Deutsches Institut für Bautechnik

Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

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# 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<br>Reinhold-Würth-Straße 12-17<br>74653 Künzelsau<br>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,<br>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 | Anchorages 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.

## 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.

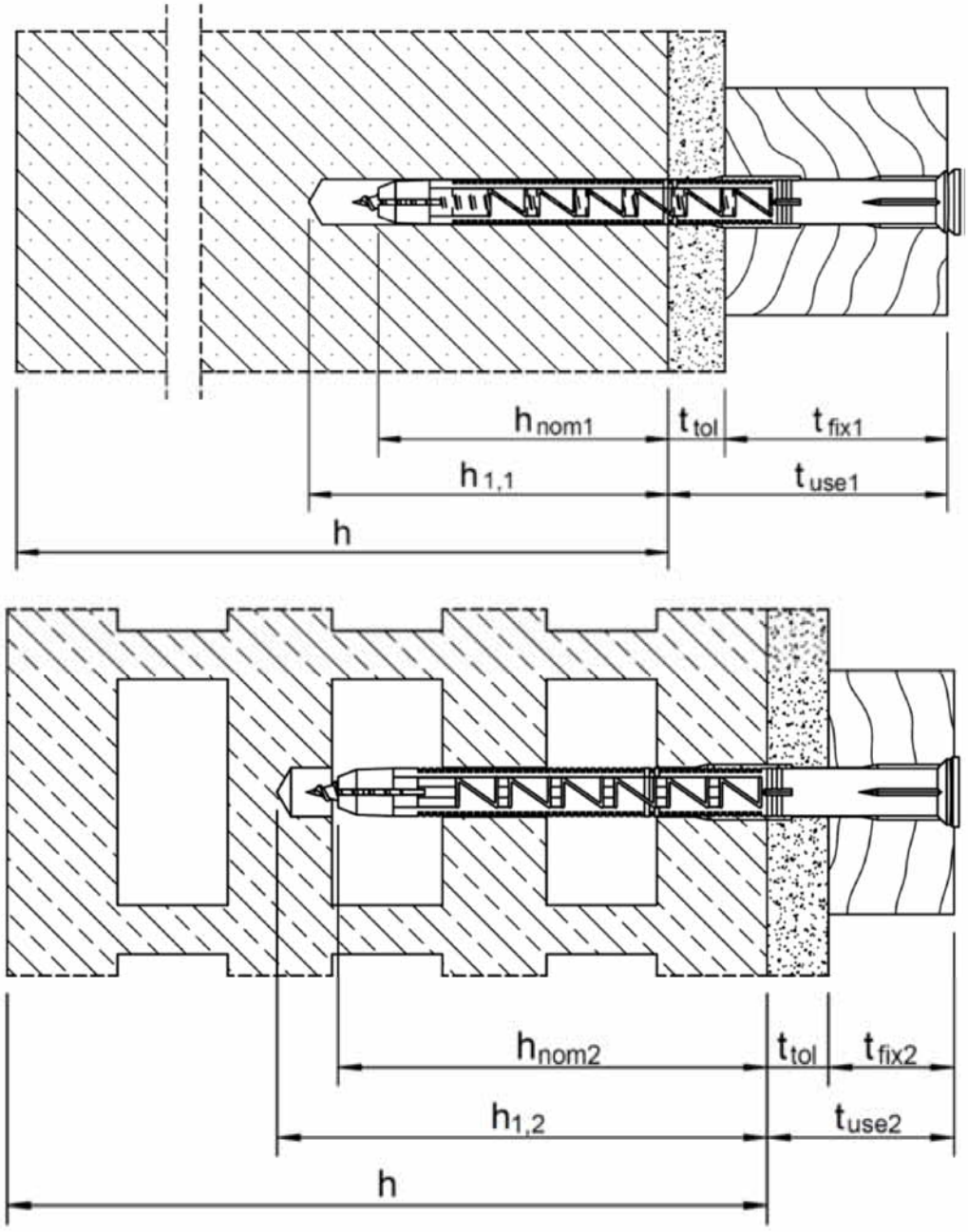
Issued in Berlin on 5 September 2017 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

*beglaubigt:*
Ziegler

Deutsches Institut für Bautechnik DIBt

## 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** | **Annex A 1** |
|---|---|
| **Product description**<br>Installed condition in-place installation | |

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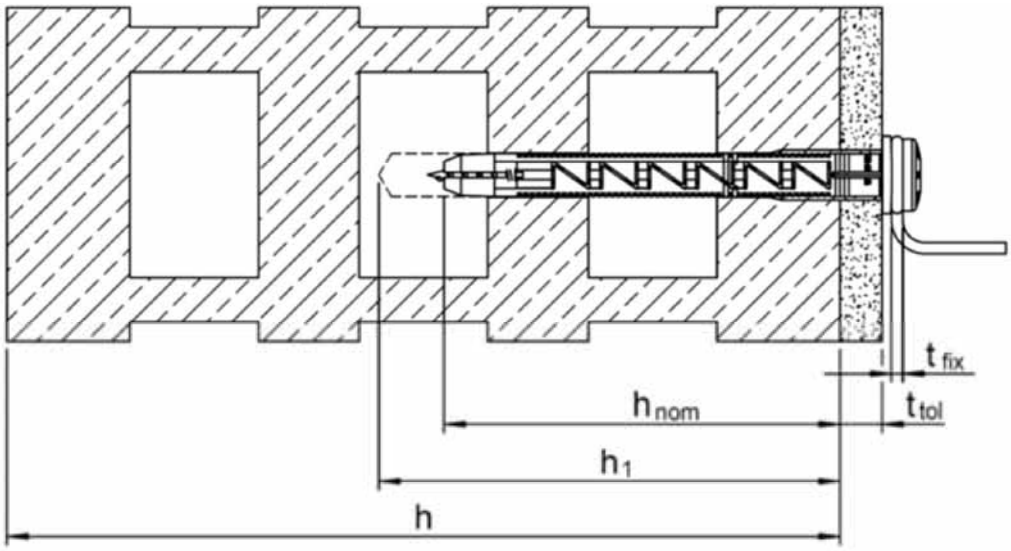
## Plastic Anchor W-UR 8 Panhad for pre-positioned installation




$h_{nom}$: 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** | **Annex A 2** |
|---|---|
| **Product description**<br>Installed condition pre-positioned installation | |

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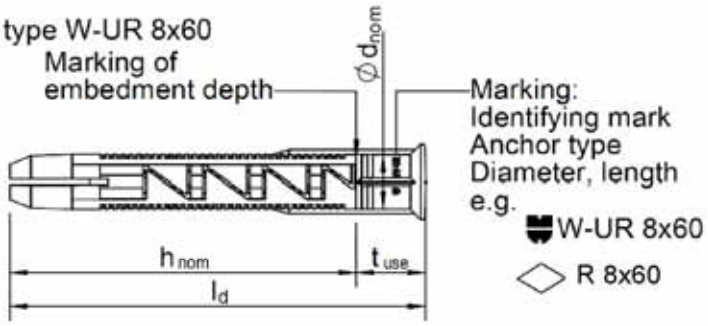
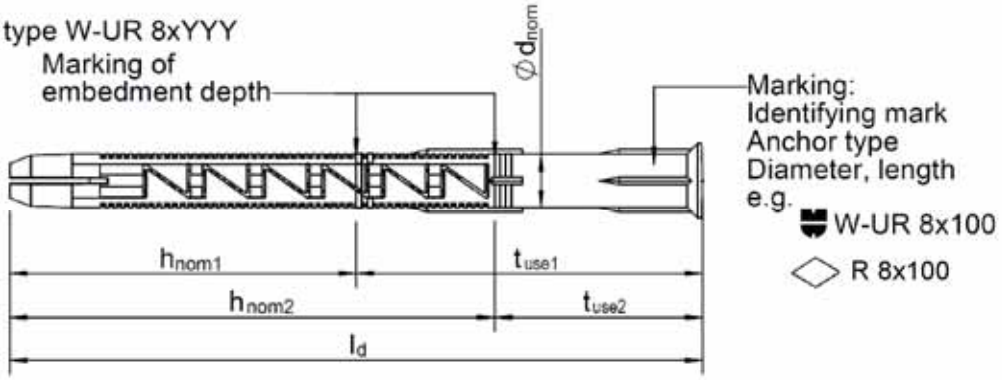
**Plastic sleeve**

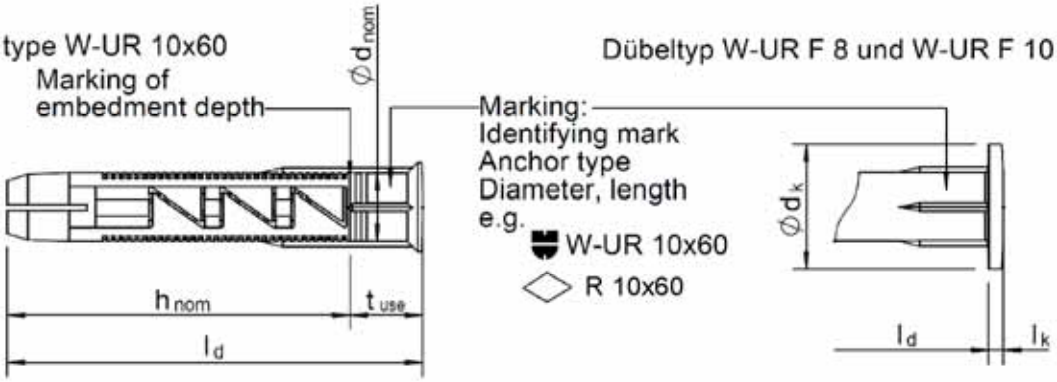
Anchor type W-UR 8x60




Anchor type W-UR 8xYYY



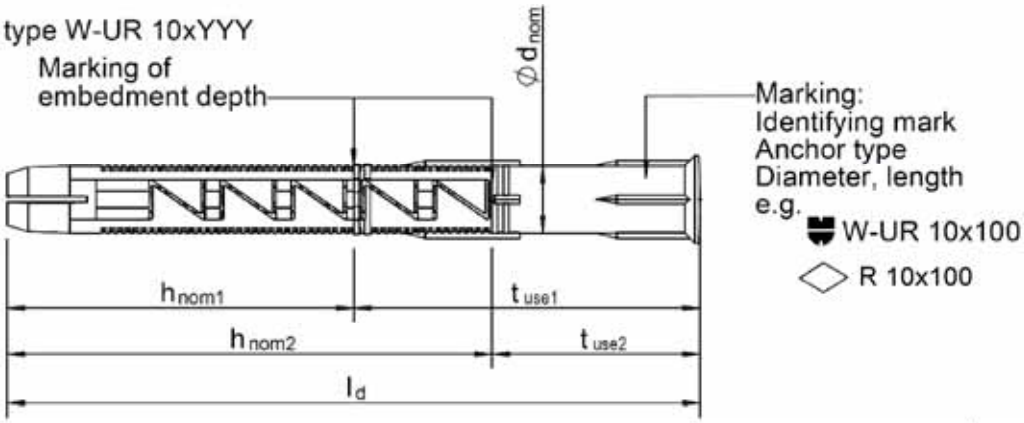

Anchor type W-UR 10x60




Dübeltyp W-UR F 8 und W-UR F 10




Anchor type W-UR 10xYYY




**Würth Plastic Anchor W-UR**

**Product description**
Anchor types – head versions of the sleeve
Marking and dimensions

**Annex A 3**

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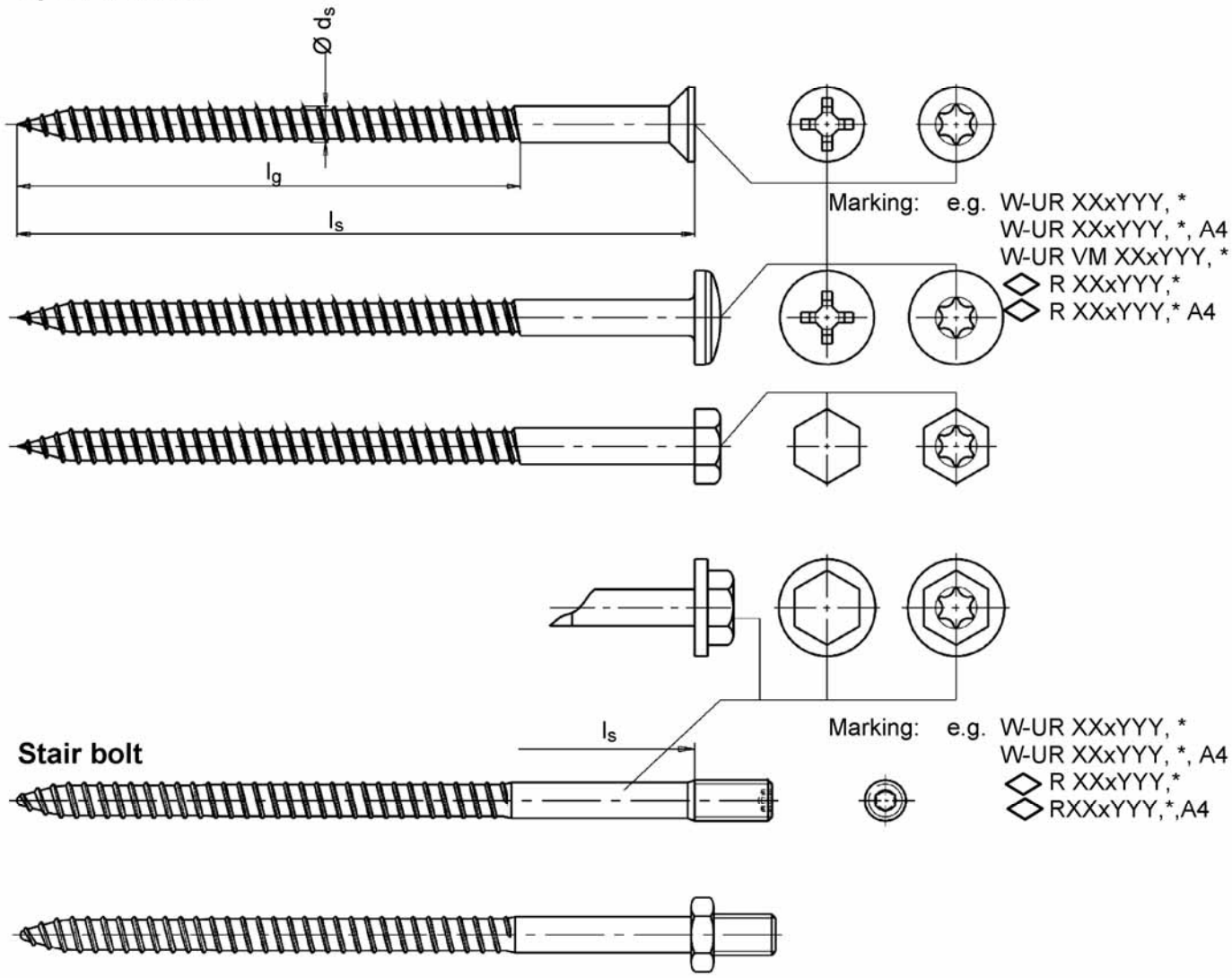
## Special screw




## Stair bolt




| **Würth Plastic Anchor W-UR** | **Annex A 4** |
|---|---|
| **Product description**<br>Special screw – head versions<br>Marking and dimensions | |

**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 ($h_{nom2}$) |
| **Plastic sleeve** | | | | | | |
| 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 | | - | |
| **Special screw** | | | | | | |
| Screw diameter | $d_s$ | [mm] | 6 | | 7 | |
| Length of screw in-place installation | $l_s$ | [mm] | $l_d$ + 5 mm | | $l_d$ + 5 mm | |
| Length of screw pre-positioned installation | $l_s$ | [mm] | $l_d + t_{fix}$ + 5 mm | | - | |
| Length of thread in-place installation | $l_g$ | [mm] | 75 | | 75 | |
| Length of thread pre-positioned installation | $l_g$ | [mm] | 85 | | - | |

**Table A2: Materials**

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

**Würth Plastic Anchor W-UR**

**Product description**
Anchor dimensions and materials

**Annex A 5**

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## Specifications of intended use

**Anchorages subject to:**

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

**Base materials:**

- Reinforced or unreinforced normal weight concrete with strength classes ≥ 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 ≥ M2,5 at minimum according to EN 998-2:2010.
- For other base materials of the use categories a, b, c or d 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: ≥ -40 °C; W-UR 10: ≥ -20 °C
- Exposure to UV due to solar radiation of the anchor not protected ≤ 6 weeks

| **Würth Plastic Anchor W-UR** | **Annex B 1** |
|---|---|
| **Intended use**<br>Specifications | |

