



**Installation site Reveal:**  
Setting the anchor in the area of the handle hole is not permitted!

**Table C 11.70.2: Installation parameters**

Anchor size		8		
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Reveal
Drill hole diameter	$d_0 =$ [mm]	8		
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45		
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80		
Drill method	[-]	Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70		
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	130 / 250	80 / 250	180 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	65	40	90

**Table C 11.70.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size		8		
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70		
Characteristic resistance for single anchor	[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	$F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771				
Sand-lime perforated brick KSL-R(P) $\geq 17.71 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	3.0	2.5	6.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	2.0	2.5	6.0
Sand-lime perforated brick KSL-R(P) $\geq 15.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.5	2.0	5.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.5	2.0	5.0
Sand-lime perforated brick KSL-R(P) $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.0	1.5	4.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.5	1.5	4.0
Sand-lime perforated brick KSL-R(P) $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.5	1.5	3.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2	1.5	3.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

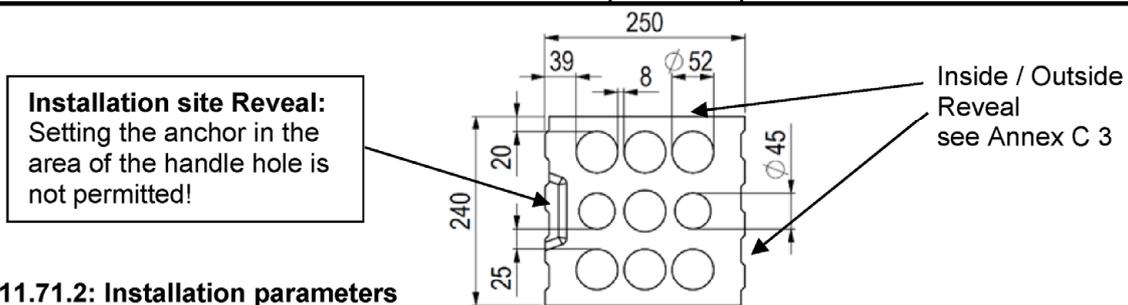
**Performances**  
Sand-lime perforated brick: KSL-R(P)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 86**

**Base material hollow masonry, sand-lime perforated brick: KS L, 8DF**

**Table C 11.71.1: Brick data**

Description of brick		771-2-040	KS L
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.4
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			H+H Deutschland GmbH Industriestr. 3, 23829 Wittenborn
Format (measurement)		[mm]	8DF (248x240x248)



**Table C 11.71.2: Installation parameters**

Anchor size		8		
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Reveal
Drill hole diameter	$d_o =$	[mm]	8	
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45	
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	
Drill method		[-]	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	90 / 250 / 240 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	45 / 120

**Table C 11.71.3: Characteristic resistance  $F_{Rk}$ <sup>1)7)8)</sup> in [kN] for single anchor**

Anchor size		8		
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	
Characteristic resistance for single anchor		[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$ / $F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771				
Sand-lime perforated brick KS L, $\geq 15.77 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	2.0	2.5 / 7.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.2	2.5 / 7.5
Sand-lime perforated brick KS L, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.5	2.0 / 7.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.2	2.0 / 7.0
Sand-lime perforated brick KS L, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.5	2.0 / 6.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.9	2.0 / 6.0
Sand-lime perforated brick KS L, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.2	1.5 / 4.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.9	1.5 / 4.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

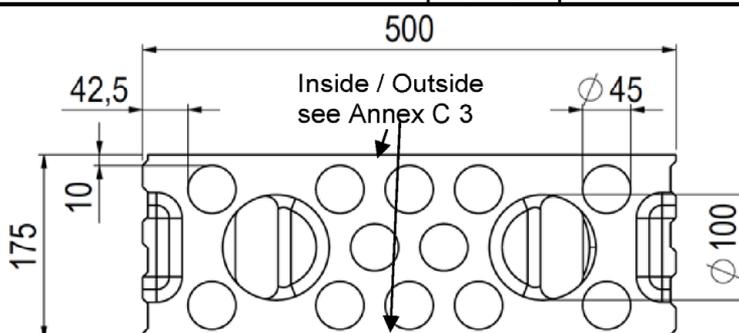
**Performances**  
Sand-lime perforated brick: KS L, 8DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 87**

**Base material hollow masonry, sand-lime perforated brick: KS L, 12DF**

**Table C 11.72.1: Brick data**

Description of brick	771-2-044	KS L
Type of brick		Sand-lime perforated brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	1.2
Standard, approval/type-approval		EN 771-2:2011+ A1:2015
Producer of brick		H+H Deutschland GmbH Industriestr. 3 23829 Wittenborn
Format (measurement)	[mm]	12DF (498x175x249)



**Table C 11.72.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	240 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	120

**Table C 11.72.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
Sand-lime perforated brick KS L, $\geq 17.86 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.5
Sand-lime perforated brick KS L, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.2
Sand-lime perforated brick KS L, $\geq 12.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.9
Sand-lime perforated brick KS L, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

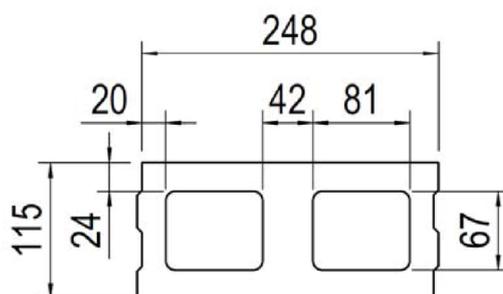
**Performances**  
Sand-lime perforated brick: KS L, 12DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 88**

**Base material hollow masonry, sand-lime perforated brick: KS-NT, 4DF**

**Table C 11.73.1: Brick data**

Description of brick		771-2-009	KS-NT
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.2
Standard, approval/type-approval			-
Producer of brick			BMO KS-Vertrieb Bielefeld-Münster-Osnabrück GmbH & Co. KG Averdiekstr. 9; D-49078 Osnabrück
Format (measurement)		[mm]	4DF (248x115x248)



**Table C 11.73.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 100 / 100
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.73.3: Characteristic resistance  $F_{RK}^{1)8)}$  in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Mean compressive strength acc. to EN 771		
Sand-lime perforated brick KS-NT, $\geq 24.92 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN] 2.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN] 2.0
Sand-lime perforated brick KS-NT, $\geq 20.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN] 2.0
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN] 1.5
Sand-lime perforated brick KS-NT, $\geq 15.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN] 1.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN] 0.9
Sand-lime perforated brick KS-NT, $\geq 12.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN] 1.2
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN] 0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Sand-lime perforated brick: KS-NT, 4DF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 89**

**Base material solid masonry, Concrete solid block: Vbn, NF**

**Table C 11.74.1: Brick data**

Description of brick		771-3-004	Vbn	
Type of brick			Concrete solid block Vbn	
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	2.0	
Standard, approval/type-approval			EN 771-3:2011+A1:2015	
Producer of brick			-	
Format (measurement)		[mm]	$\geq$ NF ( $\geq$ 240x115x71)	
Minimum thickness of member	$h_{min} =$	[mm]	115	

**Table C 11.74.2: Installation parameters**

Anchor size		8		10		
Installation site <sup>6)</sup>		Inside / Outside		Inside / Outside		
Drill hole diameter	$d_0 =$	[mm]	8		10	
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45		10.45	
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	60	80	60	80
Drill method		[-]	Hammer drilling		Hammer drilling	
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	50	70	50	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5		10.5	
Spacing perpendicular to free edge	$s_{1,min}$	[mm]	80		100	100
Spacing parallel to free edge	$s_{2,min}$	[mm]	80		100	100
Minimum edge distance	$c_{min} \geq$	[mm]	100		100	100

**Table C 11.74.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8		10		
Installation site <sup>6)</sup>		Inside / Outside		Inside / Outside		
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	50	70	50	70
Mean compressive strength acc. to EN 771						
Concrete solid block Vbn, $\geq 39.82 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	5.0	5.5	3.0	5.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	4.0	5.0	2.0	5.5
Concrete solid block Vbn, $\geq 35.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	4.5	4.5	2.5	5.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.5	4.0	1.5	4.5
Concrete solid block Vbn, $\geq 25.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.0	3.5	2.0	3.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.5	3.0	1.2	3.5
Concrete solid block Vbn, $\geq 20.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.5	2.5	1.5	3.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.0	2.5	0.9	2.5
Concrete solid block Vbn, $\geq 15.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	2.0	0.9	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	2.0	0.75	2.0
Concrete solid block Vbn, $\geq 10.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	1.2	0.6	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	1.2	0.5	1.2
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5			

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Concrete solid block: Vbn, NF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 90**

**Base material solid masonry, Lightweight concrete solid brick: V, NF**

**Table C 11.75.1: Brick data**

Description of brick		771-3-008	V
Type of brick			Lightweight concrete solid brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.9
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Bisoclassic V Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mülheim-Kärlich
Format (measurement)		[mm]	$\geq$ NF ( $\geq$ 240x115x71)
Minimum thickness of member	$h_{\min} =$	[mm]	115

