European Technical Assessment

ETA-08/0190
of 4 August 2025

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Würth Plastic Anchor W-UR / SHARK UR
Product family to which the construction product belongs	Plastic anchor for redundant non-structural systems in concrete and masonry
Manufacturer	Adolf Würth GmbH & Co. KG Reinhold-Würth-Straße 12-17 74653 Künzelsau DEUTSCHLAND
Manufacturing plant	Werk 2
This European Technical Assessment contains	135 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	EAD 330284-00-0604, edition 12/2020
This version replaces	ETA-08/0190 issued on 28 April 2021

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Specific part

1 Technical description of the product

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

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

The product description is given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchors of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Safety in case of fire (BWR 2)

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

3.2 Mechanical resistance and stability (BWR 4)

Essential characteristic	Performance
Resistance to steel failure under tension loading	See Annex C 1
Resistance to steel failure under shear loading	See Annex C 1
Resistance to pull-out or concrete failure under tension loading (base material group a)	See Annex C 1
Resistance in any load direction without lever arm (base material group b, c, d)	See Annexes C 15 – C 121
Edge distance and spacing (base material group a)	See Annex B 2
Edge distance and spacing (base material group b, c, d)	See Annex B 3
Displacements under short-term and long-term loading	See Annex C 2
Durability	See Annex B 1

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

In accordance with European Assessment Document EAD 330284-00-0604 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 EAD

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

Issued in Berlin on 4 August 2025 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock   *beglaubigt:*
Head of Section   Ziegler

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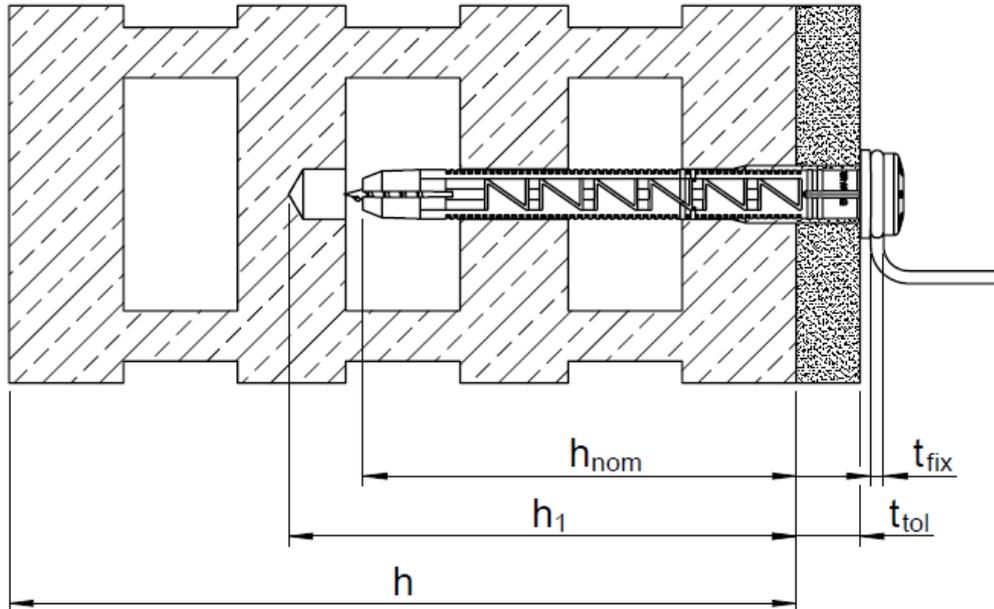## Plastic Anchor W-UR 8 / SHARK UR 8 and W-UR 10 / SHARK UR 10 in-place installation
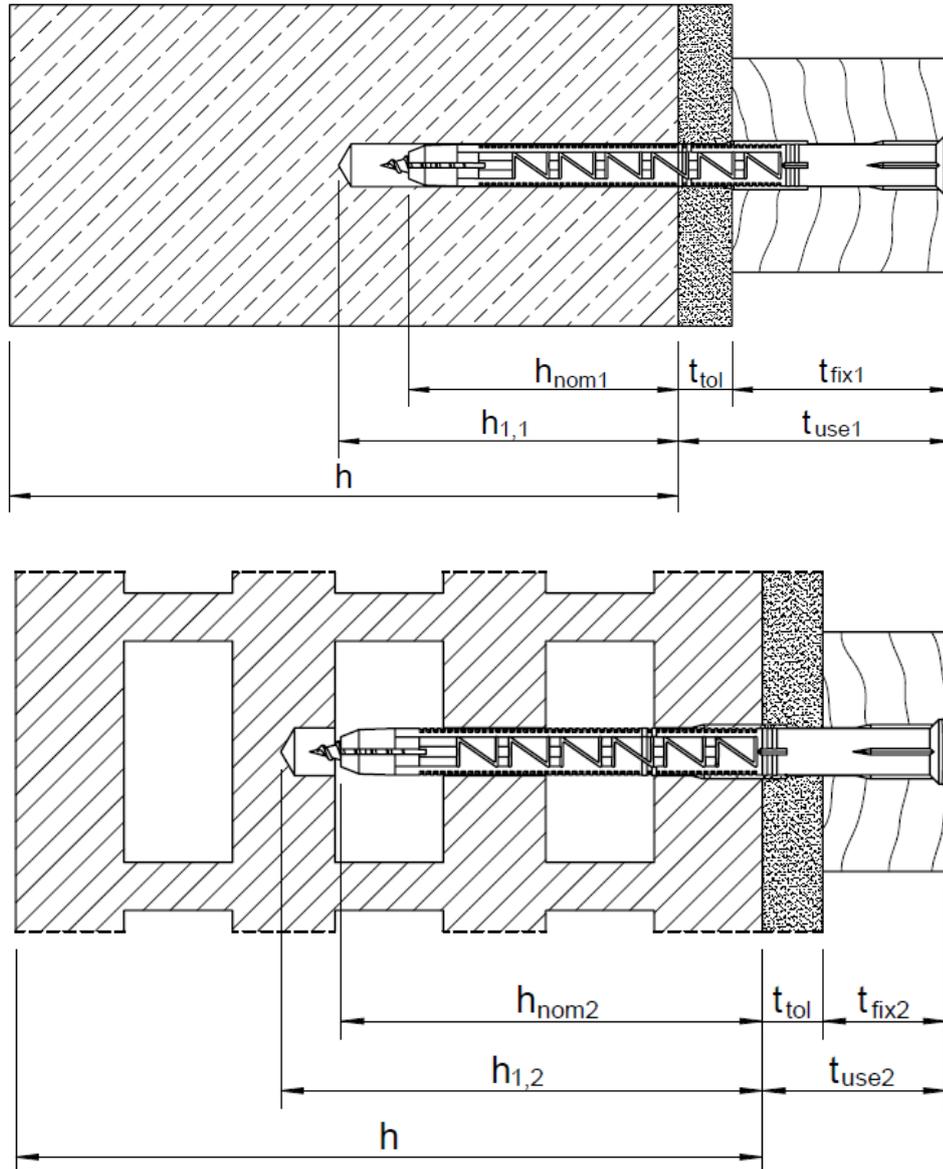
h_{nom1}:   Overall plastic anchor embedment depth in the base material (1)
h_{nom2}:   Overall plastic anchor embedment depth in the base material (2)
$h_{1,1}$:   Depth of drill hole to deepest point (1)
$h_{1,2}$:   Depth of drill hole to deepest point (2)
h: Thickness of member
t_{fix1}:   Thickness of fixture (1)
t_{fix2}:   Thickness of fixture (2)
t_{tol}:   Thickness of non-load-bearing layer
t_{use1}:   Useable length (1)
t_{use2}:   Useable length (2)

Würth Plastic Anchor W-UR / SHARK UR	
Product description Installed condition in-place installation	**Annex A 1**