**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[1)] | $h_1 \geq$ | [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[1), 2)] | $h_{nom} \geq$ | [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 | | - | |

1) See Annex 1 and 2

2) 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 $h_{nom1} = 50$ mm $\leq h_{nom} < 70$ mm $= h_{nom2}$ the characteristic values $F_{Rk}$ for $h_{nom1} = 50$ mm may be taken without performing additional job site tests (compare Annex C 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] |
|---|---|---|---|---|---|---|
| **W-UR 8** | Concrete ≥ C16/20 | = 50 | 100 | 40 | 40 | 40 |
| | Concrete C12/15 | = 50 | 100 | 60 | 60 | 60 |
| | Concrete ≥ C16/20 | > 50 | 100 | 50 | 50 | 50 |
| | Concrete C12/15 | > 50 | 100 | 70 | 70 | 70 |
| **W-UR 10** | Beton ≥ C16/20 | = 50 | 80 | 50 | 50 | 60 |
| | Beton C12/15 | = 50 | 80 | 70 | 70 | 85 |
| | Concrete ≥ C16/20 | > 50 | 100 | 100 | 70 | 50 |
| | Concrete C12/15 | > 50 | 100 | 140 | 100 | 70 |

**W-UR 8:** Fixing points with spacing a ≤ 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 ≤ 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** | **Annex B 2** |
|---|---|
| **Intended use**<br>Installation parameters, edge distances and spacings for use in concrete | |

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

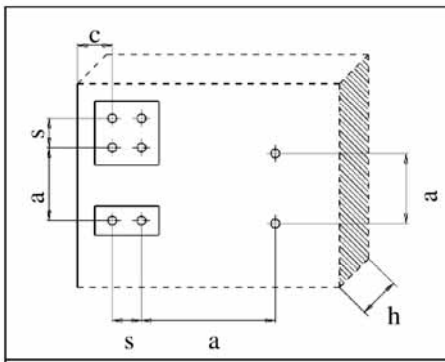
| | | | Masonry | | | |
|---|---|---|---|---|---|---|
| | | | W-UR 8 | | W-UR 10 | |
| Overall plastic anchor embedment depth | $h_{nom}$ | [mm] | 50 | 70 | 50 | 70 |
| Minimum thickness of member | $h_{min}$ | [mm] | 100 [1] | | 100 [1] | |
| **Single anchor** | | | | | | |
| Minimum allowable spacing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

[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

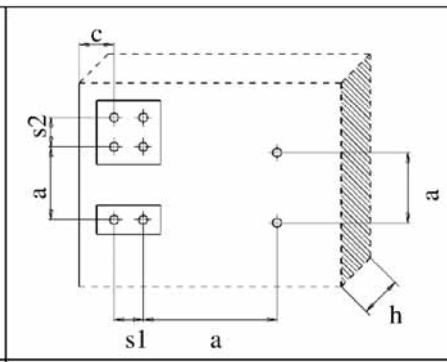
[2] other spacing possible see Annex C 46; C 51; C 54

**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 |
| **Single anchor** | | | | | |
| Minimum allowable spacing | $a_{min}$ | [mm] | 250 | 250 | 600 |
| Minimum allowable edge distance | $c_{min}$ | [mm] | 60 | 80 | 150 |
| **Anchor group** | | | | | |
| 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**

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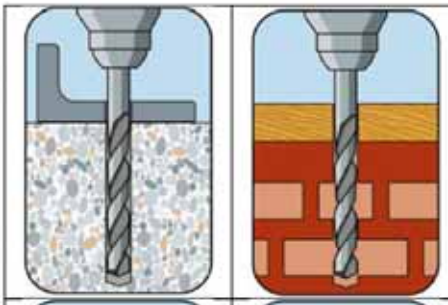
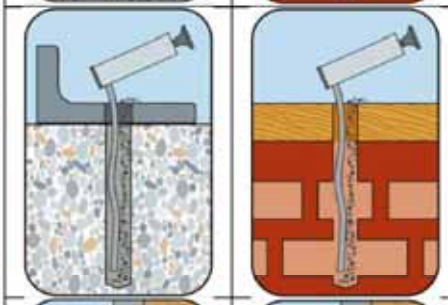
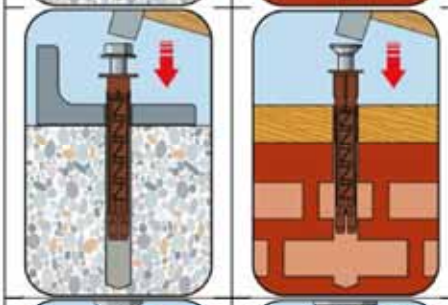
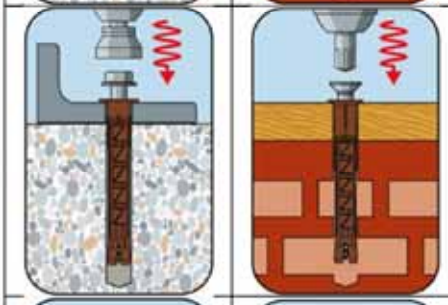
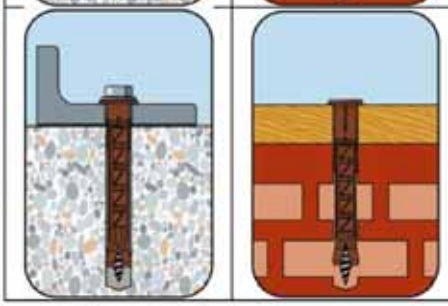
**Installation instructions in-place installation for concrete and solid masonry or hollow masonry**

| | |
|---|---|
|  | Drill the bore hole |
|  | Clean the drilled bore hole |
|  | Gently hammer the fastener into the hole |
|  | Insert the special screw into the sleeve |
|  | 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. |

| | |
|---|---|
| **Würth Plastic Anchor W-UR** | **Annex B 4** |
| **Intended use**<br>Installation instructions in-place installation | |

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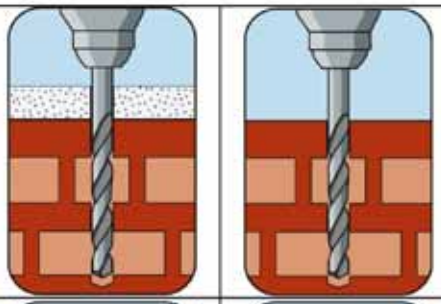
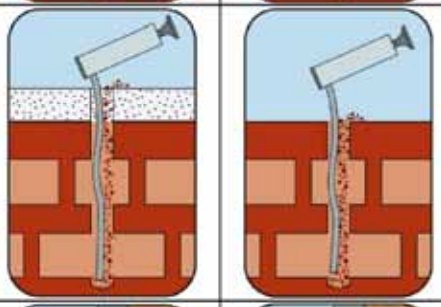
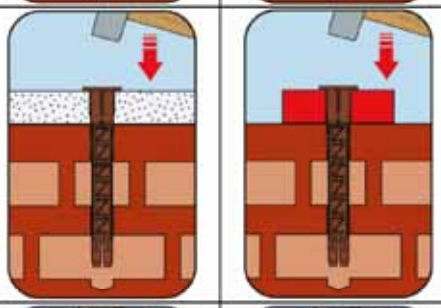
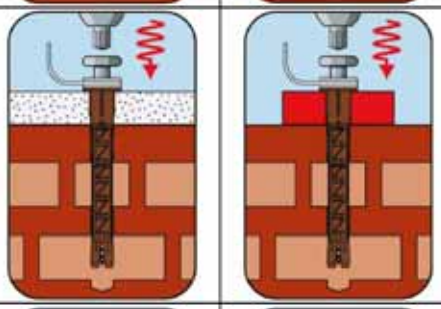
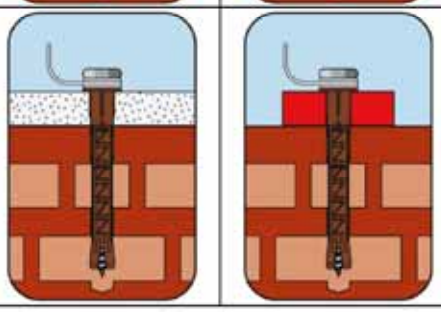
**Installation instructions pre-positioned installation for concrete and solid masonry or hollow masonry**

| | |
|---|---|
|  | Drill the bore hole |
|  | Clean the drilled bore hole |
|  | Insert the fastener through the attachment into the concrete/masonry using carefully a hammer |
|  | Screw the special screw into the sleeve |
|  | 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. |

| **Würth Plastic Anchor W-UR** | **Annex B 5** |
|---|---|
| **Intended use**<br>Installation instructions pre-positioned installation | |

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**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** | |
| **Failure of expansion element (special screw)** | | | | | | | | | | |
| 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 | |
| **Characteristic bending resistance of the special screw** | | | | | | | | | | |
| 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 | |

[1)] 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 | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Pull-out failure (plastic sleeve)** | | | **W-UR 8** | | **W-UR 10** | | **W-UR 8** | | **W-UR 10** | |
| | | | **50** | **70** | **50** | **70** | **50** | **70** | **50** | **70** |
| **Concrete ≥ C16/20** | | | | | | | | | | |
| Characteristic resistance | 30°C[2] / 50°C[3] $N_{Rk,p}$ | [kN] | 4.0 | 6.0 | 3.0 | 4.0 | 4.0 | 6.0 | 3.0 | 4.0 |
| | 50°C[2] / 80°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 |
| **Concrete C12/15** | | | | | | | | | | |
| Characteristic resistance | 30°C[2] / 50°C[3] $N_{Rk,p}$ | [kN] | 3.0 | 4.0 | 2.0 | 2.5 | 3.0 | 4.0 | 2.0 | 2.5 |
| | 50°C[2] / 80°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 |

[1)] In absence of other national regulations
[2)] Maximum long term temperature
[3)] 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[1] 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] |
| **W-UR 8** | Concrete ≥ C16/20 | 50 | 1.8 | 0.26 | 0.52 | 1.8 | 0.96 | 1.44 |
| **W-UR 8** | Concrete ≥ C16/20 | 70 | 2.4 | 0.35 | 0.7 | 2.4 | 0.93 | 1.86 |
| **W-UR 10** | Concrete ≥ C16/20 | 50 | 1.19 | 0.48 | 0.96 | 1.19 | 0.51 | 0.77 |
| **W-UR 10** | Concrete ≥ C16/20 | 70 | 1.8 | 0.16 | 0.32 | 1.8 | 1.18 | 1.76 |

1) Valid for all ranges of temperatures
2) 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 | $F_{Rk}$ |
|---|---|---|
| **W-UR 10** | 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.

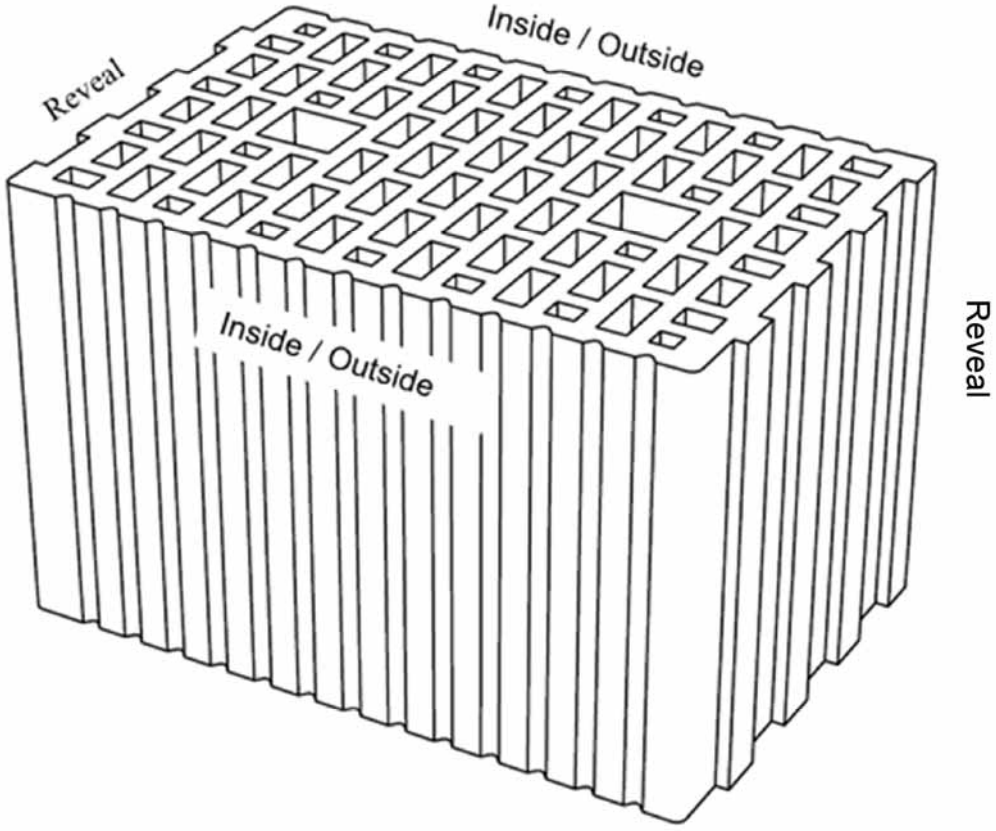
2) In absence of other national regulations

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 $50\ mm \leq h_{nom} < 70\ mm$ (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 $s_{min} \geq 250mm$ for shear loads without lever arm in the reveal side)

.

| **Würth Plastic Anchor W-UR** | **Annex C 3** |
|---|---|
| **Performances**<br>Footnotes | |

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

| Base material | Format | Measurement [mm] | Minimum compressive strength [N/mm²] | Bulk density class [kg/dm³] | Annex |
|---|---|---|---|---|---|
| **Concrete** | | | | | |
| **Concrete ≥ C12/15** | | | | | **Annex C 1** |
| **Solid masonry** | | | | | |
| **Solid brick Mz**<br>acc. to DIN 105-100:2012-01,<br>EN 771-1:2011 | ≥ NF | ≥ 240x115x71 | 10<br>20<br>28<br>36 | ≥ 1.8 | **Annex C 11**<br>771-1-020 |
| | ≥ 3DF | ≥ 240x175x113 | | | **Annex C 12**<br>771-1-041 |
| **Sand-lime solid brick KS**<br>acc. to DIN V 106:2005-10,<br>EN 771-2:2011 | ≥ NF | ≥ 240x115x71 | 10<br>20<br>28 | ≥ 2.0 | **Annex C 46**<br>771-2-002 |
| **Sand-lime solid brick Silka XL Basic,**<br>**Sand-lime solid brick Silka XL Plus,**<br>acc. to DIN V 106:2005-10, EN 771-2:2011,<br>Z-17.1-997 | | ≥ 248x175x498 | 10<br>20<br>28 | ≥ 2.0 | **Annex C 47**<br>771-2-010 |
| **Concrete solid block - Vbn**<br>acc. to DIN 18153-100:2005-10,<br>EN 771-3:2011 | ≥ NF | ≥ 240x115x71 | 10<br>20<br>28 | ≥ 2.0 | **Annex C 54**<br>771-3-004 |
| **Lightweight concrete solid brick**<br>**e.g. Bisoclassic V**<br>acc. to DIN V 18152-100:2005:10,<br>EN 771-3:2011<br>Bisotherm GmbH | ≥ NF | ≥ 240x115x71 | 2<br>4 | ≥ 0.9 | **Annex C 55**<br>771-3-008 |
| **Lightweight concrete solid brick**<br>**V und Vbl e.g. Bisophon**<br>acc. to DIN V 18152-100:2005-10<br>EN 771-3:2011<br>Bisotherm GmbH | ≥ 3DF | ≥ 240x175x113 | 10<br>20 | ≥ 2.0 | **Annex C 57**<br>771-3-017 |
| **Lightweight concrete solid brick**<br>**e.g. BisoBims V** acc. to<br>DIN V 18152-100:2005-10<br>EN 771-3:2011<br>Bisotherm GmbH | ≥ NF | ≥ 240x115x71 | 2<br>4 | ≥ 1.0 | **Annex C 56**<br>771-3-007 |
| **Lightweight concrete solid block – Vbl**<br>acc. to DIN V 18152-100:2005-10,<br>e.g. Liapor Massive Wall<br>Liapor GmbH & Co. KG | ≥ 24DF | ≥ 500x365x238 | 2 | ≥ 0.6 | **Annex C 58**<br>LAC2 |
| **Lightweight concrete solid block – Vbl 2**<br>acc. to DIN 18152-100:2005-10, Z-17.1-839<br>e.g. Liapor Compact<br>Liapor GmbH & Co. KG<br>Meier Betonwerke GmbH | ≥ 16DF | ≥ 498x240x239 | 2 | ≥ 0.65 | **Annex C 59**<br>771-3-012 |
| **Concrete solid block – Vbn**<br>acc. to DIN 18153-100:2005-10,<br>e.g. Liapor Element Wall<br>Liapor GmbH & Co. KG | ≥ 12DF | ≥ 500x175x238 | 12 | ≥ 1.4 | **Annex C 60**<br>LC16/18 |

