

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 5 September 2017**

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

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

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

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## Specific Part

### 1 Technical description of the product

The Würth plastic anchor in the range W-UR 8 and W-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 Mechanical resistance and stability (BWR 1)

The essential characteristics regarding mechanical resistance and stability are included under the Basic Works Requirement Safety in use.

#### 3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Anchorage satisfy requirements for Class A 1
Resistance to fire	See Annex C 2

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

Essential characteristic	Performance
Characteristic resistance for tension and shear loads	See Annexes C 1, C 11 – C 74
Characteristic resistance for bending moments	See Annex C 1
Displacements under shear and tension loads	See Annex C 2
Anchor distances and dimensions of members	See Annex B 2, B 3

#### 3.4 General aspects

The verification of durability is part of testing the essential characteristics. Durability is only ensured if the specifications of intended use according to Annex B are taken into account.

English translation prepared by DIBt

**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**

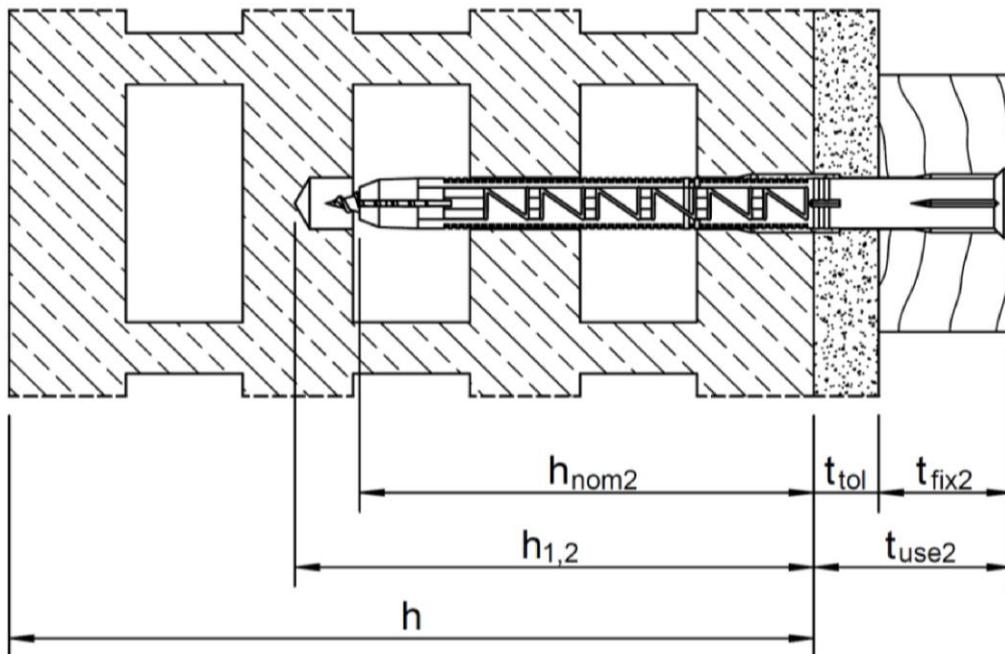
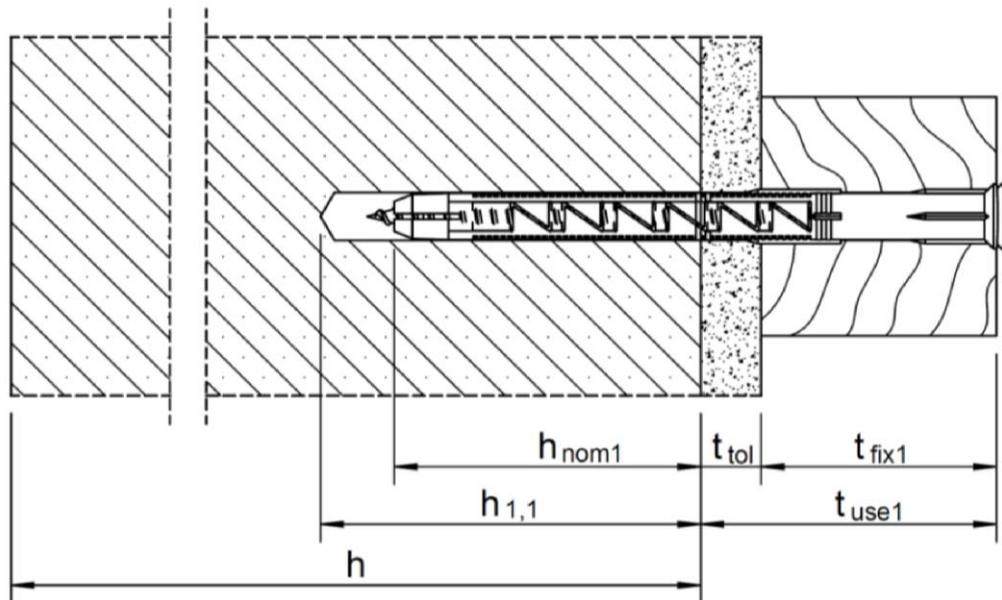
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 5 September 2017 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow  
Head of Department

*beglaubigt:*  
Ziegler

### Plastic Anchor W-UR 8 and W-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
- $t_{use}$ : Useable length / anchorage length

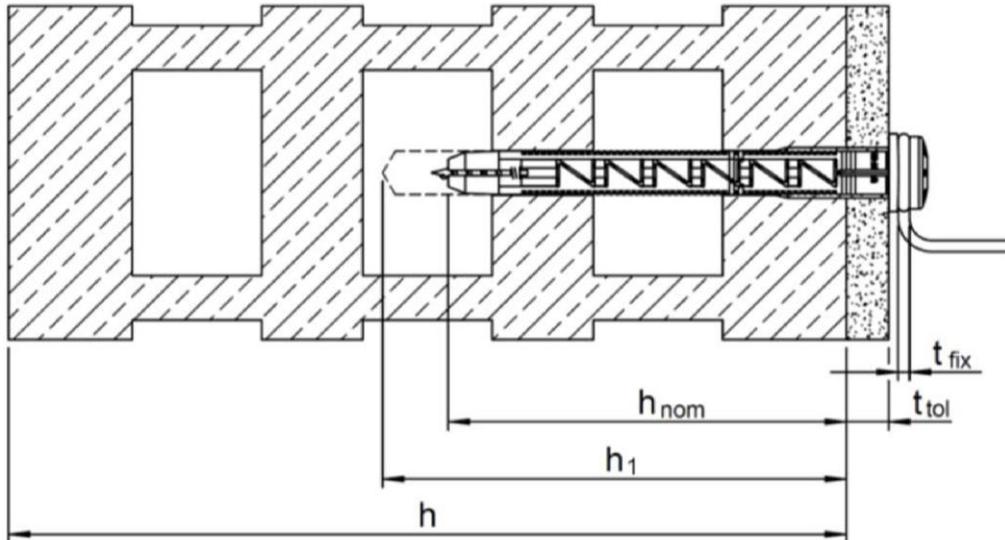
#### Würth Plastic Anchor W-UR

##### Product description

Installed condition in-place installation

Annex A 1

### Plastic Anchor W-UR 8 Panhad 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

##### Product description

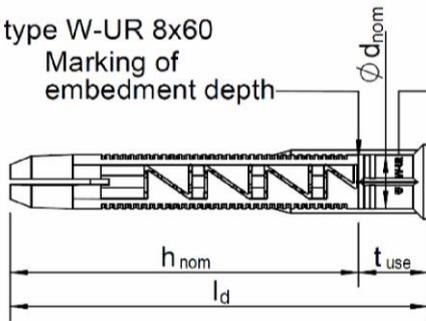
Installed condition pre-positioned installation

Annex A 2

**Plastic sleeve**

Anchor type W-UR 8x60

Marking of  
embedment depth

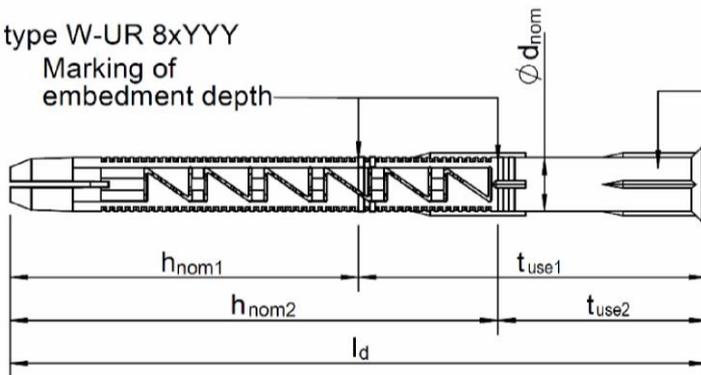


Marking:  
Identifying mark  
Anchor type  
Diameter, length  
e.g.

■ W-UR 8x60  
◇ R 8x60

Anchor type W-UR 8xYYY

Marking of  
embedment depth

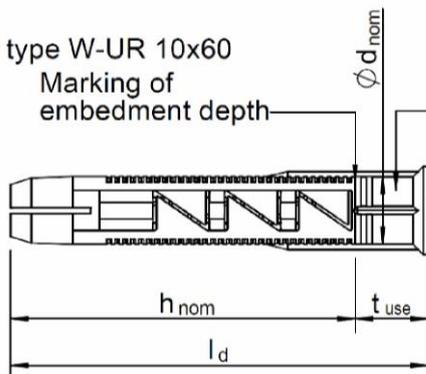


Marking:  
Identifying mark  
Anchor type  
Diameter, length  
e.g.

■ W-UR 8x100  
◇ R 8x100

Anchor type W-UR 10x60

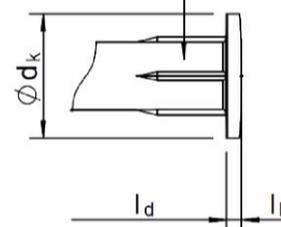
Marking of  
embedment depth



Marking:  
Identifying mark  
Anchor type  
Diameter, length  
e.g.

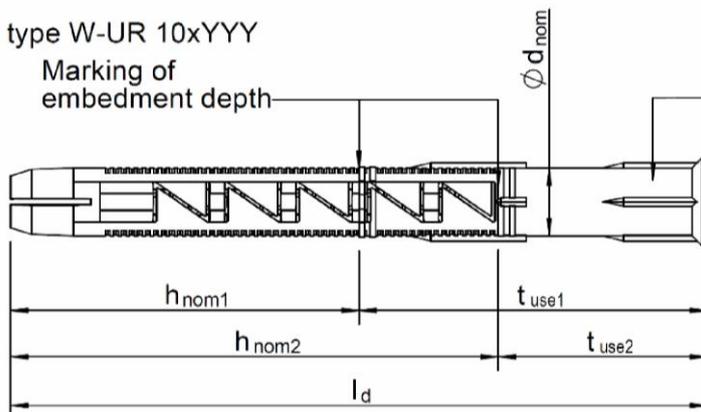
■ W-UR 10x60  
◇ R 10x60

Dübeltyp W-UR F 8 und W-UR F 10



Anchor type W-UR 10xYYY

Marking of  
embedment depth



Marking:  
Identifying mark  
Anchor type  
Diameter, length  
e.g.

■ W-UR 10x100  
◇ R 10x100

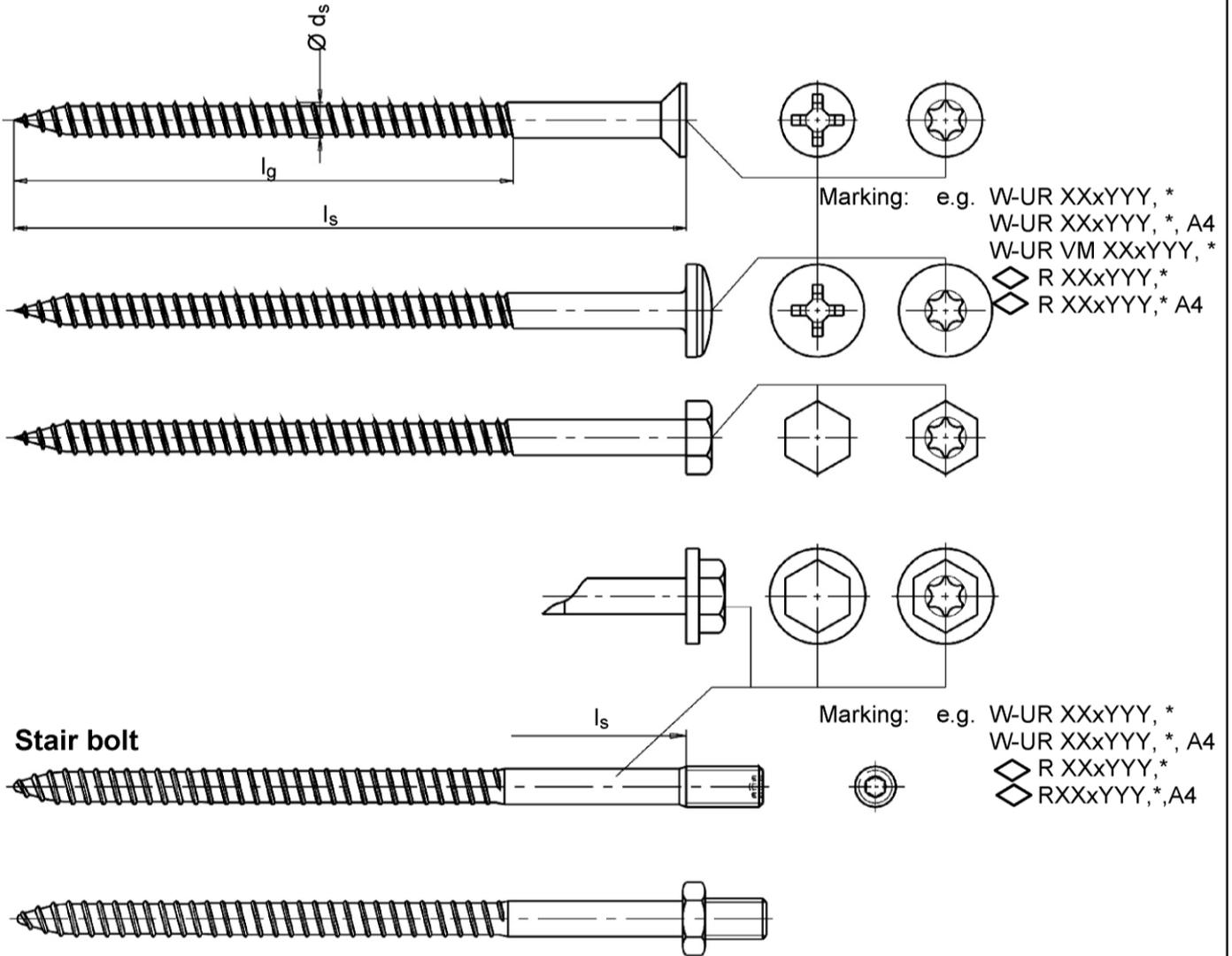
**Würth Plastic Anchor W-UR**

**Product description**

Anchor types – head versions of the sleeve  
Marking and dimensions

**Annex A 3**

### Special screw



### Würth Plastic Anchor W-UR

**Product description**  
Special screw – head versions  
Marking and dimensions

**Annex A 4**

**Table A1: Anchor dimensions**

Anchor type			W-UR 8		W-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]	$l_d + 5 \text{ mm}$		$l_d + 5 \text{ mm}$	
Length of screw pre-positioned installation	$l_s$	[mm]	$l_d + t_{fix} + 5 \text{ mm}$		-	
Length of thread in-place installation	$l_g$	[mm]	75		75	
Length of thread pre-positioned installation	$l_g$	[mm]	85		-	

**Table A2: Materials**

Designation	Material
Plastic sleeve	Polyamid, colour brown
Special screw	Steel, acc. to DIN EN ISO 4042:2001-01 galvanised Stainless steel, 1.4401, 1.4571 or 1.4578

**Würth Plastic Anchor W-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, Precast or prestressed hollow core elements according to Annex C 71, C 72, C 73
- Solid brick masonry (use category b), according to Annex C 11, C 12, C 46, C 47, C 54 – C 60, C 74  
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 13 – C 45, C 48 – C 53, C 61 – C 68.
- Autoclaved aerated concrete (use category d), according to Annex C 69 - C 70
- Mortar strength class of the masonry  $\geq$  M2,5 at minimum according to EN 998-2:2010.
- For other base materials of the use categories a, b, c or d the characteristic resistance of the anchor may be determined by job site tests according to ETAG 020, Annex B Edition March 2012.

#### Temperature Range:

- Temperature Range b): -40 °C to + 80 °C (max. long term temperature +50 °C and max. short term temperature + 80 °C)
- Temperature Range c): -40 °C to + 50 °C (max long term temperature +30 °C and max. short term temperature + 50 °C)

#### Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (zinc coated steel, stainless steel).
- The specific screw made of galvanized steel 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).
- 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 11 - Annex C 74
- 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:  $\geq$  -40 °C; W-UR 10:  $\geq$  -20 °C
- Exposure to UV due to solar radiation of the anchor not protected  $\leq$  6 weeks

### Würth Plastic Anchor W-UR

Intended use  
Specifications

Annex B 1

**Table B1: Installation parameters**

Anchor type		W-UR 8		W-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>	$h_1 \geq$ [mm]	60 ( $h_{1,1}$ )	80 ( $h_{1,2}$ )	60 ( $h_{1,1}$ )	80 ( $h_{1,2}$ )
Overall plastic anchor embedment depth in the base material <sup>1), 2)</sup>	$h_{nom} \geq$ [mm]	50 ( $h_{nom1}$ )	70 ( $h_{nom2}$ )	50 ( $h_{nom1}$ )	70 ( $h_{nom2}$ )
Diameter of clearance hole in the fixture in-place installation	$d_f \leq$ [mm]	8.5		10.5	
Diameter of clearance hole in the fixture pre-positioned installation	$d_f \leq$ [mm]	7		-	

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

<sup>2)</sup> For hollow and perforated masonry the influence of  $h_{nom} > 70$  mm (W-UR 8 and W-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  $h_{nom1} = 50 \text{ mm} \leq h_{nom} < 70 \text{ mm} = h_{nom2}$  the characteristic values  $F_{Rk}$  for  $h_{nom1} = 50$  mm may be taken without performing additional job site tests (compare Annex C 13, Annex C 48, Annex C 50, Annex C 51, Annex C 68)

For anchorages in hollow and perforated masonry with anchor type W-UR 8x60 and W-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</b>	Concrete $\geq$ C16/20	= 50	100	40	40	40
	Concrete C12/15	= 50	100	60	60	60
	Concrete $\geq$ C16/20	> 50	100	50	50	50
	Concrete C12/15	> 50	100	70	70	70
<b>W-UR 10</b>	Beton $\geq$ C16/20	= 50	80	50	50	60
	Beton 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:** 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:** 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. to Table C 2.1.