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

h_{nom}:   Overall plastic anchor embedment depth in the base material
h_1:   Depth of drill hole to deepest point
h: Thickness of member
t_{fix}:   Thickness of fixture
t_{tol}:   Thickness of non-load-bearing layer
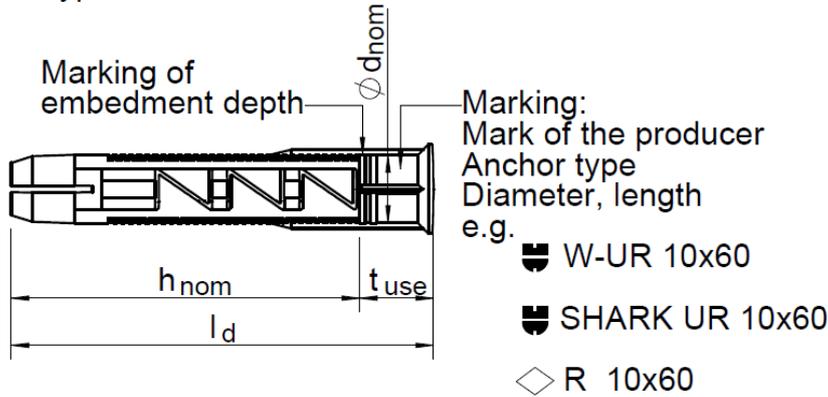
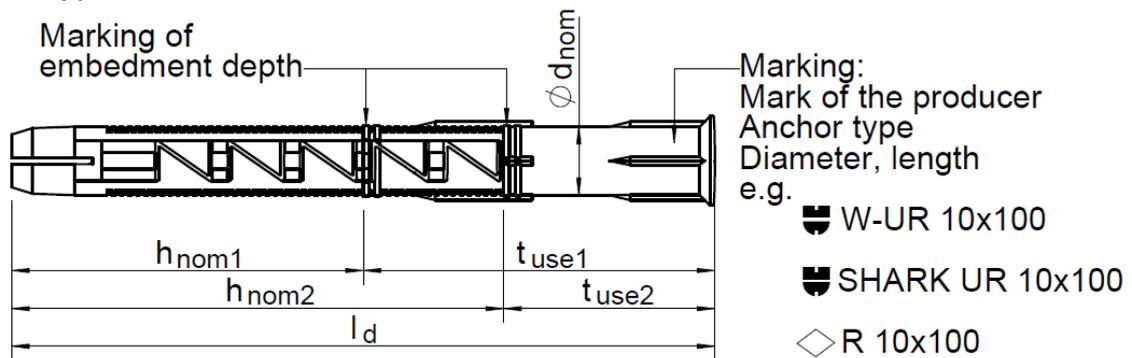| Würth Plastic Anchor W-UR / SHARK UR	
Product description Installed condition pre-positioned installation	**Annex A 2**

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Plastic sleeve

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

Marking of embedment depth — $\varnothing d_{nom}$

Marking:
Mark of the producer
Anchor type
Diameter, length
e.g.

W-UR 10x60

SHARK UR 10x60

◇ R 10x60

h_{nom} t_{use}

l_d

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

Marking of embedment depth — $\varnothing d_{nom}$

Marking:
Mark of the producer
Anchor type
Diameter, length
e.g.

W-UR 10x100

SHARK UR 10x100

◇ R 10x100

h_{nom1} t_{use1}
h_{nom2} t_{use2}
l_d

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

$\varnothing d_k$

l_d l_k
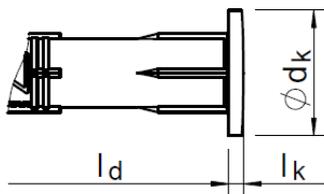
Würth Plastic Anchor W-UR / SHARK UR

Product description	**Annex A 3**
Anchor types – head versions of the sleeve Marking and dimensions	

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Special screw

Special screw SHARK UR 8 / W-UR 8

$\varnothing d_s$

1.)

2.)

l_g

l_s
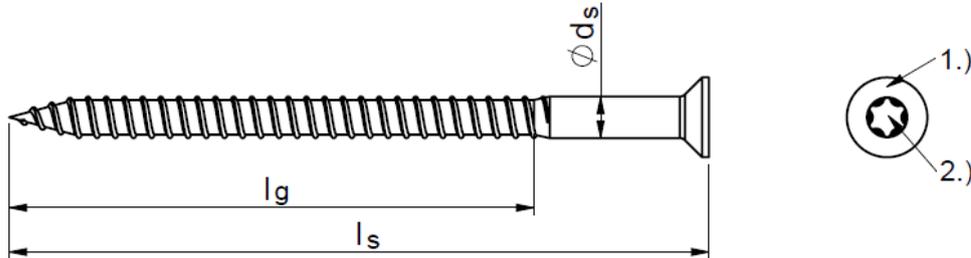
Special screw SHARK UR 10 / W-UR 10

$\varnothing d_s$

1.)

2.)

l_g

l_s
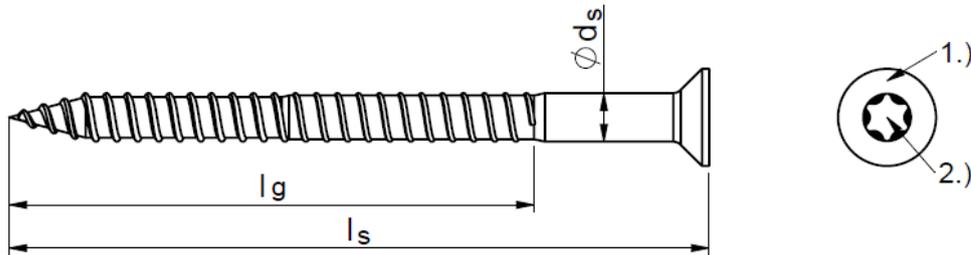
Heads for special screw SHARK UR / W-UR

1.)

2.)

1.)

2.)

1.)

2.)

1.)

2.)

1.)

2.)

1.)

2.)
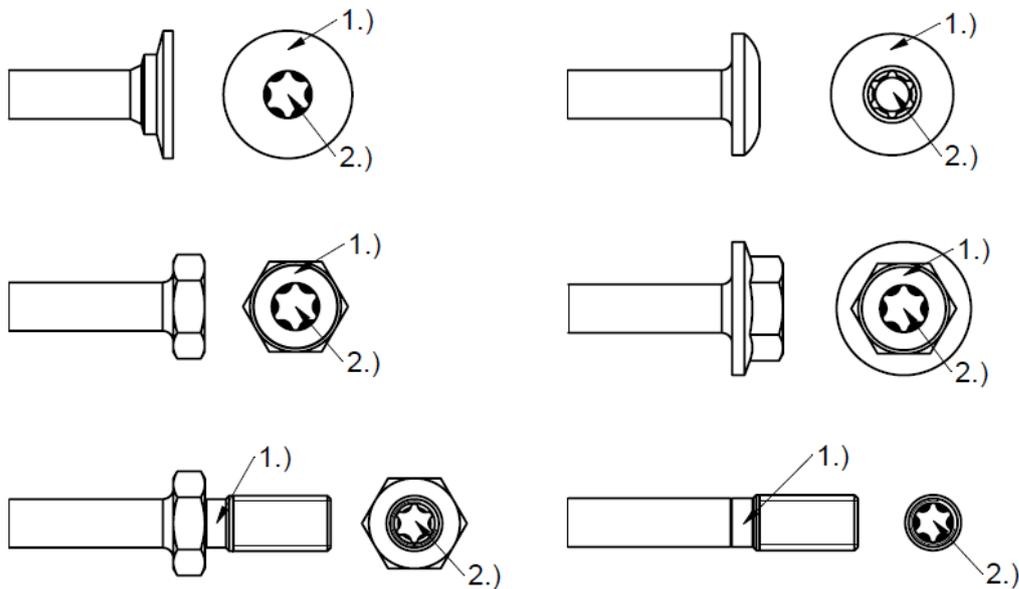
1.) Marking: e.g. W-UR 10x100; *;A4 or SHARK UR 10x100; *; A4
W-UR VM 10x100; *; A4 or SHARK UR VM 10x100; *; A4
◇R 10x100; *; A4

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

Würth Plastic Anchor W-UR / SHARK UR	
Product description Special screw, Stair bolt – head versions Marking and dimensions	**Annex A 4**

Table A1: Anchor dimensions

Anchor type			W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10	
Overall plastic anchor embedment depth in the base material	$h_{nom} \geq$	[mm]	50 (h_{nom1})	70 (h_{nom2})	50 (h_{nom1})	70 (h_{nom2})
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: Designation and materials

Designation	Material
Plastic sleeve	Polyamid, colour brown and anthracite
Special screw	Galvanized steel according to EN ISO 4042:2022 Hot dip galvanized steel according to EN ISO 10684:2004 + AC:2009 Steel with non-electrolytically zinc flake coating according to EN ISO 10683:2018 Steel with zinc diffusion coating according to EN ISO 17668:2016 Stainless steel "A2" (material number 1.4301 or 1.4567) of corrosion resistance class CRC II in accordance with EN 1993-1-4:2006+A1:2015 Stainless steel "A4" (material number 1.4401, 1.4571 or 1.4578) of corrosion resistance class CRC III in accordance with EN 1993-1-4:2006+A1:2015

Würth Plastic Anchor W-UR / SHARK 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
- Redundant non-structural systems

Base materials:
- Reinforced or unreinforced compacted normal weight concrete without fibres with strength classes ≥ C12/15 (base material group a), according to EN 206:2013+A1:2016, Annex C 1, precast or prestressed hollow core elements (base material group a) according to Annex C 117, Annex C 118, Annex C 119.
- Solid brick masonry (base material group b) according to Annex C 15, Annex C 16, Annex C 77 - Annex C 79, Annex C 89 - Annex C 98. Note: The characteristic resistance is also valid for larger brick sizes and larger compressive strength of the masonry unit.
- Hollow brick masonry (base material group c) according to Annex C 17 - Annex C 76, Annex C 80 - Annex C 88, Annex C 99 - Annex C 114.
- Masory lintel (base material group c) according to Annex C 120, Annex C 121.
- Autoclaved aerated concrete (base material group d) according to Annex C 115, Annex C 116.
- Mortar strength class of the masonry ≥ M2,5 at minimum according to EN 998-2:2010.
- For other base materials of the base material groups a, b, c, d the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR 051:2018-04.