## Würth Plastic Anchor W-UR

**Annex C 4**

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

Deutsches Institut für Bautechnik DIBt

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

| Base material | Format | Measurement [mm] | Minimum compressive strength [N/mm²] | Bulk density class [kg/dm³] | Annex |
|---|---|---|---|---|---|
| **Hollow or perforated masonry** | | | | | |
| **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<br>12<br>20 | ≥ 1.2 | **Annex C 13**<br>771-1-021 |
| | ≥ 12DF | ≥ 373x240x238 | 6<br>8<br>10<br>12 | ≥ 1.2 | **Annex C 14**<br>771-1-010<br>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 | **Annex C 15**<br>771-1-019 |
| **Hollow brick POROTON-T8-P**<br>**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 | **Annex C 16**<br>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<br>8 | ≥ 0.65 | **Annex C 17**<br>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 | **Annex C 18**<br>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 | **Annex C 19**<br>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<br>8<br>10 | ≥ 0.75 | **Annex C 20**<br>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 | **Annex C 21**<br>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 | **Annex C 22**<br>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 | **Annex C 23**<br>771-1-031 |

## Würth Plastic Anchor W-UR

**Annex C 5**

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

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

| Base material | Format | Measurement [mm] | Minimum compressive strength [N/mm²] | Bulk density class [kg/dm³] | Annex |
|---|---|---|---|---|---|
| **Hollow or perforated masonry** | | | | | |
| **Hollow brick POROTHERM 25-38 N+F**<br>acc. to EN 771-1:2011<br>Wienerberger Ziegelindustrie GmbH; Austria | | ≥ 375x250x238 | 6<br>8<br>10 | ≥ 0.8 | **Annex C 24**<br>771-1-005 |
| **Hollow brick Blocchi Leggeri**<br>acc. to EN 771-1:2011<br>Wienerberger Brunori s.r.l.; Italy | | ≥ 250x120x330 | 6 | ≥ 0.6 | **Annex C 25**<br>771-1-012 |
| **Hollow brick for ceiling Blocchi per solaio a travetti**<br>acc. to EN 771-1:2011<br>Wienerberger Tacconi s.r.l.; Italy | | ≥ 420x120x250 | 10<br>14 | ≥ 0.6 | **Annex C 26**<br>771-1-011 |
| **Hollow brick MURBRIC T20 and R20**<br>acc. to EN 771-1:2011<br>e.g. Wienerberger SAS; France | | T20: ≥ 500x200x240<br>R20: ≥ 500x200x249 | 6<br>8<br>12 | ≥ 0.7 | **Annex C 27**<br>771-1-018 |
| **Hollow brick POROTHERM T30 and R30**<br>acc. to EN 771-1:2011<br>e.g. Wienerberger SAS; France | | T30: ≥ 373x300x249<br>R30: ≥ 373x300x250 | 6<br>8 | ≥ 0.7 | **Annex C 28**<br>771-1-014 |
| **Hollow brick UNIPOR WS11 CORISO**<br>acc. to EN 771-1:2011<br>Z-17.1-1011<br>UNIPOR Ziegel, Marketing GmbH | ≥ 12DF | ≥ 247x365x249 | 10 | ≥ 0.85 | **Annex C 29**<br>771-1-026 |
| **Hollow brick UNIPOR WS14**<br>**Hollow brick UNIPOR WS12 CORISO**<br>acc. to EN 771-1:2011<br>Z-17.1-883<br>UNIPOR Ziegel, Marketing GmbH | ≥ 10DF | ≥ 247x300x249 | 10<br>12 | ≥ 0.8 | **Annex C 30**<br>771-1-016 |
| **Hollow brick UNIPOR W14**<br>acc. to EN 771-1:2011<br>Z-17.1-679<br>Z-17.1-636<br>UNIPOR Ziegel, Marketing GmbH | ≥ 10DF | W14-Plan: ≥ 240x300x249<br>W14-Block: ≥ 240x300x238 | 6 | ≥ 0.7 | **Annex C 31**<br>771-1-015 |
| **Hollow brick UNIPOR CORISO 6DF EWS 365**<br>acc. to EN 771-1:2011<br>according to Z-17.1-1021 / 1066<br>UNIPOR Ziegel, Marketing GmbH | ≥ 6DF | ≥ 118x365x249 | 6 | ≥ 0.9 | **Annex C 32**<br>771-1-077 |
| **Hollow brick UNIPOR CORISO 6DF EW 365**<br>acc. to EN 771-1:2011<br>according to Z-17.1-935<br>UNIPOR Ziegel, Marketing GmbH | ≥ 6DF | ≥ 118x365x249 | 4 | ≥ 0.7 | **Annex C 33**<br>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/mm²] | Bulk density class [kg/dm³] | Annex |
|---|---|---|---|---|---|
| **Hollow or perforated masonry** | | | | | |
| **Hollow brick ThermoPlan MZ7** acc. to EN 771-1:2011 Z-17.1-1016 Mein Ziegelhaus GmbH & Co. KG | ≥ 10DF | ≥ 248x300x249 | 4<br>6<br>8 | ≥ 0.6 | **Annex C 34**<br>771-1-052 |
| **Hollow brick ThermoPlan MZ8** acc. to EN 771-1:2011 Z-17.1-906 Mein Ziegelhaus GmbH & Co. KG | ≥ 12DF | ≥ 248x365x249 | 6<br>8 | ≥ 0.6 | **Annex C 35**<br>771-1-023 |
| **Hollow brick ThermoPlan MZ10** acc. to EN 771-1:2011 Z-17.1-1015 Mein Ziegelhaus GmbH & Co. KG | ≥ 10DF | ≥ 248x300x249 | 6<br>8 | ≥ 0.75 | **Annex C 36**<br>771-1-034 |
| **Hollow brick ThermoPlan MZ Ergänzung** acc. to EN 771-1:2011 according to Z-17.1-1087 Mein Ziegelhaus GmbH & Co. KG | ≥ 6DF | ≥ 118x365x249 | 6 | ≥ 0.8 | **Annex C 37**<br>771-1-081 |
| **Hollow brick ThermoPlan TS²** acc. to EN 771-1:2011 Z-17.1-993 Mein Ziegelhaus GmbH & Co. KG | ≥ 9DF | ≥ 373x175x249 | 6<br>8<br>10<br>12<br>20 | ≥ 0,9 | **Annex C 38**<br>771-1-024 |
| **Hollow brick ThermoPlan TS 13** acc. to EN 771-1:2011 Z-17.1-914 Mein Ziegelhaus GmbH & Co. KG | ≥ 10DF | ≥ 248x300x248 | 8<br>10 | ≥ 0.75 | **Annex C 39**<br>771-1-035 |
| **Hollow brick THERMOPOR ISO-PD Plus** acc. To EN 771-1:2011 Z-17.1-840 Thermopor Ziegel-Kontor Ulm GmbH | | ≥ 307x240x249 | 6<br>8 | ≥ 0.7 | **Annex C 40**<br>771-1-028 |
| **Hollow brick THERMOPOR TV 7-Plan** acc. to EN 771-1:2011 Z-17.1-1005 Thermopor Ziegel-Kontor Ulm GmbH | ≥ 12DF | ≥ 247x365x249 | 8 | ≥ 0.5 | **Annex C 41**<br>771-1-030 |
| **Hollow brick THERMOPOR TV 9-Plan** acc. to EN 771-1:2011 Z-17.1-1006 Thermopor Ziegel-Kontor Ulm GmbH | ≥ 10DF | ≥ 247x300x249 | 4<br>6<br>8 | ≥ 0.65 | **Annex C 42**<br>771-1-029 |
| **Hollow brick Kellerer ZMK X6** acc. to EN 771-1:2011 Z-17.1-1067 Ziegelsysteme Michael Kellerer GmbH & Co. KG | ≥ 10DF | ≥ 247x300x249 | 6 | ≥ 0.65 | **Annex C 43**<br>771-1-049 |
| **Hochlochziegel Kellerer ZMK TX8** acc. to EN 771-1:2011 Z-17.1-1068 Ziegelsysteme Michael Kellerer GmbH & Co. KG | ≥ 10DF | ≥ 247x300x249 | 6 | ≥ 0.65 | **Annex C 44**<br>771-1-050 |
| **Hollow brick Ladrillo P NV R150** acc. to EN 771-1:2011 Ceramica La Corona, S.A.; Spain | | ≥ 276x128x95 | 12<br>20<br>28<br>36 | ≥ 1.2 | **Annex C 45**<br>771-1-017 |

## Würth Plastic Anchor W-UR

**Annex C 7**

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

Deutsches Institut für Bautechnik DIBt

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

| Base material | Format | Measurement [mm] | Minimum compressive strength [N/mm²] | Bulk density class [kg/dm³] | Annex |
|---|---|---|---|---|---|
| **Hollow or perforated masonry** | | | | | |
| **Sand-lime perforated brick KS L** acc. to DIN V 106:2005-10 EN 771-2:2011 | ≥ 2DF | ≥ 240x115x113 | 6<br>8<br>10<br>12<br>16 | ≥ 1.6 | **Annex C 48**<br>771-2-003<br>771-2-004 |
| **Sand-lime perforated brick KS L** acc. to DIN V 106:2005-10 EN 771-2:2011 e.g. Xella Deutschland GmbH | ≥ 8DF | ≥ 249x240x238 | 6<br>8<br>10<br>12<br>16 | ≥ 1.4 | **Annex C 49**<br>771-2-013<br>771-2-005 |
| **Sand-lime perforated brick KS L** acc. to DIN V 106:2005-10 EN 771-2:2011 | ≥ 12DF | ≥ 373x240x238 | 6<br>8<br>10<br>12<br>16 | ≥ 1.4 | **Annex C 50, C 51**<br>771-2-001 |
| **Sand-lime perforated brick KS L** acc. to DIN V 106:2005-10 EN 771-2:2011 e.g. Xella Deutschland GmbH | ≥ 9DF | ≥ 373x175x249 | 6<br>8<br>10<br>12<br>20 | ≥ 1.4 | **Annex C 52**<br>771-2-008 |
| **Sand-lime perforated brick KS-NT** acc. to P-1109/884/07-MPA BS BMO KS-Vertrieb Bielefeld-Münster-Osnabrück GmbH & Co. KG | ≥ 4DF | ≥ 249x115x248 | 12<br>20 | ≥ 1.2 | **Annex C 53**<br>771-2-009 |
| **Hollow brick lightweight concrete 1K Hbl** acc. to DIN V 18151-100:2005-10 EN 771-3:2011 e.g. Stark Betonwerk GmbH & Co. KG | ≥ 12DF | ≥ 490x175x238 | 2<br>4 | ≥ 1.2 | **Annex C 61**<br>771-3-002 |
| **Hollow brick lightweight concrete 3K Hbl** acc. to DIN V 18151-100:2005-10 EN 771-3:2011 e.g. Heinzmann Baustoffe GmbH, Liapor GmbH & Co. KG | ≥ 16DF | ≥ 498x240x238 | 2<br>4<br>6 | ≥ 0.7 | **Annex C 62**<br>771-3-005 |
| **Hollow brick lightweight concrete Liapor-Super-K** acc. to EN 771-3:2011 Z-17.1-501 Liapor GmbH & Co. KG | ≥ 16DF | ≥ 495x240x238 | 2<br>4 | ≥ 0.8 | **Annex C 63**<br>771-3-006 |
| **Concrete hollow brick 2K Hbn** acc. to DIN V 18153-100:2005-10 e.g. Stark Betonwerk GmbH & Co. KG | ≥ 12DF | ≥ 375x240x238 | 2<br>4<br>6<br>8 | ≥ 1.2 | **Annex C 64**<br>771-3-011 |
| **Hollow brick lightweight concrete Gisoton Wärme Dämm Block** acc. to Z-17.1-873 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co. | | ≥ 375x300x248 | 4 | ≥ 0.8 | **Annex C 65**<br>771-3-009 |

## Würth Plastic Anchor W-UR

**Annex C 8**

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

Deutsches Institut für Bautechnik DIBt

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

| Base material | Format | Measurement [mm] | Minimum compressive strength [N/mm²] | Bulk density class [kg/dm³] | Annex |
|---|---|---|---|---|---|
| **Hollow or perforated masonry** | | | | | |
| **Hollow brick lightweight concrete Gisoton Thermo Schall** acc. to Z-15.2-18 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co. | | ≥ 498x300x248 | 2 | ≥ 0.45 | **Annex C 66** 771-3-010 |
| **Hollow brick lightweight concrete Bisomark**[TEC] acc. to Z-17.1-1026 Bisotherm GmbH | ≥ 20DF | ≥ 497x300x249 | 1.6<br>2<br>4 | ≥ 0.4 | **Annex C 67** 771-3-015 |
| **SEPA Blocs Creux Hollow brick Hbl 4 – 09** acc. to EN 771-3:2011 | | ≥ 500x200x200 | 6<br>4 | ≥ 0.9 | **Annex C 68** 771-3-025 |

## Würth Plastic Anchor W-UR

**Annex C 9**

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

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

| Base material | Format | Measurement [mm] | Minimum compressive strength [N/mm²] | Bulk density class [kg/dm³] | Annex |
|---|---|---|---|---|---|
| **Autoclaved aerated concrete** acc. to EN 771-4:2011 | | ≥ 499x175x249 | 2<br>4<br>6<br>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/mm²] | Bulk density class [kg/dm³] | Annex |
|---|---|---|---|---|---|
| **Precast prestressed hollow core elements VMM-L SCD 20** acc. to DIN EN 1168:2011-12, Z-15.10-276 e.g. Ketonia 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. Ketonia 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. Ketonia 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/mm²] | Bulk density class [kg/dm³] | 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** | **Annex C 10** |
|---|---|
| **Performances**<br>Autoclaved aerated concrete, precast or prestressed hollow core elements, gypsum blocks<br>Format, measurement, minimum compressive strength, bulk density class, Annex | |

**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/dm³] | 1.8 |
| Standard, approval | | | DIN 105-100:2012-01; EN 771-1:2011 |
| Format (measurement) | | [mm] | ≥ NF (≥ 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[6)] | | | Inside / Outside | | Inside / Outside | |
| Drill hole diameter | $d_0$ = | [mm] | 8 | | 10 | |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | | 10.45 | |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 60 | 80 | 60 | 80 |
| Drill method | | [-] | Hammer drilling | | Hammer drilling | |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | 50 | 70 | 50 | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | | 10.5 | |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 100 | | 250 | 100 |

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

| **Anchor size** | | | **W-UR 8** | | **W-UR 10** | |
|---|---|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **50** | **70** | **50** | **70** |
| **Solid brick Mz, $f_b \geq 10$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 1.2 | 1.5 | 0.75 | 2.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 1.2 | 1.5 | 0.60 | 1.5 |
| **Solid brick Mz, $f_b \geq 20$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 2.0 | 2.0 | 1.5 | 3.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 2.0 | 2.0 | 1.2 | 2.0 |
| **Solid brick Mz, $f_b \geq 28$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 2.5 | 3.0 | 1.5 | 4.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 2.5 | 3.0 | 1.2 | 3.0 |
| **Solid brick Mz, $f_b \geq 36$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 3.5 | 4.0 | 1.5 | 5.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 3.5 | 4.0 | 1.2 | 4.0 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 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/dm³] | 1.8 |
| Standard, approval | | | DIN 105-100:2012-01; EN 771-1:2011 |
| Producer of brick | | | e.g. Wienerberger GmbH |
| Format (measurement) | | [mm] | ≥ 3DF (≥ 240x175x113) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 115 |

**Table C 10.2.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside / Reveal |
| Drill hole diameter | $d_0$ = | [mm] | 8 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 |
| Drill method | | [-] | 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] | 50 |