**Würth Plastic Anchor W-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**

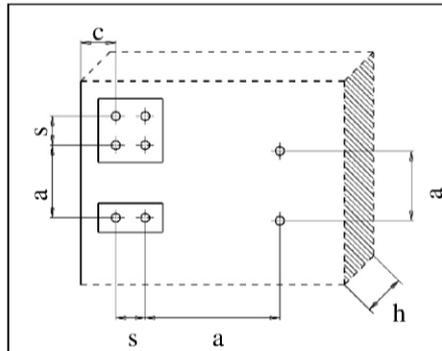
		Masonry			
		W-UR 8		W-UR 10	
Overall plastic anchor embedment depth	$h_{nom}$ [mm]	50	70	50	70
Minimum thickness of member	$h_{min}$ [mm]	100 <sup>1)</sup>		100 <sup>1)</sup>	
<b>Single anchor</b>					
Minimum allowable spacing	$a_{min}$ [mm]	250		250	
Minimum allowable edge distance	$c_{min}$ [mm]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

1)  $h_{min}$  and  $c_{min}$  depend on the brick size and/or on the brick: See the following annexes Annex C 11 to Annex C 74

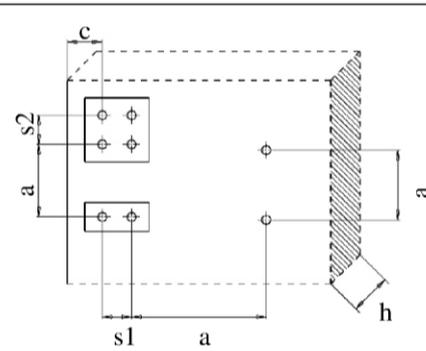
2) other spacing possible see Annex C 46; C 51; C 54

**Table B4: Minimum thickness of member, edge distance and anchor spacing in AAC**

		Autoclaved aerated concrete		(Prefabricated) Reinforced AAC
		W-UR 8	W-UR 10	W-UR 10
Minimum thickness of member	$h_{min}$ [mm]	175	175	175
<b>Single anchor</b>				
Minimum allowable spacing	$a_{min}$ [mm]	250	250	600
Minimum allowable edge distance	$c_{min}$ [mm]	60	80	150
<b>Anchor group</b>				
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	$c_{min}$ [mm]	80	100	150



Concrete (Table B2)



Masonry (Table B3) and AAC (Table B4)

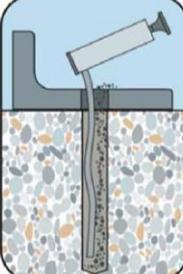
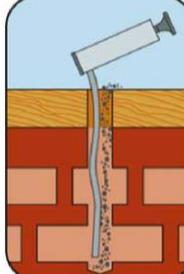
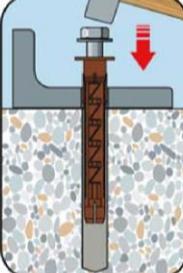
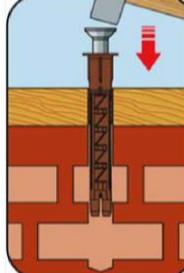
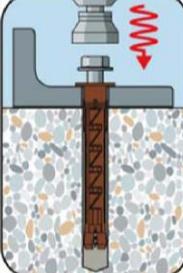
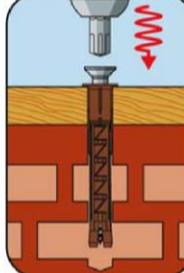
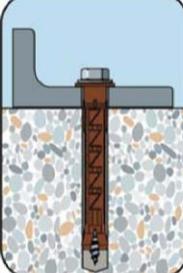
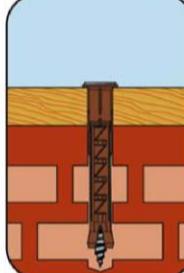
**Würth Plastic Anchor W-UR**

**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>

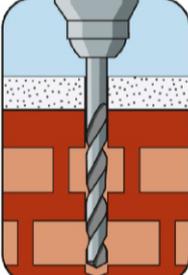
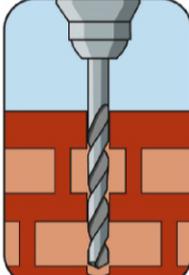
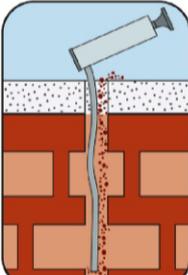
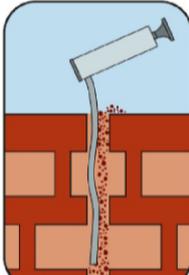
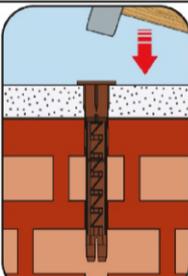
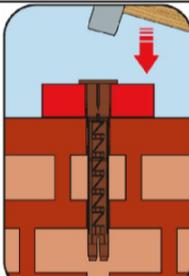
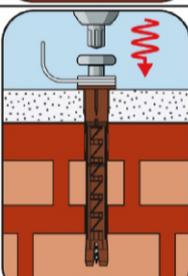
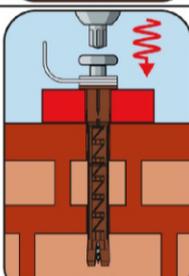
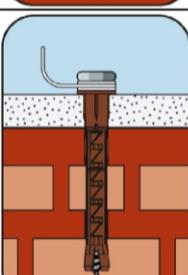
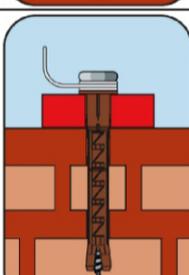
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**Würth Plastic Anchor W-UR**

**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>Screw 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**

**Intended use**  
Installation instructions pre-positioned installation

**Annex B 5**

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

Anchor type			Galvanised steel				Stainless steel			
			W-UR 8		W-UR 10		W-UR 8		W-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			Galvanised steel				Stainless steel				
			W-UR 8		W-UR 10		W-UR 8		W-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**

**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 AAC**

Anchor type		Tension load				Shear load		
		$h_{nom}$ [mm]	$F^{2)}$ [kN]	$\delta_{N0}$ [mm]	$\delta_{N\infty}$ [mm]	$F^{2)}$ [kN]	$\delta_{V0}$ [mm]	$\delta_{V\infty}$ [mm]
<b>W-UR 8</b>	Concrete $\geq$ C16/20	50	1.8	0.26	0.52	1.8	0.96	1.44
<b>W-UR 8</b>	Concrete $\geq$ C16/20	70	2.4	0.35	0.7	2.4	0.93	1.86
<b>W-UR 10</b>	Concrete $\geq$ C16/20	50	1.19	0.48	0.96	1.19	0.51	0.77
<b>W-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	$F_{RK}$
<b>W-UR 10</b>	R 90	0.8kN

**Würth Plastic Anchor W-UR**

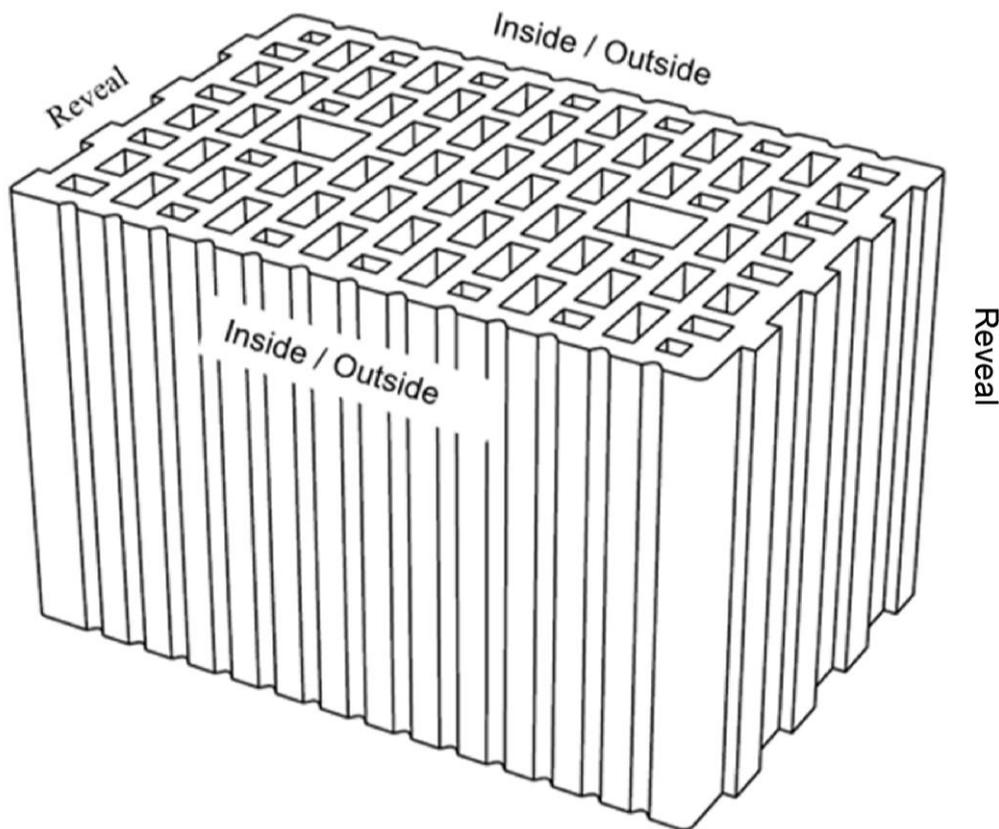
**Performances**

Displacements under tension and shear for concrete, masonry and AAC  
Characteristic resistance under fire exposure in concrete

**Annex C 2**

### Footnotes for Annexes C 11 – C 74

- 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 B 3 (masonry). The specific conditions for the design method have to be considered according to ETAG 020 Annex C.
- 2) In 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 and W-UR 10 set variable in this range no additional job site tests have necessarily to be performed.
- 6) Installationside see picture (e.g Hollow brick HLz)



- 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)

**Würth Plastic Anchor W-UR**

**Performances**  
Footnotes

**Annex C 3**

**Table C 5.1: Base material: Concrete, solid masonry**

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
<b>Concrete</b>					
<b>Concrete ≥ C12/15</b>					<b>Annex C 1</b>
<b>Solid masonry</b>					
<b>Solid brick Mz</b> acc. to DIN 105-100:2012-01, EN 771-1:2011	≥ NF	≥ 240x115x71	10 20 28	≥ 1.8	<b>Annex C 11</b> 771-1-020
	≥ 3DF	≥ 240x175x113	36		<b>Annex C 12</b> 771-1-041
<b>Sand-lime solid brick KS</b> acc. to DIN V 106:2005-10, EN 771-2:2011	≥ NF	≥ 240x115x71	10 20 28	≥ 2.0	<b>Annex C 46</b> 771-2-002
<b>Sand-lime solid brick Silka XL Basic, Sand-lime solid brick Silka XL Plus,</b> acc. to DIN V 106:2005-10, EN 771-2:2011, Z-17.1-997		≥ 248x175x498	10 20 28	≥ 2.0	<b>Annex C 47</b> 771-2-010
<b>Concrete solid block - Vbn</b> acc. to DIN 18153-100:2005-10, EN 771-3:2011	≥ NF	≥ 240x115x71	10 20 28	≥ 2.0	<b>Annex C 54</b> 771-3-004
<b>Lightweight concrete solid brick e.g. Bisoclassic V</b> acc. to DIN V 18152-100:2005:10, EN 771-3:2011 Bisotherm GmbH	≥ NF	≥ 240x115x71	2 4	≥ 0.9	<b>Annex C 55</b> 771-3-008
<b>Lightweight concrete solid brick V und Vbl e.g. Bisophon</b> acc. to DIN V 18152-100:2005-10 EN 771-3:2011 Bisotherm GmbH	≥ 3DF	≥ 240x175x113	10 20	≥ 2.0	<b>Annex C 57</b> 771-3-017
<b>Lightweight concrete solid brick e.g. BasisBims V</b> acc. to DIN V 18152-100:2005-10 EN 771-3:2011 Bisotherm GmbH	≥ NF	≥ 240x115x71	2 4	≥ 1.0	<b>Annex C 56</b> 771-3-007
<b>Lightweight concrete solid block – Vbl</b> acc. to DIN V 18152-100:2005-10, e.g. Liapor Massive Wall Liapor GmbH & Co. KG	≥ 24DF	≥ 500x365x238	2	≥ 0.6	<b>Annex C 58</b> LAC2
<b>Lightweight concrete solid block – Vbl 2</b> acc. to DIN 18152-100:2005-10, Z-17.1-839 e.g. Liapor Compact Liapor GmbH & Co. KG Meier Betonwerke GmbH	≥ 16DF	≥ 498x240x239	2	≥ 0.65	<b>Annex C 59</b> 771-3-012
<b>Concrete solid block – Vbn</b> acc. to DIN 18153-100:2005-10, e.g. Liapor Element Wall Liapor GmbH & Co. KG	≥ 12DF	≥ 500x175x238	12	≥ 1.4	<b>Annex C 60</b> LC16/18

**Würth Plastic Anchor W-UR**

**Performances**

Solid masonry (use category "b")  
Format, measurement, minimum compressive strength, bulk density class, Annex

**Annex C 4**

**Table C 6.1: Base material: Hollow or perforated masonry**

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
<b>Hollow or perforated masonry</b>					
Hollow brick HLz acc. to DIN 105-100:2012-01 EN 771-1:2011 e.g. Wienerberger GmbH e.g. Schlagmann Baustoffwerke GmbH & Co. KG	≥ 2DF	≥ 240x115x113	8 12 20	≥ 1.2	<b>Annex C 13</b>  771-1-021
	≥ 12DF	≥ 373x240x238	6 8 10 12	≥ 1.2	<b>Annex C 14</b>  771-1-010 771-1-036
Hollow brick POROTON Planziegel T14 acc. to EN 771-1:2011, Z-17.1-625 Schlagmann Baustoffwerke GmbH & Co. KG	≥ 10DF	≥ 248x300x249	6	≥ 0.7	<b>Annex C 15</b>  771-1-019
Hollow brick POROTON-T8-P Hollow brick POROTON-T9-P acc. to T8: EN 771-1:2011; Z-17.1-982 T9: EN 771-1:2011; Z-17.1-674 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	≥ 10DF	≥ 248x300x249	6	≥ 0.6	<b>Annex C 16</b>  771-1-022
Hollow brick POROTON-T8-MW acc. to EN 771-1:2011; Z-17.1-1041 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	≥ 12DF	≥ 248x365x249	6 8	≥ 0.65	<b>Annex C 17</b>  771-1-042
Hollow brick POROTON Planziegel T8 acc. to EN 771-1:2011; Z-17.1-972 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	≥ 12DF	≥ 248x365x249	6	≥ 0.65	<b>Annex C 18</b>  771-1-057
Hollow brick POROTON Planziegel T10 acc. to EN 771-1:2011; Z-17.1-889 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	≥ 10DF	≥ 248x300x249	6	≥ 0.65	<b>Annex C 19</b>  771-1-033
Hollow brick POROTON S10 acc. to EN 771-1:2011; Z-17.1-1017 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	≥ 10DF	≥ 248x300x249	6 8 10	≥ 0.75	<b>Annex C 20</b>  771-1-032
Hollow brick POROTON-S11-P 30,0 acc. to EN 771-1:2011; Z-17.1-812 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	≥ 10DF	≥ 248x300x249	8	≥ 0.9	<b>Annex C 21</b>  771-1-025
Hollow brick POROTON-S11-P 36,5 acc. to EN 771-1:2011; Z-17.1-812 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	≥ 12DF	≥ 248x365x249	6	≥ 0.9	<b>Annex C 22</b>  771-1-009
Hollow brick for ceiling DIN 4160-BN 0.8-530- 250-210 (system Filigran) acc. to DIN 4160:2000-4 e.g. Wienerberger GmbH		≥ 530x250x210	4	0.8	<b>Annex C 23</b>  771-1-031

**Würth Plastic Anchor W-UR**

**Performances**

Hollow or perforated masonry (use category "c")  
Format, measurement, minimum compressive strength, bulk density class, Annex