Temperature range:
- Range b): -40°C to + 80°C   (max. long term temperature +50°C and max. short term temperature +80°C)
- 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 "A2" or "A4").
- The specific screw made of zinc coated steel or stainless steel "A2" may also be used in structures subject to external atmospheric exposure, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore, there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e. g. undercoating or body cavity protection for cars).
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel "A4").
  Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

Design:
- The anchorages are designed in accordance with the EOTA Technical Report TR 064:2022-12 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.

Installation:
- Hole drilling by the drill modes according to Annex C 15 - Annex C 121.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site
- Installation temperature from W-UR 8 / SHARK UR 8: ≥ -40°C; W-UR 10 / SHARK UR 10: ≥ -20°C
- Exposure to UV due to solar radiation of the anchor not protected ≤ 6 weeks
- No ingress of water in the borehole at temperatures < 0°C.

Würth Plastic Anchor W-UR / SHARK UR	
Intended use Specifications	**Annex B 1**

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Table B1: Installation parameters

Anchor type			W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10	
Drill hole diameter	$d_0 =$	[mm]	8		10	
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45		10,45	
Depth of drill hole to deepest point[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}	[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 A 1 and Annex A 2

[2] For hollow and perforated masonry the influence of $h_{nom} > 70$ mm (W-UR 8 / SHARK UR 8 and W-UR 10 / SHARK UR 10) has to be detected by job site tests according Technical Report TR 051:2018-04.

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 17, C 80, C 82, C 83, C 114).

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

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

		h_{nom} [mm]	h_{min} [mm]	c_{cr} [mm]	s_{cr} [mm]	c_{min} [mm]	s_{min} [mm]
W-UR 8 / SHARK UR 8	Concrete $\geq$ C16/20	= 50	100	40	75	40	40
	Concrete C12/15	= 50	100	55	75	55	55
	Concrete $\geq$ C16/20	> 50	100	50	100	50	50
	Concrete C12/15	> 50	100	70	100	70	70
W-UR 10 / SHARK UR 10	Concrete $\geq$ C16/20	= 50	80	50	75	50	60
	Concrete C12/15	= 50	80	70	75	70	85
	Concrete $\geq$ C16/20	> 50	100	100	75	70	50
	Concrete C12/15	> 50	100	140	75	100	70

Fixing points with a spacing $a \leq s_{cr}$ are considered as a group with a maximum characteristic resistance $N_{Rk,p}$ according to Table C 2.1. For a spacing $a > s_{cr}$ the anchors are considered as single anchors, each with a characteristic resistance $N_{Rk,p}$ according to Table C 2.1.

Würth Plastic Anchor W-UR / SHARK UR		**Annex B 2**
Intended use Installation parameters, edge distances and spacings for use in concrete		

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

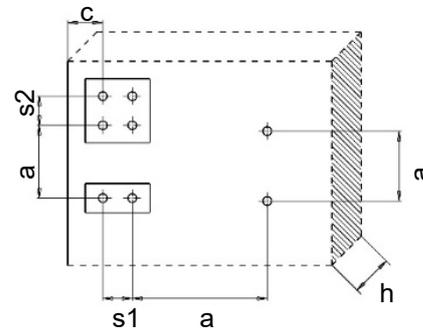|			Masonry			
			W-UR 8 / SHARK UR 8		**W-UR 10 / SHARK UR 10**	
Overall plastic anchor embedment depth	h_{nom}	[mm]	50	70	50	70
Minimum thickness of member	h_{min}	[mm]	100 [1]		100 [1]	
Single anchor						
Minimum spacing	a_{min}	[mm]	250		250	
Minimum edge distance	c_{min}	[mm]	100 [1]		100 [1]	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

[1] h_{min}, c_{min}, and s_{min} depend on the brick size and/or on the brick: See the following Annex C 15 - Annex C 121.

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

			Autoclaved aerated concrete				(Prefabricated) Reinforced AAC W-UR 10 / SHARK UR 10
			W-UR 8 / SHARK UR 8		**W-UR 10 / SHARK UR 10**		
	$f_{cm,decl}$	[N/mm²]	≥ 2,0	≥ 6,6	≥ 2,0	≥ 6,6	≥ 1,5
Single anchor							
Minimum thickness of member	h_{min}	[mm]	100	115	100	175	175
Minimum spacing	a_{min}	[mm]	250	250	250	250	600
Minimum edge distance	c_{min}	[mm]	40	80	80	80	150
Anchor group							
Minimum thickness of member	h_{min}	[mm]	115	115	100	175	175
Spacing perpendicular to free edge	$s_{1,min}$	[mm]	80	130	100	100	100
Spacing parallel to free edge	$s_{2,min}$	[mm]	80	130	100	100	100
Minimum edge distance	c_{min}	[mm]	80	80	100	100	150
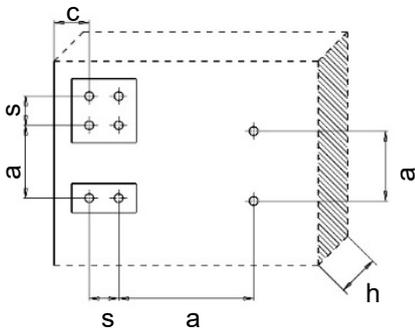
Concrete (Table B2)

Masonry (Table B3) and autoclaved aerated concrete (Table B4)

Figures not to scale

Würth Plastic Anchor W-UR / SHARK UR	**Annex B 3**
Intended use edge distances and spacings for use in masonry and autoclaved aerated concrete	

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 / SHARK UR

Intended use
Installation instructions in-place installation

Annex B 4

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

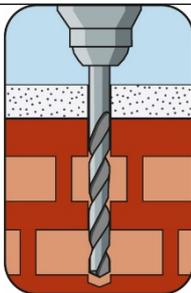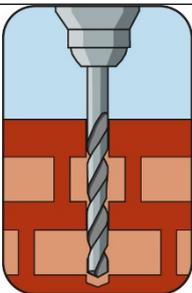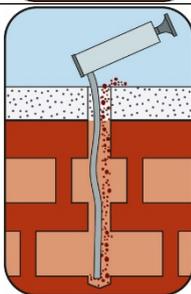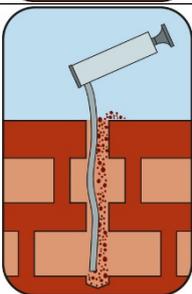|		
		Drill the bore hole
		Clean the drilled bore hole
		Insert the fastener through the attachment into the concrete/masonry using carefully a hammer
		Insert the special screw into the sleeve
		Tighten the screw until the head of the screw and the fixture touches the sleeve. The anchor is correct 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 / SHARK UR

Intended use
Installation instructions pre-positioned installation

Annex B 5

Table C 1.1: Characteristic resistance of the screw

			Galvanized steel				Stainless Steel			
			W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10		W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10	
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	γ_{Ms}[1]	[-]	1,5		1,87		1,87		1,87	
Characteristic shear resistance	$V_{Rk,s}$	[kN]	5,9		9,4		6,9		10,9	
Partial safety factor	γ_{Ms}[1]	[-]	1,25		1,56		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	γ_{Ms}[1]	[-]	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			Galvanized steel				Stainless Steel			
Pull-out failure (plastic sleeve)			W-UR 8 / SHARK UR 8		W-UR 10 / SHARK UR 10		W-UR 8 / SHARK UR 8		W-UR 10 / SHARK 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	γ_{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	γ_{Mc}[1]	[-]	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8

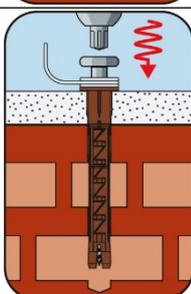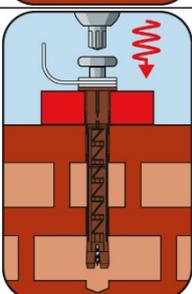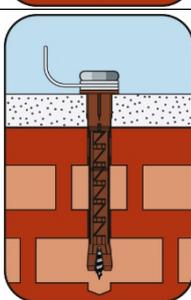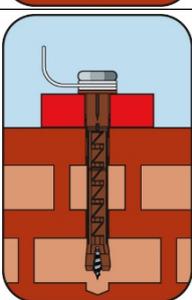[1] In absence of other national regulations
[2] Maximum long term temperature
[3] Maximum short term temperature

Würth Plastic Anchor W-UR / SHARK UR	
Performances Characteristic resistance of the screw Characteristic resistance for pullout failure for use in concrete	**Annex C 1**

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Table C 3.1: Displacements[1) under tension and shear loading in concrete, masonry and autoclaved aerated concrete

Anchor type		h_{nom} [mm]	Tension load			Shear load		
			$F^{2)}$ [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	$F^{2)}$ [kN]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
W-UR 8 / SHARK UR 8	Concrete $\geq$ C16/20	50	1,8	0,26	0,52	1,8	0,96	1,44
W-UR 8 / SHARK UR 8	Concrete $\geq$ C16/20	70	2,4	0,35	0,7	2,4	0,93	1,86
W-UR 10 / SHARK UR 10	Concrete $\geq$ C16/20	50	1,19	0,48	0,96	1,19	0,51	0,77
W-UR 10 / SHARK UR 10	Concrete $\geq$ 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	$F_{Rk,fi}$
W-UR 10 / SHARK UR 10	R 90	0,8kN

Würth Plastic Anchor W-UR / SHARK UR	
Performances Displacements under tension and shear for concrete, masonry and autoclaved aerated concrete, characteristic resistance under fire exposure in concrete	**Annex C 2**

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Footnotes for Annex C 15 - Annex C 121

[1] Characteristic resistance F_{Rk} for tension, shear or combined tension and shear loading.
   The characteristic resistance is valid for single plastic anchor or for a group of two or four plastic anchors with spacing equal or larger than the minimum spacing s_{min} according to Annex B 2 (concrete) and Annex B 3 (masonry). The specific conditions according to Technical Report TR 064:2022-12, section 4.3 have to be considered.