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

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside / Reveal |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **70** |
| **Solid brick Mz, $f_b \geq 10$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 1.5 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 1.5 |
| **Solid brick Mz, $f_b \geq 20$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 2.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 2.0 |
| **Solid brick Mz, $f_b \geq 28$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 3.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 3.0 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 12** |
|---|---|
| **Performances**<br>**Solid masonry: Solid brick Mz, 3DF**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 1.2 |
| Standard, approval | | | DIN 105-100:2012-01; EN 771-1:2011 |
| Producer of brick | | | e.g. Wienerberger GmbH |
| Format (measurement) | | [mm] | ≥ 2DF (≥ 240x115x113) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 115 |

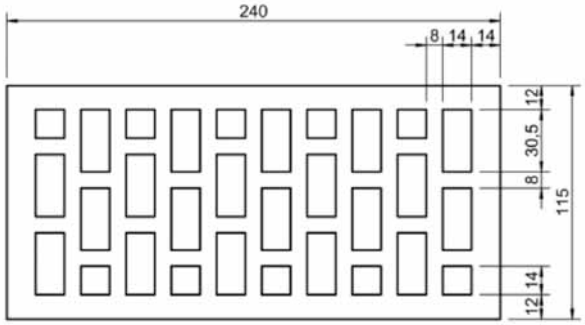


**Table C 10.3.2: Installation parameters**

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

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

| **Anchor size** | | | **W-UR 8** | | **W-UR 10** | |
|---|---|---|---|---|---|---|
| Installationsside[6] | | | Inside / Outside | | | |
| Overall plastic anchor embedment depth | $h_{nom}$ | [mm] | **≥ 50**[5] | **= 70** | **≥ 50**[5] | **= 70** |
| **Hollow brick HLz, $f_b \geq 8$ N/mm²** | 30°C[3] / 50°C[4] | [kN] | 0.6 | 0.9 | - | 0.9 |
| Characteristic resistance $F_{Rk}$ | 50°C[3] / 80°C[4] | [kN] | 0.5 | 0.75 | - | 0.75 |
| **Hollow brick HLz, $f_b \geq 12$ N/mm²** | 30°C[3] / 50°C[4] | [kN] | 0.9 | 1.5 | 0.5 | 1.5 |
| Characteristic resistance $F_{Rk}$ | 50°C[3] / 80°C[4] | [kN] | 0.75 | 0.9 | 0.4 | 1.2 |
| **Hollow brick HLz, $f_b \geq 20$ N/mm²** | 30°C[3] / 50°C[4] | [kN] | 1.5 | 2.5 | 0.75 | 2.5 |
| Characteristic resistance $F_{Rk}$ | 50°C[3] / 80°C[4] | [kN] | 1.2 | 1.5 | 0.6 | 2.0 |
| Partial safety factor | $\gamma_{Mm}$[2] | [-] | 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/dm³] | 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] | ≥ 12DF (≥ 373x240x238) |
| Minimum thickness of member $h_{min}$ = | [mm] | 240 |

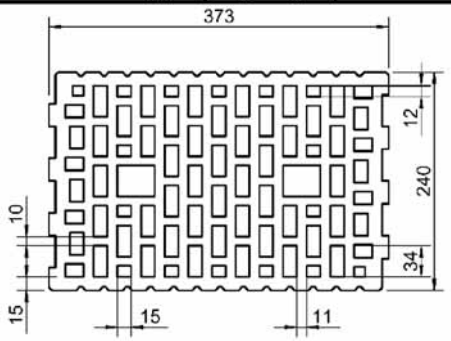


**Table C 10.4.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | | **W-UR 10** |
|---|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | Reveal | Inside / Outside |
| Drill hole diameter | $d_0$ = | [mm] | 8 | | 10 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | | 10.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 | | 80 |
| Drill method | | [-] | Rotary drilling | | Rotary drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | 70 | | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | | 10.5 |
| 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[6)] | | | Inside / Outside | Reveal | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | | | **70** |
| **Characteristic resistance for single anchor** | | [kN] | **$F_{Rk}$[1)]** | **$F_{Rk}$[1)]** | **$F_{Rk}$[7)]** | **$F_{Rk}$[1)]** |
| **Hollow brick HLz, $f_b \geq 6$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.6 | 1.2 | 1.5 | 0.9 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.6 | 1.2 | 1.5 | 0.75 |
| **Hollow brick HLz, $f_b \geq 8$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.9 | 2.0 | 2.0 | 1.2 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.9 | 1.5 | 2.0 | 0.9 |
| **Hollow brick HLz, $f_b \geq 10$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 1.2 | 2.0 | 2.0 | 1.5 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 1.2 | 1.5 | 2.0 | 1.2 |
| **Hollow brick HLz, $f_b \geq 12$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 1.2 | 2.0 | 2.0 | 2.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 1.2 | 1.5 | 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: 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/dm³] | 0.7 |
| Standard, approval | | | EN 771-1:2011; Z-17.1-625 |
| Producer of brick | | | Schlagmann Baustoffwerke GmbH & Co. KG<br>Ziegeleistraße 1<br>D-84367 Zeilarn |
| Format (measurement) | | [mm] | ≥ 10DF (≥ 248x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

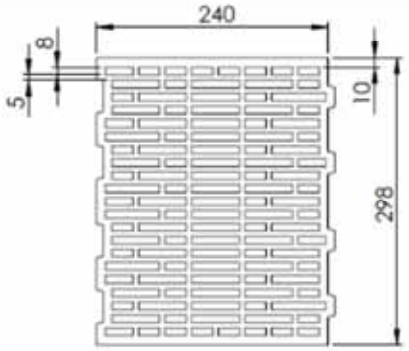


**Table C 10.5.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6] | | | 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 10.5.3: Characteristic resistance $F_{Rk}$[1] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick POROTON Planziegel T14, $f_b \geq 6$ N/mm²** | 30°C[3] / 50°C[4] | [kN] | 0.4 |
| Characteristic resistance $F_{Rk}$ | 50°C[3] / 80°C[4] | [kN] | 0.4 |
| Partial safety factor | $\gamma_{Mm}$[2] | [-] | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 15** |
|---|---|
| **Performances**<br>**Hollow brick: POROTON Planziegel T14, 10DF**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 0.6 |
| Standard, approval | | | T8: EN 771-1:2011; Z-17.1-982<br>T9: EN 771-1:2011; Z-17.1-674 |
| Producer of brick | | | Wienerberger GmbH<br>Oldenburger Allee 26<br>D-30659 Hannover<br><br>Schlagmann Baustoffwerke GmbH & Co. KG<br>Ziegeleistraße 1<br>D-84367 Zeilarn |
| Measurement | | [mm] | ≥ 10DF (≥ 248x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

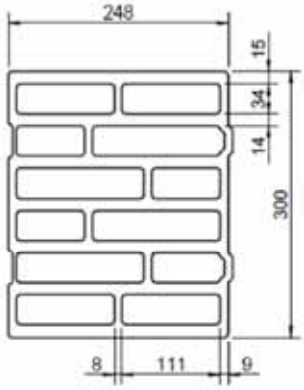


**Table C 10.6.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | 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 $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | **70** |
| **POROTON-T8-30,0-P and POROTON-T9-30,0-P, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.9 | 1.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 | 0.9 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 16**

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

**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/dm³] | 0.65 |
| Standard, approval | | | EN 771-1:2011; Z-17.1-1041 |
| Producer of brick | | | Wienerberger GmbH<br>Oldenburger Allee 26<br>D-30659 Hannover |
| Measurement | | [mm] | ≥ 12DF (≥ 248x365x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 365 |

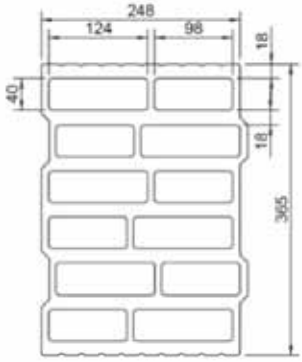


**Table C 10.7.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | 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 10.7.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside | |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** | **70** |
| **POROTON-T8-36,5-MW,** $f_b \geq 6$ N/mm² Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.2 | 0.9 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 | 0.9 |
| **POROTON-T8-36,5-MW,** $f_b \geq 8$ N/mm² Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.5 | 1.2 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 | 1.2 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 2.5 | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 17** |
|---|---|
| **Performances**<br>**Hollow brick: POROTON-T8-36,5-MW**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 0.60 |
| Standard, approval | | | Z-17.1-972 |
| Producer of brick | | | Wienerberger GmbH<br>Oldenburger Allee 26<br>D-30659 Hannover<br><br>Schlagmann Baustoffwerke GmbH & Co. KG<br>Ziegeleistraße 1<br>D-84367 Zeilarn |
| Measurement | | [mm] | ≥ 12DF (≥ 248x365x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 365 |

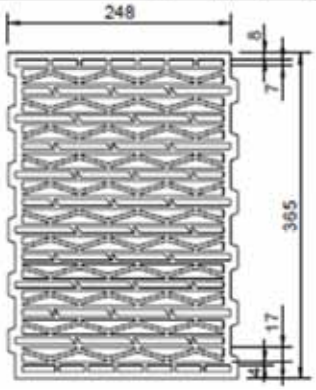


**Table C 10.8.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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] | 125 |

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

| **Dübelgröße** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **POROTON Planziegel T8,** **$f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.4 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.3 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 18**

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

**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/dm³] | 0.65 |
| Standard, approval | | | T10: EN 771-1:2011; Z-17.1-889 |
| Producer of brick | | | Wienerberger GmbH<br>Oldenburger Allee 26<br>D-30659 Hannover<br><br>Schlagmann Baustoffwerke GmbH & Co. KG<br>Ziegeleistraße 1<br>D-84367 Zeilarn |
| Measurement | | [mm] | ≥ 10DF (≥ 248x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

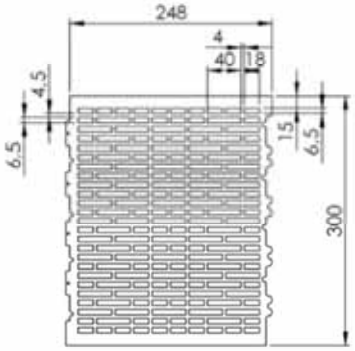


**Table C 10.9.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.9.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **POROTON Planziegel T10-30,** $f_b \geq 6$ **N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.5 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 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/dm³] | 0.75 |
| Standard, approval | | S10: EN 771-1:2011; Z-17.1-1017 |
| Producer of brick | | Wienerberger GmbH<br>Oldenburger Allee 26<br>D-30659 Hannover<br>Schlagmann Baustoffwerke GmbH & Co. KG<br>Ziegeleistraße 1<br>D-84367 Zeilarn |
| Measurement | [mm] | ≥ 10DF (≥ 248x300x249) |
| Minimum thickness of member $h_{min}$ = | [mm] | 300 |

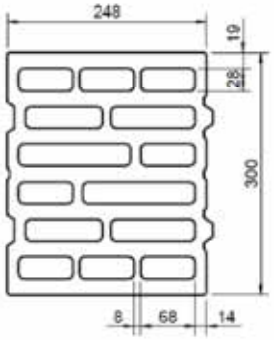


**Table C 10.10.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | |
|---|---|---|---|---|
| Installationsside[6)] | | | 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 $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** | |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | |
| **POROTON S10-30, $f_b \geq 6$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.6 | 0.6 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.6 | 0.6 |
| **POROTON S10-30, $f_b \geq 8$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.75 | 0.75 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.75 | 0.75 |
| **POROTON S10-30, $f_b \geq 10$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.9 | 1.5 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°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/dm³] | 0.9 |
| Standard, approval | | EN 771-1:2011; Z-17.1-812 |
| Producer of brick | | Wienerberger GmbH<br>Oldenburger Allee 26<br>D-30659 Hannover<br><br>Schlagmann Baustoffwerke GmbH & Co. KG<br>Ziegeleistraße 1<br>D-84367 Zeilarn |
| Measurement | [mm] | ≥ 10DF (≥ 248x300x249) |
| Minimum thickness of member $h_{min}$ = | [mm] | 300 |

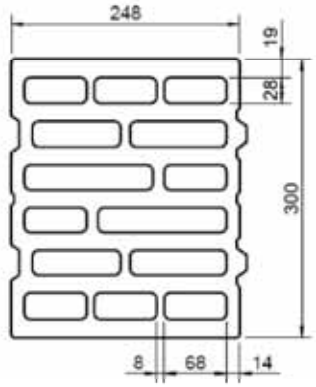


**Table C 10.11.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6] | | | 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 10.11.3: Characteristic resistance $F_{Rk}$[1] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6] | | | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | **70** |
| **POROTON-S11-30,0-P $f_b \geq 8$ N/mm²** | 30°C[3] / 50°C[4] | [kN] | 2.0 | 1.5 |
| Characteristic resistance $F_{Rk}$ | 50°C[3] / 80°C[4] | [kN] | 2.0 | 1.5 |
| Partial safety factor | $\gamma_{Mm}$[2] | [-] | 2.5 | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 21**

**Performances**
**Hollow brick: POROTON-S11-30,0-P**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 0.9 |
| Standard, approval | | EN 771-1:2011; Z-17.1-812 |
| Producer of brick | | Wienerberger GmbH<br>Oldenburger Allee 26<br>D-30659 Hannover<br><br>Schlagmann Baustoffwerke GmbH & Co. KG<br>Ziegeleistraße 1<br>D-84367 Zeilarn |
| Measurement | [mm] | 12DF (≥ 248x365x249) |
| Minimum thickness of member $h_{min}$ = | [mm] | 365 |

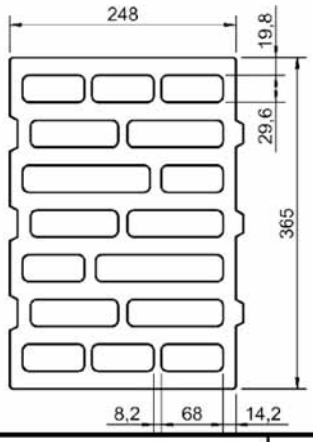


**Table C 10.12.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6] | | | 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 10.12.3: Characteristic resistance $F_{Rk}$[1] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6] | | | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | **70** |
| **POROTON-S11-36,5-P $f_b \geq 6$ N/mm²** | 30°C[3] / 50°C[4] | [kN] | 2.0 | 2.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3] / 80°C[4] | [kN] | 2.0 | 1.5 |
| Partial safety factor | $\gamma_{Mm}$[2] | [-] | 2.5 | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 22**

**Performances**
**Hollow brick: POROTON-S11-36,5-P**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 0.8 |
| Standard, approval | | | DIN 4160:2000-4 |
| Producer of brick | | | Wienerberger GmbH<br>Oldenburger Allee 26<br>D-30659 Hannover |
| Measurement | | [mm] | 530x250x210 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 210 |

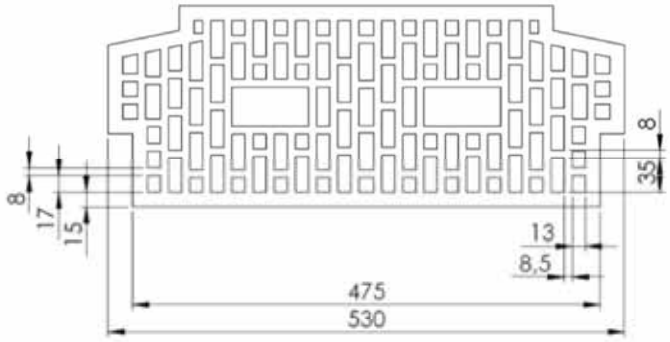


**Table C 10.13.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside | | | bottom view |
| Drill hole diameter | $d_0$ = | [mm] | 8 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [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 10.13.3: Characteristic resistance $F_{Rk}$ [1] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside | | | bottom view |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Brick for ceiling (system Filigran),** **$f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C [3] / 50°C [4] | [kN] | 0.9 |
| | 50°C [3] / 80°C [4] | [kN] | 0.9 |
| Partial safety factor | $\gamma_{Mm}$ [2] | [-] | 2.5 |

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Annex C 23**

**Performances**
**Hollow brick: Brick for ceiling (system Filigran)**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 0.8 |
| Standard, approval | | | EN 771-1:2011 |
| Producer of brick | | | Wienerberger Ziegelindustrie GmbH<br>Hauptstraße<br>A-2332 Hennersdorf, Austria |
| Measurement | | [mm] | ≥ 375x250x238 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 250 |