**Table C 11.75.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$	[mm]	100 / 100
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	100

**Table C 11.75.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Mean compressive strength acc. to EN 771			
Lightweight concrete solid brick V, $\geq 6.09 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
Lightweight concrete solid brick V, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
Lightweight concrete solid brick V, $\geq 2.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Lightweight concrete solid brick: V, NF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 91**

**Base material solid masonry, Lightweight concrete solid brick: V, NF**

**Table C 11.76.1: Brick data**

Description of brick		771-3-007	V
Type of brick			Lightweight concrete solid brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		1.2
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. BasisBims, Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)	[mm]		$\geq$ NF ( $\geq$ 240x115x71)
Minimum thickness of member	$h_{\min} =$ [mm]		115

**Table C 11.76.2: Installation parameters**

Anchor size		8	
Installation site <sup>6)</sup>		Inside / Outside	
Drill hole diameter	$d_0 =$ [mm]	8	
Cutting diameter of drill bit	$d_{\text{cut}} \leq$ [mm]	8.45	
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	60	80
Drill method	[-]	Hammer drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]	50	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$ [mm]	100 / 100	
Minimum edge distance	$c_{\text{min}} \geq$ [mm]	100	

**Table C 11.76.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	
Installation site <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]	50	70
Mean compressive strength acc. to EN 771			
Lightweight concrete solid brick V, $\geq 7.29 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.75	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.6	2.0
Lightweight concrete solid brick V, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.6	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.5	1.5
Lightweight concrete solid brick V, $\geq 2.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.3	0.75
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	<sup>9)</sup>	0.75
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Lightweight concrete solid brick: V, NF  
Brick data, Installation parameters, Characteristic resistance

**Annex C 92**

**Base material solid masonry, Lightweight concrete solid brick: V and Vbl, 2DF**

**Table C 11.77.1: Brick data**

Description of brick		771-3-017	V and Vbl
Type of brick			Lightweight concrete solid block Vbl
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	2.0
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Bisophon V Bisothem GmbH Eisenbahnstraße 12 D-56218 Mülheim-Kärlich
Format (measurement)		[mm]	$\geq$ 3DF ( $\geq$ 240x175x113)
Minimum thickness of member	$h_{\min} =$	[mm]	240

**Table C 11.77.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside /Reveal
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$		90 / 180
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	45

**Table C 11.77.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside /Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Mean compressive strength acc. to EN 771			
Lightweight concrete solid block V and Vbl, $\geq 25.12$ N/mm <sup>2</sup>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	6.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	5.0
Lightweight concrete solid block V and Vbl, $\geq 25.0$ N/mm <sup>2</sup>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	6.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	5.0
Lightweight concrete solid block V and Vbl, $\geq 20.0$ N/mm <sup>2</sup>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	5.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	4.0
Lightweight concrete solid block V and Vbl, $\geq 15.0$ N/mm <sup>2</sup>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.0
Lightweight concrete solid block V and Vbl, $\geq 12.5$ N/mm <sup>2</sup>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.5
Lightweight concrete solid block V and Vbl, $\geq 10.0$ N/mm <sup>2</sup>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.0
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

**Lightweight concrete solid brick: V and Vbl, 3DF**

Brick data, Installation parameters, Characteristic resistance

**Annex C 93**

**Base material solid masonry, Lightweight concrete solid block: V P 2.0 - 0.55**

**Table C 11.78.1: Brick data**

Description of brick		771-3-032	V P 2.0 - 0.55
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval			EN 771-3:2011+A1:2015; Z-17.1-778:2019-10
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	$\geq 5DF (\geq 123 \times 300 \times 248)$
Minimum thickness of member	$h_{\min} =$	[mm]	123

**Table C 11.78.2: Installation parameters**

Anchor size		8	
Installation site <sup>6)</sup>		Reveal	
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$	[mm]	100 / 250
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	50
			100

**Table C 11.78.3: Characteristic resistance  $F_{Rk}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size		8	
Installation site <sup>6)</sup>		Reveal	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Characteristic resistance for single anchor		[kN]	$F_{Rk}$ <sup>7)</sup>
Mean compressive strength acc. to EN 771			$F_{Rk}$ <sup>7)</sup>
<b>Lightweight concrete solid block</b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5
<b>V P 2.0 - 0.55, <math>\geq 2.95 \text{ N/mm}^2</math></b>	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5
<b>Lightweight concrete solid block</b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2
<b>V P 2.0 - 0.55, <math>\geq 2.5 \text{ N/mm}^2</math></b>	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2
<b>Lightweight concrete solid block</b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
<b>V P 2.0 - 0.55, <math>\geq 2.0 \text{ N/mm}^2</math></b>	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

**Lightweight concrete solid block: V P 2.0 - 0.55**

Brick data, Installation parameters, Characteristic resistance

**Annex C 94**

**Base material solid masonry, Lightweight concrete solid block: V P 4.0 - 0.65**

**Table C 11.79.1: Brick data**

Description of brick		771-3-033	V P 4.0 - 0.65	
Type of brick			Lightweight concrete solid block	
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8	
Standard, approval/type-approval			EN 771-3:2011+A1:2015; Z-17.1-778:2019-10	
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich	
Format (measurement)		[mm]	$\geq$ 5DF ( $\geq$ 123x300x248)	
Minimum thickness of member	$h_{\min} =$	[mm]	300 (Reveal = 123)	

**Table C 11.79.2: Installation parameters**

Anchor size			8			10
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Reveal	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8			10
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45			10.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80			80
Drill method		[-]	Hammer drilling			Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70			70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5			10.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$	[mm]	200/250	100/250	200/250	200/250
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	100	50	100	100

**Table C 11.79.3: Characteristic resistance  $F_{Rk}$ <sup>1)7)8)</sup> in [kN] for single anchor**

Anchor size			8			10
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70			70
Characteristic resistance for single anchor		[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	$F_{Rk}^{7)}$	$F_{Rk}^{1)}$
Mean compressive strength acc. to EN 771						
<b>Lightweight concrete solid block V P 4.0 - 0.65, <math>\geq 5.09</math> N/mm<sup>2</sup></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	1.5	4.0	2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	1.5	4.0	2.0
<b>Lightweight concrete solid block V P 4.0 - 0.65, <math>\geq 5.0</math> N/mm<sup>2</sup></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	1.5	4.0	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	1.5	4.0	2.0
<b>Lightweight concrete solid block V P 4.0 - 0.65, <math>\geq 2.5</math> N/mm<sup>2</sup></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9	0.9	2.0	1.2
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.75	0.9	2.0	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5			

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

**Lightweight concrete solid block: V P 4.0 - 0.65**

Brick data, Installation parameters, Characteristic resistance

**Annex C 95**

**Base material solid masonry, Lightweight concrete solid block: V 6 - 0.80**

**Table C 11.80.1: Brick data**

Description of brick		771-3-035	V 6 - 0.80
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.9
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)	[mm]		$\geq 5DF (\geq 123 \times 300 \times 248)$
Minimum thickness of member	$h_{\min} =$ [mm]		300 (Reveal = 123)

**Table C 11.80.2: Installation parameters**

Anchor size			8		
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Reveal
Drill hole diameter	$d_0 =$ [mm]		8		
Cutting diameter of drill bit	$d_{\text{cut}} \leq$ [mm]		8.45		
Depth of drill hole to deepest point	$h_1 \geq$ [mm]		80		
Drill method	[-]		Hammer drilling		
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]		70		
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]		8.5		
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$ [mm]		200 / 250	100 / 250	200 / 250
Minimum edge distance	$c_{\text{min}} \geq$ [mm]		100	50	100

**Table C 11.80.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size			8		
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]		70		
Characteristic resistance for single anchor	[kN]		$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	$F_{Rk}^{7)}$
Mean compressive strength acc. to EN 771					
<b>Concrete solid block V 6 - 0.80,</b> <b><math>\geq 4.17 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	1.5	3.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	1.5	3.0
<b>Concrete solid block V 6 - 0.80,</b> <b><math>\geq 2.5 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	0.9	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	0.9	2.0
<b>Concrete solid block V 6 - 0.80,</b> <b><math>\geq 2.0 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9	0.6	1.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.75	0.6	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
**Lightweight concrete solid block: V 6 - 0.80**  
 Brick data, Installation parameters, Characteristic resistance

**Annex C 96**

**Base material solid masonry, Lightweight concrete solid block: Vbl**

**Table C 11.81.1: Brick data**

Description of brick		LAC2	Vbl
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Liapor Massivwand LAC2 Liapor GmbH & Co. KG D-91352 Hallerndorf
Format (measurement)		[mm]	$\geq 24DF (\geq 500 \times 365 \times 238)$
Minimum thickness of member	$h_{\min} =$	[mm]	365

**Table C 11.81.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$	[mm]	60 / 60
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	100

**Table C 11.81.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	<b>70</b>
Mean compressive strength acc. to EN 771			
<b>Lightweight concrete solid block Vbl, <math>\geq 4.24 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	1.5
<b>Lightweight concrete solid block Vbl, <math>\geq 2.5 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN]	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