[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 / SHARK UR 8 and W-UR 10 / SHARK UR 10 set variable in this range no additional job site tests have necessarily to be performed.

[6] Installation site see picture (e.g Hollow brick).
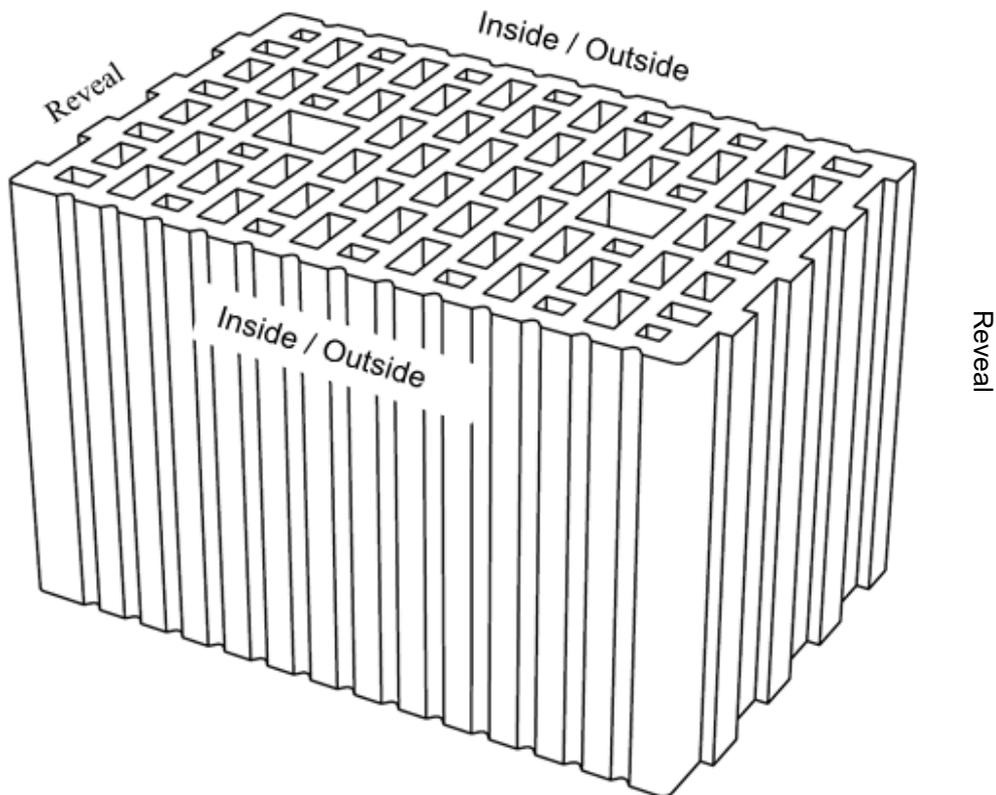
[7] The characteristic resistance F_{Rk} for load direction V only (only valid for a single anchor or for a group of two anchors with spacing $s_{min} \geq 250$ mm for shear loads without lever arm in the reveal side).

[8] For masonry units with a lower compressive strength (= existing mean compressive strength) than the mean compressive strength given in Table Annex C 4 – Annex C123 (= mean compressive strength (table)) the characteristic resistance $F_{Rk,existing}$ shall be calculated according to the following equation:

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

[9] No performance assessed.

Würth Plastic Anchor W-UR / SHARK UR	
Performances Footnotes	**Annex C 3**

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Table C 5.1: Base material: Concrete, solid masonry

Base material:	Format	Minimum dimen-sions [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Concrete					
Concrete ≥ C12/15					**Annex C 1**
Solid masonry					
Solid brick Mz according to EN 771-1:2011+A1:2015	≥ NF	240x 115x 71	45,0 35,0 25,0 20,0 12,5	≥ 1,8	**Annex C 15** 771-1-020 771-1-008
	≥ 3DF	240x 175x 113	25,0 20,0 15,0 12,5	≥ 2,0	**Annex C 16** 771-1-041
Sand-lime solid brick KS according to EN 771-2:2011+A1:2015	≥ NF	240x 115x 71	35,0 25,0 20,0 15,0 12,5	≥ 2,0	**Annex C 77** 771-2-002
Sand-lime solid brick KS according to EN 771-2:2011+A1:2015	≥ 4DF	248x 115x 248	25,0 20,0 15,0 12,5	≥ 1,8	**Annex C 78** 771-2-045
Sand-lime solid brick Silka XL Basic, Sand-lime solid brick Silka XL Plus according to EN 771-2:2011+A1:2015		248x 175x 498	35,0 25,0 20,0 15,0	≥ 2,0	**Annex C 79** 771-2-010
Concrete solid block - Vbn according to EN 771-3:2011+A1:2015	≥ NF	240x 115x 71	35,0 25,0 20,0 15,0 10,0	≥ 2,0	**Annex C 89** 771-3-004
Lightweight concrete solid brick e.g. Bisoclassic V according to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ NF	240x 115x 71	5,0 2,5	≥ 0,9	**Annex C 90** 771-3-008
Lightweight concrete solid brick e.g. BisoBims V according to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ NF	240x 115x 71	5,0 2,5	≥ 1,2	**Annex C 91** 771-3-007

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 4**
Performances Concrete (base material group "a"), solid masonry (base material group "b"): Format, minimum dimensions, Mean compressive strength, Bulk density, Annex	

Base material:	Format	Minimum dimen-sions [mm]	Mean compressive strength according to EN 771 [N/mm^2]	Bulk density [kg/dm^3]	Annex
Lightweight concrete solid brick V and Vbl **e.g. Bisophon** according to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ 3DF	240x 175x 113	25,0 20,0 15,0 12,5 10,0	≥ 2,0	**Annex C 92** 771-3-017
Lightweight concrete solid block V P 2.0 - 0.55 **e.g. Bisoplan** according to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ 5DF	123x 300x 248	2,5 2,0	≥ 0,65	**Annex C 93** 771-3-032
Lightweight concrete solid block V P 4.0 - 0.65 **e.g. Bisoplan** according to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ 5DF	123x 300x 248	5,0 2,5	≥ 0,8	**Annex C 94** 771-3-033
Lightweight concrete solid block V 6 - 0.80 **e.g. Bisotherm Bisoclassic** according to EN 771-3:2011+A1:2015 Bisotherm GmbH	≥ 5DF	123x 300x 248	2,5 2,0	≥ 0,9	**Annex C 95** 771-3-035
Lightweight concrete solid block – Vbl according to EN 771-3:2011+A1:2015 e.g. Liapor Massive Wall Liapor GmbH & Co. KG	≥ 24DF	500x 365x 238	2,5	≥ 0,6	**Annex C 96** LAC2
Lightweight concrete solid block – Vbl according to EN 771-3:2011+A1:2015 e.g. Liapor Compact Liapor GmbH & Co. KG Meier Betonwerke GmbH	≥ 16DF	500x 240x 240	2,5	≥ 0,65	**Annex C 97** 771-3-012
Concrete solid block – Vbn according to EN 771-3:2011+A1:2015 e.g. Liapor Element Wall Liapor GmbH & Co. KG	≥ 12DF	500x 175x 238	12,5 10,0 7,5	≥ 1,4	**Annex C 98** LC16/18

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 5**
Performances Solid masonry (base material group "b"), Format, minimum dimensions, Mean compressive strength, Bulk density, Annex	

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Table C 6.1: Base material: Hollow or perforated masonry