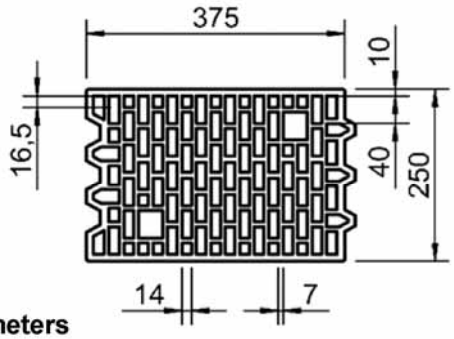


**Table C 10.14.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | 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 10.14.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | **70** |
| **Hollow brick POROTHERM 25-38 N+F, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.75 | 0.9 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.6 | 0.6 |
| **Hollow brick POROTHERM 25-38 N+F, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.9 | 1.2 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 | 0.9 |
| **Hollow brick POROTHERM 25-38 N+F, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.2 | 1.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 | 1.2 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 | 2.5 |

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Annex C 24**

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

**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/dm³] | 0.6 |
| Standard, approval | | | EN 771-1:2011 |
| Producer of brick | | | Wienerberger Brunori s.r.l.<br>Via Ringhiera 1<br>I-40020 Mordano (Bologna) fraz. Bubano<br>Italy |
| Measurement | | [mm] | ≥ 250x120x330 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 120 |

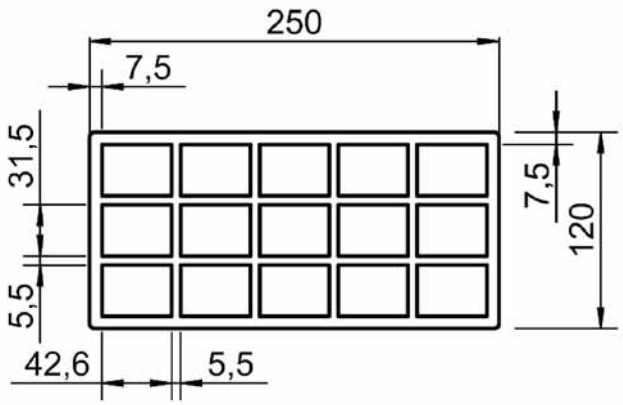


**Table C 10.15.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | 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 10.15.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | **70** |
| **Hollow brick Blocchi Leggeri, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.9 | 0.3 |
| | 50°C[3)] / 80°C[4)] | [kN] | 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/dm³] | 0.6 |
| Standard, approval | | | EN 771-1:2011 |
| Producer of brick | | | Wienerberger Tacconi s.r.l.<br>Via Ringhiera 1<br>I-40020 Mordano (Bologna) fraz. Bubano<br>Italy, Werk Terni |
| Measurement | | [mm] | ≥ 420x120x250 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 120 |

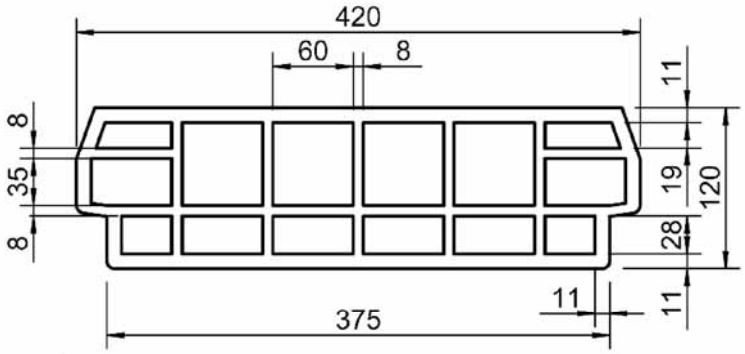


**Table C 10.16.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside | | | bottom view | bottom view |
| Drill hole diameter | $d_0$ = | [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 10.16.3: 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 | $h_{nom}$ = | [mm] | **70** | **70** |
| **Hollow brick for ceiling Blocchi per solaio a travetti, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 1.2 | 0.9 |
| | 50°C[3] / 80°C[4] | [kN] | 0.9 | 0.6 |
| **Hollow brick for ceiling Blocchi per solaio a travetti, $f_b \geq 14$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 1.5 | 1.2 |
| | 50°C[3] / 80°C[4] | [kN] | 1.2 | 0.9 |
| Partial safety factor | $\gamma_{Mm}$ [2] | [-] | 2.5 | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 26**

**Performances**
**Hollow brick for ceiling Blocchi per solaio a travetti**
Brick data, installation parameters, characteristic resistance

Deutsches Institut für Bautechnik DIBt

## 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/dm³] | 0.7 |
| Standard, approval | | | EN 771-1:2011 |
| Producer of brick | | | e.g. Wienerberger SAS<br>8, Rue du Canal - Achenheim<br>67087 Strasbourg, France |
| Measurement | | [mm] | T20: 500x200x240<br>R20: 500x200x249 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 200 |

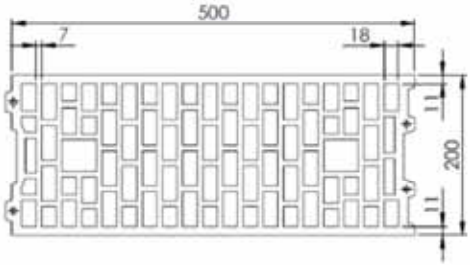


**Table C 10.17.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6] | | | 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 $F_{Rk}$[1] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick POROTHERM MURBRIC T20 and R20, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 0.3 |
| | 50°C[3] / 80°C[4] | [kN] | 0.3 |
| **Hollow brick POROTHERM MURBRIC T20 and R20, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 0.4 |
| | 50°C[3] / 80°C[4] | [kN] | 0.4 |
| **Hollow brick POROTHERM MURBRIC T20 and R20, $f_b \geq 12$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 0.6 |
| | 50°C[3] / 80°C[4] | [kN] | 0.6 |
| Partial safety factor | $\gamma_{Mm}$[2] | [-] | 2.5 |

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Annex C 27**

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

**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/dm³] | 0.7 |
| Standard, approval | | | EN 771-1:2011 |
| Producer of brick | | | Wienerberger SAS<br>8, Rue du Canal - Achenheim<br>67087 Strasbourg<br>France |
| Measurement | | [mm] | T30: 373x300x249<br>R30: 373x300x250 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

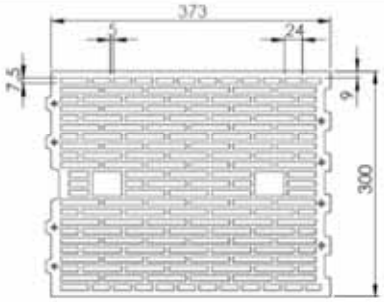


**Table C 10.18.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick POROTHERM R30, Hollow brick POROTHERM T30, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.4 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.3 |
| **Hollow brick POROTHERM R30, Hollow brick POROTHERM T30, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.5 |
| | 50°C[3)] / 80°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: POROTHERM T30 and POROTHERM R30**
Brick data, installation parameters, characteristic resistance

**Annex C 28**

Deutsches Institut für Bautechnik DIBt

**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/dm³] | 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 (≥ 247x365x249) |
| Minimum thickness of member $h_{min}$ = | [mm] | 365 |

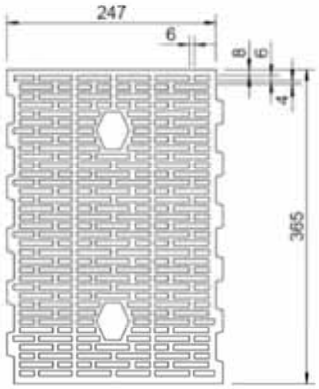


**Table C 10.19.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.19.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick UNIPOR WS11 CORISO, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.9 |
| | 50°C[3)] / 80°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 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/dm³] | 0.8 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-883 |
| Producer of brick | | | UNIPOR Ziegel<br>Marketing GmbH<br>Landsberger Straße 392<br>D-81241 München |
| Measurement | | [mm] | 10DF (≥ 247x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

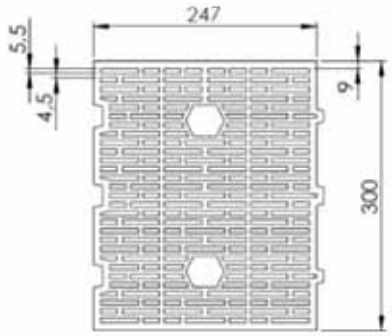


**Table C 10.20.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.20.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick UNIPOR WS14 and UNIPOR WS12 CORISO,** **$f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.6 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.6 |
| **Hollow brick UNIPOR WS14 and UNIPOR WS12 CORISO,** **$f_b \geq 12$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.75 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.75 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 30**

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

**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/dm³] | 0.7 |
| Standard, approval | | | W14-Plan: EN 771-1:2011, Z-17.1-679,<br>W14-Block: EN 771-1:2011, Z-17.1-636, |
| Producer of brick | | | UNIPOR Ziegel<br>Marketing GmbH<br>Landsberger Straße 392<br>D-81241 München |
| Measurement | | [mm] | W14-Plan: ≥ 10DF (≥ 240x300x249)<br>W14-Block: 10DF (≥ 240x300x238) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

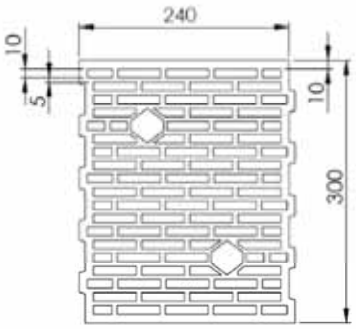


**Table C 10.21.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.21.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick UNIPOR W14,** **$f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.4 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.4 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 31**

**Performances**
**Hollow brick: UNIPOR W14**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 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 (≥ 118x365x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

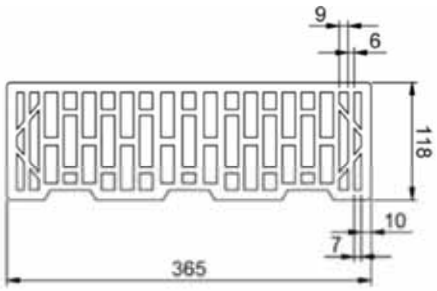


**Table C 10.22.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Reveal |
| Drill hole diameter | $d_0$ = | [mm] | 8 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 |
| Drill method | | [-] | Rotary drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 65 |

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

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Reveal |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **UNIPOR 6DF EWS 365, $f_b \geq 6$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.4 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.3 |
| **UNIPOR 6DF EWS 365, $f_b \geq 8$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.6 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.4 |
| **UNIPOR 6DF EWS 365, $f_b \geq 10$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.75 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.6 |
| **UNIPOR 6DF EWS 365, $f_b \geq 12$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.9 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.6 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Annex C 32**

**Performances**
**Hollow brick: UNIPOR 6DF EWS 365**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 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 (≥ 118x365x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 365 |

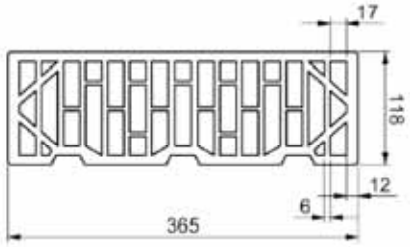


**Table C 10.23.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Reveal |
| Drill hole diameter | $d_0$ = | [mm] | 8 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 |
| Drill method | | [-] | Rotary drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 65 |

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

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Reveal |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **UNIPOR 6DF EW 365, $f_b \geq 4$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.3 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.3 |
| **UNIPOR 6DF EW 365, $f_b \geq 6$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.5 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.4 |
| **UNIPOR 6DF EW 365, $f_b \geq 8$ N/mm²** | 30°C[3)] / 50°C[4)] | [kN] | 0.6 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | [kN] | 0.5 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 33** |
|---|---|
| **Performances**<br>**Hollow brick: UNIPOR 6DF EW 365**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 0.6 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-1016 |
| Producer of brick | | | Mein Ziegelhaus GmbH & Co. KG<br>Märkerstraße 44<br>D-63755 Alzenau |
| Measurement | | [mm] | ≥ 10DF (≥ 248x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

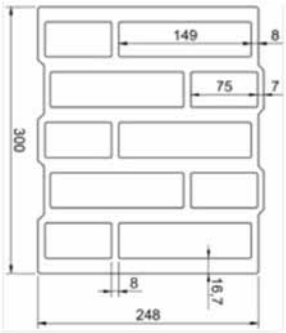


**Table C 10.24.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.24.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick ThermoPlan MZ7,** **$f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | | 30°C[3)] / 50°C[4)] | [kN] | 0.75 |
| | | 50°C[3)] / 80°C[4)] | [kN] | 0.5 |
| **Hollow brick ThermoPlan MZ7,** **$f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | | 30°C[3)] / 50°C[4)] | [kN] | 0.9 |
| | | 50°C[3)] / 80°C[4)] | [kN] | 0.75 |
| **Hollow brick ThermoPlan MZ7,** **$f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | | 30°C[3)] / 50°C[4)] | [kN] | 1.5 |
| | | 50°C[3)] / 80°C[4)] | [kN] | 1.2 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Annex C 34**

**Performances**
**Hollow brick: ThermoPlan MZ7**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 0.6 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-906 |
| Producer of brick | | | Mein Ziegelhaus GmbH & Co. KG<br>Märkerstraße 44<br>D-63755 Alzenau |
| Measurement | | [mm] | ≥ 12DF (≥ 248x365x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 365 |

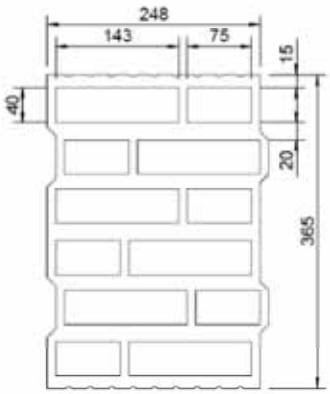


**Table C 10.25.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.25.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick ThermoPlan MZ8, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.9 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.75 |
| **Hollow brick ThermoPlan MZ8, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.2 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 35**

**Performances**
**Hollow brick: ThermoPlan MZ8**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 0.75 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-1015 |
| Producer of brick | | | Mein Ziegelhaus GmbH & Co. KG<br>Märkerstraße 44<br>D-63755 Alzenau |
| Measurement | | [mm] | ≥ 10DF (≥ 248x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

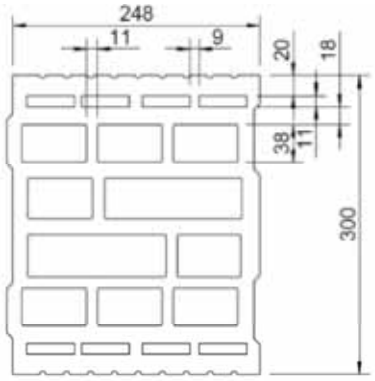


**Table C 10.26.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.26.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick ThermoPlan MZ10, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2,0 |
| | 50°C[3)] / 80°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/dm³] | 0.80 |
| Standard, approval | | | EN 771-1:2011, in dependence on Z-17.1015 |
| Producer of brick | | | Mein Ziegelhaus GmbH & Co. KG<br>Märkerstraße 44<br>D-63755 Alzenau |
| Measurement | | [mm] | ≥ 6DF (≥ 118x365x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 365 |

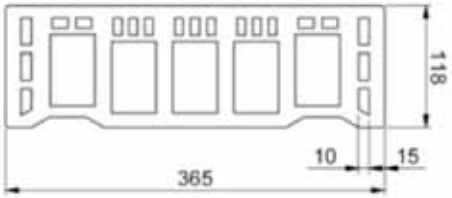


**Table C 10.27.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Reveal |
| Drill hole diameter | $d_0$ = | [mm] | 8 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 |
| Drill method | | [-] | Rotary drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 55 |

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

| **Anchor size** | | | **W-UR 8** | |
|---|---|---|---|---|
| Installationsside[6)] | | | Reveal | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | |
| Characteristic resistance for single anchor | | [kN] | $F_{Rk}$[1)] | $F_{Rk}$[7)] |
| **Hollow brick ThermoPlan Ergänzung, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.6 | 0.9 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.6 | 0.9 |
| **Hollow brick ThermoPlan Ergänzung, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.9 | 1.4 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 | 1.4 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 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 TS²

**Table C 10.28.1: Brick data**

| **Brick data** 771-1-024 | | | **ThermoPlan TS²** |
|---|---|---|---|
| Type of brick | | | Hollow brick |
| Bulk density | $\rho \geq$ | [kg/dm³] | 0.9 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-993 |
| Producer of brick | | | Mein Ziegelhaus GmbH & Co. KG<br>Märkerstraße 44<br>D-63755 Alzenau |
| Measurement | | [mm] | ≥ 9DF (≥ 373x175x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 175 |