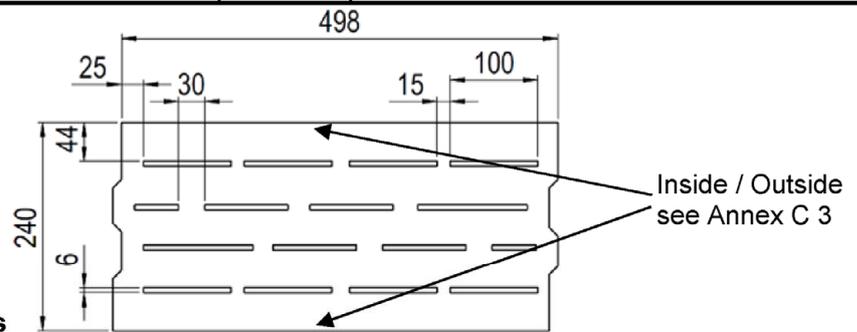
**Performances**  
**Lightweight concrete solid block: Vbl**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 97**

**Base material solid masonry, Lightweight concrete solid block: Vbl**

**Table C 11.82.1: Brick data**

Description of brick		771-3-012	Vbl
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval			EN 771-3:2011+A1:2015 Z-17.1-839:2014-10
Producer of brick			e.g. Liapor Compact von: Liapor GmbH & Co. KG D-91352 Hallerndorf
			e.g. Meier Betonwerke GmbH Zur Schanze 2 D-92283 Lauterhofen
Format (measurement)		[mm]	$\geq 16DF (\geq 500 \times 240 \times 240)$
Minimum thickness of member	$h_{min} =$	[mm]	240



**Table C 11.82.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm]
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]
Depth of drill hole to deepest point	$h_1 \geq$	[mm]
Drill method		[-]
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	
Minimum edge distance	$c_{min} \geq$	[mm]

**Table C 11.82.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]
Mean compressive strength acc. to EN 771		
Lightweight concrete solid block	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$	[kN]
Vbl, $\geq 3.0 \text{ N/mm}^2$	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$	[kN]
Lightweight concrete solid block	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)$	[kN]
Vbl, $\geq 2.5 \text{ N/mm}^2$	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)$	[kN]
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

**Lightweight concrete solid block: Vbl**

Brick data, Installation parameters, Characteristic resistance

**Annex C 98**

**Base material solid masonry, Concrete solid block: Vbn**

**Table C 11.83.1: Brick data**

Description of brick		LC16/18	Vbn
Type of brick			Concrete solid block
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.4
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Liapor Elementwand LC16/18 von: Liapor GmbH & Co. KG D-91352 Hallerndorf
Format (measurement)		[mm]	$\geq$ 12DF (500x175x238)
Minimum thickness of member	$h_{\min} =$	[mm]	175

**Table C 11.83.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$	[mm]	100 / 100
Minimum edge distance	$c_{\text{min}} \geq$	[mm]	100

**Table C 11.83.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70
Mean compressive strength acc. to EN 771			
<b>Concrete solid block Vbn, <math>\geq 14.7 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.5
<b>Concrete solid block Vbn, <math>\geq 12.5 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.0
<b>Concrete solid block Vbn, <math>\geq 10.0 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.5
<b>Concrete solid block Vbn, <math>\geq 7.5 \text{ N/mm}^2</math></b>	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.0
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

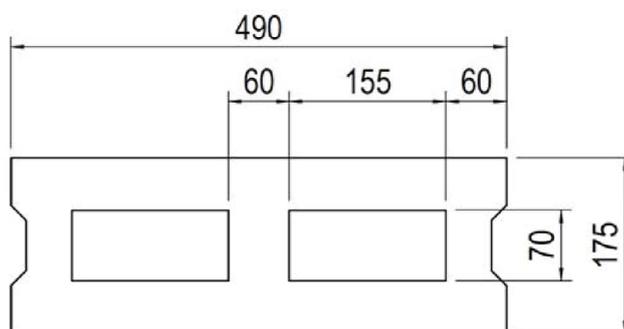
**Performances**  
**Concrete solid block: Vbn**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 99**

**Base material hollow masonry, Hollow brick lightweight concrete: 1K Hbl**

**Table C 11.84.1: Brick data**

Description of brick		771-3-002	1K Hbl
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.2
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Stark Betonwerk GmbH & Co. KG D-74547 Untermünkheim-Kupfer
Format (measurement)		[mm]	12DF (490x175x238)
Minimum thickness of member	$h_{min} =$	[mm]	175



**Table C 11.84.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.84.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
<b>Hollow brick lightweight concrete</b> <b>1K Hbl, <math>\geq 3.79</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$	[kN]	2.0
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$	[kN]	1.5
<b>Hollow brick lightweight concrete</b> <b>1K Hbl, <math>\geq 2.5</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$	[kN]	1.5
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

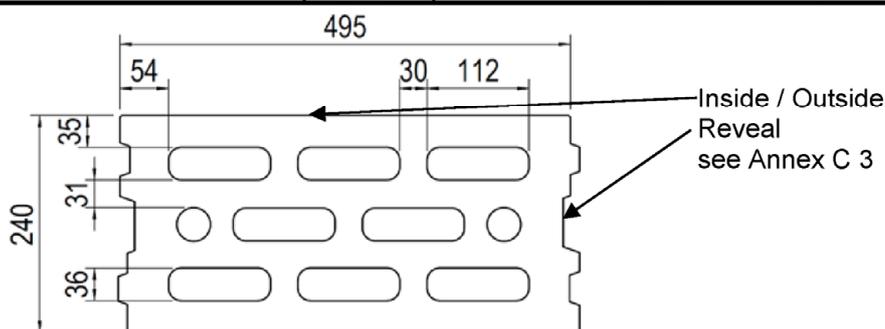
**Performances**  
**Hollow brick lightweight concrete: 1K Hbl**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 100**

**Base material hollow masonry, Hollow brick lightweight concrete: 3K Hbl**

**Table C 11.85.1: Brick data**

Description of brick		771-3-005	3K Hbl
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Heinzmann Baustoffe GmbH, Liapor GmbH & Co. KG
Format (measurement)		[mm]	16DF (495x240x240)



**Table C 11.85.2: Installation parameters**

Anchor size			8		10
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8		10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45		10.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80		80
Drill method		[-]	Rotary drilling		Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5		10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 250	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	50	100

**Table C 11.85.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size			8		10
Installation site <sup>6)</sup>			Inside / Outside	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		70
Mean compressive strength acc. to EN 771					
<b>Hollow brick lightweight concrete 3K Hbl, <math>\geq 4.91</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$	[kN]	1.5	2.0	1.5
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$	[kN]	1.2	2.0	0.9
<b>Hollow brick lightweight concrete 3K Hbl, <math>\geq 2.5</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$	[kN]	0.9	0.9	0.75
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$	[kN]	0.6	0.9	0.6
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

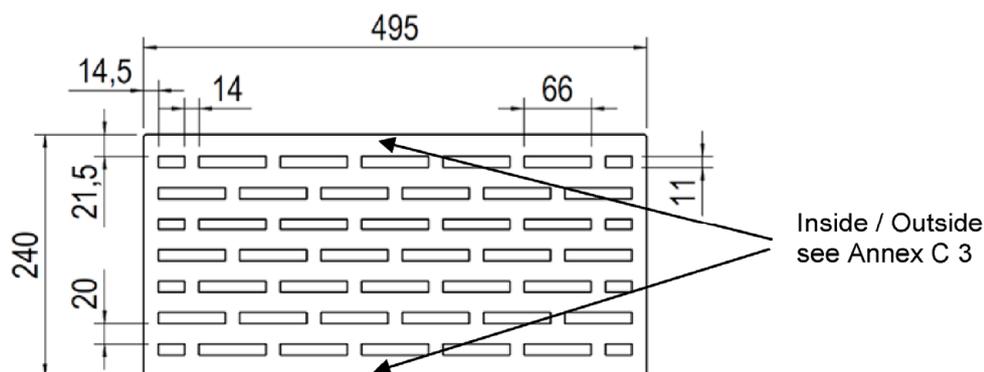
**Performances**  
Hollow brick lightweight concrete: 3K Hbl  
Brick data, Installation parameters, Characteristic resistance

**Annex C 101**

**Base material hollow masonry, Hollow brick lightweight concrete: Liapor-Super-K**

**Table C 11.86.1: Brick data**

Description of brick		771-3-006	Liapor-Super-K
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8
Standard, approval/type-approval			EN 771-3:2011+A1:2015; Z-17.1-501:2006-03
Producer of brick			Liapor GmbH & Co. KG D-91352 Hallerndorf
Format (measurement)		[mm]	16DF (495x240x240)



**Table C 11.86.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.86.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
<b>Hollow brick lightweight concrete Liapor-Super-K, <math>\geq 4.91</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$	[kN]	1.5
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$	[kN]	1.2
<b>Hollow brick lightweight concrete Liapor-Super-K, <math>\geq 2.5</math> N/mm<sup>2</sup></b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$	[kN]	0.75
	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$	[kN]	0.6
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