**Annex C 5**

**Table C 6.2 Base material: Hollow or perforated masonry**

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
<b>Hollow or perforated masonry</b>					
<b>Hollow brick POROTHERM 25-38 N+F</b> acc. to EN 771-1:2011 Wienerberger Ziegelindustrie GmbH; Austria		≥ 375x250x238	6 8 10	≥ 0.8	<b>Annex C 24</b>  771-1-005
<b>Hollow brick Blocchi Leggeri</b> acc. to EN 771-1:2011 Wienerberger Brunori s.r.l.; Italy		≥ 250x120x330	6	≥ 0.6	<b>Annex C 25</b>  771-1-012
<b>Hollow brick for ceiling Blocchi per solaio a travetti</b> acc. to EN 771-1:2011 Wienerberger Tacconi s.r.l.; Italy		≥ 420x120x250	10 14	≥ 0.6	<b>Annex C 26</b>  771-1-011
<b>Hollow brick MURBRIC T20 and R20</b> acc. to EN 771-1:2011 e.g. Wienerberger SAS; France		T20: ≥ 500x200x240 R20: ≥ 500x200x249	6 8 12	≥ 0.7	<b>Annex C 27</b>  771-1-018
<b>Hollow brick POROTHERM T30 and R30</b> acc. to EN 771-1:2011 e.g. Wienerberger SAS; France		T30: ≥ 373x300x249 R30: ≥ 373x300x250	6 8	≥ 0.7	<b>Annex C 28</b>  771-1-014
<b>Hollow brick UNIPOR WS11 CORISO</b> acc. to EN 771-1:2011 Z-17.1-1011 UNIPOR Ziegel, Marketing GmbH	≥ 12DF	≥ 247x365x249	10	≥ 0.85	<b>Annex C 29</b>  771-1-026
<b>Hollow brick UNIPOR WS14</b> <b>Hollow brick UNIPOR WS12 CORISO</b> acc. to EN 771-1:2011 Z-17.1-883 UNIPOR Ziegel, Marketing GmbH	≥ 10DF	≥ 247x300x249	10 12	≥ 0.8	<b>Annex C 30</b>  771-1-016
<b>Hollow brick UNIPOR W14</b> acc. to EN 771-1:2011 Z-17.1-679 Z-17.1-636 UNIPOR Ziegel, Marketing GmbH	≥ 10DF	W14-Plan: ≥ 240x300x249 W14-Block: ≥ 240x300x238	6	≥ 0.7	<b>Annex C 31</b>  771-1-015
<b>Hollow brick UNIPOR CORISO 6DF EWS 365</b> acc. to EN 771-1:2011 according to Z-17.1-1021 / 1066 UNIPOR Ziegel, Marketing GmbH	≥ 6DF	≥ 118x365x249	6	≥ 0.9	<b>Annex C 32</b>  771-1-077
<b>Hollow brick UNIPOR CORISO 6DF EW 365</b> acc. to EN 771-1:2011 according to Z-17.1-935 UNIPOR Ziegel, Marketing GmbH	≥ 6DF	≥ 118x365x249	4	≥ 0.7	<b>Annex C 33</b>  771-1-074

**Würth Plastic Anchor W-UR**

**Performances**

Hollow or perforated masonry (use category "c")  
Format, measurement, minimum compressive strength, bulk density class, Annex

**Annex C 6**

**Table C 6.3 Base material: Hollow or perforated masonry**

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
<b>Hollow or perforated masonry</b>					
<b>Hollow brick ThermoPlan MZ7</b> acc. to EN 771-1:2011 Z-17.1-1016 Mein Ziegelhaus GmbH & Co. KG	≥ 10DF	≥ 248x300x249	4 6 8	≥ 0.6	<b>Annex C 34</b>  771-1-052
<b>Hollow brick ThermoPlan MZ8</b> acc. to EN 771-1:2011 Z-17.1-906 Mein Ziegelhaus GmbH & Co. KG	≥ 12DF	≥ 248x365x249	6 8	≥ 0.6	<b>Annex C 35</b>  771-1-023
<b>Hollow brick ThermoPlan MZ10</b> acc. to EN 771-1:2011 Z-17.1-1015 Mein Ziegelhaus GmbH & Co. KG	≥ 10DF	≥ 248x300x249	6 8	≥ 0.75	<b>Annex C 36</b>  771-1-034
<b>Hollow brick ThermoPlan MZ Ergänzung</b> acc. to EN 771-1:2011 according to Z-17.1-1087 Mein Ziegelhaus GmbH & Co. KG	≥ 6DF	≥ 118x365x249	6	≥ 0.8	<b>Annex C 37</b> 771-1-081
<b>Hollow brick ThermoPlan TS<sup>2</sup></b> acc. to EN 771-1:2011 Z-17.1-993 Mein Ziegelhaus GmbH & Co. KG	≥ 9DF	≥ 373x175x249	6 8 10 12 20	≥ 0,9	<b>Annex C 38</b>  771-1-024
<b>Hollow brick ThermoPlan TS 13</b> acc. to EN 771-1:2011 Z-17.1-914 Mein Ziegelhaus GmbH & Co. KG	≥ 10DF	≥ 248x300x248	8 10	≥ 0.75	<b>Annex C 39</b>  771-1-035
<b>Hollow brick THERMOPOR ISO-PD Plus</b> acc. To EN 771-1:2011 Z-17.1-840 Thermopor Ziegel-Kontor Ulm GmbH		≥ 307x240x249	6 8	≥ 0.7	<b>Annex C 40</b>  771-1-028
<b>Hollow brick THERMOPOR TV 7-Plan</b> acc. to EN 771-1:2011 Z-17.1-1005 Thermopor Ziegel-Kontor Ulm GmbH	≥ 12DF	≥ 247x365x249	8	≥ 0.5	<b>Annex C 41</b>  771-1-030
<b>Hollow brick THERMOPOR TV 9-Plan</b> acc. to EN 771-1:2011 Z-17.1-1006 Thermopor Ziegel-Kontor Ulm GmbH	≥ 10DF	≥ 247x300x249	4 6 8	≥ 0.65	<b>Annex C 42</b>  771-1-029
<b>Hollow brick Kellerer ZMK X6</b> acc. to EN 771-1:2011 Z-17.1-1067 Ziegelsysteme Michael Kellerer GmbH & Co. KG	≥ 10DF	≥ 247x300x249	6	≥ 0.65	<b>Annex C 43</b>  771-1-049
<b>Hochlochziegel Kellerer ZMK TX8</b> acc. to EN 771-1:2011 Z-17.1-1068 Ziegelsysteme Michael Kellerer GmbH & Co. KG	≥ 10DF	≥ 247x300x249	6	≥ 0.65	<b>Annex C 44</b>  771-1-050
<b>Hollow brick Ladrillo P NV R150</b> acc. to EN 771-1:2011 Ceramica La Corona, S.A.; Spain		≥ 276x128x95	12 20 28 36	≥ 1.2	<b>Annex C 45</b>  771-1-017

**Würth Plastic Anchor W-UR**

**Performances**

Hollow or perforated masonry (use category "c")  
Format, measurement, minimum compressive strength, bulk density class, Annex

**Annex C 7**

**Table C 6.4: Base material: Hollow or perforated masonry**

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
<b>Hollow or perforated masonry</b>					
<b>Sand-lime perforated brick KS L</b> acc. to DIN V 106:2005-10 EN 771-2:2011	≥ 2DF	≥ 240x115x113	6 8 10 12 16	≥ 1.6	<b>Annex C 48</b>  771-2-003 771-2-004
<b>Sand-lime perforated brick KS L</b> acc. to DIN V 106:2005-10 EN 771-2:2011 e.g. Xella Deutschland GmbH	≥ 8DF	≥ 249x240x238	6 8 10 12 16	≥ 1.4	<b>Annex C 49</b>  771-2-013 771-2-005
<b>Sand-lime perforated brick KS L</b> acc. to DIN V 106:2005-10 EN 771-2:2011	≥ 12DF	≥ 373x240x238	6 8 10 12 16	≥ 1.4	<b>Annex C 50, C 51</b>  771-2-001
<b>Sand-lime perforated brick KS L</b> acc. to DIN V 106:2005-10 EN 771-2:2011 e.g. Xella Deutschland GmbH	≥ 9DF	≥ 373x175x249	6 8 10 12 20	≥ 1.4	<b>Annex C 52</b>  771-2-008
<b>Sand-lime perforated brick KS-NT</b> acc. to P-1109/884/07-MPA BS BMO KS-Vertrieb Bielefeld-Münster-Osnabrück GmbH & Co. KG	≥ 4DF	≥ 249x115x248	12 20	≥ 1.2	<b>Annex C 53</b>  771-2-009
<b>Hollow brick lightweight concrete 1K Hbl</b> acc. to DIN V 18151-100:2005-10 EN 771-3:2011 e.g. Stark Betonwerk GmbH & Co. KG	≥ 12DF	≥ 490x175x238	2 4	≥ 1.2	<b>Annex C 61</b>  771-3-002
<b>Hollow brick lightweight concrete 3K Hbl</b> acc. to DIN V 18151-100:2005-10 EN 771-3:2011 e.g. Heinzmann Baustoffe GmbH, Liapor GmbH & Co. KG	≥ 16DF	≥ 498x240x238	2 4 6	≥ 0.7	<b>Annex C 62</b>  771-3-005
<b>Hollow brick lightweight concrete Liapor-Super-K</b> acc. to EN 771-3:2011 Z-17.1-501 Liapor GmbH & Co. KG	≥ 16DF	≥ 495x240x238	2 4	≥ 0.8	<b>Annex C 63</b>  771-3-006
<b>Concrete hollow brick 2K Hbn</b> acc. to DIN V 18153-100:2005-10 e.g. Stark Betonwerk GmbH & Co. KG	≥ 12DF	≥ 375x240x238	2 4 6 8	≥ 1.2	<b>Annex C 64</b>  771-3-011
<b>Hollow brick lightweight concrete Gisoton Wärme Dämm Block</b> acc. to Z-17.1-873 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co.		≥ 375x300x248	4	≥ 0.8	<b>Annex C 65</b>  771-3-009
<b>Würth Plastic Anchor W-UR</b>				<b>Annex C 8</b>	
<b>Performances</b> Hollow or perforated masonry (use category "c") Format, measurement, minimum compressive strength, bulk density class, Annex					

**Table C 6.5: Base material: Hollow or perforated masonry**

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
<b>Hollow or perforated masonry</b>					
<b>Hollow brick lightweight concrete</b> Gisoton Thermo Schall acc. to Z-15.2-18 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co.		≥ 498x300x248	2	≥ 0.45	<b>Annex C 66</b>  771-3-010
<b>Hollow brick lightweight concrete</b> Bisomark <sup>TEC</sup> acc. to Z-17.1-1026 Bisotherm GmbH	≥ 20DF	≥ 497x300x249	1.6 2 4	≥ 0.4	<b>Annex C 67</b>  771-3-015
<b>SEPA Blocs Creux Hollow brick Hbl 4 – 09</b> acc. to EN 771-3:2011		≥ 500x200x200	6 4	≥ 0.9	<b>Annex C 68</b>  771-3-025

**Würth Plastic Anchor W-UR**

**Performances**

Hollow or perforated masonry (use category "c")  
Format, measurement, minimum compressive strength, bulk density class, Annex

**Annex C 9**

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

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
Autoclaved aerated concrete acc. to EN 771-4:2011		≥ 499x175x249	2 4 6 7	≥ 0.3	Annex C 69
Reinforced components autoclaved aerated concrete acc. to EN 12602:2016-12			2 - 7	≥ 0.4	Annex C 70

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

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
Precast prestressed hollow core elements VMM-L SCD 20 acc. to DIN EN 1168:2011-12, Z-15.10-276 e.g. Ketonía GmbH		≥ 1200x800x200	C45/55	≥ 2.4	Annex C 71
Precast prestressed hollow core elements VMM-L EPD 32 acc. to DIN EN 1168:2011-12, Z-15.10-276 e.g. Ketonía GmbH		≥ 1200x800x320	C45/55	≥ 2.4	Annex C 72
Precast prestressed hollow core elements VMM-L SCD 16 acc. to DIN EN 1168:2011-12, Z-15.10-276 e.g. Ketonía GmbH		≥ 1200x400x160	C45/55	≥ 2.4	Annex C 73

**Table C 9.1: Gypsum blocks: MultiGips R.max Schallschutzplatte**

Base material	Format	Measurement [mm]	Minimum compressive strength [N/mm <sup>2</sup> ]	Bulk density class [kg/dm <sup>3</sup> ]	Annex
Gypsum blocks: MultiGips R.max Schallschutzplatte acc. to DIN EN 12859:2011-05		≥ 500x500x100	11.7	≥ 1.2	Annex C 74

**Würth Plastic Anchor W-UR**

**Performances**

Autoclaved aerated concrete, precast or prestressed hollow core elements, gypsum blocks  
Format, measurement, minimum compressive strength, bulk density class, Annex

**Annex C 10**

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

**Table C 10.1.1: Brick data**

Description of brick		771-1-020	Mz	
Type of brick			Solid brick Mz	
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.8	
Standard, approval			DIN 105-100:2012-01; EN 771-1:2011	
Format (measurement)		[mm]	$\geq$ NF ( $\geq$ 240x115x71)	
Minimum thickness of member	$h_{\min} =$	[mm]	115	

**Table C 10.1.2: Installation parameters**

Anchor size		W-UR 8		W-UR 10		
Installationsside <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	
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100	250	100	

**Table C 10.1.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8		W-UR 10		
Installationsside <sup>6)</sup>		Inside / Outside		Inside / Outside		
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	<b>50</b>	<b>70</b>	<b>50</b>	<b>70</b>
<b>Solid brick Mz, <math>f_b \geq 10</math> N/mm<sup>2</sup></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	1.2	1.5	0.75	2.0
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	1.2	1.5	0.60	1.5
<b>Solid brick Mz, <math>f_b \geq 20</math> N/mm<sup>2</sup></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	2.0	2.0	1.5	3.0
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	2.0	2.0	1.2	2.0
<b>Solid brick Mz, <math>f_b \geq 28</math> N/mm<sup>2</sup></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	2.5	3.0	1.5	4.0
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	2.5	3.0	1.2	3.0
<b>Solid brick Mz, <math>f_b \geq 36</math> N/mm<sup>2</sup></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	3.5	4.0	1.5	5.0
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	3.5	4.0	1.2	4.0
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5		2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Solid masonry: Solid brick Mz, NF**

Brick data, installation parameters, characteristic resistance

**Annex C 11**

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

**Table C 10.2.1: Brick data**

Description of brick		771-1-041	Mz
Type of brick			Solid brick Mz
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.8
Standard, approval			DIN 105-100:2012-01; EN 771-1:2011
Producer of brick			e.g. Wienerberger GmbH
Format (measurement)		[mm]	$\geq$ 3DF ( $\geq$ 240x175x113)
Minimum thickness of member	$h_{\min} =$	[mm]	115

**Table C 10.2.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	50

**Table C 10.2.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside / Reveal	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	<b>70</b>
<b>Solid brick Mz, <math>f_b \geq 10 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.5
<b>Solid brick Mz, <math>f_b \geq 20 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	2.0
<b>Solid brick Mz, <math>f_b \geq 28 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	3.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	3.0
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Solid masonry: Solid brick Mz, 3DF**

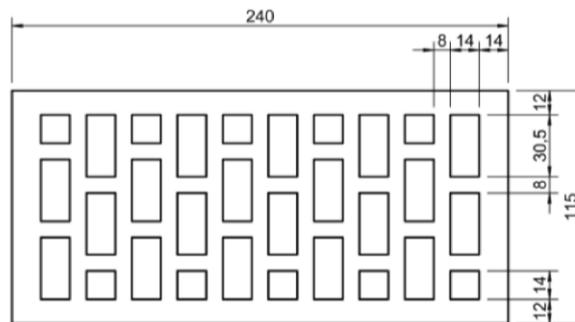
Brick data, installation parameters, characteristic resistance

**Annex C 12**

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

**Table C 10.3.1: Brick data**

Description of brick		771-1-021	HLz
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.2
Standard, approval			DIN 105-100:2012-01; EN 771-1:2011
Producer of brick			e.g. Wienerberger GmbH
Format (measurement)		[mm]	$\geq$ 2DF ( $\geq$ 240x115x113)
Minimum thickness of member	$h_{\min} =$	[mm]	115



**Table C 10.3.2: Installation parameters**

Anchor size		W-UR 8		W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside			
Drill hole diameter	$d_0 =$	8		10	
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	8.45		10.45	
Depth of drill hole to deepest point	$h_1 \geq$	60	80	60	80
Drill method		Rotary drilling		Rotary drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	50	70	50	70
Diameter of clearance hole in the fixture	$d_f \leq$	8.5		10.5	
Minimum allowable edge distance	$c_{\min} \geq$	100		250	100

**Table C 10.3.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8		W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside			
Overall plastic anchor embedment depth	$h_{\text{nom}}$ [mm]	$\geq 50$ <sup>5)</sup>	= 70	$\geq 50$ <sup>5)</sup>	= 70
Hollow brick HLz, $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$ [kN]	0.6	0.9	-	0.9
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$ [kN]	0.5	0.75	-	0.75
Hollow brick HLz, $f_b \geq 12 \text{ N/mm}^2$	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$ [kN]	0.9	1.5	0.5	1.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$ [kN]	0.75	0.9	0.4	1.2
Hollow brick HLz, $f_b \geq 20 \text{ N/mm}^2$	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$ [kN]	1.5	2.5	0.75	2.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$ [kN]	1.2	1.5	0.6	2.0
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup> [-]	2.5		2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

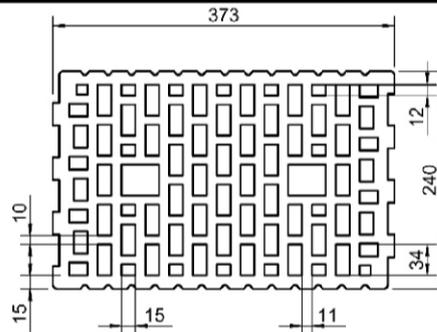
**Performances**  
Hollow brick: HLz, 2DF  
Brick data, installation parameters, characteristic resistance

**Annex C 13**

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

**Table C 10.4.1: Brick data**

Description of brick		771-1-010;771-1-036	HLz
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.2
Standard, approval			DIN 105-100:2012-01; EN 771-1:2011
Producer of brick			e.g. Schlagmann Baustoffwerke GmbH & Co. KG
Format (measurement)		[mm]	$\geq 12DF (\geq 373 \times 240 \times 238)$
Minimum thickness of member	$h_{\min} =$	[mm]	240



**Table C 10.4.2: Installation parameters**

Anchor size		W-UR 8		W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside	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		[-]	Rotary drilling	Rotary drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70	70	
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	10.5	
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	45	65	100

**Table C 10.4.3: Characteristic resistance  $F_{Rk}^{1)}$  and  $V_{Rk}^{7)}$  in [kN] for single anchor**

Anchor size		W-UR 8		W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70		
Characteristic resistance for single anchor	[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$	
Hollow brick HLz, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.6	1.2	1.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.6	1.2	1.5
Hollow brick HLz, $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.9	2.0	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.9	1.5	2.0
Hollow brick HLz, $f_b \geq 10 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.2	2.0	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.2	1.5	2.0
Hollow brick HLz, $f_b \geq 12 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.2	2.0	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.2	1.5	2.0
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