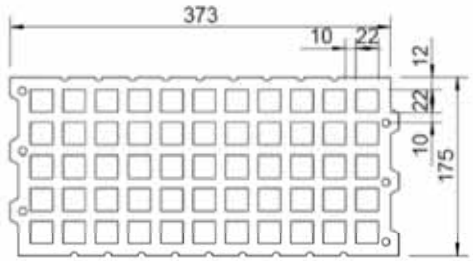


**Table C 10.28.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.28.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick ThermoPlan TS², $f_b \geq 6$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.6 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.4 |
| **Hollow brick ThermoPlan TS², $f_b \geq 8$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.75 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.6 |
| **Hollow brick ThermoPlan TS², $f_b \geq 10$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.9 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.75 |
| **Hollow brick ThermoPlan TS², $f_b \geq 12$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.2 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 |
| **Hollow brick ThermoPlan TS², $f_b \geq 20$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 2.0 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Annex C 38**

**Performances**
**Hollow brick: ThermoPlan TS²**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 0.75 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-914 |
| Producer of brick | | | Mein Ziegelhaus GmbH & Co. KG<br>Märkerstraße 44<br>D-63755 Alzenau |
| Measurement | | [mm] | ≥ 10DF (≥ 248x300x248) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

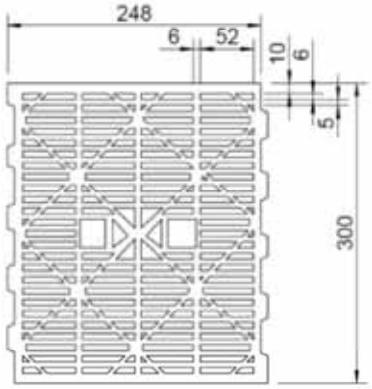


**Table C 10.29.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.29.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick ThermoPlan TS 13, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.6 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.6 |
| **Hollow brick ThermoPlan TS 13, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.75 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.75 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 39** |
|---|---|
| **Performances**<br>**Hollow brick: ThermoPlan TS 13**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 0.7 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-840 |
| Producer of brick | | | Thermopor Ziegel-Kontor Ulm GmbH<br>Olgastraße 94<br>D-89073 Ulm |
| Measurement | | [mm] | ≥ 307x240x249 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 240 |

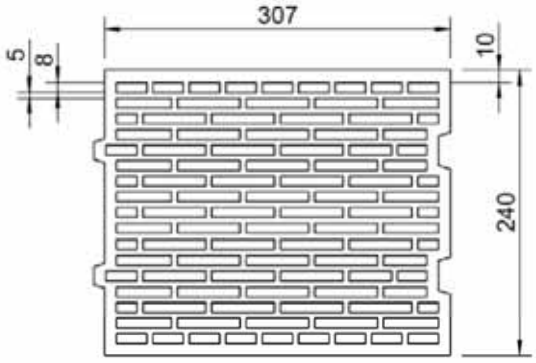


**Table C 10.30.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.30.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **THERMOPOR ISO-PD Plus Objektziegel, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.4 |
| **THERMOPOR ISO-PD Plus Objektziegel, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.6 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.6 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

**Würth Plastic Anchor W-UR**

**Annex C 40**

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

**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/dm³] | 0.5 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-1005 |
| Producer of brick | | | Thermopor Ziegel-Kontor Ulm GmbH<br>Olgastraße 94<br>D-89073 Ulm |
| Measurement | | [mm] | ≥ 12 DF (≥247x365x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 365 |

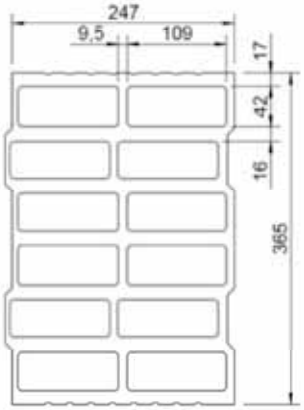


**Table C 10.31.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.31.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick THERMOPOR TV 7-Plan, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.9 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 41** |
|---|---|
| **Performances**<br>**Hollow brick: THERMOPOR TV 7-Plan**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 0.65 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-1006 |
| Producer of brick | | | Thermopor Ziegel-Kontor Ulm GmbH<br>Olgastraße 94<br>D-89073 Ulm |
| Measurement | | [mm] | ≥ 10 DF (≥247x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

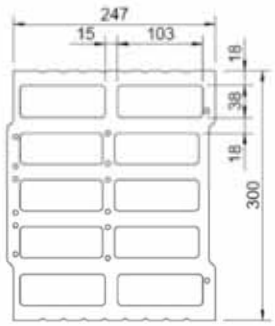


**Table C 10.32.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.32.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick THERMOPOR TV 9-Plan, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.75 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.75 |
| **Hollow brick THERMOPOR TV 9-Plan, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.9 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 |
| **Hollow brick THERMOPOR TV 9-Plan, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 42**

**Performances**
**Hollow brick: THERMOPOR TV 9-Plan**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 0.60 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-1067 |
| Producer of brick | | | Ziegelsystem Michael Kellerer GmbH & Co KG<br>Ziegeleistraße 13, D-82281 Egenhofen |
| Measurement | | [mm] | ≥10DF ( 247x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

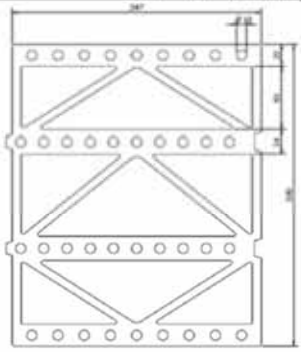

**Table C 10.33.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6] | | | 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 $F_{Rk}$[1] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick Kellerer ZMK X6, $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | | [kN] | 0.3 |
| | 50°C[3] / 80°C[4] | | [kN] | 0.3 |
| **Hollow brick Kellerer ZMK X6, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | | [kN] | 0.5 |
| | 50°C[3] / 80°C[4] | | [kN] | 0.5 |
| **Hollow brick Kellerer ZMK X6, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | | [kN] | 0.75 |
| | 50°C[3] / 80°C[4] | | [kN] | 0.75 |
| Partial safety factor | | $\gamma_{Mm}$[2] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 43**

**Performances**
**Hollow brick: Kellerer ZMK X6**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 0.60 |
| Standard, approval | | | EN 771-1:2011, Z-17.1-1068 |
| Producer of brick | | | Ziegelsystem Michael Kellerer GmbH & Co KG<br>Ziegeleistraße 13, D-82281 Egenhofen |
| Measurement | | [mm] | ≥10DF ( 247x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

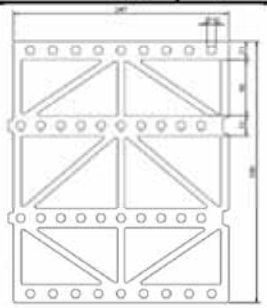

**Table C 10.34.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick Kellerer ZMK TX8, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.75 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.6 |
| **Hollow brick Kellerer ZMK TX8, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.2 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 44** |
|---|---|
| **Performances**<br>**Hollow brick: Kellerer ZMK TX8**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 1.2 |
| Standard, approval | | | EN 771-1:2011 |
| Producer of brick | | | Ceramica La Corona, S.A.<br>Carreta de Caldes, km 8, 9<br>08420 Canovelles, Spain |
| Measurement | | [mm] | ≥ 276x128x95 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 128 |

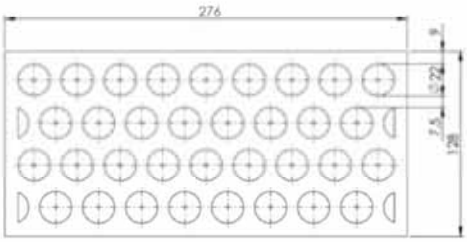


**Table C 10.35.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.35.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Hollow brick Ladrillo P NV R150, $f_b \geq 12$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.6 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.5 |
| **Hollow brick Ladrillo P NV R150, $f_b \geq 20$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.2 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 |
| **Hollow brick Ladrillo P NV R150, $f_b \geq 28$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.2 |
| **Hollow brick Ladrillo P NV R150, $f_b \geq 36$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 2.0 |
| | 50°C[3)] / 80°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/dm³] | 2.0 |
| Standard, approval | | | DIN V 106:2005-10; EN 771-2:2011 |
| Producer of brick | | | - |
| Format (measurement) | | [mm] | ≥ NF (≥ 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[6)] | | | Inside / Outside | | | |
| Drill hole diameter | $d_0$ = | [mm] | 8 | | 10 | |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | | 10.45 | |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 60 | 80 | 60 | 80 |
| Drill method | | [-] | Hammer drilling | | Hammer drilling | |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | 50 | 70 | 50 | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | | 10.5 | |
| Spacing perpendicular to free edge | $s_{1,min}$ | [mm] | 100 | | 100 | 100 |
| Spacing parallel to free edge | $s_{2,min}$ | [mm] | 100 | | 200 | 100 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 100 | | 50 | 100 |

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

| **Anchor size** | | | **W-UR 8** | | **W-UR 10** | |
|---|---|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | | | |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **50** | **70** | **50** | **70** |
| **Sand-lime solid brick KS, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 | 1.5 | 0.75 | 2.0 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.5 | 1.5 | 0.75 | 1.5 |
| **Sand-lime solid brick KS, $f_b \geq 20$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.5 | 2.5 | 1.5 | 3.0 |
| | 50°C[3)] / 80°C[4)] | [kN] | 2.0 | 2.5 | 1.5 | 2.5 |
| **Sand-lime solid brick KS, $f_b \geq 28$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 3.5 | 3.5 | 1.5 | 4.5 |
| | 50°C[3)] / 80°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** | **Annex C 46** |
|---|---|
| **Performances**<br>**Sand-lime solid brick: KS, NF**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 2.0 |
| Standard, approval | | | DIN V 106:2005-10; EN 771-2:2011, Z-17.1-997 |
| Producer of brick | | | Xella Deutschland GmbH<br>Dr.-Hammacher-Str. 49<br>D-47119 Duisburg |
| Format (measurement) | | [mm] | ≥ 248x175x498 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 175 |

**Table C 10.37.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside / Reveal | Inside / Outside / Reveal |
| Drill hole diameter | $d_0$ = | [mm] | 8 | 10 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | 10.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 | 80 |
| Drill method | | [-] | Hammer drilling | Hammer drilling |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | 70 | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | 10.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 50 | 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[6)] | | | Inside / Outside / Reveal | Inside / Outside / Reveal |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **70** | **70** |
| **Sand-lime solid brick Silka XL Basic, Silka XL Plus, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 | 2.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.5 | 2.5 |
| **Sand-lime solid brick Silka XL Basic, Silka XL Plus, $f_b \geq 20$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.5 | 3.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 2.5 | 3.5 |
| **Sand-lime solid brick Silka XL Basic, Silka XL Plus, $f_b \geq 28$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 3.5 | 4.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 3.5 | 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: 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/dm³] | 1.6 |
| Standard, approval | | | DIN V 106:2005-10; EN 771-2:2011 |
| Producer of brick | | | - |
| Format (measurement) | | [mm] | ≥ 2DF (≥ 240x115x113) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 115 |

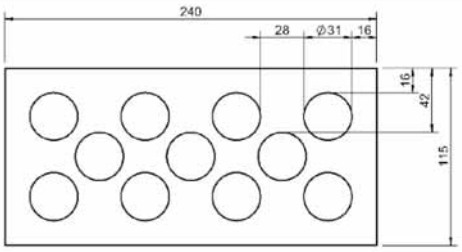


**Table C 10.38.2: Installation parameters**

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

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

| **Anchor size** | | | **W-UR 8** | | **W-UR 10** | |
|---|---|---|---|---|---|---|
| Installationsside[6] | | | Inside / Outside | | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom}$ | [mm] | **≥ 50**[5] | **= 70** | **≥ 50**[5] | **= 70** |
| **Sand-lime perforated brick KS L, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 0.6 | 1.2 | 0.5 | 0.9 |
| | 50°C[3] / 80°C[4] | [kN] | 0.5 | 1.2 | 0.4 | 0.9 |
| **Sand-lime perforated brick KS L, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 0.9 | 1.5 | 0.6 | 1.2 |
| | 50°C[3] / 80°C[4] | [kN] | 0.6 | 1.5 | 0.5 | 1.2 |
| **Sand-lime perforated brick KS L, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 0.9 | 2.0 | 0.6 | 1.5 |
| | 50°C[3] / 80°C[4] | [kN] | 0.9 | 2.0 | 0.5 | 1.5 |
| **Sand-lime perforated brick KS L, $f_b \geq 12$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 1.2 | 2.5 | 0.9 | 2.0 |
| | 50°C[3] / 80°C[4] | [kN] | 0.9 | 2.5 | 0.75 | 2.0 |
| **Sand-lime perforated brick KS L, $f_b \geq 16$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 1.5 | 2.5 | 0.9 | 2.5 |
| | 50°C[3] / 80°C[4] | [kN] | 1.2 | 2.5 | 0.75 | 2.5 |
| 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, 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/dm³] | 1.4 |
| Standard, approval | | | DIN V 106:2005-10; EN 771-2:2011 |
| Producer of brick | | | e.g. Xella Deutschland GmbH |
| Format (measurement) | | [mm] | ≥ 8DF (≥ 248x240x238) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 240 |

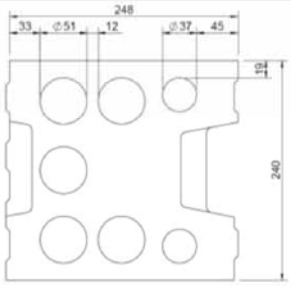


**Table C 10.39.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | | **W-UR 10** |
|---|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | Reveal | Inside / Outside |
| Drill hole diameter | $d_0$ = | [mm] | 8 | | 10 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | | 10.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 | | 80 |
| Drill method | | [-] | Rotary drilling | | Rotary drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | 70 | | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | | 10.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 60 | 45 | 100 |

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

| **Anchor size** | | | **W-UR 8** | | **W-UR 10** |
|---|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | Reveal | Inside / Outside |
| **Sand-lime perforated brick KS L, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.9 | 0.9 | 0.9 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.6 | 0.9 | 0.75 |
| **Sand-lime perforated brick KS L, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.2 | 1.2 | 1.2 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 | 1.2 | 0.9 |
| **Sand-lime perforated brick KS L, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 | 1.5 | 1.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 | 1.5 | 1.2 |
| **Sand-lime perforated brick KS L, $f_b \geq 12$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 | 2.0 | 2.0 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.2 | 2.0 | 1.5 |
| **Sand-lime perforated brick KS L, $f_b \geq 16$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.0 | 2.0 | 2.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.5 | 2.0 | 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**

Deutsches Institut für Bautechnik DIBt

## 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/dm³] | 1.4 |
| Standard, approval | | | DIN V 106:2005-10; EN 771-2:2011 |
| Producer of brick | | | - |
| Format (measurement) | | [mm] | ≥ 12DF (≥ 373x240x238) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 240 |

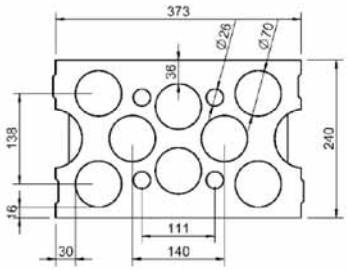


**Table C 10.40.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | Reval |
| Drill hole diameter | $d_0$ = | [mm] | 8 | |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 60 | 80 |
| Drill method | | [-] | Rotary drilling | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [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 $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** | |
|---|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside | Reveal |
| Overall plastic anchor embedment depth | | $h_{nom}$ | [mm] | **50 mm ≤ $h_{nom}$ ≤ 70 mm[5)]** | **= 70** |
| **Sand-lime perforated brick KS L, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.6 | 0.9 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.5 | 0.75 |
| **Sand-lime perforated brick KS L, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.9 | 1.2 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.6 | 0.9 |
| **Sand-lime perforated brick KS L, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.9 | 1.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.6 | 1.2 |
| **Sand-lime perforated brick KS L, $f_b \geq 12$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.2 | 2.0 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 | 1.5 |
| **Sand-lime perforated brick KS L, $f_b \geq 16$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.5 | 2.0 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.2 | 1.5 |
| 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, 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/dm³] | 1.4 |
| Standard, approval | | | DIN V 106:2005-10; EN 771-2:2011 |
| Producer of brick | | | - |
| Format (measurement) | | [mm] | ≥ 12DF (≥ 373x240x238) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 240 |