Base material:	Format	Measure-ment [mm]	Mean compressive strength acc. to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Hollow or perforated masonry					
Hollow brick HLz according to EN 771-1:2011+A1:2015 e.g. Wienerberger GmbH e.g. Schlagmann Baustoffwerke GmbH & Co. KG	2DF	240x 115x 113	25,0 20,0 15,0	≥ 1,2	**Annex C 17** 771-1-002 771-1-021
	12DF	373x 240x 238	12,5 10,5 8,4 6,3	≥ 1,2	**Annex C 18** 771-1-010 771-1-036
Hollow brick POROTON Plan T8 according to EN 771-1:2011+Ap1:2015 Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	7,5	≥ 0,6	**Annex C 19** 771-1-057 771-1-097
Hollow brick POROTON Planziegel T14 according to EN 771-1:2011+A1:2015 Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	7,5 5,0	≥ 0,7	**Annex C 20** 771-1-019
Hollow brick POROTON Planziegel T18 according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	9DF	373x 175x 249	12,5 10,0 7,5	≥ 0,8	**Annex C 21** 771-1-125
Hollow brick POROTON T7-36.5-PF according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	7,5	≥ 0,5	**Annex C 22** 771-1-093
Hollow brick POROTON T8-30.0-P **Hollow brick POROTON T9-30.0-P** according to EN 771-1:2011+A1:2015 Wienerberger GmbH, Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	5,0	≥ 0,6	**Annex C 23** 771-1-022
Hollow brick POROTON T8-36.5-MW according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	7,5 5,0	≥ 0,65	**Annex C 24** 771-1-042
Hollow brick POROTON T9-36.5-P according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	5,0	≥ 0,6	**Annex C 25** 771-1-003 771-1-007
Hollow brick POROTON Planziegel T10 according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	7,5	≥ 0,7	**Annex C 26** 771-1-033

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 6**
Performances Hollow or perforated masonry (base material group "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex	

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Base material:	Format	Measure-ment [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Hollow brick POROTON S8 according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	10,0	≥ 0,7	**Annex C 27** 771-1-103
Hollow brick POROTON S9 MV according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	12,5 10,0	≥ 0,9	**Annex C 28, Annex C 29** 771-1-134
Hollow brick POROTON S10 according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	10,0 7,5	≥ 0,8	**Annex C 30** 771-1-032
Hollow brick POROTON S11-30.0-P according to EN 771-1:2011+A1:2015 Wienerberger GmbH Schlagmann Baustoffwerke GmbH & Co. KG	10DF	248x 300x 249	7,5 5,0	≥ 0,8	**Annex C 31** 771-1-025
Hollow brick POROTON S11-36.5-P according to EN 771-1:2011+A1:2015 Wienerberger Ziegel GmbH Schlagmann Baustoffwerke GmbH & Co. KG	12DF	248x 365x 249	7,5	≥ 0,9	**Annex C 32** 771-1-009
Hollow brick for ceiling DIN 4160-BN 0.8-530-250-210 (System Filigran) e.g. Wienerberger GmbH	16DF	252x 530x 210	5,0	≥ 0,65	**Annex C 33** 771-1-031
Hollow brick POROTHERM 25-38 N+F according to EN 771-1:2011+A1:2015 Wienerberger Ziegelindustrie GmbH; Austria	14DF	375x 250x 249	10,0 7,5	≥ 0,8	**Annex C 34** 771-1-005
Hollow brick Blocchi Leggeri according to EN 771-1:2011+A1:2015 Wienerberger Brunori s.r.l.; Italy	5DF	248x 115x 335	7,5 5,0	≥ 0,6	**Annex C 35** 771-1-012
Hollow brick for ceiling Blocchi per solaio a travetti according to EN 771-1:2011+A1:2015 Wienerberger Tacconi s.r.l.; Italy	7DF	416x 123x 245	12,5 10,0 7,5	≥ 0,55	**Annex C 36** 771-1-011
Hollow brick MURBRIC T20 and R20 according to EN 771-1:2011+A1:2015 e.g. Wienerberger SAS; France	15DF	T20: and R20: 500x200x 249	12,5 10,0	≥ 0,7	**Annex C 37** 771-1-018
Hollow brick MURBRIC Traditionnel Poteau T20 according to EN 771-1:2011+A1:2015 e.g. Wienerberger SAS; France	12DF	448x 195x 238	10,0 7,5	≥ 0,7	**Annex C 38** 771-1-013

Würth Plastic Anchor W-UR / SHARK UR	
Performances Hollow or perforated masonry (base material group "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex	**Annex C 7**

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Base material:	Format	Measurement [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Hollow brick POROTHERM T30 and R30 according to EN 771-1:2011+A1:2015 e.g. Wienerberger SAS; France	16DF	373x 300x 249	10,0 7,5	≥ 0,7	**Annex C 39** 771-1-014
Hollow brick UNIPOR W07 SILVACOR according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	5,0	≥ 0,55	**Annex C 40** 771-1-109
Hollow brick UNIPOR W07 CORISO according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	5,0	≥ 0,55	**Annex C 41** 771-1-112
Hollow brick UNIPOR W07 CORISO (special shaped) according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	10,0 7,5 5,0	≥ 0,7	**Annex C 42** 771-1-126
Hollow brick UNIPOR WS08 CORISO / UNIPOR WS08 SILVACOR according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	10,0 7,5	≥ 0,65	**Annex C 43** 771-1-114
Hollow brick UNIPOR W08 Novatherm according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	7,5	≥ 0,6	**Annex C 44** 771-1-119
Hollow brick UNIPOR WS09 CORISO according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	10,0 7,5	≥ 0,7	**Annex C 45** 771-1-115
Hollow brick UNIPOR WH09 Planziegel according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	7,5 5,0	≥ 0,6	**Annex C 46** 771-1-120
Hollow brick UNIPOR WH10 Planziegel according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	7,5	≥ 0,65	**Annex C 47** 771-1-121
Hollow brick UNIPOR WS10 CORISO according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	247x 365x 249	15,0 10,0	≥ 0,9	**Annex C 48** 771-1-116
Hollow brick UNIPOR WS11 CORISO according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	238x 365x 249	10,0	≥ 0,85	**Annex C 49** 771-1-026

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 8**
Performances Hollow or perforated masonry (base material group "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex	

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Base material:	Format	Measure-ment [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Hollow brick UNIPOR WS14 **Hollow brick UNIPOR WS12 CORISO** according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	10DF	248x 300x 249	15,0 12,5	≥ 0,8	**Annex C 50** 771-1-016
Hollow brick UNIPOR W14 according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	10DF	248x 300x 249	7,5	≥ 0,7	**Annex C 51** 771-1-015
UNIPOR WS CORISO (special shaped) according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	250x 365x 250	10,0 7,5 5,0	≥ 0,75	**Annex C 52** 771-1-137
UNIPOR WS CORISO (special shaped) according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	6DF	123x 365x 249	12,5 10,0 7,5	≥ 0,85	**Annex C 53** 771-1-136
UNIPOR CORISO 6DF EWS 365 (special shaped) according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	6DF	118x 365x 249	12,5 10,0 7,5	≥ 0,9	**Annex C 54** 771-1-077
UNIPOR CORISO 6DF EW 365 (special shaped) according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	6DF	118x 365x 249	7,5 5,0	≥ 0,65	**Annex C 55** 771-1-074
UNIPOR W08, WH09, WH10 (special shaped) according to EN 771-1:2011+A1:2015 ZIZ Ziegel-Innovations-Zentrum GmbH	12DF	248x 365x 249	7,5 5,0	≥ 0,65	**Annex C 56** 771-1-122
Hollow brick ThermoPlan MZ7 according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	10DF	248x 300x 249	7,5	≥ 0,6	**Annex C 57** 771-1-052
Hollow brick ThermoPlan MZ70 according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	12DF	248x 365x 249	7,5	≥ 0,5	**Annex C 58** 771-1-100
Hollow brick ThermoPlan MZ70 (special shaped) according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	12DF	248x 365x 249	10,0 7,5	≥ 0,6	**Annex C 59** 771-1-098

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 9**
Performances Hollow or perforated masonry (base material group "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex	

Base material:	Format	Measure-ment [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Hollow brick ThermoPlan MZ8 according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	12DF	248x 365x 249	7,5	≥ 0,65	**Annex C 60** 771-1-023
Hollow brick ThermoPlan MZ10 according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	10DF	248x 300x 249	10,0 7,5	≥ 0,75	**Annex C 61** 771-1-034
Hollow brick ThermoPlan MZ (special shaped) according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	6DF	119x 365x 249	7,5	≥ 0,8	**Annex C 62** 771-1-081
Hollow brick ThermoPlan S8/9/SX (special shaped) according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	12DF	248x 365x 249	10,0 7,5	≥ 0,7	**Annex C 63** 771-1-101
Hollow brick ThermoPlan S8/9/SX (special shaped) according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	6DF	123x 365x 249	12,5 10,0 7,5	≥ 0,8	**Annex C 64** 771-1-102
Hollow brick ThermoPlan TS² according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	9DF	373x 175x 249	16,7 12,5 10,4 8,3	≥ 0,85	**Annex C 65** 771-1-024
Hollow brick ThermoPlan TS 13 according to EN 771-1:2011+A1:2015 Mein Ziegelhaus GmbH & Co. KG	10DF	247x 300x 249	10,0 7,5	≥ 0,8	**Annex C 66** 771-1-035
Hollow brick THERMOPOR ISO-PD Plus according to EN 771-1:2011+A1:2015 Thermopor Ziegel-Kontor Ulm GmbH	10DF	247x 300x 249	10,0 7,5	≥ 0,7	**Annex C 67** 771-1-028
Hollow brick THERMOPOR TV 7-Plan according to EN 771-1:2011+A1:2015 Thermopor Ziegel-Kontor Ulm GmbH	12DF	247x 365x 249	5,0	≥ 0,5	**Annex C 68** 771-1-030
Hollow brick THERMOPOR TV 9-Plan according to EN 771-1:2011+A1:2015 Thermopor Ziegel-Kontor Ulm GmbH	10DF	247x 300x 249	12,5 10,0 7,5	≥ 0,75	**Annex C 69** 771-1-029
Hollow brick Plan TV Aero according to EN 771-1:2011+A1:2015 Otto Staudacher Vertriebs GmbH	12DF	247x 365x 249	7,5 5,0	≥ 0,75	**Annex C 70** 771-1-127