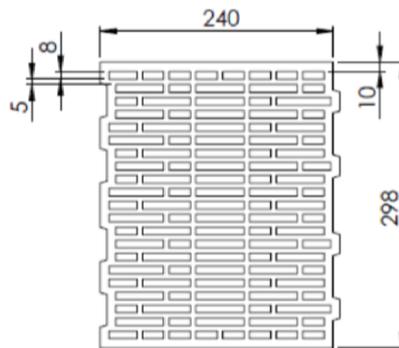
**Performances**  
**Hollow brick: HLz, 12DF**  
Brick data, installation parameters, characteristic resistance

**Annex C 14**

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

**Table C 10.5.1: Brick data**

Description of brick		771-1-019	POROTON Planziegel T14
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval			EN 771-1:2011; Z-17.1-625
Producer of brick			Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)		[mm]	$\geq 10DF (\geq 248 \times 300 \times 249)$
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.5.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.5.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
<b>Hollow brick POROTON Planziegel T14, <math>f_b \geq 6 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.4
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.4
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

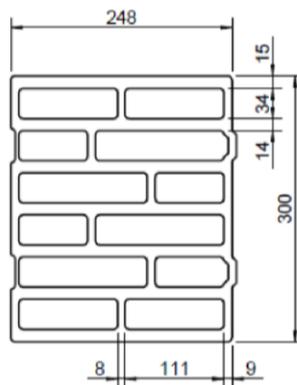
**Performances**  
Hollow brick: POROTON Planziegel T14, 10DF  
Brick data, installation parameters, characteristic resistance

**Annex C 15**

**Base material hollow masonry: Hollow brick POROTON-T8-30,0-P and POROTON-T9-30,0-P**

**Table C 10.6.1: Brick data**

Description of brick		771-1-022	POROTON-T8-30,0-P and POROTON-T9-30,0-P
Type of brick			Hollow brick POROTON-T8-P, -T9-P
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.6
Standard, approval			T8: EN 771-1:2011; Z-17.1-982 T9: EN 771-1:2011; Z-17.1-674
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover  Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Measurement		[mm]	$\geq 10DF (\geq 248 \times 300 \times 249)$
Minimum thickness of member	$h_{min} =$ [mm]		300



**Table C 10.6.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		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
Minimum allowable edge distance	$c_{min} \geq$ [mm]	100	100

**Table C 10.6.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]	<b>70</b>	<b>70</b>
POROTON-T8-30,0-P and POROTON-T9-30,0-P, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	1.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9	0.9
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^2)$ [-]	2.5	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

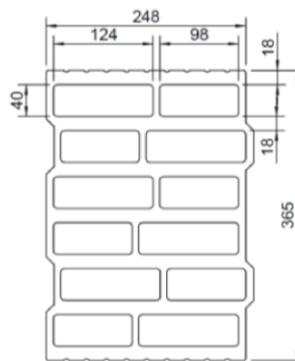
**Hollow brick: POROTON-T8-30,0-P and POROTON-T9-30,0-P**  
Brick data, installation parameters, characteristic resistance

**Annex C 16**

**Base material hollow masonry: Hollow brick POROTON-T8-36,5-MW**

**Table C 10.7.1: 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			EN 771-1:2011; Z-17.1-1041
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover
Measurement		[mm]	$\geq 12DF (\geq 248 \times 365 \times 249)$
Minimum thickness of member	$h_{\min} =$	[mm]	365



**Table C 10.7.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.7.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
<b>POROTON-T8-36,5-MW,</b> $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
<b>POROTON-T8-36,5-MW,</b> $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

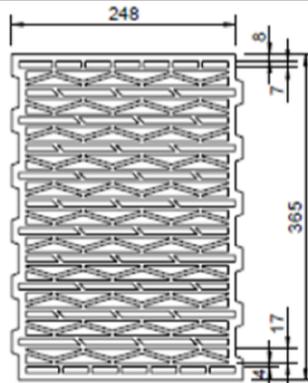
**Performances**  
**Hollow brick: POROTON-T8-36,5-MW**  
Brick data, installation parameters, characteristic resistance

**Annex C 17**

**Base material hollow masonry: Hollow brick: POROTON Planziegel T8**

**Table C 10.8.1: Brick data**

Description of brick		771-1-057	POROTON Planziegel T8
Type of brick			Hollow brick POROTON Planziegel T8
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.60
Standard, approval			Z-17.1-972
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover  Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Measurement		[mm]	$\geq 12DF (\geq 248 \times 365 \times 249)$
Minimum thickness of member	$h_{\min} =$	[mm]	365



**Table C 10.8.2: Installation parameters**

Anchor size		W-UR 8
Installation side <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm] 125

**Table C 10.8.3: Charakteristische Tragfähigkeit  $F_{Rk}$ <sup>1)</sup> in [kN] für Einzeldübel**

Dübelgröße		W-UR 8
Installation side <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm] 70
POROTON Planziegel T8, $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.4
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.3
Partial safety factor	$\gamma_{Mm}^2)$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

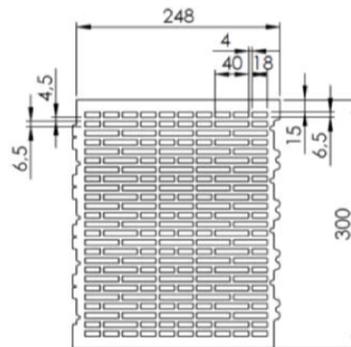
**Performances**  
**Hollow brick: POROTON-Planziegel T8**  
Brick data, installation parameters, characteristic resistance

**Annex C 18**

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

**Table C 10.9.1: 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> ]	0.65
Standard, approval			T10: EN 771-1:2011; Z-17.1-889
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover  Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Measurement		[mm]	$\geq 10DF (\geq 248 \times 300 \times 249)$
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.9.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.9.3: Characteristic resistance  $F_{RK}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
POROTON Planziegel T10-30, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.5
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.5
Characteristic resistance $F_{RK}$			
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: POROTON Planziegel T10**

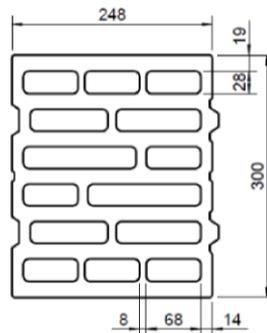
Brick data, installation parameters, characteristic resistance

**Annex C 19**

**Base material hollow masonry: Hollow brick POROTON S10**

**Table C 10.10.1: 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> ]	0.75
Standard, approval			S10: EN 771-1:2011; Z-17.1-1017
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Measurement		[mm]	$\geq 10DF (\geq 248 \times 300 \times 249)$
Minimum thickness of member	$h_{min} =$	[mm]	300



**Table C 10.10.2: Installation parameters**

Anchor size		W-UR 8
Installationsside <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
Minimum allowable edge distance	$c_{min} \geq$	[mm] 50 100

**Table C 10.10.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm] 70
<b>POROTON S10-30, <math>f_b \geq 6 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN] 0.6 0.6
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN] 0.6 0.6
<b>POROTON S10-30, <math>f_b \geq 8 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN] 0.75 0.75
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN] 0.75 0.75
<b>POROTON S10-30, <math>f_b \geq 10 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN] 0.9 1.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN] 0.9 1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

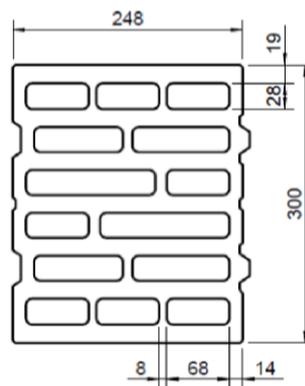
**Performances**  
**Hollow brick: POROTON S10**  
Brick data, installation parameters, characteristic resistance

**Annex C 20**

**Base material hollow masonry: Hollow brick POROTON-S11-30,0-P**

**Table C 10.11.1: Brick data**

Description of brick		771-1-025	Hollow brick POROTON-S11-30,0-P
Type of brick			Hollow brick S11-30,0-P
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.9
Standard, approval			EN 771-1:2011; Z-17.1-812
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover  Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Measurement		[mm]	$\geq 10DF (\geq 248 \times 300 \times 249)$
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.11.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	
Drill hole diameter	$d_0 =$	8	10
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$	80	80
Drill method		Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	8.5	10.5
Minimum allowable edge distance	$c_{\min} \geq$	100	100

**Table C 10.11.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	70	70
<b>POROTON-S11-30,0-P <math>f_b \geq 8 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	2.0	1.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	2.0	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	2.5	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: POROTON-S11-30,0-P**

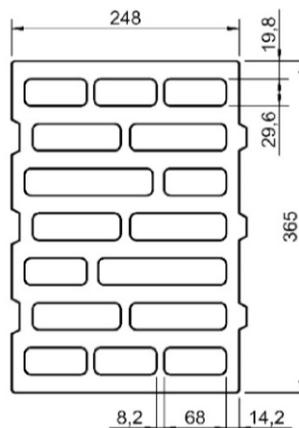
Brick data, installation parameters, characteristic resistance

**Annex C 21**

**Base material hollow masonry: Hollow brick POROTON-S11-36,5-P**

**Table C 10.12.1: Brick data**

Description of brick		771-1-009	Hollow brick POROTON-S11-36,5-P
Type of brick			Hollow brick S11-36,5-P
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.9
Standard, approval			EN 771-1:2011; Z-17.1-812
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover  Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Measurement		[mm]	12DF ( $\geq 248 \times 365 \times 249$ )
Minimum thickness of member	$h_{\min} =$	[mm]	365



**Table C 10.12.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	
Drill hole diameter	$d_0 =$	8	10
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$	80	80
Drill method		Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	8.5	10.5
Minimum allowable edge distance	$c_{\min} \geq$	100	100

**Table C 10.12.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	70	70
POROTON-S11-36,5-P $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	2.0	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	2.0	1.5
Partial safety factor	$\gamma_{Mm}^2)$	2.5	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: POROTON-S11-36,5-P**

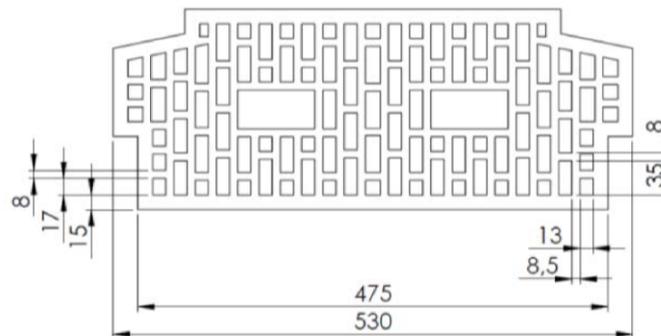
Brick data, installation parameters, characteristic resistance

**Annex C 22**

**Base material hollow brick for ceiling DIN DIN 4160:2000-4-BN 0,8-530-250-210 (system Filigran)**

**Table C 10.13.1: Brick data**

Description of brick		771-1-031	Brick for ceiling (system Filigran)
Type of brick			Brick for ceiling
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8
Standard, approval			DIN 4160:2000-4
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover
Measurement		[mm]	530x250x210
Minimum thickness of member	$h_{\min} =$	[mm]	210



**Table C 10.13.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside		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		[-]	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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.13.3: Characteristic resistance  $F_{Rk}^1$  in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside		bottom view	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
Brick for ceiling (system Filigran), $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: Brick for ceiling (system Filigran)**

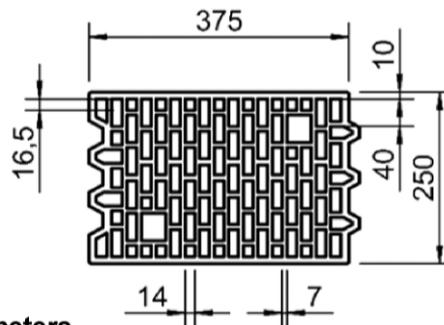
Brick data, installation parameters, characteristic resistance

**Annex C 23**

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

**Table C 10.14.1: Brick data**

Brick data		771-1-005	POROTHERM 25-38 N+F
Type of brick			Hollow brick POROTHERM 25-38 N+F
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8
Standard, approval			EN 771-1:2011
Producer of brick			Wienerberger Ziegelindustrie GmbH Hauptstraße A-2332 Henndorf, Austria
Measurement		[mm]	$\geq 375 \times 250 \times 238$
Minimum thickness of member	$h_{\min} =$	[mm]	250



**Table C 10.14.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10	
Installationsside <sup>6)</sup>		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		[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	10.5
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100	100

**Table C 10.14.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside		
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>	<b>70</b>
<b>Hollow brick POROTHERM 25-38 N+F, <math>f_b \geq 6 \text{ N/mm}^2</math></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	0.75	0.9
	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	0.6	0.6
<b>Hollow brick POROTHERM 25-38 N+F, <math>f_b \geq 8 \text{ N/mm}^2</math></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	0.9	1.2
	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	0.9	0.9
<b>Hollow brick POROTHERM 25-38 N+F, <math>f_b \geq 10 \text{ N/mm}^2</math></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	1.2	1.5
	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	0.9	1.2
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: POROTHERM 25-38 N+F**

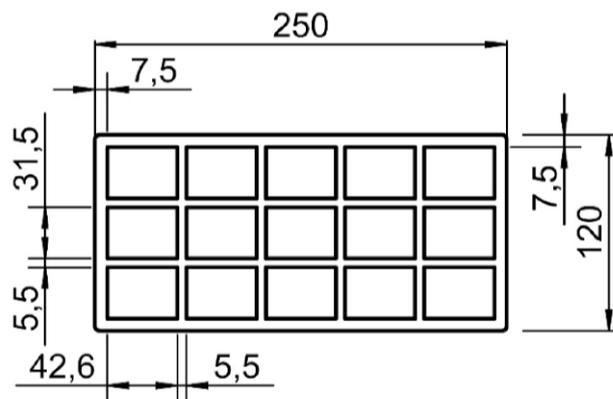
Brick data, installation parameters, characteristic resistance

**Annex C 24**

**Base material hollow masonry: Hollow brick Blocchi Leggeri**

**Table C 10.15.1: 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			EN 771-1:2011
Producer of brick			Wienerberger Brunori s.r.l. Via Ringhiera 1 I-40020 Mordano (Bologna) fraz. Bubano Italy
Measurement		[mm]	$\geq 250 \times 120 \times 330$
Minimum thickness of member	$h_{\min} =$	[mm]	120



**Table C 10.15.2: Installation parameters**

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

**Table C 10.15.3: Characteristic resistance  $F_{RK}^{1)}$  in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	70	70
Hollow brick Blocchi Leggeri, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	0.9	0.3
Characteristic resistance $F_{RK}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	0.6	0.3
Partial safety factor	$\gamma_{Mm}^{2)}$	2.5	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: Blocchi Leggeri**

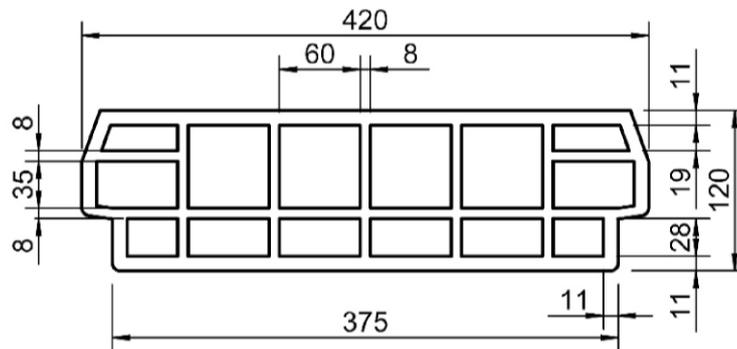
Brick data, installation parameters, characteristic resistance

**Annex C 25**

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

**Table C 10.16.1: 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> ]	0.6
Standard, approval			EN 771-1:2011
Producer of brick			Wienerberger Tacconi s.r.l. Via Ringhiera 1 I-40020 Mordano (Bologna) fraz. Bubano Italy, Werk Terni
Measurement		[mm]	$\geq 420 \times 120 \times 250$
Minimum thickness of member	$h_{\min} =$	[mm]	120



**Table C 10.16.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside		bottom view	bottom view
Drill hole diameter	$d_0 =$	8	10
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	8.45	10.45
Depth of drill hole to deepest point	$h_1 \geq$	80	80
Drill method		Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	8.5	10.5
Minimum allowable edge distance	$c_{\min} \geq$	100	100

**Table C 10.16.3: Characteristic resistance  $F_{Rk}^1$  in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside		bottom view	bottom view
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	<b>70</b>	<b>70</b>
Hollow brick for ceiling Blocchi per solaio a travetti, $f_b \geq 10 \text{ N/mm}^2$	$30^\circ\text{C}^{(3)} / 50^\circ\text{C}^{(4)}$	1.2	0.9
	$50^\circ\text{C}^{(3)} / 80^\circ\text{C}^{(4)}$	0.9	0.6
Hollow brick for ceiling Blocchi per solaio a travetti, $f_b \geq 14 \text{ N/mm}^2$	$30^\circ\text{C}^{(3)} / 50^\circ\text{C}^{(4)}$	1.5	1.2
	$50^\circ\text{C}^{(3)} / 80^\circ\text{C}^{(4)}$	1.2	0.9
Partial safety factor	$\gamma_{Mm}^{(2)}$	2.5	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

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

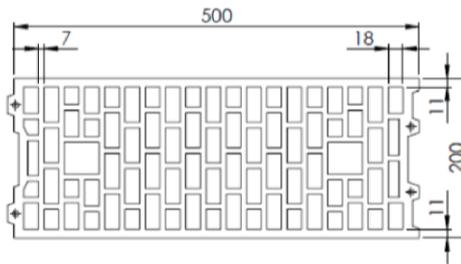
Brick data, installation parameters, characteristic resistance