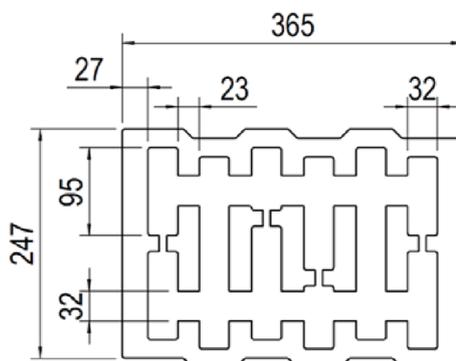
**Performances**  
**Hollow brick lightweight concrete: Liapor-Super-K**  
 Brick data, Installation parameters, Characteristic resistance

**Annex C 102**

**Base material hollow masonry, Hollow brick lightweight concrete: Liapor PLANstein-SL-PLUS Hbl 2**

**Table C 11.87.1: Brick data**

Description of brick		771-3-018	Liapor PLANstein-SL-PLUS Hbl 2
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.55
Standard, approval/type-approval			EN 771-3:2011+A1:2015; Z-17.1-501:2006-03
Producer of brick			Liapor GmbH & Co. KG E. KNOBEL GmbH & Co. KG
Format (measurement)	[mm]		12DF (245x365x248)



**Table C 11.87.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 11.87.3: Characteristic resistance  $F_{Rk}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Mean compressive strength acc. to EN 771			
<b>Liapor PLANstein-SL-PLUS</b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.9	0.75
<b>Hbl, <math>\geq 2.16</math> N/mm<sup>2</sup></b>	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.75	0.5
<b>Liapor PLANstein-SL-PLUS</b>	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.9	0.6
<b>Hbl, <math>\geq 2.0</math> N/mm<sup>2</sup></b>	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.6	0.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

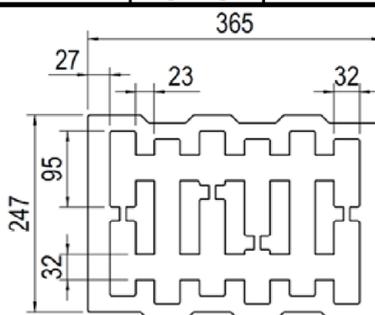
**Performances**  
Hollow brick lightweight concrete: Liapor PLANstein-SL-PLUS Hbl 2  
Brick data, Installation parameters, Characteristic resistance

**Annex C 103**

**Base material hollow masonry, Hollow brick lightweight concrete: Liapor PLANstein-SL-PLUS Hbl 6**

**Table C 11.88.1: Brick data**

Description of brick		771-3-020	Liapor PLANstein-SL-PLUS Hbl 6
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.9
Standard, approval/type-approval			EN 771-3:2011+A1:2015; Z-17.1-501:2006-03
Producer of brick			Liapor GmbH & Co. KG E. KNOBEL GmbH & Co. KG
Format (measurement)	[mm]		12DF (245x365x248)



**Table C 11.88.2: Installation parameters**

Anchor size		8		10
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside
Drill hole diameter	$d_o =$ [mm]	8		10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45		10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80		80
Drill method	[-]	Rotary drilling		Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70		70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5		10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	200 / 250	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	100	100	100

**Table C 11.88.3: Characteristic resistance  $F_{Rk}^{1)7)8)}$  in [kN] for single anchor**

Anchor size		8		10
Installation site <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70		70
Characteristic resistance for single anchor	[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	$F_{Rk}^{1)}$
Mean compressive strength acc. to EN 771				
Liapor PLANstein-SL-PLUS Hbl, $\geq 6.63 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.5	4.0	2.5
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	2.0	4.0	2.5
Liapor PLANstein-SL-PLUS Hbl, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.0	3.0	2.0
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5	3.0	1.5
Liapor PLANstein-SL-PLUS Hbl, $\geq 2.5 \text{ N/mm}^2$	$F_{Rk}, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	1.5	0.9
	$F_{Rk}, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.75	1.5	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

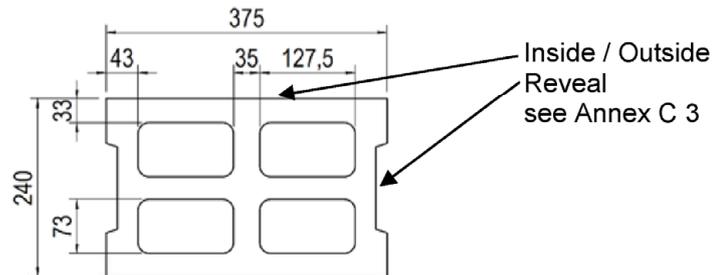
**Performances**  
Hollow brick lightweight concrete: Liapor PLANstein-SL-PLUS Hbl 6  
Brick data, Installation parameters, Characteristic resistance

**Annex C 104**

**Base material hollow masonry, Hollow brick concrete: 2K Hbn**

**Table C 11.89.1: Brick data**

Description of brick		771-3-011	2K Hbn	
Type of brick			Hollow brick concrete	
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		1.2	
Standard, approval/type-approval			EN 771-3:2011+A1:2015	
Producer of brick			e.g. Stark Betonwerk GmbH & Co. KG D-74547 Untermünkheim-Kupfer	
Format (measurement)	[mm]		12DF (365x240x248)	



**Table C 11.89.2: Installation parameters**

Anchor size		8			10	
Installation site <sup>6)</sup>		Inside / Outside	Reveal		Inside / Outside	
Drill hole diameter	$d_o =$ [mm]	8			10	
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45			10.45	
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80			80	
Drill method	[-]	Rotary drilling				
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70			70	
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5			10.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	100/100	160/250	160/250	200 / 250	
Minimum edge distance	$c_{min} \geq$ [mm]	100	80	80	100	

**Table C 11.89.3: Characteristic resistance  $F_{RK}$ <sup>1)7)8)</sup> in [kN] for single anchor**

Anchor size		8			10	
Installation site <sup>6)</sup>		Inside / Outside	Reveal		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70			70	
Characteristic resistance for single anchor	[kN]	$F_{RK}^{1)}$	$F_{RK}^{1)}$	$F_{RK}^{7)}$	$F_{RK}^{1)}$	
Mean compressive strength acc. to EN 771						
Hollow brick concrete 2K Hbn, $\geq 8.4 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.5	1.5	2.5	2.5	
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	2.0	1.2	2.5	2.0	
Hollow brick concrete 2K Hbn, $\geq 7.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.0	1.5	2.5	2.0	
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	2.0	0.9	2.5	1.5	
Hollow brick concrete 2K Hbn, $\geq 5.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.5	0.9	2.5	1.5	
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2	0.6	2.5	1.2	
Hollow brick concrete 2K Hbn, $\geq 2.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.6	0.5	1.5	0.6	
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.6	0.4	1.5	0.6	
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5				

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

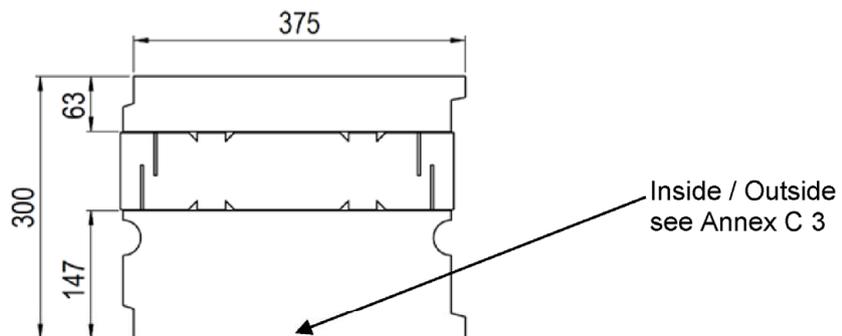
**Performances**  
Hollow brick concrete: 2K Hbn  
Brick data, Installation parameters, Characteristic resistance

**Annex C 105**

**Base material hollow masonry, Hollow brick lightweight concrete: Gisoton WärmeDämmBlock**

**Table C 11.90.1: Brick data**

Description of brick		771-3-009	Gisoton WärmeDämmBlock
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8
Standard, approval/type-approval			Z-17.1-873:2005-11
Producer of brick			Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co. Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	15DF (360x300x250)
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 11.90.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$	[mm] 100 / 100
Minimum edge distance	$c_{\text{min}} \geq$	[mm] 100

**Table C 11.90.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm] 70
Mean compressive strength acc. to EN 771		
Gisoton WärmeDämmBlock, $\geq 4.7 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN] 2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN] 1.5
Gisoton WärmeDämmBlock, $\geq 2.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$	[kN] 1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$	[kN] 0.9
Partial safety factor	$\gamma_{Mm}^2)$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

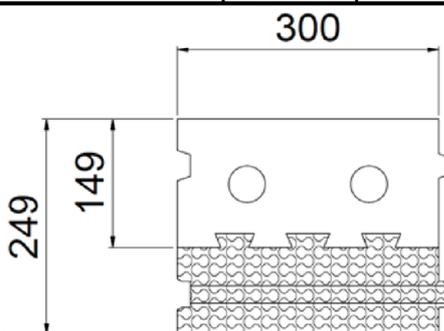
**Performances**  
Hollow brick lightweight concrete: Gisoton WärmeDämmBlock  
Brick data, Installation parameters, Characteristic resistance