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 10**
Performances Hollow or perforated masonry (base material group "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex	

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Base material:	Format	Measure-ment [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Hollow brick Kellerer ZMK-P 7.5 according to EN 771-1:2011+A1:2015 Ziegelsysteme Michael Kellerer GmbH & Co. KG	12DF	247x 365x 249	5,0	≥ 0,6	**Annex C 71** 771-1-068
Hollow brick Kellerer ZMK X6 according to EN 771-1:2011+A1:2015 Ziegelsysteme Michael Kellerer GmbH & Co. KG	10DF	247x 300x 249	5,0	≥ 0,55	**Annex C 72** 771-1-049
Hollow brick Kellerer ZMK TX8 according to EN 771-1:2011+A1:2015 Ziegelsysteme Michael Kellerer GmbH & Co. KG	10DF	247x 300x 249	7,5	≥ 0,6	**Annex C 73** 771-1-050
Hollow brick Ederplan XV 7.5 S according to EN 771-1:2011+A1:2015 Ziegelwerk Freital Eder GmbH	10DF	200x 365x 249	7,5 5,0	≥ 0,75	**Annex C 74** 771-1-130
Hollow brick Eder XP 9 according to EN 771-1:2011+A1:2015 Ziegelwerk Freital Eder GmbH	10DF	200x 365x 249	10,0 7,5	≥ 0,7	**Annex C 75** 771-1-131
Hollow brick Ladrillo P NV R150 according to EN 771-1:2011+A1:2015 Ceramica La Corona, S.A.; Spain	2DF	278x 135x 95	35,0 25,0 15,0	≥ 1,2	**Annex C 76** 771-1-017
Sand-lime perforated brick KS L according to EN 771-2:2011+ A1:2015	2DF	240x 115x 113	20,0 15,0 12,5 10,0	≥ 1,4	**Annex C 80** 771-2-003 771-2-004
Sand-lime perforated brick KS L according to EN 771-2:2011+ A1:2015 e.g. Xella Deutschland GmbH	8DF	248x 240x 238	20,0 15,0 12,5 10,0	≥ 1,4	**Annex C 81** 771-2-005 771-2-013
Sand-lime perforated brick KS L according to EN 771-2:2011+ A1:2015	12DF	377x 240x 238	15,0 12,5 10,0	≥ 1,4	**Annex C 82, 83** 771-2-001
Sand-lime perforated brick KS L according to EN 771-2:2011+ A1:2015 e.g. Xella Deutschland GmbH	9DF	373x 175x 238	25,0 20,0 15,0	≥ 1,4	**Annex C 84** 771-2-008
Sand-lime perforated brick KSL-R(P) according to EN 771-2:2011+ A1:2015 e.g. H+H Deutschland GmbH	6DF	248x 175x 248	15,0 12,5 10,0	≥ 1,6	**Annex C 85** 771-2-039

Würth Plastic Anchor W-UR / SHARK UR **Performances** Hollow or perforated masonry (base material group "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex	**Annex C 11**

Base material:	Format	Measure-ment [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Sand-lime perforated brick KS L according to EN 771-2:2011+ A1:2015 e.g. H+H Deutschland GmbH	8DF	248x 240x 248	15,0 12,5 10,0	≥ 1,4	**Annex C 86** 771-2-040
Sand-lime perforated brick KS L according to EN 771-2:2011+ A1:2015 e.g. H+H Deutschland GmbH	12DF	498x 175x 249	15,0 12,5 10,0	≥ 1,2	**Annex C 87** 771-2-044
Sand-lime perforated brick KS-NT BMO KS-Vertrieb Bielefeld-Münster-Osnabrück GmbH & Co. KG	4DF	248x 115x 248	20,0 15,0 12,5	≥ 1,2	**Annex C 88** 771-2-009
Hollow brick lightweight concrete 1K Hbl4 according to EN 771-3:2011+A1:2015 e.g. Stark Betonwerk GmbH & Co. KG	12DF	490x 175x 238	2,5	≥ 1,2	**Annex C 99** 771-3-002
Hollow brick lightweight concrete 3K Hbl2 according to EN 771-3:2011+A1:2015 e.g. Heinzmann Baustoffe GmbH, Liapor GmbH & Co. KG	16DF	495x 240x 240	2,5	≥ 0,7	**Annex C 100** 771-3-005
Hollow brick lightweight concrete Liapor-Super-K according to EN 771-3:2011+A1:2015 Liapor GmbH & Co. KG	16DF	495x 240x 240	2,5	≥ 0,8	**Annex C 101** 771-3-006
Hollow brick lightweight concrete Liapor PLANstein-SL-PLUS Hbl 2 according to EN 771-3:2011+A1:2015 e.g. E. KNOBEL GmbH & Co.KG	12DF	245x 365x 248	2,0	≥ 0,55	**Annex C 102** 771-3-018
Hollow brick lightweight concrete Liapor PLANstein-SL-PLUS Hbl 6 according to EN 771-3:2011+A1:2015 e.g. E. KNOBEL GmbH & Co. KG	12DF	245x 365x 248	5,0 2,5	≥ 0,9	**Annex C 103** 771-3-020
Hollow brick concrete 2K Hbn according to EN 771-3:2011+A1:2015 e.g. Stark Betonwerk GmbH & Co. KG	12DF	365x 240x 248	7,5 5,0 2,5	≥ 1,2	**Annex C 104** 771-3-011
Hollow brick lightweight concrete Gisoton Wärme Dämm Block Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co.	15DF	360x 300x 250	2,5	≥ 0,8	**Annex C 105** 771-3-009
Hollow brick lightweight concrete GisoPLAN therm 25/10 Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co.	6DF	300x 150x 248	7,5 5,0	≥ 1,3	**Annex C 106** 771-3-037

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 12**
Performances Hollow or perforated masonry (base material group "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex	

Base material:	Format	Measure-ment [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Hollow brick lightweight concrete GISOTON Thermo-Schallstein Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co	12DF	375x 249x 248	2,5	≥ 0,55	**Annex C 107** 771-3-038
Hollow brick lightweight concrete Gisoton Thermo Schall Gisoton Wandsysteme, Baustoffwerke Gebhart & Söhne GmbH & Co.	21DF	500x 300x 250	2,5 1,8	≥ 0,45	**Annex C 108** 771-3-010 771-3-036
Hollow brick lightweight concrete Bisoplan 09 Super 1.6-0.4 according to EN 771-3:2011+A1:2015 e.g. Bisotherm GmbH	12DF	247x 365x 249	1,8	≥ 0,65	**Annex C 109** 771-3-029
Hollow brick lightweight concrete Bisoplan 10 Hbl-P 2.0-0.45 according to EN 771-3:2011+A1:2015 e.g. Bisotherm GmbH	10DF	247x 300x 249	2,0	≥ 0,6	**Annex C 110** 771-3-034
Hollow brick lightweight concrete Bisomark^{Tec} according to EN 771-3:2011+A1:2015 e.g. Bisotherm GmbH	20DF	497x 300x 249	2,5	≥ 0,7	**Annex C 111** 771-3-015
Hollow brick lightweight concrete Bisotherm Hbl-P 4.0 - 0.50 according to EN 771-3:2011+A1:2015 e.g. Bisotherm GmbH	12DF	247x 365x 249	2,0	≥ 0,55	**Annex C 112** 771-3-030
Hollow brick lightweight concrete Bisoterm Bisomark plus 4/06 (special shaped) e.g. Bisotherm GmbH	12DF	247x 365x 249	2,5 2,0	≥ 0,65	**Annex C 113** 771-3-031
Hollow brick lightweight concrete SEPA Blocs Creux according to EN 771-3:2011+A1:2015 e.g. SEPA-Alsace Groupe (France)	11DF	500x 200x 200	5,0	≥ 0,9	**Annex C 114** 771-3-025

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 13**
Performances Hollow or perforated masonry (base material group "c"), Format, Measurement, Mean compressive strength, Bulk density, Annex	