**Annex C 26**

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

**Table C 10.17.1: Brick data**

Brick data		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			EN 771-1:2011
Producer of brick			e.g. Wienerberger SAS 8, Rue du Canal - Achenheim 67087 Strasbourg, France
Measurement		[mm]	T20: 500x200x240 R20: 500x200x249
Minimum thickness of member	$h_{min} =$	[mm]	200



**Table C 10.17.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100

**Table C 10.17.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
<b>Hollow brick</b> <b>POROTHERM MURBRIC T20 and R20,</b> <b><math>f_b \geq 6 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3) / 50^\circ\text{C}^{4)}$	[kN]	0.3
	$50^\circ\text{C}^{3) / 80^\circ\text{C}^{4)}$	[kN]	0.3
<b>Hollow brick</b> <b>POROTHERM MURBRIC T20 and R20,</b> <b><math>f_b \geq 8 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3) / 50^\circ\text{C}^{4)}$	[kN]	0.4
	$50^\circ\text{C}^{3) / 80^\circ\text{C}^{4)}$	[kN]	0.4
<b>Hollow brick</b> <b>POROTHERM MURBRIC T20 and R20,</b> <b><math>f_b \geq 12 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3) / 50^\circ\text{C}^{4)}$	[kN]	0.6
	$50^\circ\text{C}^{3) / 80^\circ\text{C}^{4)}$	[kN]	0.6
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

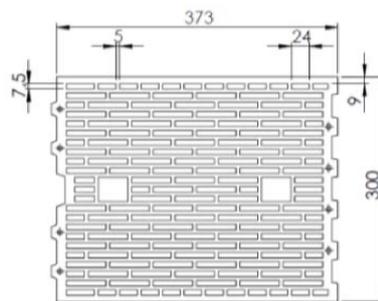
**Performances**  
**Hollow brick: POROTHERM MURBRIC T20 and R20**  
Brick data, installation parameters, characteristic resistance

**Annex C 27**

**Base material hollow masonry: Hollow brick POROTHERM T30, POROTHERM R30**

**Table C 10.18.1: Brick data**

Brick data		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			EN 771-1:2011
Producer of brick			Wienerberger SAS 8, Rue du Canal - Achenheim 67087 Strasbourg France
Measurement	[mm]		T30: 373x300x249 R30: 373x300x250
Minimum thickness of member	$h_{min} =$ [mm]		300



**Table C 10.18.2: Installation parameters**

Anchor size			W-UR 8
Installationsside <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
Minimum allowable edge distance	$c_{min} \geq$ [mm]		100

**Table C 10.18.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size			W-UR 8
Installationsside <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$ [mm]		<b>70</b>
Hollow brick POROTHERM R30, Hollow brick POROTHERM T30, $f_b \geq 6 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		0.4
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.3
Hollow brick POROTHERM R30, Hollow brick POROTHERM T30, $f_b \geq 8 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]		0.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]		0.4
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup> [-]		2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

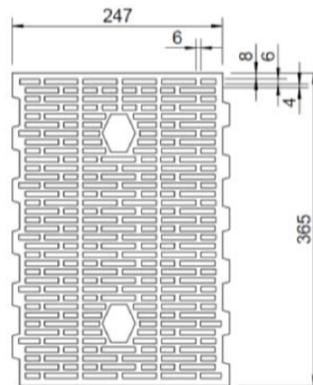
**Hollow brick: POROTHERM T30 and POROTHERM R30**  
Brick data, installation parameters, characteristic resistance

**Annex C 28**

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

**Table C 10.19.1: Brick data**

Brick data		771-1-026	UNIPOR WS11 CORISO
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.85
Standard, approval			EN 771-1:2011, Z-17.1-1011
Producer of brick			UNIPOR Ziegel Marketing GmbH Landsberger Straße 392 D-81241 München
Measurement		[mm]	12DF ( $\geq 247 \times 365 \times 249$ )
Minimum thickness of member	$h_{\min} =$	[mm]	365



**Table C 10.19.2: Installation parameters**

Anchor size		W-UR 8	
Installation side <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.19.3: Characteristic resistance  $F_{\text{RK}}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installation side <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
<b>Hollow brick</b> <b>UNIPOR WS11 CORISO, <math>f_b \geq 10 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.9
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.75
Characteristic resistance $F_{\text{RK}}$			
Partial safety factor	$\gamma_{\text{Mm}}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: UNIPOR WS11 CORISO**

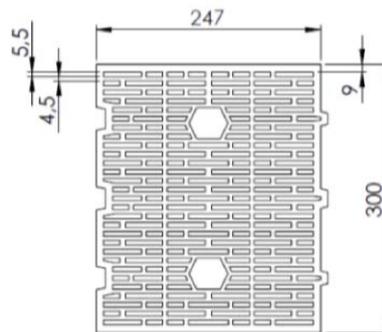
Brick data, installation parameters, characteristic resistance

**Annex C 29**

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

**Table C 10.20.1: Brick data**

Brick data		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			EN 771-1:2011, Z-17.1-883
Producer of brick			UNIPOR Ziegel Marketing GmbH Landsberger Straße 392 D-81241 München
Measurement		[mm]	10DF ( $\geq 247 \times 300 \times 249$ )
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.20.2: Installation parameters**

Anchor size			W-UR 8
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.20.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size			W-UR 8
Installationsside <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70
Hollow brick UNIPOR WS14 and UNIPOR WS12 CORISO, $f_b \geq 10 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.6
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.6
Hollow brick UNIPOR WS14 and UNIPOR WS12 CORISO, $f_b \geq 12 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.75
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.75
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

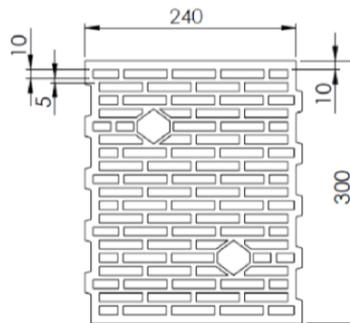
**Performances**  
Hollow brick: UNIPOR WS14 and UNIPOR WS12 CORISO  
Brick data, installation parameters, characteristic resistance

**Annex C 30**

**Base material hollow masonry: Hollow brick UNIPOR W14**

**Table C 10.21.1: Brick data**

Brick data		771-1-015	UNIPOR W14
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval			W14-Plan: EN 771-1:2011, Z-17.1-679, W14-Block: EN 771-1:2011, Z-17.1-636,
Producer of brick			UNIPOR Ziegel Marketing GmbH Landsberger Straße 392 D-81241 München
Measurement		[mm]	W14-Plan: $\geq 10DF (\geq 240 \times 300 \times 249)$ W14-Block: 10DF ( $\geq 240 \times 300 \times 238$ )
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.21.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.21.3: Characteristic resistance  $F_{Rk}^1$  in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
Hollow brick UNIPOR W14, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.4
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.4
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: UNIPOR W14**

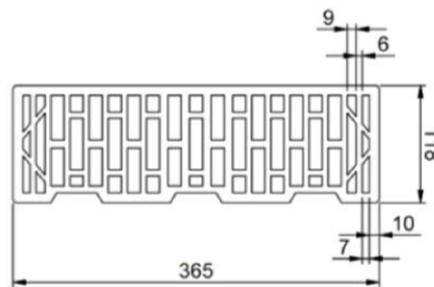
Brick data, installation parameters, characteristic resistance

**Annex C 31**

**Base material hollow masonry: Hollow brick UNIPOR 6DF EWS 365**

**Table C 10.22.1: Brick data**

Brick data		771-1-077	UNIPOR 6DF EWS 365
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.9
Standard, approval			EN 771-1:2011, Z-17.1-1021 / 1066
Producer of brick			UNIPOR Ziegel Marketing GmbH Landsberger Straße 392 D-81241 München
Measurement		[mm]	6DF ( $\geq 118 \times 365 \times 249$ )
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.22.2: Installation parameters**

Anchor size		W-UR 8
Installationsside <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	[-]	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
Minimum allowable edge distance	$c_{\min} \geq$ [mm]	65

**Table C 10.22.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside <sup>6)</sup>		Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
UNIPOR 6DF EWS 365, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	0.4
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	0.3
UNIPOR 6DF EWS 365, $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	0.6
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	0.4
UNIPOR 6DF EWS 365, $f_b \geq 10 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	0.75
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	0.6
UNIPOR 6DF EWS 365, $f_b \geq 12 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	0.9
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	0.6
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup> [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: UNIPOR 6DF EWS 365**

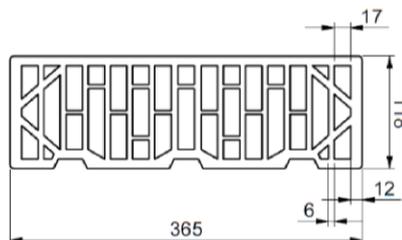
Brick data, installation parameters, characteristic resistance

**Annex C 32**

**Base material hollow masonry: Hollow brick UNIPOR 6DF EW 365**

**Table C 10.23.1: Brick data**

Brick data		771-1-074	UNIPOR 6DF EW 365
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]		0.70
Standard, approval			EN 771-1:2011, Z-17.1-935
Producer of brick			UNIPOR Ziegel Marketing GmbH Landsberger Straße 392 D-81241 München
Measurement	[mm]		6DF ( $\geq 118 \times 365 \times 249$ )
Minimum thickness of member	$h_{\min} =$ [mm]		365



**Table C 10.23.2: Installation parameters**

Anchor size		W-UR 8
Installationsside <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	[-]	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
Minimum allowable edge distance	$c_{\min} \geq$ [mm]	65

**Table C 10.23.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside <sup>6)</sup>		Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
<b>UNIPOR 6DF EW 365, <math>f_b \geq 4</math> N/mm<sup>2</sup></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup> [kN]	0.3
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup> [kN]	0.3
<b>UNIPOR 6DF EW 365, <math>f_b \geq 6</math> N/mm<sup>2</sup></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup> [kN]	0.5
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup> [kN]	0.4
<b>UNIPOR 6DF EW 365, <math>f_b \geq 8</math> N/mm<sup>2</sup></b>	30°C <sup>3)</sup> / 50°C <sup>4)</sup> [kN]	0.6
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup> [kN]	0.5
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup> [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: UNIPOR 6DF EW 365**

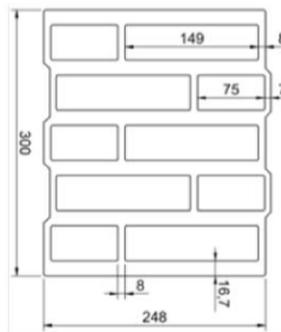
Brick data, installation parameters, characteristic resistance

**Annex C 33**

**Base material hollow masonry: Hollow brick ThermoPlan MZ7**

**Table C 10.24.1: Brick data**

Brick data	771-1-052	ThermoPlan MZ7
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.6
Standard, approval		EN 771-1:2011, Z-17.1-1016
Producer of brick		Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Measurement	[mm]	$\geq 10DF (\geq 248 \times 300 \times 249)$
Minimum thickness of member	$h_{\min} =$ [mm]	300



**Table C 10.24.2: Installation parameters**

Anchor size	W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$ [mm]	100

**Table C 10.24.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size	W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside
Overall anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
<b>Hollow brick ThermoPlan MZ7,</b> $f_b \geq 4 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{(3)} / 50^\circ\text{C}^{(4)}$ [kN]	0.75
	$50^\circ\text{C}^{(3)} / 80^\circ\text{C}^{(4)}$ [kN]	0.5
<b>Hollow brick ThermoPlan MZ7,</b> $f_b \geq 6 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{(3)} / 50^\circ\text{C}^{(4)}$ [kN]	0.9
	$50^\circ\text{C}^{(3)} / 80^\circ\text{C}^{(4)}$ [kN]	0.75
<b>Hollow brick ThermoPlan MZ7,</b> $f_b \geq 8 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{(3)} / 50^\circ\text{C}^{(4)}$ [kN]	1.5
	$50^\circ\text{C}^{(3)} / 80^\circ\text{C}^{(4)}$ [kN]	1.2
Partial safety factor	$\gamma_{Mm}^{(2)}$ [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: ThermoPlan MZ7**

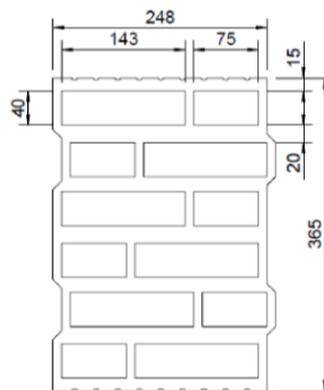
Brick data, installation parameters, characteristic resistance

**Annex C 34**

**Base material hollow masonry: Hollow brick ThermoPlan MZ8**

**Table C 10.25.1: Brick data**

Brick data		771-1-023	ThermoPlan MZ8
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval			EN 771-1:2011, Z-17.1-906
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Measurement		[mm]	$\geq 12DF (\geq 248 \times 365 \times 249)$
Minimum thickness of member	$h_{\min} =$	[mm]	365



**Table C 10.25.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.25.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
Hollow brick ThermoPlan MZ8, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.9
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.75
Hollow brick ThermoPlan MZ8, $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.2
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.9
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: ThermoPlan MZ8**

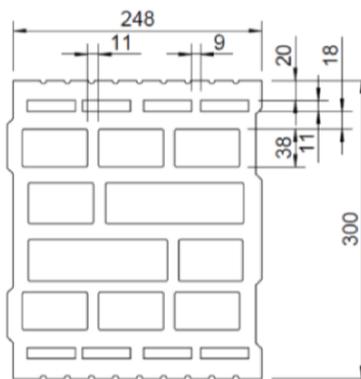
Brick data, installation parameters, characteristic resistance

**Annex C 35**

**Base material hollow masonry: Hollow brick ThermoPlan MZ10**

**Table C 10.26.1: Brick data**

Brick data		771-1-034	ThermoPlan MZ10
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.75
Standard, approval			EN 771-1:2011, Z-17.1-1015
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Measurement		[mm]	$\geq 10DF (\geq 248 \times 300 \times 249)$
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.26.2: Installation parameters**

Anchor size		W-UR 8
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm] 100

**Table C 10.26.3: Characteristic resistance  $F_{RK}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm] <b>70</b>
<b>Hollow brick ThermoPlan MZ10,</b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN] 2,0
<b><math>f_b \geq 8 \text{ N/mm}^2</math></b>		
Characteristic resistance $F_{RK}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN] 1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: ThermoPlan MZ10**

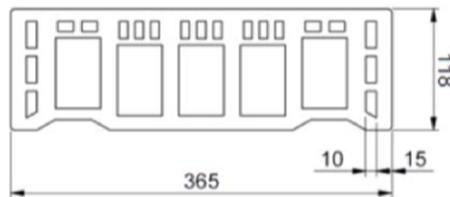
Brick data, installation parameters, characteristic resistance

**Annex C 36**

**Base material hollow masonry: Hollow brick ThermoPlan MZ Ergänzung**

**Table C 10.27.1: Brick data**

Brick data		771-1-081		ThermoPlan MZ Ergänzung	
Type of brick				Hollow brick	
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]		0.80	
Standard, approval				EN 771-1:2011, in dependence on Z-17.1015	
Producer of brick				Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau	
Measurement		[mm]		$\geq 6DF (\geq 118 \times 365 \times 249)$	
Minimum thickness of member	$h_{\min} =$	[mm]		365	



**Table C 10.27.2: Installation parameters**

Anchor size			W-UR 8	
Installationsside <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		[-]	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	
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	55	

**Table C 10.27.3: Characteristic resistance  $F_{Rk}$ <sup>1)7)</sup> in [kN] for single anchor**

Anchor size			W-UR 8	
Installationsside <sup>6)</sup>			Reveal	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70	
Characteristic resistance for single anchor		[kN]	$F_{Rk}$ <sup>1)</sup>	$F_{Rk}$ <sup>7)</sup>
<b>Hollow brick ThermoPlan Ergänzung,</b> $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6	0.9
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6	0.9
<b>Hollow brick ThermoPlan Ergänzung,</b> $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9	1.4
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	1.4
Characteristic resistance $F_{Rk}$		[kN]	0.9	1.4
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: ThermoPlan MZ Ergänzung**

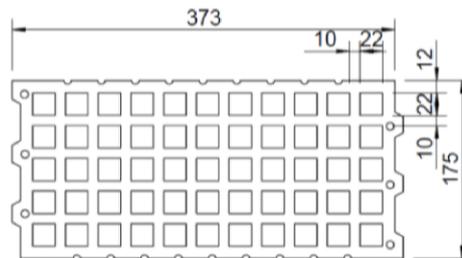
Brick data, installation parameters, characteristic resistance

**Annex C 37**

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

**Table C 10.28.1: Brick data**

Brick data		771-1-024	ThermoPlan TS <sup>2</sup>
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.9
Standard, approval			EN 771-1:2011, Z-17.1-993
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Measurement		[mm]	$\geq 9DF (\geq 373 \times 175 \times 249)$
Minimum thickness of member	$h_{\min} =$	[mm]	175



**Table C 10.28.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Drill hole diameter	$d_o =$	[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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.28.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70
Hollow brick ThermoPlan TS <sup>2</sup> , $f_b \geq 6 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.6
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.4
Hollow brick ThermoPlan TS <sup>2</sup> , $f_b \geq 8 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.75
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.6
Hollow brick ThermoPlan TS <sup>2</sup> , $f_b \geq 10 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.9
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.75
Hollow brick ThermoPlan TS <sup>2</sup> , $f_b \geq 12 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.2
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.9
Hollow brick ThermoPlan TS <sup>2</sup> , $f_b \geq 20 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	2.0
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: ThermoPlan TS<sup>2</sup>**

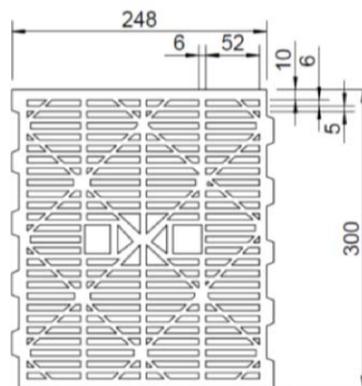
Brick data, installation parameters, characteristic resistance