**Annex C 106**

**Base material hollow masonry, Hollow brick lightweight concrete: GisoPLAN therm 25/10**

**Table C 11.91.1: Brick data**

Description of brick		771-3-037	GisoPLAN therm 25/10
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.3
Standard, approval/type-approval			Z-17.1-672:2015-03
Producer of brick			Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co. Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	6DF (300x150x248)



**Table C 11.91.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Reveal
Drill hole diameter	$d_0 =$	[mm]
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]
Depth of drill hole to deepest point	$h_1 \geq$	[mm]
Drill method		[-]
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]
Minimum edge distance	$c_{min} \geq$	[mm]

**Table C 11.91.3: Characteristic resistance  $F_{Rk}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]
Characteristic resistance for single anchor		[kN]
Mean compressive strength acc. to EN 771		
GisoPLAN therm 25/10, $\geq 7.95 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]
GisoPLAN therm 25/10, $\geq 7.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]
GisoPLAN therm 25/10, $\geq 5.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

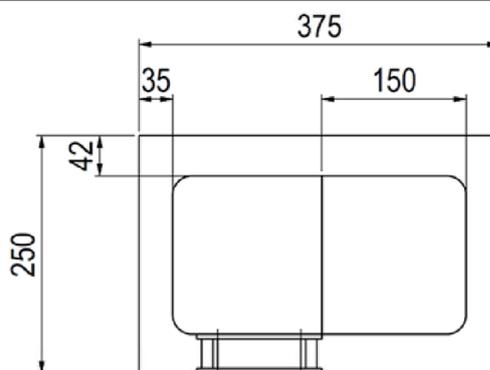
**Performances**  
Hollow brick lightweight concrete: GisoPLAN therm 25/10  
Brick data, Installation parameters, Characteristic resistance

**Annex C 107**

**Base material hollow masonry, Hollow brick lightweight concrete: GISOTON Thermo-Schallstein**

**Table C 11.92.1: Brick data**

Description of brick		771-3-038	<b>GISOTON Thermo-Schallstein</b>
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.55
Standard, approval/type-approval			Z-15.2-18:2021-02
Producer of brick			GISOTON Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co. Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	12DF (375x249x248)



**Table C 11.92.2: Installation parameters**

Anchor size			<b>8</b>
Installation site <sup>6)</sup>			Reveal
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	160 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	80

**Table C 11.92.3: Characteristic resistance  $F_{Rk}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size			<b>8</b>
Installation site <sup>6)</sup>			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	<b>70</b>
Characteristic resistance for single anchor		[kN]	$F_{Rk}$ <sup>7)</sup>
Mean compressive strength acc. to EN 771			
<b>GISOTON Thermo-Schallstein,</b> <b><math>\geq 3.61 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.5
<b>GISOTON Thermo-Schallstein,</b> <b><math>\geq 2.5 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.0
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**

**Hollow brick lightweight concrete: GISOTON Thermo-Schallstein**

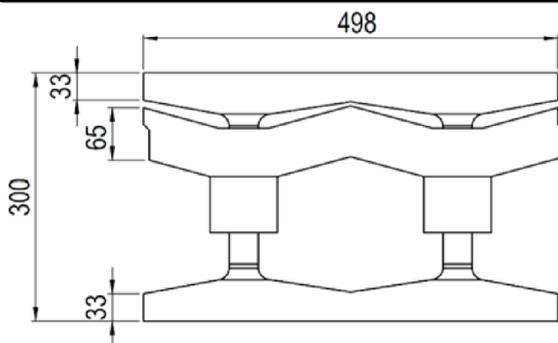
Brick data, Installation parameters, Characteristic resistance

**Annex C 108**

**Base material hollow masonry, Hollow brick lightweight concrete: Gisoton Thermo Schall**

**Table C 11.93.1: Brick data**

Description of brick		771-3-010 771-3-036	Gisoton Thermo Schall
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.45
Standard, approval/type-approval			Z-15.2-18:2021-02
Producer of brick			Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co. Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	21DF (500x300x250)



**Table C 11.93.2: Installation parameters**

Anchor size			8	10
Installation site <sup>6)</sup>			Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	80
Drill method		[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

**Table C 11.93.3: Characteristic resistance  $F_{RK}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8	10
Installation site <sup>6)</sup>			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	70
Mean compressive strength acc. to EN 771				
<b>Gisoton Thermo Schall,</b> <b><math>\geq 2.54 \text{ N/mm}^2</math></b>	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	2.0
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2	1.5
<b>Gisoton Thermo Schall,</b> <b><math>\geq 2.5 \text{ N/mm}^2</math></b>	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	2.0
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2	1.5
<b>Gisoton Thermo Schall,</b> <b><math>\geq 1.8 \text{ N/mm}^2</math></b>	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	<sup>9)</sup>	2.0
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	<sup>9)</sup>	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

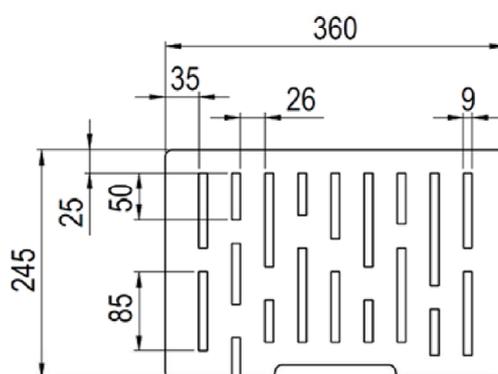
**Performances**  
**Hollow brick lightweight concrete: Gisoton Thermo Schall**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 109**

**Base material hollow masonry, Hollow brick lightweight concrete: Bisoplan 09 Super 1.6-0.4**

**Table C 11.94.1: Brick data**

Description of brick		771-3-029	Bisoplan 09 Super 1.6-0.4
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval			EN 771-3:2011+A1:2015; Z-17.1-1003:2014-08
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	12DF (247x365x249)



**Table C 11.94.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.94.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
<b>Bisoplan 09 Super 1.6-0.4,</b> <b><math>\geq 1.80 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

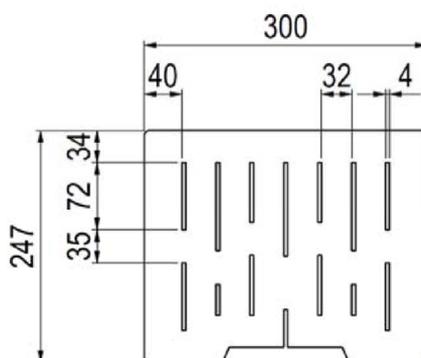
**Performances**  
**Hollow brick lightweight concrete: Bisoplan 09 Super 1.6-0.4**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 110**

**Base material hollow masonry, Hollow brick lightweight concrete: Bisoplan 10 Hbl-P 2.0-0.45**

**Table C 11.95.1: Brick data**

Description of brick		771-3-034	Bisoplan 10 Hbl-P 2.0-0.45
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	10DF (247x300x249)



**Table C 11.95.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$	[mm] 80
Cutting diameter of drill bit	$d_{cut} \leq$	[mm] 8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm] 80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm] 200 / 250
Minimum edge distance	$c_{min} \geq$	[mm] 100

**Table C 11.95.3: Characteristic resistance  $F_{RK}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
Mean compressive strength acc. to EN 771		
Bisoplan 10 Hbl-P 2.0-0.45, $\geq 2.03 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.6
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.4
Bisoplan 10 Hbl-P 2.0-0.45, $\geq 2.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.6
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.4
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

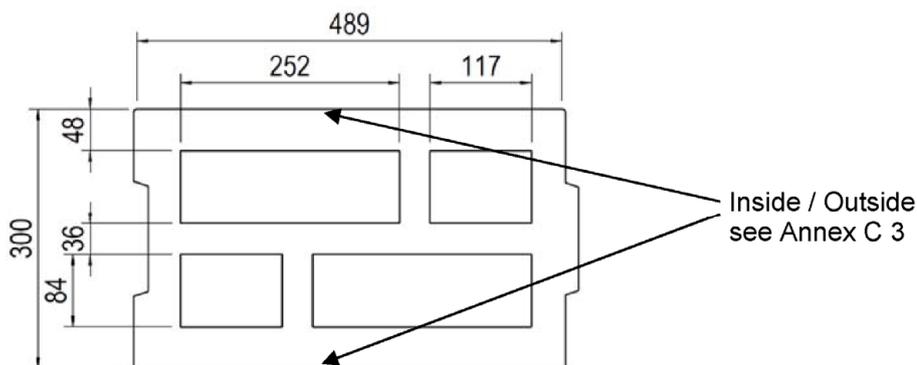
**Performances**  
Hollow brick lightweight concrete: Bisoplan 10 Hbl-P 2.0-0.45  
Brick data, Installation parameters, Characteristic resistance