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Table C 7.1: Base material: Autoclaved aerated concrete

Base material:	Minimum dimen-sions [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Autoclaved aerated concrete according to EN 771-4:2015	499x100x 249	2,0 - 7,0	≥ 0,3	**Annex C 115**
Reinforced components autoclaved aerated concrete according to EN 12602:2016	-	1,5 - 6,0	≥ 0,4	**Annex C 116**

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

Base material:	Minimum dimen-sions [mm]	Minimum compressive strength [N/mm²]	Bulk density [kg/dm³]	Annex
Precast prestressed hollow core elements **VMM-L SCD 20** according to EN 1168:2005+A3:2011 e.g. Ketonia GmbH	1200x 800x 200	C45/55	≥ 2,4	**Annex C 117**
Precast prestressed hollow core elements **VMM-L EPD 32** according to EN 1168:2005+A3:2011 e.g. Ketonia GmbH	1200x 800x 320	C45/55	≥ 2,4	**Annex C 118**
Precast prestressed hollow core elements **VMM-VSD 16** according to EN 1168:2005+A3:2011 e.g. Ketonia GmbH	1200x 400x 160	C45/55	≥ 2,4	**Annex C 119**

Table C 9.1: Base material: Masory lintel

Base material:	Measure-ment [mm]	Mean compressive strength according to EN 771 [N/mm²]	Bulk density [kg/dm³]	Annex
Rastersturz HLz according to EN 771-1:2011+A1:2015 e.g. Ziegelwerk Turber GmbH	115x 113x > 250	7,5	≥ 1,6	**Annex C 120**
Dämmsturz HLz according to EN 771-1:2011+A1:2015 e.g. Ziegelwerk Turber GmbH	365x 113x > 250	5,0	≥ 1,4	**Annex C 121**

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 14**
Performances Autoclaved aerated concrete, precast or prestressed hollow core elements, masonry lintel: Format, minimum dimensions, Mean compressive strength, Bulk density, Annex	

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Base material solid masonry: Solid brick Mz, NF

Table C 10.1.1: Brick data

Description of brick		771-1-020 771-1-008	**Mz**
Type of brick			Solid brick Mz
Bulk density	$\rho \geq$	[kg/dm³]	1,8
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Format (measurement)		[mm]	≥ NF (≥ 240x115x71)
Minimum thickness of member	$h_{min} =$	[mm]	115

Table C 10.1.2: Installation parameters

Anchor size			**8**		**10**	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	80 / 80		80 / 80	
Minimum edge distance	$c_{min} \geq$	[mm]	100		100	

Table C 10.1.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**		**10**	
Installation site[6]			Inside / Outside		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**50**	**70**	**50**	**70**
Mean compressive strength according to EN 771						
Solid brick Mz,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	4,5	6,5	[9)]	6,5
≥ 54,81 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	3,5	5,5	[9)]	5,5
Solid brick Mz,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	3,5	5,0	2,0	5,5
≥ 45,0 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	3,0	4,5	1,2	4,5
Solid brick Mz,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	3,0	4,0	1,5	4,0
≥ 35,0 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	2,0	3,5	0,9	3,5
Solid brick Mz,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	2,0	3,0	1,2	3,0
≥ 25,0 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,5	2,5	0,75	2,5
Solid brick Mz,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,5	2,0	0,9	2,5
≥ 20,0 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,2	2,0	0,6	2,0
Solid brick Mz,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	0,9	1,5	0,5	1,5
≥ 12,5 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,75	1,2	0,4	1,2
Partial safety factor	$\gamma_{Mm}{}^{2)}$	[-]	2,5			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Solid masonry: Solid brick Mz, NF** Brick data, installation parameters, characteristic resistance	**Annex C 15**

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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]	2,0
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			e.g. Wienerberger GmbH
Format (measurement)		[mm]	$\geq$ 3DF ($\geq$ 240x175x113)
Minimum thickness of member	$h_{min} =$	[mm]	175 (Reveal = 240)

Table C 10.2.2: Installation parameters

Anchor size			**8**	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 200
Minimum edge distance	$c_{min} \geq$	[mm]	100	50

Table C 10.2.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	
Installation site[6]			Inside / Outside	Reveal
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**70**	
Mean compressive strength according to EN 771				
Solid brick Mz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	5,5	3,0
$\geq$ 33,70 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	4,0	3,0
Solid brick Mz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	4,0	2,0
$\geq$ 25,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	3,0	2,0
Solid brick Mz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,0	1,5
$\geq$ 20,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,5	1,5
Solid brick Mz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5	1,2
$\geq$ 15,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	1,2
Solid brick Mz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	0,9
$\geq$ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Solid masonry: Solid brick Mz, 3DF** Brick data, Installation parameters, Characteristic resistance	**Annex C 16**

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Base material hollow masonry: Hollow brick HLz, 2DF

Table C 10.3.1: Brick data

Description of brick	771-1-002; 771-1-021		**HLz**
Type of brick			Hollow brick HLz
Bulk density	$\rho \geq$	[kg/dm³]	1,2
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			e.g. Wienerberger GmbH
Format (measurement)		[mm]	2DF (240x115x113)
Minimum thickness of member	$h_{min} =$	[mm]	115
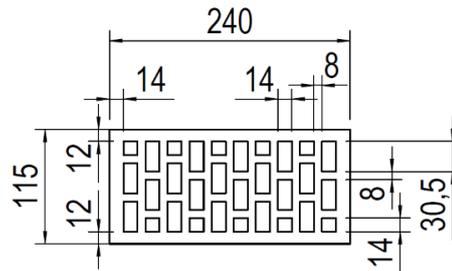
Table C 10.3.2: Installation parameters

Anchor size			**8**		**10**	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100		100 / 100	
Minimum edge distance	$c_{min} \geq$	[mm]	100		100	

Table C 10.3.3: Characteristic resistance F_{Rk}[1)5)8)] in [kN] for single anchor

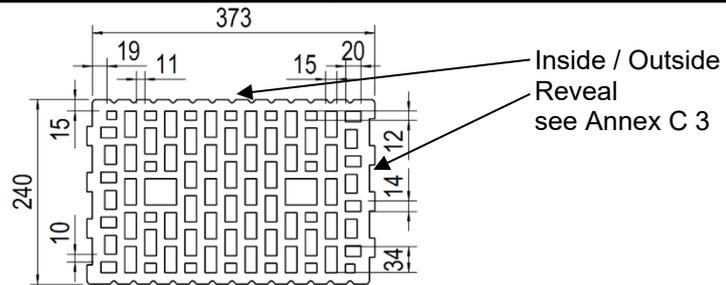| Anchor size			**8**		**10**	
Installation site[6]			Inside / Outside		Inside / Outside	
Overall plastic anchor embedment depth	h_{nom}	[mm]	≥ 50[5]	$= 70$	≥ 50[5]	$= 70$
Mean compressive strength according to EN 771						
Hollow brick HLz,	$F_{Rk,}$ 30°C[3] / 50°C[4]	[kN]	[9]	2,5	1,5	2,5
≥ 31,07 N/mm²	$F_{Rk,}$ 50°C[3] / 80°C[4]	[kN]	[9]	1,5	0,9	2,0
Hollow brick HLz,	$F_{Rk,}$ 30°C[3] / 50°C[4]	[kN]	1,5	[9]	[9]	[9]
≥ 27,18 N/mm²	$F_{Rk,}$ 50°C[3] / 80°C[4]	[kN]	1,2	[9]	[9]	[9]
Hollow brick HLz,	$F_{Rk,}$ 30°C[3] / 50°C[4]	[kN]	1,2	2,0	1,2	2,0
≥ 25,0 N/mm²	$F_{Rk,}$ 50°C[3] / 80°C[4]	[kN]	0,9	1,5	0,9	1,5
Hollow brick HLz,	$F_{Rk,}$ 30°C[3] / 50°C[4]	[kN]	0,9	1,5	1,2	1,5
≥ 20,0 N/mm²	$F_{Rk,}$ 50°C[3] / 80°C[4]	[kN]	0,75	1,2	0,75	1,2
Hollow brick HLz,	$F_{Rk,}$ 30°C[3] / 50°C[4]	[kN]	0,75	1,2	0,75	1,2
≥ 15,0 N/mm²	$F_{Rk,}$ 50°C[3] / 80°C[4]	[kN]	0,6	0,75	0,5	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 17

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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 HLz
Bulk density	$\rho \geq$ [kg/dm³]		1,2
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			e.g. Schlagmann Baustoffwerke
Format (measurement)	[mm]		12DF (373x240x238)

Inside / Outside
Reveal
see Annex C 3

Table C 10.4.2: Installation parameters

Anchor size			**8**			**10**
Installation site[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			
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70			70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5			10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100/100	130/250	90/250	100/100
Minimum edge distance	$c_{min} \geq$	[mm]	45	65	45	100