**Annex C 38**

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

**Table C 10.29.1: Brick data**

Brick data		771-1-035	ThermoPlan TS 13
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.75
Standard, approval			EN 771-1:2011, Z-17.1-914
Producer of brick			Mein Ziegelhaus GmbH & Co. KG Märkerstraße 44 D-63755 Alzenau
Measurement		[mm]	$\geq 10DF (\geq 248 \times 300 \times 248)$
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.29.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.29.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
Hollow brick ThermoPlan TS 13, $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.6
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.6
Hollow brick ThermoPlan TS 13, $f_b \geq 10 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.75
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.75
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: ThermoPlan TS 13**

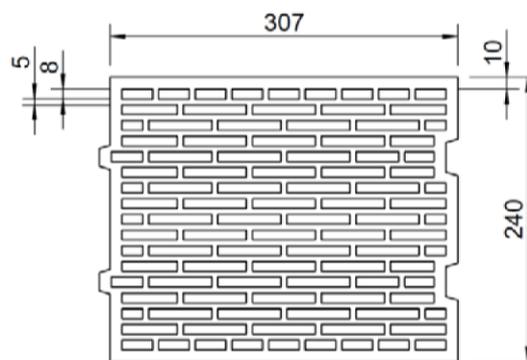
Brick data, installation parameters, characteristic resistance

**Annex C 39**

**Base material hollow masonry: Hollow brick THERMOPOR ISO-PD Plus Objektziegel**

**Table C 10.30.1: Brick data**

Brick data		771-11028	THERMOPOR ISO-PD Plus
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval			EN 771-1:2011, Z-17.1-840
Producer of brick			Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Measurement		[mm]	$\geq 307 \times 240 \times 249$
Minimum thickness of member	$h_{\min} =$	[mm]	240



**Table C 10.30.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.30.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
<b>THERMOPOR ISO-PD Plus Objektziegel, <math>f_b \geq 6 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.4
<b>THERMOPOR ISO-PD Plus Objektziegel, <math>f_b \geq 8 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

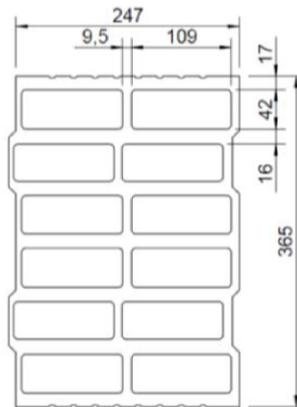
**Hollow brick: THERMOPOR ISO-PD Plus**  
Brick data, installation parameters, characteristic resistance

**Annex C 40**

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

**Table C 10.31.1: Brick data**

Brick data		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			EN 771-1:2011, Z-17.1-1005
Producer of brick			Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Measurement		[mm]	$\geq 12$ DF ( $\geq 247 \times 365 \times 249$ )
Minimum thickness of member	$h_{\min} =$	[mm]	365



**Table C 10.31.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.31.3: Characteristic resistance  $F_{\text{RK}}^1$  in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
<b>Hollow brick THERMOPOR TV 7-Plan, <math>f_b \geq 4</math> N/mm<sup>2</sup></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9
Characteristic resistance $F_{\text{RK}}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
Partial safety factor	$\gamma_{\text{Mm}}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: THERMOPOR TV 7-Plan**

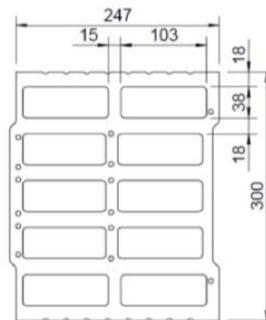
Brick data, installation parameters, characteristic resistance

**Annex C 41**

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

**Table C 10.32.1: Brick data**

Brick data	771-1-029	THERMOPOR TV 9-Plan
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.65
Standard, approval		EN 771-1:2011, Z-17.1-1006
Producer of brick		Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Measurement	[mm]	$\geq 10$ DF ( $\geq 247 \times 300 \times 249$ )
Minimum thickness of member	$h_{\min} =$ [mm]	300



**Table C 10.32.2: Installation parameters**

Anchor size		W-UR 8
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$ [mm]	100

**Table C 10.32.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
Hollow brick THERMOPOR TV 9-Plan, $f_b \geq 4$ N/mm <sup>2</sup>	30°C <sup>3)</sup> / 50°C <sup>4)</sup> [kN]	0.75
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup> [kN]	0.75
Hollow brick THERMOPOR TV 9-Plan, $f_b \geq 6$ N/mm <sup>2</sup>	30°C <sup>3)</sup> / 50°C <sup>4)</sup> [kN]	0.9
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup> [kN]	0.9
Hollow brick THERMOPOR TV 9-Plan, $f_b \geq 8$ N/mm <sup>2</sup>	30°C <sup>3)</sup> / 50°C <sup>4)</sup> [kN]	1.5
Characteristic resistance $F_{Rk}$	50°C <sup>3)</sup> / 80°C <sup>4)</sup> [kN]	1.5
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup> [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: THERMOPOR TV 9-Plan**

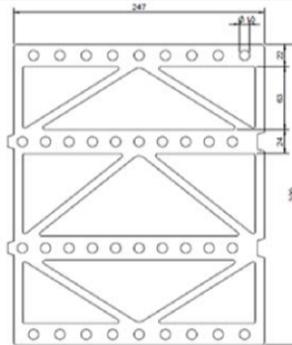
Brick data, installation parameters, characteristic resistance

**Annex C 42**

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

**Table C 10.33.1: Brick data**

Brick data		771-1-049	Kellerer ZMK X6
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.60
Standard, approval			EN 771-1:2011, Z-17.1-1067
Producer of brick			Ziegelsystem Michael Kellerer GmbH & Co KG Ziegeleistraße 13, D-82281 Egenhofen
Measurement		[mm]	$\geq 10DF$ (247x300x249)
Minimum thickness of member	$h_{min} =$	[mm]	300



**Table C 10.33.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100

**Table C 10.33.3: Characteristic resistance  $F_{RK}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	<b>70</b>
Hollow brick Kellerer ZMK X6, $f_b \geq 2 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.3
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.3
Hollow brick Kellerer ZMK X6, $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.5
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.5
Hollow brick Kellerer ZMK X6, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.75
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.75
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: Kellerer ZMK X6**

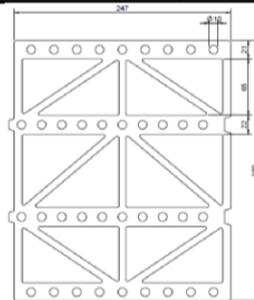
Brick data, installation parameters, characteristic resistance

**Annex C 43**

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

**Table C 10.34.1: Brick data**

Brick data		771-1-050	Kellerer ZMK TX8
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.60
Standard, approval			EN 771-1:2011, Z-17.1-1068
Producer of brick			Ziegelsystem Michael Kellerer GmbH & Co KG Ziegeleistraße 13, D-82281 Egenhofen
Measurement		[mm]	$\geq 10DF$ ( 247x300x249)
Minimum thickness of member	$h_{min} =$	[mm]	300



**Table C 10.34.2: Installation parameters**

Anchor size		W-UR 8	
Installation <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
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100

**Table C 10.34.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installation <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	<b>70</b>
<b>Hollow brick Kellerer ZMK TX8,</b> $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6
<b>Hollow brick Kellerer ZMK TX8,</b> $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: Kellerer ZMK TX8**

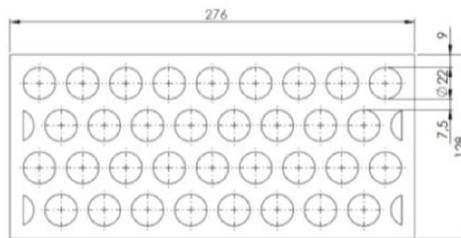
Brick data, installation parameters, characteristic resistance

**Annex C 44**

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

**Table C 10.35.1: Brick data**

Brick data		771-1-017	Hollow brick Ladrillo P NV R150
Type of brick			Hollow brick Ladrillo P NV R150
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.2
Standard, approval			EN 771-1:2011
Producer of brick			Ceramica La Corona, S.A. Carreta de Caldes, km 8, 9 08420 Canovelles, Spain
Measurement		[mm]	$\geq 276 \times 128 \times 95$
Minimum thickness of member	$h_{\min} =$	[mm]	128



**Table C 10.35.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.35.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
Hollow brick Ladrillo P NV R150, $f_b \geq 12$ N/mm <sup>2</sup>	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$	[kN]	0.6
	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$	[kN]	0.5
Hollow brick Ladrillo P NV R150, $f_b \geq 20$ N/mm <sup>2</sup>	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$	[kN]	1.2
	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$	[kN]	0.9
Hollow brick Ladrillo P NV R150, $f_b \geq 28$ N/mm <sup>2</sup>	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$	[kN]	1.5
	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$	[kN]	1.2
Hollow brick Ladrillo P NV R150, $f_b \geq 36$ N/mm <sup>2</sup>	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$	[kN]	2.0
	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$	[kN]	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick: Ladrillo P NV R150**

Brick data, installation parameters, characteristic resistance

**Annex C 45**

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

**Table C 10.36.1: Brick data**

Description of brick		771-1-002	KS	
Type of brick			Sand-lime solid brick	
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	2.0	
Standard, approval			DIN V 106:2005-10; EN 771-2:2011	
Producer of brick			-	
Format (measurement)		[mm]	$\geq$ NF ( $\geq$ 240x115x71)	
Minimum thickness of member	$h_{\min} =$	[mm]	115	

**Table C 10.36.2: Installation parameters**

Anchor size		W-UR 8		W-UR 10	
Installationsside <sup>6)</sup>		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		200 100
Minimum allowable edge distance	$c_{\text{min}} \geq$	[mm]	100		50 100

**Table C 10.36.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8		W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside			
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	50	70	50 70
Sand-lime solid brick KS, $f_b \geq 10 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5	1.5	0.75 2.0
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	1.5	0.75 1.5
Sand-lime solid brick KS, $f_b \geq 20 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.5	2.5	1.5 3.0
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.0	2.5	1.5 2.5
Sand-lime solid brick KS, $f_b \geq 28 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.5	3.5	1.5 4.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.0	3.5	1.5 3.5
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5		2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**  
Sand-lime solid brick: KS, NF  
Brick data, installation parameters, characteristic resistance

**Annex C 46**

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

**Table C 10.37.1: 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			DIN V 106:2005-10; EN 771-2:2011, Z-17.1-997
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 10.37.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside / Reveal	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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	50

**Table C 10.37.3: Characteristic resistance  $F_{RK}^1$  in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside / Reveal	Inside / Outside / Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	<b>70</b>
<b>Sand-lime solid brick Silka XL Basic, Silka XL Plus, <math>f_b \geq 10 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5
<b>Sand-lime solid brick Silka XL Basic, Silka XL Plus, <math>f_b \geq 20 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.5
<b>Sand-lime solid brick Silka XL Basic, Silka XL Plus, <math>f_b \geq 28 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.5
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

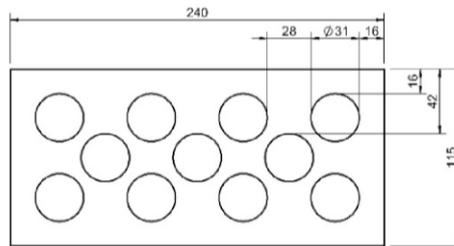
**Performances**  
**Sand-lime solid brick: Silka XL Basic, Silka XL Plus**  
Brick data, installation parameters, characteristic resistance

**Annex C 47**

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

**Table C 10.38.1: 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> ]	1.6		
Standard, approval		DIN V 106:2005-10; EN 771-2:2011			
Producer of brick		-			
Format (measurement)		[mm]	$\geq 2DF (\geq 240 \times 115 \times 113)$		
Minimum thickness of member	$h_{min} =$	[mm]	115		



**Table C 10.38.2: Installation parameters**

Anchor size		W-UR 8		W-UR 10		
Installation side <sup>6)</sup>		Inside / Outside		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]	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	
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100		100	

**Table C 10.38.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8		W-UR 10		
Installation side <sup>6)</sup>		Inside / Outside		Inside / Outside		
Overall plastic anchor embedment depth	$h_{nom}$	[mm]	$\geq 50$ <sup>5)</sup>	$= 70$	$\geq 50$ <sup>5)</sup>	$= 70$
Sand-lime perforated brick KS L, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6	1.2	0.5	0.9
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5	1.2	0.4
Sand-lime perforated brick KS L, $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9	1.5	0.6	1.2
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6	1.5	0.5
Sand-lime perforated brick KS L, $f_b \geq 10 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9	2.0	0.6	1.5
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	2.0	0.5
Sand-lime perforated brick KS L, $f_b \geq 12 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	2.5	0.9	2.0
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	2.5	0.75
Sand-lime perforated brick KS L, $f_b \geq 16 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5	2.5	0.9	2.5
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2	2.5	0.75
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5		2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

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

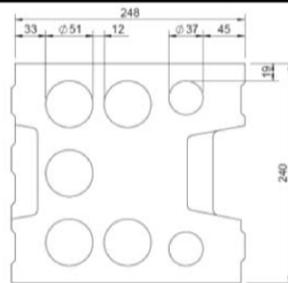
Brick data, installation parameters, characteristic resistance

**Annex C 48**

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

**Table C 10.39.1: 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			DIN V 106:2005-10; EN 771-2:2011
Producer of brick			e.g. Xella Deutschland GmbH
Format (measurement)		[mm]	$\geq 8DF (\geq 248 \times 240 \times 238)$
Minimum thickness of member	$h_{\min} =$	[mm]	240



**Table C 10.39.2: Installation parameters**

Anchor size		W-UR 8		W-UR 10	
Installation side <sup>6)</sup>		Inside / Outside	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		[-]	Rotary drilling	Rotary drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70	70	
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	10.5	
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	60	45	100

**Table C 10.39.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8		W-UR 10	
Installation side <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside	
Sand-lime perforated brick KS L, $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.9	0.9	0.9
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6	0.9
Sand-lime perforated brick KS L, $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	1.2	1.2
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	1.2
Sand-lime perforated brick KS L, $f_b \geq 10 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5	1.5	1.5
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	1.5
Sand-lime perforated brick KS L, $f_b \geq 12 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5	2.0	2.0
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2	2.0
Sand-lime perforated brick KS L, $f_b \geq 16 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.0	2.0	2.5
	Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	2.0
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5		2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Sand-lime perforated brick: KS L, 8DF**

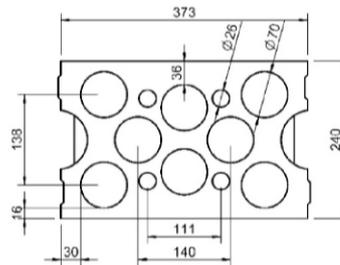
Brick data, installation parameters, characteristic resistance

**Annex C 49**

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

**Table C 10.40.1: 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		DIN V 106:2005-10; EN 771-2:2011
Producer of brick		-
Format (measurement)	[mm]	$\geq$ 12DF ( $\geq$ 373x240x238)
Minimum thickness of member	$h_{\min} =$ [mm]	240



**Table C 10.40.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	Reval
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	[-]	Rotary drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	50	70
Diameter of clearance hole in the fixture	$d_f \leq$ [mm]	8.5	
Minimum allowable edge distance	$c_{\min} \geq$ [mm]	100	50

**Table C 10.40.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}}$ [mm]	$50 \text{ mm} \leq h_{\text{nom}} \leq 70 \text{ mm}$ <sup>5)</sup>	
<b>Sand-lime perforated brick KS L,</b> $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6	0.9
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.5	0.75
<b>Sand-lime perforated brick KS L,</b> $f_b \geq 8 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	1.2
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6	0.9
<b>Sand-lime perforated brick KS L,</b> $f_b \geq 10 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.9	1.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6	1.2
<b>Sand-lime perforated brick KS L,</b> $f_b \geq 12 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9	1.5
<b>Sand-lime perforated brick KS L,</b> $f_b \geq 16 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2	1.5
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup> [-]	2.5	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Sand-lime perforated brick: KS L, 12DF**

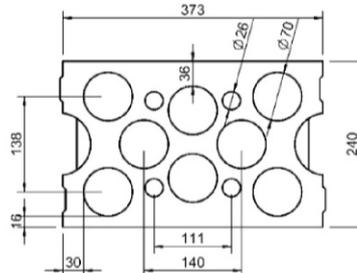
Brick data, installation parameters, characteristic resistance

**Annex C 50**

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

**Table C 10.40.4: 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			DIN V 106:2005-10; EN 771-2:2011
Producer of brick			-
Format (measurement)		[mm]	$\geq$ 12DF ( $\geq$ 373x240x238)
Minimum thickness of member	$h_{\min} =$	[mm]	240



**Table C 10.40.5: Installation parameters**

Anchor size		W-UR 10	
Installationsside <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]	60   80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	50   70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	10.5
Spacing perpendicular to free edge	$s_{1,\text{min}}$	[mm]	120   100
Spacing parallel to free edge	$s_{2,\text{min}}$	[mm]	240   100
Minimum allowable edge distance	$c_{\text{min}} \geq$	[mm]	60   100

**Table C 10.40.6: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}}$	[mm]	$50 \text{ mm} \leq h_{\text{nom}} \leq 70 \text{ mm}$ <sup>5)</sup>   = 70
Sand-lime perforated brick KS L, $f_b \geq 6 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.4   0.9
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.3   0.6
Sand-lime perforated brick KS L, $f_b \geq 8 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.5   1.2
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5   0.75
Sand-lime perforated brick KS L, $f_b \geq 10 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.5   1.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.5   0.9
Sand-lime perforated brick KS L, $f_b \geq 12 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75   1.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6   1.2
Sand-lime perforated brick KS L, $f_b \geq 16 \text{ N/mm}^2$ Characteristic resistance $F_{Rk}$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.75   2.0
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.6   1.5
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Sand-lime perforated brick: KS L, 12DF**