**Annex C 111**

**Base material hollow masonry, Hollow brick lightweight concrete: Bisomark<sup>TEC</sup>**

**Table C 11.96.1: Brick data**

Description of brick		771-3-015	Bisomark <sup>TEC</sup>
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval/type-approval			Z-17.1-1026:2015-05
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	20DF (497x300x249)



**Table C 11.96.2: Installation parameters**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Drill hole diameter	$d_o =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

**Table C 11.96.3: Characteristic resistance  $F_{Rk}$ <sup>1)8)</sup> in [kN] for single anchor**

Anchor size			8
Installation site <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Mean compressive strength acc. to EN 771			
<b>Bisomark<sup>TEC</sup>, <math>\geq 3.58 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2
<b>Bisomark<sup>TEC</sup>, <math>\geq 2.5 \text{ N/mm}^2</math></b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.75
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

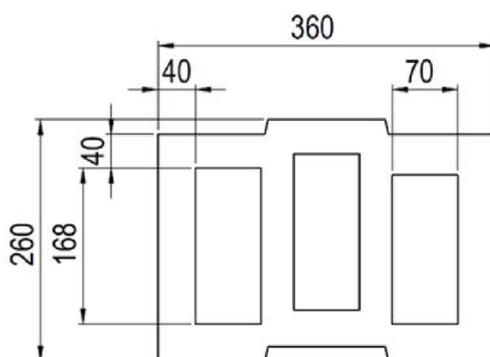
**Performances**  
Hollow brick lightweight concrete: Bisomark<sup>TEC</sup>  
Brick data, Installation parameters, Characteristic resistance

**Annex C 112**

**Base material hollow masonry, Hollow brick lightweight concrete: Bisotherm Hbl-P 4.0 - 0.50**

**Table C 11.97.1: Brick data**

Description of brick		771-3-030	Bisotherm Hbl-P 4.0 - 0.50
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.55
Standard, approval/type-approval			Z-17.1-1029:2015-05
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)	[mm]		12DF (247x365x249)



**Table C 11.97.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	120 / 240	120 / 240
Minimum edge distance	$c_{min} \geq$ [mm]	60	60

**Table C 11.97.3: Characteristic resistance  $F_{RK}^{1)8)}$  in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>	<b>70</b>
Mean compressive strength acc. to EN 771			
<b>Bisotherm Hbl-P 4.0 - 0.50,</b> <b><math>\geq 2.30 \text{ N/mm}^2</math></b>	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.9	0.9
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.9	0.9
<b>Bisotherm Hbl-P 4.0 - 0.50,</b> <b><math>\geq 2.0 \text{ N/mm}^2</math></b>	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	0.9	0.9
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	0.9	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

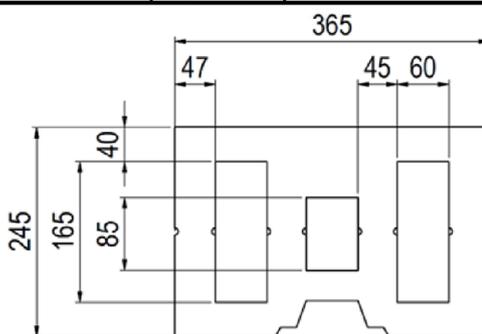
**Performances**  
**Hollow brick lightweight concrete: Bisotherm Hbl-P 4.0 - 0.50**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 113**

**Base material hollow masonry, Hollow brick lightweight concrete: Bisotherm Bisomark plus 4/06 (special shaped)**

**Table C 11.98.1: Brick data**

Description of brick	771-3-031	Bisotherm Bisomark plus 4/06 (special shaped)
Type of brick		Hollow brick lightweight concrete
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.65
Standard, approval/type-approval		-
Producer of brick		Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mülheim-Kärlich
Format (measurement)	[mm]	12DF (247x365x249)



**Table C 11.98.2: Installation parameters**

Anchor size		8	10
Installation site <sup>6)</sup>		Reveal	Reveal
Drill hole diameter	$d_0 =$ [mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	80
Drill method	[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	150 / 250	180 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	75	130

**Table C 11.98.3: Characteristic resistance  $F_{RK}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size		8	10
Installation site <sup>6)</sup>		Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	70
Characteristic resistance for single anchor	[kN]	$F_{RK}^{(7)}$	$F_{RK}^{(7)}$
Mean compressive strength acc. to EN 771			
<b>Bisotherm Bisomark plus 4/06</b> $\geq 4.51 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	2.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	3.0	2.5
<b>Bisotherm Bisomark plus 4/06</b> $\geq 2.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6	1.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5	1.5
<b>Bisotherm Bisomark plus 4/06</b> $\geq 2.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.5	0.9
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5	0.9
Partial safety factor	$\gamma_{Mm}^{(2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

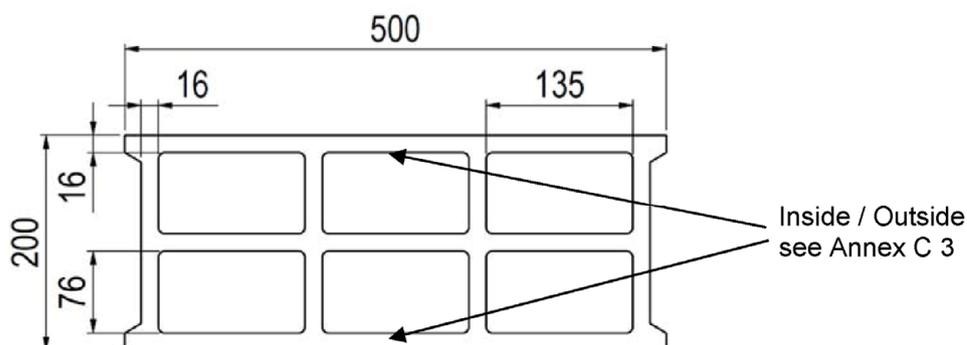
**Performances**  
Hollow brick lightweight concrete: Bisotherm Bisomark plus 4/06 (special shaped)  
Brick data, Installation parameters, Characteristic resistance

**Annex C 114**

**Base material hollow masonry, Hollow brick lightweight concrete: SEPA Blocs Creux**

**Table C 11.99.1: Brick data**

Description of brick		771-3-025	SEPA Blocs Creux
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.9
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			SEPA-Alsace Groupe (France)
Format (measurement)		[mm]	11DF (500x200x200)
Minimum thickness of member	$h_{min} =$	[mm]	200



**Table C 11.99.2: Installation parameters**

Anchor size		10	
Installation site <sup>6)</sup>		Inside / Outside	
Drill hole diameter	$d_0 =$	[mm]	10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	10.45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	60      80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	50      70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	10.5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100      100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100      100

**Table C 11.99.3: Characteristic resistance  $F_{RK}$ <sup>1)5)8)</sup> in [kN] for single anchor**

Anchor size		10	
Installation site <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom}$	[mm]	$50 \text{ mm} \leq h_{nom} \leq 70 \text{ mm}^5)$
Mean compressive strength acc. to EN 771			
<b>SEPA Blocs Creux,</b> $\geq 7.32 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2      1.2
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6      0.75
<b>SEPA Blocs Creux,</b> $\geq 5.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75      0.75
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5      0.5
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

Recommendation: On the basis of experience values, the characteristic resistance  $F_{RK}$  must be confirmed by job site tests.

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Hollow brick lightweight concrete: SEPA Blocs Creux  
Brick data, Installation parameters, Characteristic resistance

**Annex C 115**

**Base material solid masonry: Autoclaved Aerated Concrete AAC**

**Table C 11.100.1: Brick data**

Description of brick		AAC
Type of brick		Autoclaved Aerated Concrete
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.3
Standard, approval/type-approval		EN 771-4:2015
Format (measurement)	[mm]	$\geq 499 \times 100 \times 249$

**Table C 11.100.2: Installation parameters**

Anchor size		8			10			
Installation site <sup>6)</sup>		Inside / Outside / Reveal			Inside / Outside / Reveal			
Drill hole diameter	$d_0 =$ [mm]	8			10			
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45			10.45			
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80			80			
Drill method	[-]	Hammer drilling			Hammer drilling			
Overall plastic anchor embedment depth	$h_{nom} \geq$ [mm]	70			70			
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5			10.5			
Minimum thickness of member	$h_{min} =$ [mm]	115	175		100	175		
Minimum edge distance	$c_{min} \geq$ [mm]	80	80	100	80	80	100	120