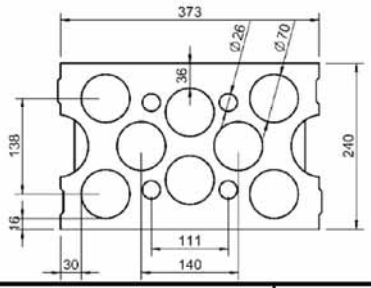


**Table C 10.40.5: Installation parameters**

| **Anchor size** | | | **W-UR 10** | |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | |
| Drill hole diameter | $d_0$ = | [mm] | 10 | |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 10.45 | |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 60 | 80 |
| Drill method | | [-] | Rotary drilling | |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | 50 | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 10.5 | |
| Spacing perpendicular to free edge | $s_{1,min}$ | [mm] | 120 | 100 |
| Spacing parallel to free edge | $s_{2,min}$ | [mm] | 240 | 100 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 60 | 100 |

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

| **Anchor size** | | | | **W-UR 10** | |
|---|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside | |
| Overall plastic anchor embedment depth | | $h_{nom}$ | [mm] | **50 mm ≤ $h_{nom}$ ≤ 70 mm[5)]** | **= 70** |
| **Sand-lime perforated brick KS L, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.4 | 0.9 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.3 | 0.6 |
| **Sand-lime perforated brick KS L, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.5 | 1.2 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.5 | 0.75 |
| **Sand-lime perforated brick KS L, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.5 | 1.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.5 | 0.9 |
| **Sand-lime perforated brick KS L, $f_b \geq 12$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.75 | 1.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.6 | 1.2 |
| **Sand-lime perforated brick KS L, $f_b \geq 16$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.75 | 2.0 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.6 | 1.5 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 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/dm³] | 1.4 |
| Standard, approval | | | DIN V 106:2005-10; EN 771-2:2011 |
| Producer of brick | | | Xella Deutschland GmbH<br>Dr.-Hammacher-Str.49<br>D-47119 Duisburg |
| Format (measurement) | | [mm] | ≥ 9DF (≥ 373x175x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 175 |

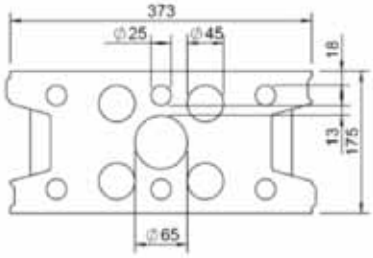


**Table C 10.41.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Sand-lime perforated brick KS L, $f_b \geq 6$ N/mm²** | 30°C[3)] / 50°C[4)] | | [kN] | 0.6 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | | [kN] | 0.4 |
| **Sand-lime perforated brick KS L, $f_b \geq 8$ N/mm²** | 30°C[3)] / 50°C[4)] | | [kN] | 0.75 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | | [kN] | 0.6 |
| **Sand-lime perforated brick KS L, $f_b \geq 10$ N/mm²** | 30°C[3)] / 50°C[4)] | | [kN] | 0.9 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | | [kN] | 0.75 |
| **Sand-lime perforated brick KS L, $f_b \geq 12$ N/mm²** | 30°C[3)] / 50°C[4)] | | [kN] | 1.2 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 |
| **Sand-lime perforated brick KS L, $f_b \geq 20$ N/mm²** | 30°C[3)] / 50°C[4)] | | [kN] | 2.0 |
| Characteristic resistance $F_{Rk}$ | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 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/dm³] | 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] | ≥ 4DF (≥ 249x115x248) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 115 |

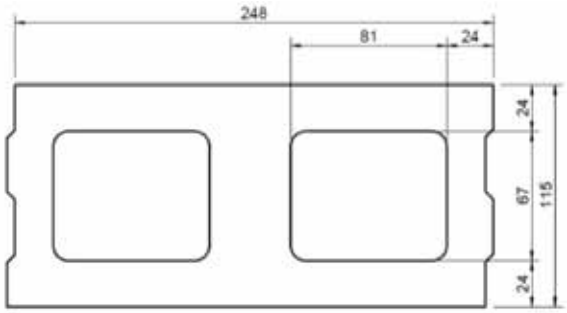


**Table C 10.42.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.42.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Sand-lime perforated brick KS-NT, $f_b \geq 12$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.2 |
| **Sand-lime perforated brick KS-NT, $f_b \geq 20$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 2.0 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 53**

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

Deutsches Institut für Bautechnik DIBt

**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/dm³] | 2.0 |
| Standard, approval | | | DIN V 18153-100:2005-10; EN 771-3:2011 |
| Producer of brick | | | - |
| Format (measurement) | | [mm] | ≥ NF (≥ 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[6)] | | | Inside / Outside | Inside / Outside | |
| Drill hole diameter | $d_0$ = | [mm] | 8 | 10 | |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | 10.45 | |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 60 | 60 | 80 |
| Drill method | | [-] | Hammer drilling | Hammer drilling | |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | 50 | 50 | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | 10.5 | |
| Spacing perpendicular to free edge | $s_{1,min}$ | [mm] | 100 | 100 | 100 |
| Spacing parallel to free edge | $s_{2,min}$ | [mm] | 100 | 200 | 100 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 100 | 50 | 100 |

**Table C 10.43.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** | |
|---|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | Inside / Outside | |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **50** | **50** | **70** |
| **Concrete solid block Vbn, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 | 0.75 | 2.0 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.5 | 0.75 | 2.0 |
| **Concrete solid block Vbn, $f_b \geq 20$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.5 | 1.2 | 3.0 |
| | 50°C[3)] / 80°C[4)] | [kN] | 2.5 | 0.9 | 3.0 |
| **Concrete solid block Vbn, $f_b \geq 28$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 3.5 | 1.5 | 4.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 3.5 | 1.5 | 4.5 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 | 2.5 | |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 54** |
|---|---|
| **Performances**<br>**Concrete solid block Vbn, NF**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 0.9 |
| Standard, approval | | | EN 771-3:2011, DIN V 18152-100:2005-10 |
| Producer of brick | | | e.g. Bisoclassic V<br>Bisotherm GmbH<br>Eisenbahnstraße 12<br>D-56218 Mühlheim-Kärlich |
| Format (measurement) | | [mm] | ≥ NF (≥ 240x115x71) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 115 |

**Table C 10.44.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.44.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **70** |
| **Lightweight concrete solid brick V2, $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.6 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.5 |
| **Lightweight concrete solid brick V4, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.2 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 55** |
|---|---|
| **Performances**<br>**Lightweight concrete solid brick V, NF**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 1.0 |
| Standard, approval | | | EN 771-3:2011, DIN V 18152-100:2005-10 |
| Producer of brick | | | e.g. BisoBims,<br>Bisotherm GmbH<br>Eisenbahnstraße 12<br>D-56218 Mühlheim-Kärlich |
| Format (measurement) | | [mm] | ≥ NF (≥ 240x115x71) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 115 |

**Table C 10.45.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | |
|---|---|---|---|---|
| Installationsside[6)] | | [-] | 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] | 60 | 80 |
| Drill method | | [-] | Hammer drilling | |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [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 $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** | |
|---|---|---|---|---|---|
| Installationsside[6)] | | | [-] | Inside / Outside | |
| Overall plastic anchor embedment depth | | $h_{nom} \geq$ | [mm] | **50** | **70** |
| **Lightweight concrete solid brick V 2, $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.4 | 0.6 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.3 | 0.6 |
| **Lightweight concrete solid brick V 4, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.9 | 1.2 |
| | 50°C[3)] / 80°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** | **Annex C 56** |
|---|---|
| **Performances**<br>**Lightweight concrete solid brick V, NF**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 2.0 |
| Standard, approval | | | EN 771-3:2011, DIN V 18152-100:2005-10 |
| Producer of brick | | | e.g. BisoBims,<br>Bisotherm GmbH<br>Eisenbahnstraße 12<br>D-56218 Mühlheim-Kärlich |
| Format (measurement) | | [mm] | ≥ 3 DF (≥ 240x175x113) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 175 |

**Table C 10.46.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside / Reveal | |
| Drill hole diameter | $d_0$ = | [mm] | 8 | |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 60 | 80 |
| Drill method | | [-] | Hammer drilling | |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [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 $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside / Reveal |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **70** |
| **Lightweight concrete solid brick V and Vbl, $f_b \geq 10$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 3.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 3.0 |
| **Lightweight concrete solid brick V and Vbl, $f_b \geq 20$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 5.0 |
| | 50°C[3)] / 80°C[4)] | [kN] | 4.0 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 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/dm³] | 0.6 |
| Standard, approval | | | DIN V 18152-100:2005-10 |
| Producer of brick | | | e.g. Liapor Massive Wall LAC2<br>by: Liapor GmbH & Co. KG<br>D-91352 Hallerndorf |
| Measurement | | [mm] | ≥ 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[6)] | | | Inside / Outside | Inside / Outside |
| Drill hole diameter | $d_0$ = | [mm] | 8 | 10 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | 10.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 | 80 |
| Drill method | | [-] | Hammer drilling | Hammer drilling |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | 70 | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | 10.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 100 | 100 |

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

| **Anchor size** | | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom} \geq$ | [mm] | **70** | **70** |
| **Lightweight concrete solid block Vbl 2, $f_b \geq 2$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.2 | 1.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.2 | 1.5 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 2.5 | 2.5 |

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR** | **Annex C 58** |
|---|---|
| **Performances**<br>**Lightweight concrete solid block Vbl**<br>Brick data, installation parameters, characteristic resistance | |

**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/dm³] | 0.65 |
| Standard, approval | | | DIN V 18152-100:2005-10, Z-17.1-839 |
| Producer of brick | | | e.g. Liapor Compact<br>by: Liapor GmbH & Co. KG<br>D-91352 Hallerndorf<br>Meier Betonwerke GmbH<br>Zur Schanze 2<br>92283 Lauterhofen |
| Measurement | | [mm] | ≥ 16DF (≥ 498x240x239) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 240 |

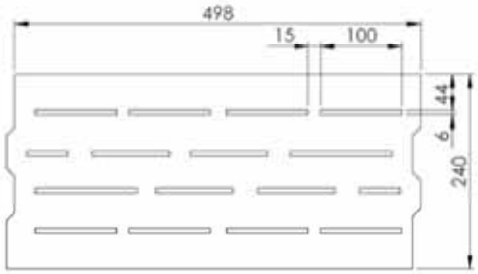


**Table C 10.48.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.48.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom} \geq$ | [mm] | **70** |
| **Lightweight concrete solid block Vbl 2, $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.2 |
| | 50°C[3)] / 80°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 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/dm³] | 1.4 |
| Standard, approval | | | DIN V 18153-100:2005-10 |
| Producer of brick | | | e.g. Liapor Element Wall LC16/18<br>by: Liapor GmbH & Co. KG<br>D-91352 Hallerndorf |
| Measurement | | [mm] | ≥ 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[6)] | | | Inside / Outside | Inside / Outside |
| Drill hole diameter | $d_0$ = | [mm] | 8 | 10 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | 10.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 | 80 |
| Drill method | | [-] | Hammer drilling | Hammer drilling |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | 70 | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | 10.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 100 | 100 |

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

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **70** | **70** |
| **Concrete solid block Vbn 12, $f_b \geq 12$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 3.5 | 3.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 3.5 | 3.5 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 | 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/dm³] | 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] | ≥ 12DF (≥ 490x175x238) |
| Minimum thickness of member $h_{min}$ = | [mm] | 175 |

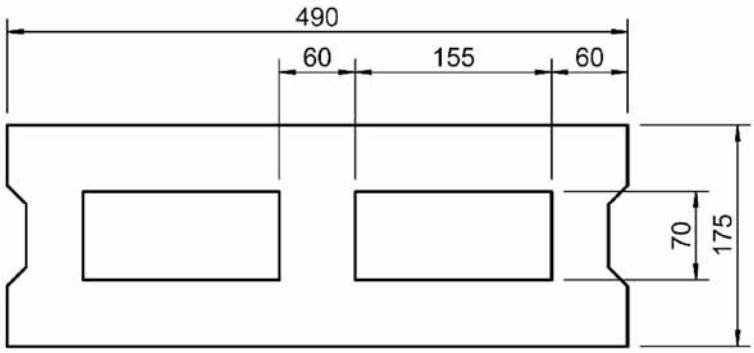


**Table C 10.50.2: Installation parameters**

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

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

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | **70** |
| **Hollow brick lightweight concrete 1K Hbl, $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.9 | 0.9 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.9 | 0.75 |
| **Hollow brick lightweight concrete 1K Hbl, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.0 | 2.0 |
| | 50°C[3)] / 80°C[4)] | [kN] | 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 lightweight concrete 1K Hbl**
Brick data, installation parameters, characteristic resistance

**Annex C 61**

Deutsches Institut für Bautechnik DIBt

**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/dm³] | 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] | ≥ 16DF (≥ 498x240x238) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 240 |

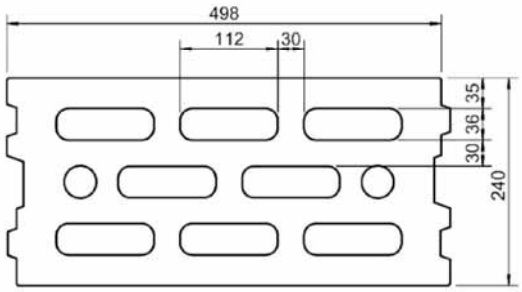


**Table C 10.51.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | | **W-UR 10** |
|---|---|---|---|---|---|
| Installationsside[6] | | | Inside / Outside | Reveal | Inside / Outside |
| Drill hole diameter | $d_0$ = | [mm] | 8 | | 10 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | | 10.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 | | 80 |
| Drill method | | [-] | Rotary drilling | | Rotary drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | 70 | | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | | 10.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 100 | 55 | 100 |

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

| **Anchor size** | | | | **W-UR 8** | | **W-UR 10** |
|---|---|---|---|---|---|---|
| Installationsside[6] | | | | Inside / Outside | Reveal | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** | | **70** |
| **Hollow brick lightweight concrete 3K Hbl, $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | | [kN] | 0.6 | 0.6 | 0.5 |
| | 50°C[3] / 80°C[4] | | [kN] | 0.4 | 0.6 | 0.3 |
| **Hollow brick lightweight concrete 3K Hbl, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | | [kN] | 1.2 | 1.2 | 0.9 |
| | 50°C[3] / 80°C[4] | | [kN] | 0.9 | 1.2 | 0.6 |
| **Hollow brick lightweight concrete 3K Hbl, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | | [kN] | 1.5 | 1.2 | 1.5 |
| | 50°C[3] / 80°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/dm³] | 0.8 |
| Standard, approval | | | EN 771-3:2011; Z-17.1-501 |
| Producer of brick | | | Liapor GmbH & Co. KG<br>D-91352 Hallerndorf |
| Format (measurement) | | [mm] | ≥ 16DF (≥ 495x240x238) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 240 |

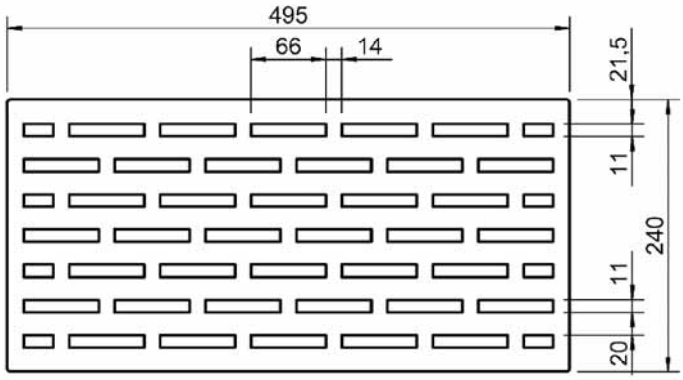


**Table C 10.52.2: Installation parameters**

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

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

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** | **70** |
| **Hollow brick lightweight concrete Liapor-Super-K, $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.75 | 0.9 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.6 | 0.6 |
| **Hollow brick lightweight concrete Liapor-Super-K, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 | 2.0 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.2 | 1.2 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 63**

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

Deutsches Institut für Bautechnik DIBt

## 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/dm³] | 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] | ≥ 12DF (≥ 375x240x238) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 240 |