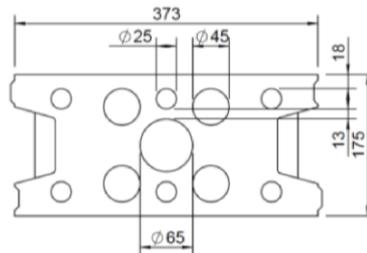
Brick data, installation parameters, characteristic resistance

**Annex C 51**

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

**Table C 10.41.1: 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			DIN V 106:2005-10; EN 771-2:2011
Producer of brick			Xella Deutschland GmbH Dr.-Hammacher-Str.49 D-47119 Duisburg
Format (measurement)		[mm]	$\geq$ 9DF ( $\geq$ 373x175x249)
Minimum thickness of member	$h_{min} =$	[mm]	175



**Table C 10.41.2: Installation parameters**

Anchor size			W-UR 8
Installation side <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
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100

**Table C 10.41.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size			W-UR 8
Installation side <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	<b>70</b>
<b>Sand-lime perforated brick KS L, <math>f_b \geq 6</math> N/mm<sup>2</sup></b> Characteristic resistance $F_{Rk}$	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	0.6
	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	0.4
<b>Sand-lime perforated brick KS L, <math>f_b \geq 8</math> N/mm<sup>2</sup></b> Characteristic resistance $F_{Rk}$	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	0.75
	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	0.6
<b>Sand-lime perforated brick KS L, <math>f_b \geq 10</math> N/mm<sup>2</sup></b> Characteristic resistance $F_{Rk}$	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	0.9
	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	0.75
<b>Sand-lime perforated brick KS L, <math>f_b \geq 12</math> N/mm<sup>2</sup></b> Characteristic resistance $F_{Rk}$	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	1.2
	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	0.9
<b>Sand-lime perforated brick KS L, <math>f_b \geq 20</math> N/mm<sup>2</sup></b> Characteristic resistance $F_{Rk}$	30°C <sup>3)</sup> / 50°C <sup>4)</sup>	[kN]	2.0
	50°C <sup>3)</sup> / 80°C <sup>4)</sup>	[kN]	1.5
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Sand-lime perforated brick: KS L, 9DF**

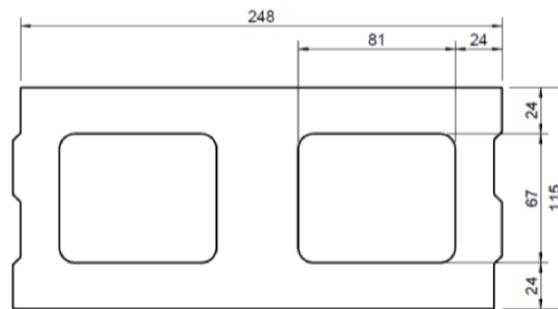
Brick data, installation parameters, characteristic resistance

**Annex C 52**

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

**Table C 10.42.1: 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			P-1109/884/07-MPA BS
Producer of brick			BMO KS-Vertrieb Bielefeld-Münster-Osnabrück GmbH & Co. KG Averdiekstr. 9; D-49078 Osnabrück
Format (measurement)		[mm]	$\geq$ 4DF ( $\geq$ 249x115x248)
Minimum thickness of member	$h_{\min} =$	[mm]	115



**Table C 10.42.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.42.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
<b>Sand-lime perforated brick KS-NT,</b> $f_b \geq 12 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2
<b>Sand-lime perforated brick KS-NT,</b> $f_b \geq 20 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.0
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Sand-lime perforated brick: KS-NT, 4DF**

Brick data, installation parameters, characteristic resistance

**Annex C 53**

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

**Table C 10.43.1: Brick data**

Description of brick		771-3-004	Vbn
Type of brick			Concrete solid block
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	2.0
Standard, approval			DIN V 18153-100:2005-10; EN 771-3:2011
Producer of brick			-
Format (measurement)		[mm]	$\geq$ NF ( $\geq$ 240x115x71)
Minimum thickness of member	$h_{\min} =$	[mm]	115

**Table C 10.43.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10	
Installationsside <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	60   80
Drill method		[-]	Hammer drilling	Hammer drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	50	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	200   100
Minimum allowable edge distance	$c_{\text{min}} \geq$	[mm]	100	50   100

**Table C 10.43.3: Characteristic resistance  $F_{\text{RK}}^1$  in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside	Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	<b>50</b>	<b>50</b>   <b>70</b>
<b>Concrete solid block Vbn,</b> $f_b \geq 10 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5	0.75   2.0
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5	0.75   2.0
<b>Concrete solid block Vbn,</b> $f_b \geq 20 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	2.5	1.2   3.0
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	2.5	0.9   3.0
<b>Concrete solid block Vbn,</b> $f_b \geq 28 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	3.5	1.5   4.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	3.5	1.5   4.5
Partial safety factor	$\gamma_{\text{Mm}}^2)$	[-]	2.5	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**  
**Concrete solid block Vbn, NF**  
Brick data, installation parameters, characteristic resistance

**Annex C 54**

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

**Table C 10.44.1: 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			EN 771-3:2011, DIN V 18152-100:2005-10
Producer of brick			e.g. Bisoclassic V Bisootherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	$\geq$ NF ( $\geq$ 240x115x71)
Minimum thickness of member	$h_{\min} =$	[mm]	115

**Table C 10.44.2: Installation parameters**

Anchor size			W-UR 8
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.44.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size			W-UR 8
Installationsside <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	<b>70</b>
<b>Lightweight concrete solid brick V2,</b> $f_b \geq 2 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.6
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.5
<b>Lightweight concrete solid brick V4,</b> $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.2
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Lightweight concrete solid brick V, NF**

Brick data, installation parameters, characteristic resistance

**Annex C 55**

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

**Table C 10.45.1: 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> ]	1.0
Standard, approval			EN 771-3:2011, DIN V 18152-100:2005-10
Producer of brick			e.g. BisoBims, 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 10.45.2: Installation parameters**

Anchor size		W-UR 8
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm] 100

**Table C 10.45.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm] 50 70
<b>Lightweight concrete solid brick V 2, <math>f_b \geq 2</math> N/mm<sup>2</sup></b>	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$	[kN] 0.4 0.6
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$	[kN] 0.3 0.6
<b>Lightweight concrete solid brick V 4, <math>f_b \geq 4</math> N/mm<sup>2</sup></b>	$30^\circ\text{C}^{3)}/50^\circ\text{C}^{4)}$	[kN] 0.9 1.2
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)}/80^\circ\text{C}^{4)}$	[kN] 0.75 1.2
Partial safety factor	$\gamma_{Mm}^{2)}$	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Lightweight concrete solid brick V, NF**

Brick data, installation parameters, characteristic resistance

**Annex C 56**

**Base material solid masonry, Lightweight concrete solid brick V and Vbl 3DF**

**Table C 10.46.1: Brick data**

Description of brick		771-3-017	V and Vbl
Type of brick			Lightweight concrete solid brick
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	2.0
Standard, approval			EN 771-3:2011, DIN V 18152-100:2005-10
Producer of brick			e.g. BisoBims, BisoTherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	$\geq 3$ DF ( $\geq 240 \times 175 \times 113$ )
Minimum thickness of member	$h_{\min} =$	[mm]	175

**Table C 10.46.2: Installation parameters**

Anchor size		W-UR 8
Installationsside <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] 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
Minimum allowable edge distance	$c_{\min} \geq$	[mm] 45

**Table C 10.46.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside <sup>6)</sup>		Inside / Outside / Reveal
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm] 70
<b>Lightweight concrete solid brick V and Vbl, <math>f_b \geq 10</math> N/mm<sup>2</sup></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 3.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 3.0
<b>Lightweight concrete solid brick V and Vbl, <math>f_b \geq 20</math> N/mm<sup>2</sup></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 5.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 4.0
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-] 2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**  
Lightweight concrete solid brick V and Vbl 3DF  
Brick data, installation parameters, characteristic resistance

**Annex C 57**

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

**Table C 10.47.1: Brick data**

Description of brick		LAC2	Vbl 2-0,6-24DF
Type of brick			Lightweight Aggregate Concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.6
Standard, approval			DIN V 18152-100:2005-10
Producer of brick			e.g. Liapor Massive Wall LAC2 by: Liapor GmbH & Co. KG D-91352 Hallerndorf
Measurement		[mm]	$\geq 24DF$
Minimum thickness of member	$h_{min} =$	[mm]	365

**Table C 10.47.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <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		[-]	Hammer drilling
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100

**Table C 10.47.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	<b>70</b>
Lightweight concrete solid block Vbl 2, $f_b \geq 2 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.5
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Lightweight concrete solid block Vbl**

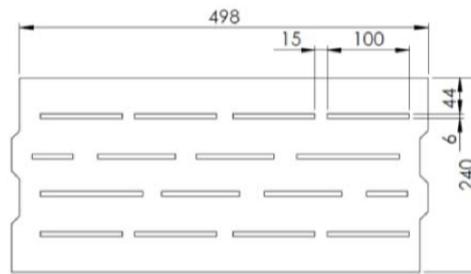
Brick data, installation parameters, characteristic resistance

**Annex C 58**

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

**Table C 10.48.1: Brick data**

Description of brick		771-3-012	Vbl 2-16DF
Type of brick			Lightweight Aggregate Concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.65
Standard, approval			DIN V 18152-100:2005-10, Z-17.1-839
Producer of brick			e.g. Liapor Compact by: Liapor GmbH & Co. KG D-91352 Hallerndorf  Meier Betonwerke GmbH Zur Schanze 2 92283 Lauterhofen
Measurement		[mm]	$\geq 16DF (\geq 498 \times 240 \times 239)$
Minimum thickness of member	$h_{\min} =$	[mm]	240



**Table C 10.48.2: Installation parameters**

Anchor size		W-UR 8	
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.48.3: Characteristic resistance  $F_{RK}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	
Installationsside <sup>6)</sup>		Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	<b>70</b>
Lightweight concrete solid block Vbl 2, $f_b \geq 2 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2
Characteristic resistance $F_{RK}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup>	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Lightweight concrete solid block Vbl**

Brick data, installation parameters, characteristic resistance

**Annex C 59**

**Base material: Concrete solid block Vbn**

**Table C 10.49.1: Brick data**

Description of brick		LC16/18	Vbn 12-1,4-12DF
Type of brick			Concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.4
Standard, approval			DIN V 18153-100:2005-10
Producer of brick			e.g. Liapor Element Wall LC16/18 by: Liapor GmbH & Co. KG D-91352 Hallendorf
Measurement		[mm]	$\geq$ 12DF
Minimum thickness of member	$h_{\min} =$	[mm]	175

**Table C 10.49.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.49.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$	[mm]	<b>70</b>
Concrete solid block Vbn 12, $f_b \geq 12 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	3.5
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	3.5
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Lightweight concrete solid block Vbn**

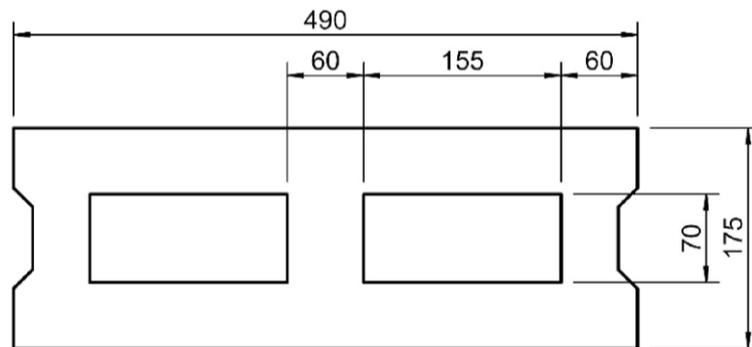
Brick data, installation parameters, characteristic resistance

**Annex C 60**

**Base material hollow brick lightweight concrete 1K Hbl**

**Table C 10.50.1: Brick data**

Description of brick		771-3-002	1K Hbl
Type of brick			Hollow brick lightweight concrete 1K Hbl
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	1.2
Standard, approval			DIN V 18151-100:2005-10; EN 771-3:2011
Producer of brick			e.g. Stahl Betonwerk GmbH & Co. KG D-74547 Untermünkheim-Kupfer
Format (measurement)		[mm]	$\geq 12DF (\geq 490 \times 175 \times 238)$
Minimum thickness of member	$h_{\min} =$	[mm]	175



**Table C 10.50.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <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		[-]	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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.50.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
<b>Hollow brick lightweight concrete 1K Hbl, <math>f_b \geq 2 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3) / 50^\circ\text{C}^{4)}$	[kN]	0.9
	$50^\circ\text{C}^{3) / 80^\circ\text{C}^{4)}$	[kN]	0.9
<b>Hollow brick lightweight concrete 1K Hbl, <math>f_b \geq 4 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3) / 50^\circ\text{C}^{4)}$	[kN]	2.0
	$50^\circ\text{C}^{3) / 80^\circ\text{C}^{4)}$	[kN]	2.0
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

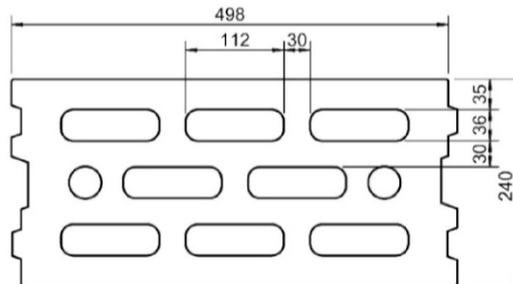
**Performances**  
**Hollow brick lightweight concrete 1K Hbl**  
Brick data, installation parameters, characteristic resistance

**Annex C 61**

**Base material hollow brick lightweight concrete 3K Hbl**

**Table C 10.51.1: Brick data**

Description of brick		771-3-005	3K Hbl
Type of brick			Hollow brick lightweight concrete 3K Hbl
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.7
Standard, approval			DIN V 18151-100:2005-10; EN 771-3:2011
Producer of brick			e.g. Heinzmann Baustoffe GmbH, Liapor GmbH & Co. KG
Format (measurement)		[mm]	$\geq 16DF (\geq 498 \times 240 \times 238)$
Minimum thickness of member	$h_{\min} =$	[mm]	240



**Table C 10.51.2: Installation parameters**

Anchor size		W-UR 8		W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside	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		[-]	Rotary drilling	Rotary drilling	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70	70	
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8.5	10.5	
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100	55	100

**Table C 10.51.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8		W-UR 10	
Installationsside <sup>6)</sup>		Inside / Outside	Reveal	Inside / Outside	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>	<b>70</b>	
<b>Hollow brick lightweight concrete 3K Hbl, <math>f_b \geq 2 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	0.6	0.6	0.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.4	0.6	0.3
<b>Hollow brick lightweight concrete 3K Hbl, <math>f_b \geq 4 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.2	1.2	0.9
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	0.9	1.2	0.6
<b>Hollow brick lightweight concrete 3K Hbl, <math>f_b \geq 6 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN]	1.5	1.2	1.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN]	1.2	1.2	0.9
Partial safety factor	$\gamma_{Mm}^2)$	[-]	2.5	2.5	

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick lightweight concrete 3K Hbl**

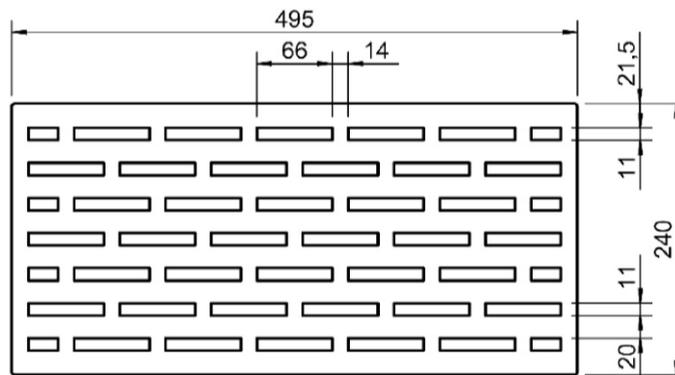
Brick data, installation parameters, characteristic resistance

**Annex C 62**

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

**Table C 10.52.1: Brick data**

Description of brick		771-3-006	Liapor-Super-K
Type of brick			Hollow brick lightweight concrete 7K
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.8
Standard, approval			EN 771-3:2011; Z-17.1-501
Producer of brick			Liapor GmbH & Co. KG D-91352 Hallerndorf
Format (measurement)		[mm]	$\geq 16DF (\geq 495 \times 240 \times 238)$
Minimum thickness of member	$h_{\min} =$	[mm]	240



**Table C 10.52.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <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		[-]	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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.52.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
<b>Hollow brick lightweight concrete</b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.75
<b>Liapor-Super-K, <math>f_b \geq 2 \text{ N/mm}^2</math></b>			0.9
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.6
<b>Hollow brick lightweight concrete</b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.5
<b>Liapor-Super-K, <math>f_b \geq 4 \text{ N/mm}^2</math></b>			2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.2
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

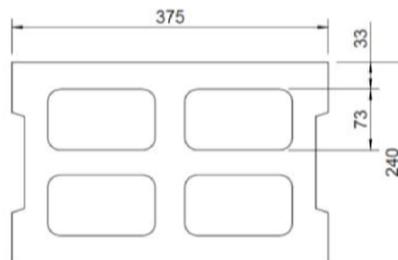
**Hollow brick lightweight concrete: Liapor-Super-K**  
Brick data, installation parameters, characteristic resistance

**Annex C 63**

**Base material hollow brick concrete 2K Hbn**

**Table C 10.53.1: 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			DIN V 18153-100:2005-10; EN 771-3:2011
Producer of brick			e.g. Stark Betonwerk GmbH & Co. KG D-74547 Untermünkheim-Kupfer
Format (measurement)		[mm]	$\geq 12DF (\geq 375 \times 240 \times 238)$
Minimum thickness of member	$h_{\min} =$	[mm]	240



**Table C 10.53.2: Installation parameters**

Anchor size			W-UR 8	
Installationsside <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		[-]	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	
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100	80