**Table C 11.100.3: Characteristic resistance  $F_{RK}^{1)}$  in [kN] for single anchor**

Anchor size		8			10			
Installation site <sup>6)</sup>		Inside / Outside / Reveal			Inside / Outside / Reveal			
Overall plastic anchor embedment depth	$h_{nom} \geq$ [mm]	70			70			
Mean compressive strength acc. to EN 771								
<b>AAC</b>	$F_{RK, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	1.5	1.5	2.5	<sup>9)</sup>	1.5	2.5	3.0
<b><math>f_{cm,decl} \geq 7.0</math> N/mm<sup>2</sup></b>	$F_{RK, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	1.5	1.5	2.5	<sup>9)</sup>	1.5	2.5	3.0
<b>AAC</b>	$F_{RK, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	1.5	1.5	2.5	<sup>9)</sup>	1.5	2.5	3.0
<b><math>f_{cm,decl} \geq 6.6</math> N/mm<sup>2</sup></b>	$F_{RK, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	1.5	1.5	2.5	<sup>9)</sup>	1.5	2.5	3.0
<b>AAC</b>	$F_{RK, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	1.2	1.2	1.5	1.5	1.5	2.0	2.5
<b><math>f_{cm,decl} \geq 5.0</math> N/mm<sup>2</sup></b>	$F_{RK, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	1.2	1.2	1.5	1.5	1.5	2.0	2.0
<b>AAC</b>	$F_{RK, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.6	0.6	0.6	0.9	0.9	1.2	1.2
<b><math>f_{cm,decl} \geq 2.5</math> N/mm<sup>2</sup></b>	$F_{RK, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.5	0.5	0.5	0.9	0.9	0.9	0.9
<b>AAC</b>	$F_{RK, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.6	0.6	0.6	0.9	0.9	0.9	0.9
<b><math>f_{cm,decl} \geq 2.0</math> N/mm<sup>2</sup></b>	$F_{RK, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.5	0.5	0.5	0.75	0.75	0.75	0.75
Partial safety factor	$\gamma_{MAAC}^{2)}$ [-]	2.0			2.0			

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
**Solid masonry: Autoclaved Aerated Concrete AAC**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 116**

**Base Material: (Prefabricated) Reinforced components made of autoclaved aerated concrete (AAC)**

**Table C 11.101.1: Data**

Description			(Prefabricated) Reinforced components made of autoclaved aerated concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.4
Standard, approval/type-approval			EN 12602:2016
Minimum thickness of member	$h_{\min} =$	[mm]	175

**Table C 11.101.2: Installation parameters**

Anchor size			10	
Installation site <sup>6)</sup>			Inside / Outside	
Drill hole diameter	$d_0 =$	[mm]	10	
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	[mm]	10.45	
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	
Drill method	[-]		Hammer drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70	
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	10.5	
Minimum thickness of member	$h_{\min} =$	[mm]	240	175
Minimum edge distance	$c_{\min} \geq$		150	150

**Table C 11.101.3: Characteristic resistance  $F_{Rk}^{1)}$  in [kN] for single anchor**

Anchor size			10	
Installation site <sup>6)</sup>			Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	70	
Compressive strength acc. to EN 12602				
<b>(Prefabricated) Reinforced AAC 6,0</b> $f_{ck} \geq 6.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	1.5
<b>(Prefabricated) Reinforced AAC 4,0</b> $f_{ck} \geq 4.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	1.5
<b>(Prefabricated) Reinforced AAC 3,0</b> $f_{ck} \geq 3.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	9)
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2	9)
<b>(Prefabricated) Reinforced AAC 2,0</b> $f_{ck} \geq 2.0 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75	9)
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6	9)
<b>(Prefabricated) Reinforced AAC 1,5</b> $f_{ck} \geq 1.5 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.4	9)
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.3	9)
Partial safety factor	$\gamma_{\text{MAAC}}^{2)}$	[-]	2.0	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

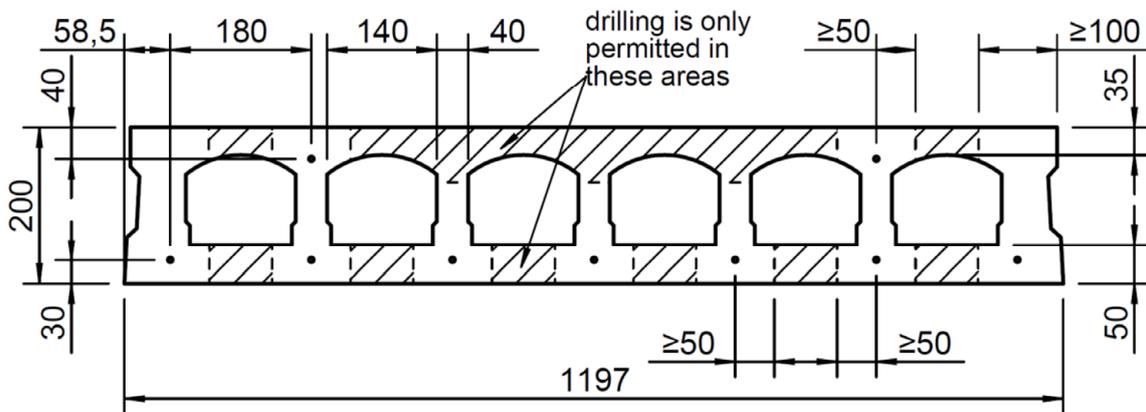
**Performances**  
Base Material: (Prefabricated) Reinforced components of AAC  
Brick data, Installation parameters, Characteristic resistance

**Annex C 117**

**Base material, Precast prestressed hollow core elements: VMM-L SCD 20**

**Table C 11.102.1: Data**

Description of brick		VMM-L SCD 20
Type		Precast prestressed hollow core elements
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	2.4
Standard, approval/type-approval		Z-15.10-276:2015-08
Producer of brick		e.g. Ketonia GmbH Spannbeton-Fertigteilwerk Almesbach 4 D-92637 Weiden
Format (measurement)	[mm]	$\geq 1200 \times 800 \times 200$
Minimum thickness of member	$h_{\min} =$ [mm]	200



**Table C 11.102.2: Installation parameters**

Anchor size		8
Installation site		top view / bottom view
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5

**Table C 11.102.3: Characteristic resistance  $F_{Rk}^{1)}$  in [kN] for single anchor**

Anchor size		8
Installation site		top view / bottom view
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
Precast prestressed hollow core elements VMM-L SCD 20, C45/55	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	1.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.2
Partial safety factor	$\gamma_{Mc}^{2)}$ [-]	1.8

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

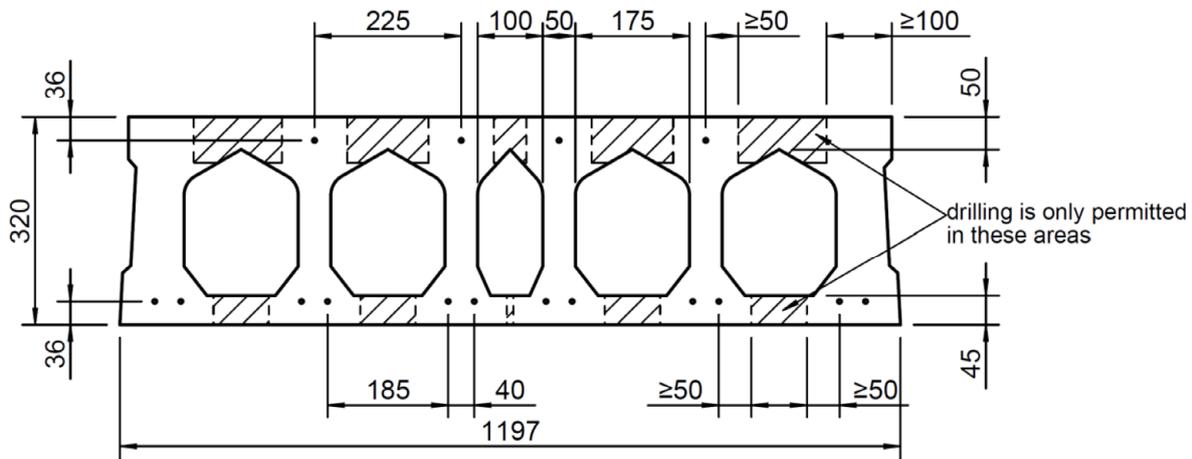
**Performances**  
Precast prestressed hollow core elements: VMM-L SCD 20  
Brick data, Installation parameters, Characteristic resistance

**Annex C 118**

**Base material, Precast prestressed hollow core elements: VMM-L EPD 32**

**Table C 11.103.1: Data**

Description of brick		VMM-L EPD 32
Type		Precast prestressed hollow core elements
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	2.4
Standard, approval/type-approval		Z-15.10-276:2015-08
Producer of brick		e.g. Ketonia GmbH Spannbeton-Fertigteilwerk Almesbach 4 D-92637 Weiden
Format (measurement)	[mm]	$\geq 1200 \times 800 \times 320$
Minimum thickness of member	$h_{\min} =$ [mm]	320



**Table C 11.103.2: Installation parameters**

Anchor size		8
Installation site		Top view / bottom view
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5

**Table C 11.103.3: Characteristic resistance  $F_{Rk}^{1)}$  in [kN] for single anchor**

Anchor size		8
Installation site		Top view / bottom view
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
<b>Precast prestressed hollow core elements VMM-L EPD 32, C45/55</b>	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.0
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	1.5
Partial safety factor	$\gamma_{Mc}^{2)}$ [-]	1.8