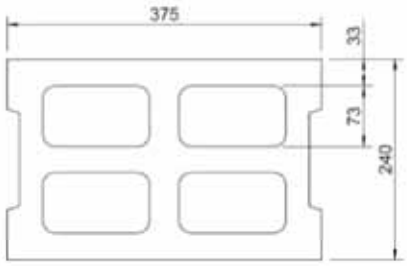


**Table C 10.53.2: Installation parameters**

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

**Table C 10.53.3: Characteristic resistance $F_{Rk}$[1)7)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** | | |
|---|---|---|---|---|---|---|
| Installationsside[6] | | | | Inside / Outside | Reveal | |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** | | |
| Characteristic resistance for single anchor | | | [kN] | $F_{Rk}$[1)] | $F_{Rk}$[1)] | $F_{RK}$[7)] |
| **Hollow brick concrete 2K Hbn 2, $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.75 | 0.3 | 1.2 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.6 | 0.3 | 1.2 |
| **Hollow brick concrete 2K Hbn 4, $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.5 | 0.6 | 2.0 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.2 | 0.5 | 2.0 |
| **Hollow brick concrete 2K Hbn 6, $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 2.0 | 0.6 | 2.0 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 | 0.5 | 2.0 |
| **Hollow brick concrete 2K Hbn 8, $f_b \geq 8$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 3.0 | 0.6 | 2.0 |
| | 50°C[3)] / 80°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/dm³] | 0.8 |
| Standard, approval | | | Z-17.1-873 |
| Producer of brick | | | Gisoton Wandsysteme<br>Baustoffwerke Gebhart & Söhne GmbH & Co.<br>Hochstraße 2<br>D-88317 Aichstetten |
| Format (measurement) | | [mm] | ≥ 375x300x248 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

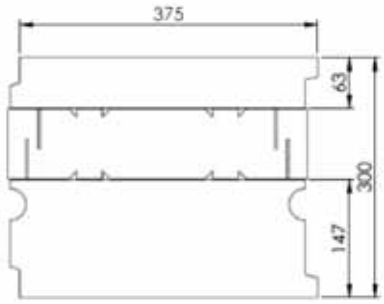


**Table C 10.54.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.54.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Gisoton WärmeDämmBlock,** **$f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 |
| | 50°C[3)] / 80°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 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/dm³] | 0.45 |
| Standard, approval | | | Z-15.2-18 |
| Producer of brick | | | Gisoton Wandsysteme<br>Baustoffwerke Gebhart & Söhne GmbH & Co.<br>Hochstraße 2<br>D-88317 Aichstetten |
| Format (measurement) | | [mm] | ≥ 498x300x248 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

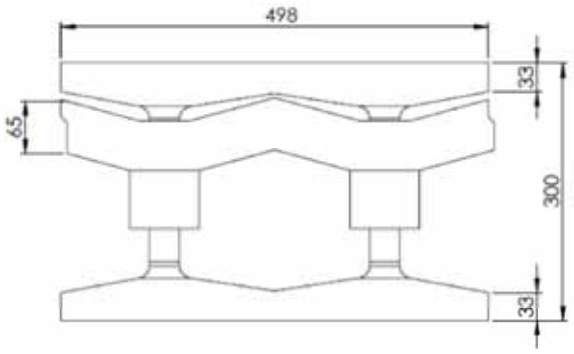


**Table C 10.55.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.55.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Gisoton Thermo Schall,** **$f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 |
| | 50°C[3)] / 80°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[TEC]**

**Table C 10.56.1: Brick data**

| **Description of brick** 771-3-015 | | | **Bisomark[TEC]** |
|---|---|---|---|
| Type of brick | | | Hollow brick lightweight concrete |
| Bulk density | $\rho \geq$ | [kg/dm³] | 0.4 |
| Standard, approval | | | Z-17.1-1026 |
| Producer of brick | | | Bisotherm GmbH<br>Eisenbahnstraße 12<br>D-56218 Mühlheim-Kärlich |
| Format (measurement) | | [mm] | ≥ 20DF (≥ 497x300x249) |
| Minimum thickness of member | $h_{min}$ = | [mm] | 300 |

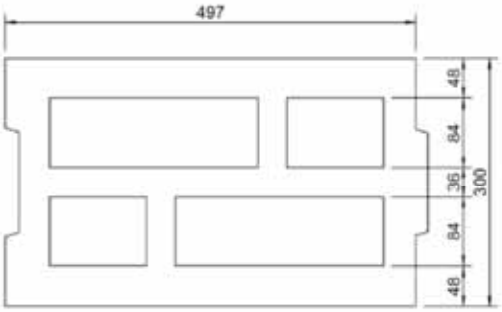


**Table C 10.56.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 10.56.3: Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| **Anchor size** | | | | **W-UR 8** |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom}$ = | [mm] | **70** |
| **Bisomark[TEC]**, **$f_b \geq 1.6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.6 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.5 |
| **Bisomark[TEC]**, **$f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.75 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.6 |
| **Bisomark[TEC]**, **$f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.2 |
| Partial safety factor | | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 67**

**Performances**
**Hollow brick lightweight concrete: Bisomark[TEC]**
Brick data, installation parameters, characteristic resistance

**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/dm³] | 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 |

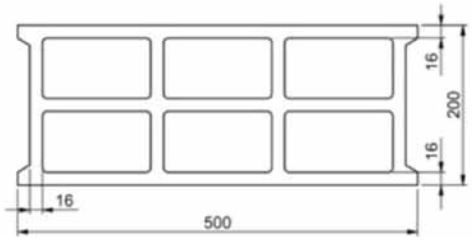


**Table C 10.57.2: Installation parameters**

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

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

| **Anchor size** | | | **W-UR 10** |
|---|---|---|---|
| Installationsside[6] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **50 mm ≤ $h_{nom}$ ≤ 70 mm**[5] |
| **B SEPA Blocs Creux,** **$f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 0.5 |
| | 50°C[3] / 80°C[4] | [kN] | 0.4 |
| **SEPA Blocs Creux ,** **$f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3] / 50°C[4] | [kN] | 0.75 |
| | 50°C[3] / 80°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** | **Annex C 68** |
|---|---|
| **Performances**<br>**Hollow brick lightweight concrete: SEPA Blocs Creux**<br>Brick data, installation parameters, characteristic resistance | |

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

**Table C 10.58.1: Brick data**

| **Description of brick** AAC | | | **AAC** |
|---|---|---|---|
| Type of brick | | | Autoclaved Aerated Concrete |
| Bulk density | $\rho \geq$ | [kg/dm³] | 0.3 |
| Standard, approval | | | EN 771-4:2011 |
| Measurement | | [mm] | ≥ 499x175x249 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 175 |

**Table C 10.58.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside / Reveal | Inside / Outside / Reveal |
| Drill hole diameter | $d_0$ = | [mm] | 8 | 10 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 | 10.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 | 80 |
| Drill method | | [-] | Hammer drilling | Hammer drilling |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | 70 | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 | 10.5 |

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

| **Anchor size** | | | **W-UR 8** | **W-UR 10** |
|---|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside / Reveal | Inside / Outside / Reveal |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **70** | **70** |
| **Autoclaved Aerated Concrete AAC $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 0.5 | 0.75 |
| | 50°C[3)] / 80°C[4)] | [kN] | 0.4 | 0.6 |
| **Autoclaved Aerated Concrete AAC $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.5 | 1.7 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.2 | 1.4 |
| **Autoclaved Aerated Concrete AAC $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.5 | 2.6 |
| | 50°C[3)] / 80°C[4)] | [kN] | 2.0 | 2.1 |
| **Autoclaved Aerated Concrete AAC $f_b \geq 7$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 3.0 | 3.1 |
| | 50°C[3)] / 80°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/dm³] | 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[6)] | | | Inside / Outside |
| Drill hole diameter | $d_0$ = | [mm] | 10 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 10.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 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] | 10.5 |
| Minimum allowable edge distance | $c_{min} \geq$ | [mm] | 150 |

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

| Anchor size | | | | W-UR 10 |
|---|---|---|---|---|
| Installationsside[6)] | | | | Inside / Outside |
| Overall plastic anchor embedment depth | | $h_{nom} \geq$ | [mm] | **70** |
| **(Prefabricated) Reinforced AAC $f_b \geq 2$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 0.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.4 |
| **(Prefabricated) Reinforced AAC $f_b \geq 3$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.0 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 0.9 |
| **(Prefabricated) Reinforced AAC $f_b \geq 4$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.5 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.3 |
| **(Prefabricated) Reinforced AAC $f_b \geq 4.5$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.75 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 |
| **(Prefabricated) Reinforced AAC $f_b \geq 5$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.75 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 |
| **(Prefabricated) Reinforced AAC $f_b \geq 6$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.75 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 |
| **(Prefabricated) Reinforced AAC $f_b \geq 7$ N/mm²** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | | [kN] | 1.75 |
| | 50°C[3)] / 80°C[4)] | | [kN] | 1.5 |
| Partial safety factor | | $\gamma_{MAAC}$[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/dm³] | 2.4 |
| Standard, approval | | | DIN EN 1168:2011-12; Z-15.10-276 |
| Producer of brick | | | e.g. Ketonia GmbH Spannbeton-<br>Fertigteilwerk<br>Almesbach 4<br>D-92637 Weiden |
| Format (measurement) | | [mm] | ≥ 1200x800x200 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 200 |

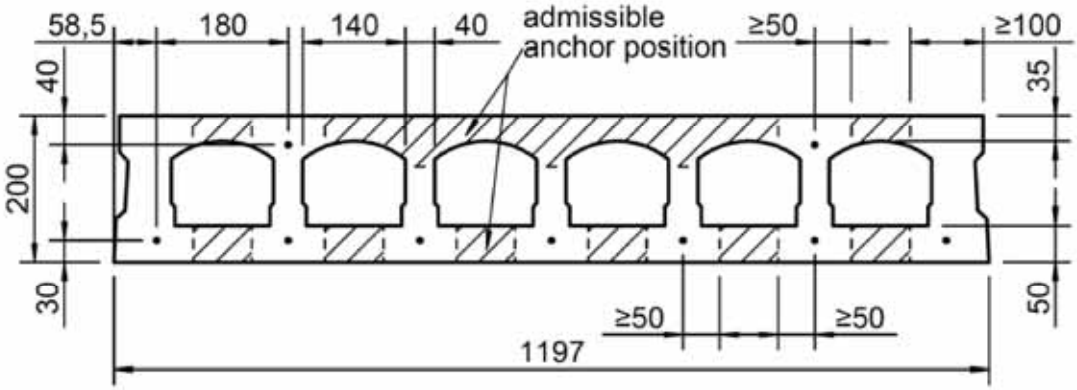


**Table C 10.60.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside | | | top view / bottom view |
| Drill hole diameter | $d_0$ = | [mm] | 8 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 |
| Drill method | | [-] | Hammer drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [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 | $h_{nom}$ = | [mm] | **70** |
| **Precast prestressed hollow core elements VMM-L SCD 20, C45/55** Characteristic resistance $F_{Rk}$ | 30°C [3] / 50°C [4] | [kN] | 1.5 |
| | 50°C [3] / 80°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**<br>**VMM-L SCD 20**<br>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/dm³] | 2.4 |
| Standard, approval | | | DIN EN 1168:2011-12; Z-15.10-276 |
| Producer of brick | | | e.g. Ketonia GmbH Spannbeton-<br>Fertigteilwerk<br>Almesbach 4<br>D-92637 Weiden |
| Format (measurement) | | [mm] | ≥ 1200x800x320 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 320 |

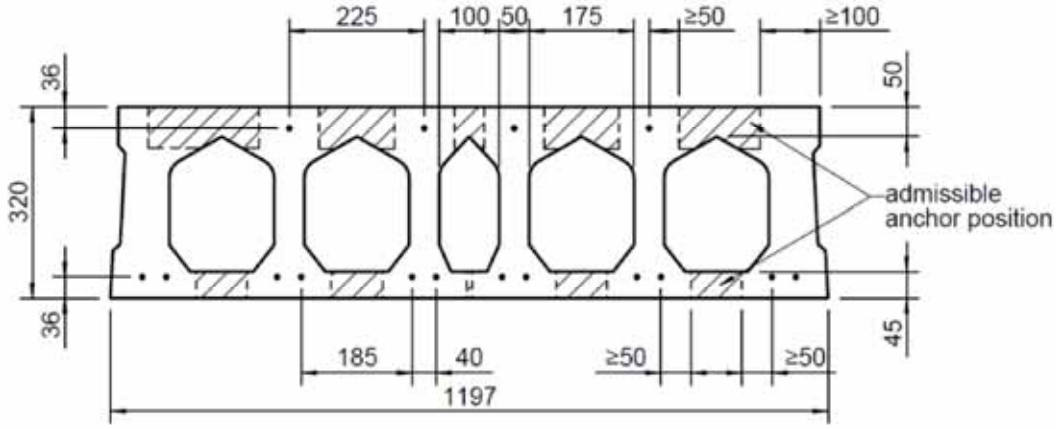


**Table C 10.61.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside | | | top view / bottom view |
| Drill hole diameter | $d_0$ = | [mm] | 8 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 |
| Drill method | | [-] | Hammer drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [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 | $h_{nom}$ = | [mm] | **70** |
| **Precast prestressed hollow core elements VMM-L EPD 32, C45/55**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.5 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.5 |
| Partial safety factor | $\gamma_{Mc}$[2)] | [-] | 1.8 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 72**

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

**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/dm³] | 2.4 |
| Standard, approval | | | DIN EN 1168:2011-12; Z-15.10-276 |
| Producer of brick | | | z.B. Ketonia GmbH Spannbeton-Fertigteilwerk<br>Almesbach 4<br>D-92637 Weiden |
| Format (measurement) | | [mm] | ≥ 1200x400x160 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 160 |

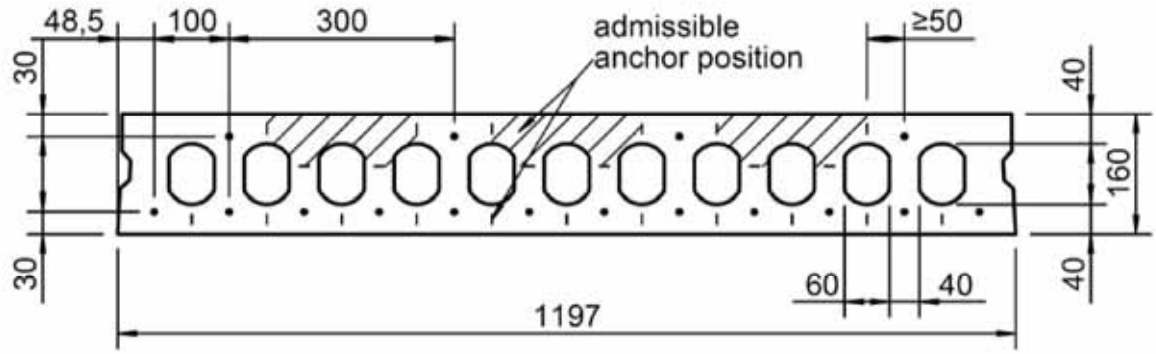


**Table C 10.62.2: Installation parameters**

| Anchor size | | | W-UR 8 |
|---|---|---|---|
| Installationsside | | | top view / bottom view |
| Drill hole diameter | $d_0$ = | [mm] | 8 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 8.45 |
| Depth of drill hole to deepest point | $h_1 \geq$ | [mm] | 80 |
| Drill method | | [-] | Hammer drilling |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | 70 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 8.5 |

**Table C 10.62.3Characteristic resistance $F_{Rk}$[1)] in [kN] for single anchor**

| Anchor size | | | W-UR 8 |
|---|---|---|---|
| Installationsside | | | top view / bottom view |
| Overall plastic anchor embedment depth | $h_{nom}$ = | [mm] | **70** |
| **Precast prestressed hollow core elements VMM VSD 16, C45/55** Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 2.5 |
| | 50°C[3)] / 80°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/dm³] | 1.2 |
| Standard, approval | | | DIN EN 12859:2011-05 |
| Producer of brick | | | VG-ORTH GmbH & Co. KG<br>Holeburgweg 24<br>D-37627 Stadtoldendorf |
| Format (measurement) | | [mm] | ≥ 500x500x100 |
| Minimum thickness of member | $h_{min}$ = | [mm] | 100 |

**Table C 10.63.2: Installation parameters**

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | 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 |

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

| **Anchor size** | | | **W-UR 8** |
|---|---|---|---|
| Installationsside[6)] | | | Inside / Outside |
| Overall plastic anchor embedment depth | $h_{nom} \geq$ | [mm] | **70** |
| **Gypsum blocks:**<br>**MultiGips R.max Schallschutzplatte,**<br>**$f_b \geq 11{,}7$ N/mm²**<br>Characteristic resistance $F_{Rk}$ | 30°C[3)] / 50°C[4)] | [kN] | 1.2 |
| | 50°C[3)] / 80°C[4)] | [kN] | 1.2 |
| Partial safety factor | $\gamma_{Mm}$[2)] | [-] | 2.5 |

Footnotes see Annex C 3

## Würth Plastic Anchor W-UR

**Annex C 74**

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