**Table C 10.53.3: Characteristic resistance  $F_{Rk}$ <sup>17)</sup> in [kN] for single anchor**

Anchor size			W-UR 8		
Installationsside <sup>6)</sup>			Inside / Outside	Reveal	
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	70		
Characteristic resistance for single anchor		[kN]	$F_{Rk}^{1)}$	$F_{Rk}^{1)}$	$F_{Rk}^{7)}$
<b>Hollow brick concrete</b> <b>2K Hbn 2, <math>f_b \geq 2 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	0.75	0.3	1.2
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	0.6	0.3	1.2
<b>Hollow brick concrete</b> <b>2K Hbn 4, <math>f_b \geq 4 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.5	0.6	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.2	0.5	2.0
<b>Hollow brick concrete</b> <b>2K Hbn 6, <math>f_b \geq 6 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	2.0	0.6	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.5	0.5	2.0
<b>Hollow brick concrete</b> <b>2K Hbn 8, <math>f_b \geq 8 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	3.0	0.6	2.0
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	2.0	0.5	2.0
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5		

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Hollow brick concrete 2K Hbn**

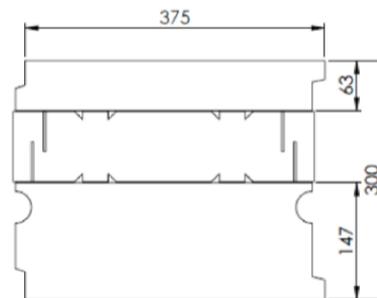
Brick data, installation parameters, characteristic resistance

**Annex C 64**

**Base material hollow brick lightweight concrete: Gisoton WärmeDämmBlock**

**Table C 10.54.1: 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			Z-17.1-873
Producer of brick			Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co. Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	$\geq 375 \times 300 \times 248$
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.54.2: Installation parameters**

Anchor size			W-UR 8
Installation side <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.54.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size			W-UR 8
Installation side <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
Gisoton WärmeDämmBlock, $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.5
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.5
Characteristic resistance $F_{Rk}$			
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Gisoton WärmeDämmBlock**

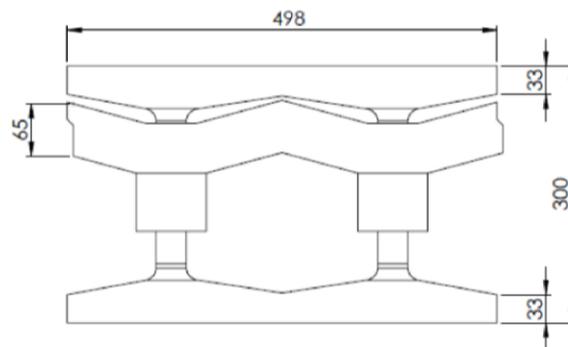
Brick data, installation parameters, characteristic resistance

**Annex C 65**

**Base material hollow brick lightweight concrete: Gisoton Thermo Schall**

**Table C 10.55.1: Brick data**

Description of brick		771-3-010	Gisoton Thermo Schall
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm <sup>3</sup> ]	0.45
Standard, approval			Z-15.2-18
Producer of brick			Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co. Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	$\geq 498 \times 300 \times 248$
Minimum thickness of member	$h_{\min} =$	[mm]	300



**Table C 10.55.2: Installation parameters**

Anchor size			W-UR 8
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$	[mm]	100

**Table C 10.55.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size			W-UR 8
Installationsside <sup>6)</sup>			Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm]	<b>70</b>
Gisoton Thermo Schall, $f_b \geq 2 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$	[kN]	1.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$	[kN]	1.5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Gisoton Thermo Schall**

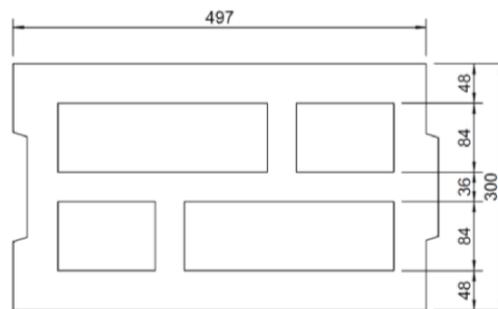
Brick data, installation parameters, characteristic resistance

**Annex C 66**

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

**Table C 10.56.1: Brick data**

Description of brick	771-3-015	<b>Bisomark<sup>TEC</sup></b>
Type of brick		Hollow brick lightweight concrete
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.4
Standard, approval		Z-17.1-1026
Producer of brick		Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mülheim-Kärlich
Format (measurement)	[mm]	$\geq 20DF (\geq 497 \times 300 \times 249)$
Minimum thickness of member	$h_{\min} =$ [mm]	300



**Table C 10.56.2: Installation parameters**

Anchor size		<b>W-UR 8</b>
Installationsside <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
Minimum allowable edge distance	$c_{\min} \geq$ [mm]	100

**Table C 10.56.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		<b>W-UR 8</b>
Installationsside <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
<b>Bisomark<sup>TEC</sup></b> , $f_b \geq 1.6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.6
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.5
<b>Bisomark<sup>TEC</sup></b> , $f_b \geq 2 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.75
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.6
<b>Bisomark<sup>TEC</sup></b> , $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup> [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

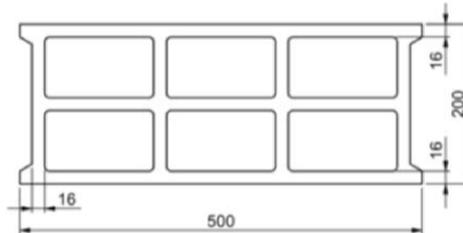
**Performances**  
Hollow brick lightweight concrete: **Bisomark<sup>TEC</sup>**  
Brick data, installation parameters, characteristic resistance

**Annex C 67**

**Base material hollow brick lightweight concrete: SEPA Blocs Creux**

**Table C 10.57.1: 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			EN 771-3:2011
Producer of brick			Sepa (France)
Format (measurement)		[mm]	500x200x200
Minimum thickness of member	$h_{\min} =$	[mm]	200



**Table C 10.57.2: Installation parameters**

Anchor size		W-UR 10
Installationsside <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] 60   80
Drill method		[-] Rotary drilling
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm] 50   70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm] 10.5
Minimum allowable edge distance	$c_{\min} \geq$	[mm] 100

**Table C 10.57.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} =$	[mm] <b>50 mm <math>\leq</math> <math>h_{\text{nom}} \leq</math> 70 mm<sup>5)</sup></b>
<b>B SEPA Blocs Creux,</b> <b><math>f_b \geq 4 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.5
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.4
<b>SEPA Blocs Creux,</b> <b><math>f_b \geq 6 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$	[kN] 0.75
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$	[kN] 0.6
Partial safety factor	$\gamma_{Mm}^2)$	[-] 2.5

Footnotes see Annex C 3

Recommendation: On the basis of experience values the characteristic resistance  $F_{Rk}$  have to be confirmed by job site tests.

**Würth Plastic Anchor W-UR**

**Performances**  
**Hollow brick lightweight concrete: SEPA Blocs Creux**  
Brick data, installation parameters, characteristic resistance

**Annex C 68**

**Base material solid masonry: Autoclaved Aerated Concrete AAC**

**Table C 10.58.1: Brick data**

AAC		AAC
Description of brick		Autoclaved Aerated Concrete
Type of brick		
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.3
Standard, approval		EN 771-4:2011
Measurement	[mm]	$\geq 499 \times 175 \times 249$
Minimum thickness of member	$h_{\min} =$ [mm]	175

**Table C 10.58.2: Installation parameters**

Anchor size		W-UR 8	W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside / Reveal	Inside / Outside / Reveal
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

**Table C 10.58.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8	W-UR 10
Installationsside <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>
<b>Autoclaved Aerated Concrete AAC</b> $f_b \geq 2 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	0.5	0.75
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	0.4	0.6
<b>Autoclaved Aerated Concrete AAC</b> $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	1.5	1.7
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	1.2	1.4
<b>Autoclaved Aerated Concrete AAC</b> $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	2.5	2.6
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	2.0	2.1
<b>Autoclaved Aerated Concrete AAC</b> $f_b \geq 7 \text{ N/mm}^2$	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	3.0	3.1
Characteristic resistance $F_{Rk}$	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	2.4	2.5
Partial safety factor	$\gamma_{MAAC}^{2)}$ [-]	2.0	2.0

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**  
**Solid masonry: Autoclaved Aerated Concrete**  
Brick data, installation parameters, characteristic resistance

**Annex C 69**

**(Prefabricated) Reinforced components made of autoclaved aerated concrete (AAC)**

**Table C 10.59.1: Data**

Description		(Prefabricated) Reinforced components made of autoclaved aerated concrete
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	0.4
Standard, approval		EN 12 602:2016
Minimum thickness of member	$h_{\min} =$ [mm]	175

**Table C 10.59.2: Installation parameters**

Anchor size		W-UR 10
Installationsside <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 allowable edge distance	$c_{\min} \geq$ [mm]	150

**Table C 10.59.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 10
Installationsside <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]	<b>70</b>
<b>(Prefabricated) Reinforced AAC</b> $f_b \geq 2 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	0.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.4
<b>(Prefabricated) Reinforced AAC</b> $f_b \geq 3 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.0
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	0.9
<b>(Prefabricated) Reinforced AAC</b> $f_b \geq 4 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.3
<b>(Prefabricated) Reinforced AAC</b> $f_b \geq 4.5 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.75
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5
<b>(Prefabricated) Reinforced AAC</b> $f_b \geq 5 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.75
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5
<b>(Prefabricated) Reinforced AAC</b> $f_b \geq 6 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.75
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5
<b>(Prefabricated) Reinforced AAC</b> $f_b \geq 7 \text{ N/mm}^2$	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.75
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5
Partial safety factor	$\gamma_{\text{MAAC}}^2)$ [-]	2.0

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

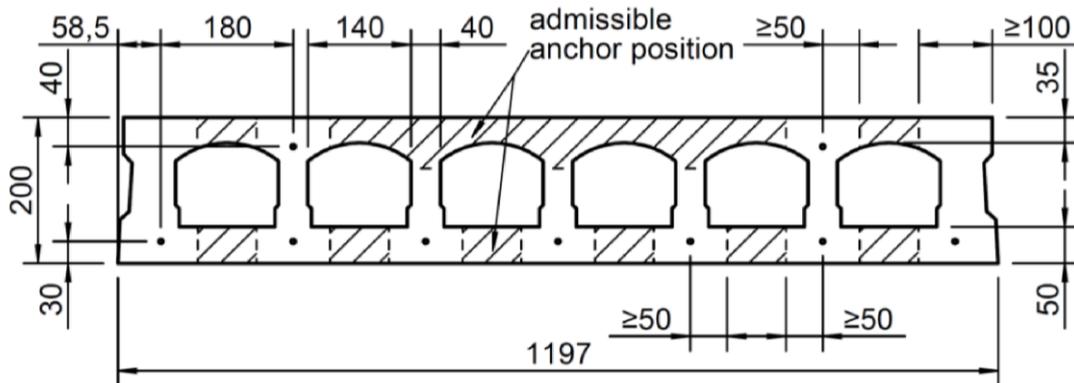
**Solid masonry: Reinforced components of autoclaved aerated concrete**  
Brick data, installation parameters, characteristic resistance

**Annex C 70**

**Base material precast prestressed hollow core elements: VMM-L SCD 20**

**Table C 10.60.1: Data**

Description		VMM-L SCD 20
Type		Precast prestressed hollow core elements
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	2.4
Standard, approval		DIN EN 1168:2011-12; Z-15.10-276
Producer of brick		e.g. Ketonía 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 10.60.2: Installation parameters**

Anchor size		W-UR 8
Installationsside		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 10.60.3: Characteristic resistance  $F_{RK}^{1)}$  in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside		top view / bottom view
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
<b>Precast prestressed hollow core elements VMM-L SCD 20, C45/55</b>	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	1.5
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	1.2
Partial safety factor	$\gamma_{Mc}^{2)}$ [-]	1.8

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

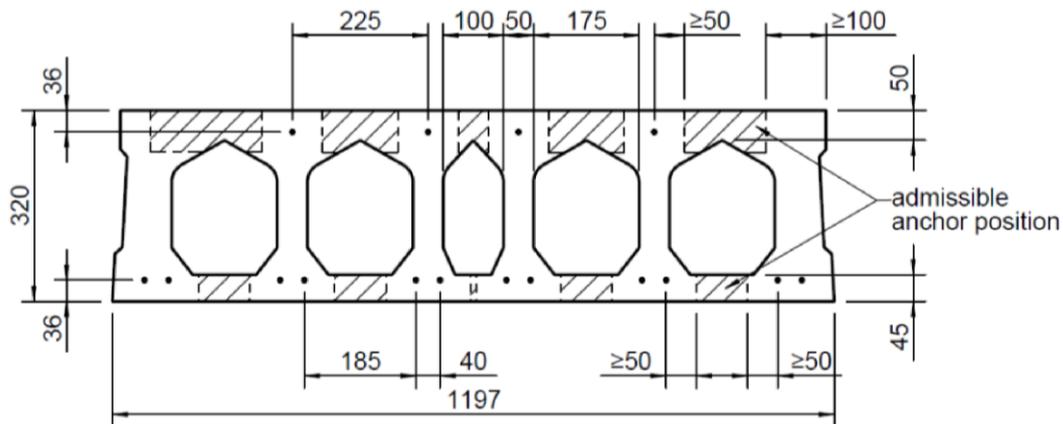
**Annex C 71**

Precast prestressed hollow core elements  
VMM-L SCD 20  
Brick data, installation parameters, characteristic resistance

**Base material precast prestressed hollow core elements: VMM-L EPD 32**

**Table C 10.61.1: Data**

Description		VMM-L EPD 32
Type		Precast prestressed hollow core elements
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	2.4
Standard, approval		DIN EN 1168:2011-12; Z-15.10-276
Producer of brick		e.g. Ketonía 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 10.61.2: Installation parameters**

Anchor size		W-UR 8
Installationsside		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 10.61.3: Characteristic resistance  $F_{RK}^1$  in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside		top view / bottom view
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
Precast prestressed hollow core elements VMM-L EPD 32, C45/55	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	2.5
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.5
Characteristic resistance $F_{RK}$		
Partial safety factor	$\gamma_{Mc}^2)$ [-]	1.8

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

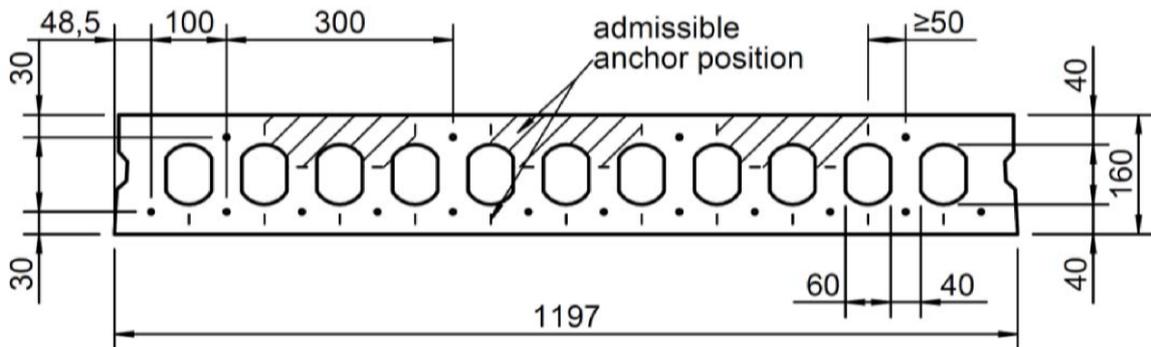
**Precast prestressed hollow core elements VMM-L EPD 32**  
Brick data, installation parameters, characteristic resistance

**Annex C 72**

**Base material precast prestressed hollow core elements: VMM VSD 16**

**Table C 10.62.1: Data**

Description		VMM VSD 16
Type		Precast prestressed hollow core elements
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	2.4
Standard, approval		DIN EN 1168:2011-12; Z-15.10-276
Producer of brick		z.B. Ketonía 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 10.62.2: Installation parameters**

Anchor size		W-UR 8
Installationsside		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 10.62.3 Characteristic resistance  $F_{RK}^{1)}$  in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside		top view / bottom view
Overall plastic anchor embedment depth	$h_{\text{nom}} =$ [mm]	<b>70</b>
Precast prestressed hollow core elements VMM VSD 16, C45/55	$30^\circ\text{C}^{3)} / 50^\circ\text{C}^{4)}$ [kN]	2.5
	$50^\circ\text{C}^{3)} / 80^\circ\text{C}^{4)}$ [kN]	2.0
Partial safety factor	$\gamma_{Mc}^{2)}$ [-]	1.8

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Precast prestressed hollow core elements VMM VSD 16**  
Brick data, installation parameters, characteristic resistance

**Annex C 73**

**Base material gypsum blocks: MultiGips R.max Schallschutzplatte**

**Table C 10.63.1: Brick data**

Description of brick		MultiGips R.max Schallschutzplatte
Type of brick		Gypsum blocks
Bulk density	$\rho \geq$ [kg/dm <sup>3</sup> ]	1.2
Standard, approval		DIN EN 12859:2011-05
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 10.63.2: Installation parameters**

Anchor size		W-UR 8
Installationsside <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

**Table C 10.63.3: Characteristic resistance  $F_{Rk}$ <sup>1)</sup> in [kN] for single anchor**

Anchor size		W-UR 8
Installationsside <sup>6)</sup>		Inside / Outside
Overall plastic anchor embedment depth	$h_{\text{nom}} \geq$ [mm]	<b>70</b>
<b>Gypsum blocks:</b> <b>MultiGips R.max Schallschutzplatte,</b> <b><math>f_b \geq 11,7 \text{ N/mm}^2</math></b>	$30^\circ\text{C}^3) / 50^\circ\text{C}^4)$ [kN]	1.2
	$50^\circ\text{C}^3) / 80^\circ\text{C}^4)$ [kN]	1.2
Characteristic resistance $F_{Rk}$		
Partial safety factor	$\gamma_{Mm}$ <sup>2)</sup> [-]	2.5

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Performances**

**Gypsum blocks: MultiGips R.max Schallschutzplatte**  
Brick data, installation parameters, characteristic resistance

**Annex C 74**