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

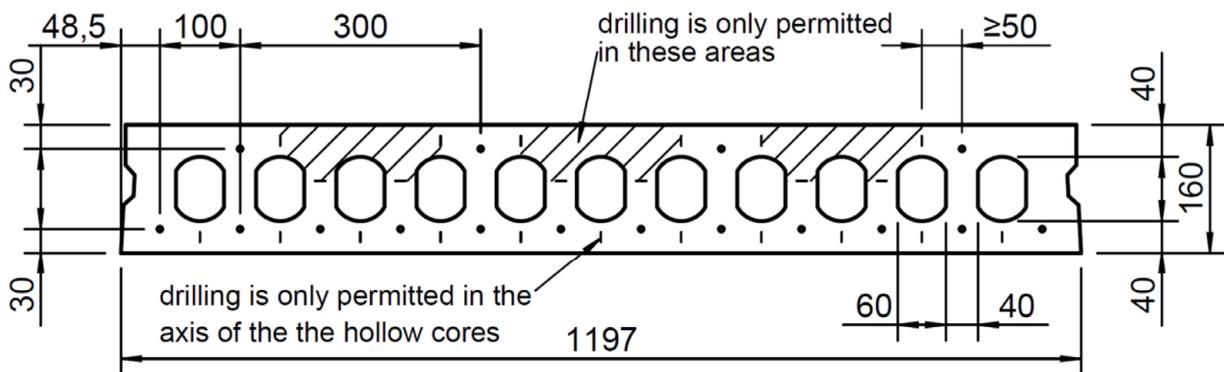
**Performances**  
**Precast prestressed hollow core elements: VMM-L EPD 32**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 119**

**Base material, Precast prestressed hollow core elements: VMM VSD 16**

**Table C 11.104.1: Data**

Description of brick		VMM VSD 16
Type		Precast prestressed hollow core elements
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	2.4
Standard, approval/type-approval		Z-15.10-276:2015-08
Producer of brick		e.g. Ketonia GmbH Spannbeton-Fertigteilwerk Almesbach 4 D-92637 Weiden
Format (measurement)	[mm]	$\geq 1200 \times 400 \times 160$
Minimum thickness of member	$h_{\min} =$ [mm]	160



**Table C 11.104.2: Installation parameters**

Anchor size		8
Installation site		Top view / bottom view
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_f \geq$ [mm]	80
Drill method	[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5

**Table C 11.104.3: Characteristic resistance  $F_{Rk}^{1)}$  in [kN] for single anchor**

Anchor size		8
Installation site		Top view / bottom view
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	70
Precast prestressed hollow core elements VMM VSD 16, C45/55	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)}$ [kN]	2.5
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)}$ [kN]	2.0
Partial safety factor	$\gamma_{Mc}^{2)}$ [-]	1.8

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
Precast prestressed hollow core elements: VMM VSD 16  
Brick data, Installation parameters, Characteristic resistance

**Annex C 120**

**Base material, Gypsum blocks: MultiGips R.max acoustic panel**

**Table C 11.105.1: Brick data**

Description of brick		MultiGips R.max acoustic panel
Type of brick		Gypsum blocks
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	1.2
Standard, approval/type-approval		EN 12859:2011
Producer of brick		VG-ORTH GmbH & Co. KG Holeburgweg 24 D-37627 Stadtoldendorf
Format (measurement)	[mm]	$\geq 500 \times 500 \times 100$
Minimum thickness of member	$h_{\min} =$ [mm]	100

**Table C 11.105.2: Installation parameters**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Drill hole diameter	$d_0 =$ [mm]	8
Cutting diameter of drill bit	$d_{\text{cut}} \leq$ [mm]	8.45
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80
Drill method	[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5
Spacing perpendicular / parallel to free edge	$s_{1,\text{min}}/s_{2,\text{min}}$ [mm]	200 / 250
Minimum edge distance	$c_{\text{min}} \geq$ [mm]	100

**Table C 11.105.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		8
Installation site <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]	<b>70</b>
Mean compressive strength according to EN 12859		
<b>Gypsum blocks MultiGips R.max acoustic panel,</b> $\geq 11.7 \text{ N/mm}^2$	$F_{Rk, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2
	$F_{Rk, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

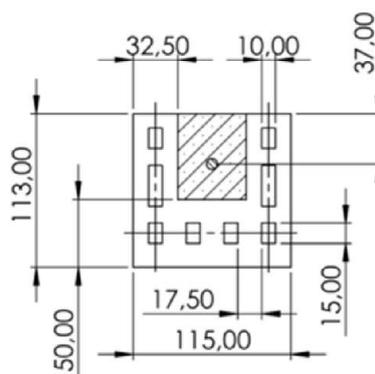
**Performances**  
**Gypsum blocks: MultiGips R.max acoustic panel**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 121**

**Base material masonry lintel: Rastersturz HLz**

**Table C 11.106.1 Brick data**

Description of brick		Rastersturz HLz
Type of brick		Masonry lintel
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	1.6
Standard, approval/type-approval		Z-17.1-981:2018-12
Producer of brick		Ziegelwerk Turber GmbH Riedenburger Straße 25 85104 Pförring
Format (measurement)	[mm]	115x113x >250



**Table C 11.106.2: Installation parameters**

Anchor size		8	
Installation site <sup>6)</sup>		bottom view	
Drill hole diameter	$d_0 =$ [mm]	8	
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	60	80
Drill method	[-]	Hammer drilling	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	50	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	90 / 180	90 / 180
Minimum edge distance	$c_{min} \geq$ [mm]	45	45

**Table C 11.106.3: Characteristic resistance  $F_{Rk}$ <sup>1)7)8)</sup> in [kN] for single anchor**

Anchor size		8		
Installation site <sup>6)</sup>		bottom view		bottom view
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	50		70
Characteristic resistance for single anchor	[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	$F_{Rk}^{1)}$
Mean compressive strength acc. to EN 771				
Rastersturz HLz,	$F_{Rk, 30^\circ C^3) / 50^\circ C^4)}$ [kN]	0.6	1.2	2.0
$\geq 7.5$ N/mm <sup>2</sup>	$F_{Rk, 50^\circ C^3) / 80^\circ C^4)}$ [kN]	0.5	1.2	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

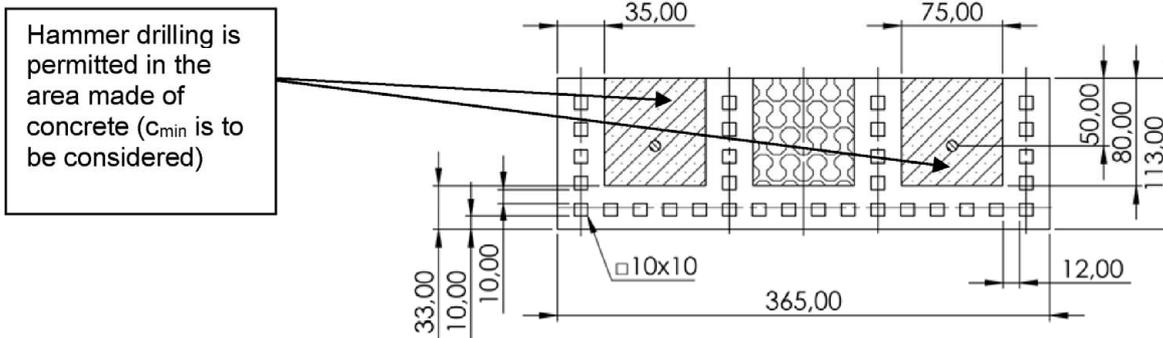
**Performances**  
**Masonry lintel: Rastersturz HLz**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 122**

**Base material masonry lintel: Dämmsturz HLz**

**Table C 11.107.1 Brick data**

Description of brick		Dämmsturz HLz
Type of brick		Masonry lintel
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	1.4
Standard, approval/type-approval		Z-17.1-981: 2018-12
Producer of brick		Ziegelwerk Turber GmbH Riedenburger Straße 25 85104 Pförring
Format (measurement)	[mm]	365x113x >240



**Table C 11.107.2: Installation parameters**

Anchor size		8	
Installation site <sup>6)</sup>		bottom view	
Drill hole diameter	$d_0 =$ [mm]	8	
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	8.45	
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	80	
Drill method	[-]	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	70	
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$ [mm]	130 / 250	250 / 250
Minimum edge distance	$c_{min} \geq$ [mm]	65	170

**Table C 11.107.3: Characteristic resistance  $F_{RK}$ <sup>7)8)</sup> in [kN] for single anchor**

Anchor size		8	
Installation site <sup>6)</sup>		bottom view	bottom view
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>	<b>70</b>
Characteristic resistance for single anchor	[kN]	$F_{RK}$ <sup>7)</sup>	$F_{RK}$ <sup>7)</sup>
Mean compressive strength acc. to EN 771			
Dämmsturz HLz, $\geq 6.5 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.0	2.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	2.0	2.5
Dämmsturz HLz, $\geq 5.0 \text{ N/mm}^2$	$F_{RK, 30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5	1.5
	$F_{RK, 50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$ [-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR / SHARK UR**

**Performances**  
**Masonry lintel: Dämmsturz HLz**  
Brick data, Installation parameters, Characteristic resistance

**Annex C 123**