Table C 10.4.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			**8**			**10**
Installation site[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]
Mean compressive strength according to EN 771						
Hollow brick HLz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	[9]	1,5	2,0
≥ 13,02 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	[9]	1,5	1,5
Hollow brick HLz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	2,0	1,5	2,0
≥ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0	1,5	1,2
Hollow brick HLz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	2,0	1,2	1,5
≥ 10,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	2,0	1,2	1,2
Hollow brick HLz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	2,0	0,9	1,2
≥ 8,4 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	2,0	0,9	0,9
Hollow brick HLz,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	1,2	0,75	0,9
≥ 6,3 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	1,2	0,75	0,6
Partial safety factor	γ_{Mm}[2]	[-]	2,5			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
**Performances
Hollow brick HLz, 12DF**
Brick data, Installation parameters, Characteristic resistance	**Annex C 18**

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Base material hollow masonry: POROTON Plan T8

Table C 10.5.1: Brick data

Description of brick	771-1-057; 771-1-097	POROTON Plan T8
Type of brick		Hollow brick POROTON Plan T8
Bulk density $\rho \geq$ [kg/dm³]		0,6
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement) [mm]		12DF (248x365x249)
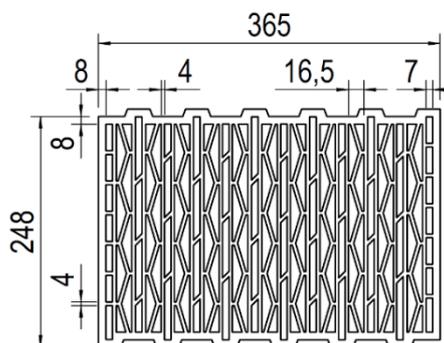
Table C 10.5.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	125	100

Table C 10.5.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
POROTON Plan T8,	$F_{Rk, 30°C^{3)}} / 50°C^{4)}$	[kN]	9)	0,75
≥ 10,12 N/mm²	$F_{Rk, 50°C^{3)}} / 80°C^{4)}$	[kN]	9)	0,6
POROTON Plan T8,	$F_{Rk, 30°C^{3)}} / 50°C^{4)}$	[kN]	0,6	9)
≥ 9,43 N/mm²	$F_{Rk, 50°C^{3)}} / 80°C^{4)}$	[kN]	0,4	9)
POROTON Plan T8,	$F_{Rk, 30°C^{3)}} / 50°C^{4)}$	[kN]	0,4	0,6
≥ 7,5 N/mm²	$F_{Rk, 50°C^{3)}} / 80°C^{4)}$	[kN]	0,3	0,4
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 19

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Base material hollow masonry: POROTON Planziegel T14, 10DF

Table C 10.6.1: Brick data

Description of brick		771-1-019	**POROTON Planziegel T14**
Type of brick			Hollow brick POROTON Planziegel T14
Bulk density	$\rho \geq$ [kg/dm³]		0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		10DF (248x300x249)
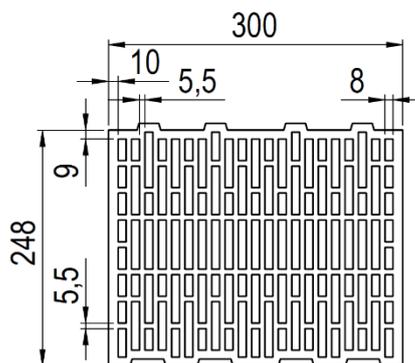
Table C 10.6.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.6.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
POROTON Planziegel T14,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
≥ 7,94 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
POROTON Planziegel T14,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
POROTON Planziegel T14,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,4
≥ 5,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,3
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick POROTON Planziegel T14, 10DF** Brick data, Installation parameters, Characteristic resistance	**Annex C 20**

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Base material hollow masonry: POROTON Planziegel T18, 9DF
Table C 10.7.1: Brick data

Description of brick		771-1-125	**POROTON Planziegel T18**	
Type of brick			Hollow brick POROTON Planziegel T18	
Bulk density	$\rho \geq$ [kg/dm³]		0,8	
Standard, approval/type-approval			EN 771-1:2011+A1:2015	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		9DF (373x175x249)	

Inside / Outside
see Annex C 3

Table C 10.7.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.7.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
POROTON Planziegel T18,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
≥ 14,24 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
POROTON Planziegel T18,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75
≥ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
POROTON Planziegel T18,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
POROTON Planziegel T18,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,5
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4
Partial safety factor	γ_{Mm}[2]	[-]	2,5

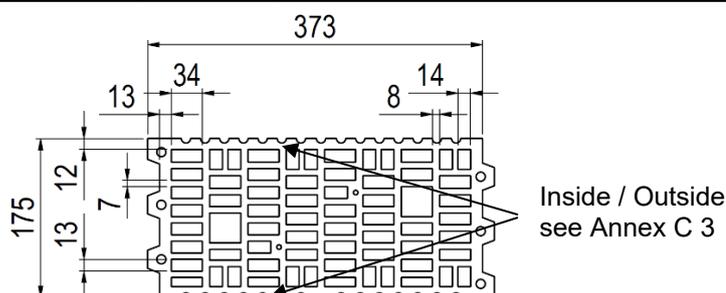Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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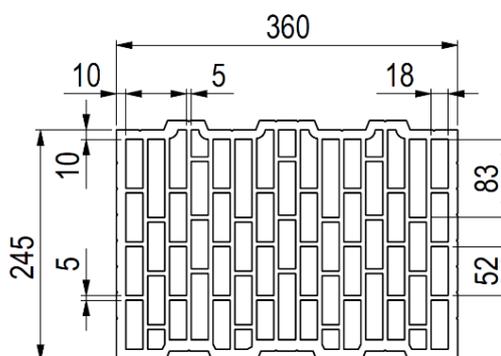**Hollow brick POROTON Planziegel T18, 9DF**
Brick data, Installation parameters, Characteristic resistance

Annex C 21

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Base material hollow masonry: POROTON-T7-36,5-PF

Table C 10.8.1: Brick data

Description of brick		771-1-093	POROTON-T7-36.5-PF	
Type of brick			Hollow brick POROTON-T7-36.5-PF	
Bulk density	$\rho \geq$ [kg/dm³]		0,5	
Standard, approval/type-approval			EN 771-1:2011+A1:2015	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		12DF (248x365x249)	

Table C 10.8.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.8.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
POROTON-T7-36,5-P,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75	0,9
$\geq$ 10,09 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,6
POROTON-T7-36,5-P,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	0,6
$\geq$ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4	0,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

Performances **Hollow brick: POROTON-T7-36.5-PF** Brick data, Installation parameters, Characteristic resistance	**Annex C 22**

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

Table C 10.9.1: Brick data

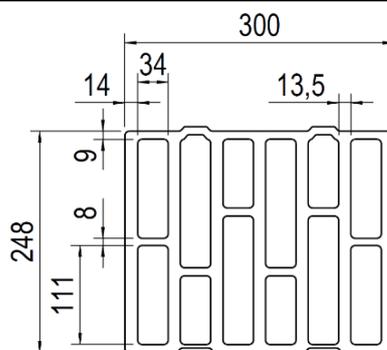| Description of brick		771-1-022	POROTON-T8-30.0-P and POROTON-T9-30.0-P	
Type of brick			Hollow brick T8-30.0-P and T9-30.0-P	
Bulk density	$\rho \geq$ [kg/dm³]		0,6	
Standard, approval/type-approval			EN 771-1:2011+A1:2015	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)		[mm]	10DF (248x300x249)	

Table C 10.9.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.9.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
POROTON-T8-30,0-P, POROTON-T9-30,0-P, $\geq 6,54$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
POROTON-T8-30,0-P, POROTON-T9-30,0-P, $\geq 5,0$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 23**
Performances **Hollow brick: POROTON-T8-30.0-P, POROTON-T9-30.0-P** Brick data, Installation parameters, Characteristic resistance	

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

Table C 10.10.1: Brick data

Description of brick			771-1-042	**POROTON-T8-36.5-MW**
Type of brick				Hollow brick POROTON-T8-36.5-MW
Bulk density	$\rho \geq$	[kg/dm³]		0,65
Standard, approval/type-approval				EN 771-1:2011+A1:2015
Producer of brick				Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover
Format (measurement)		[mm]		12DF (248x365x249)
Minimum thickness of member	$h_{min} =$	[mm]		365
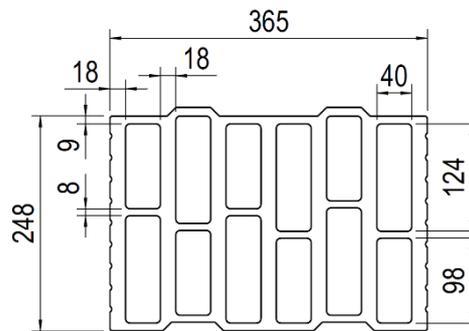
Table C 10.10.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.10.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
POROTON-T8-36,5-MW, ≥ 9,54 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,5	1,5
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,2	1,5
POROTON-T8-36,5-MW, ≥ 7,5 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,2	1,2
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,9	0,9
POROTON-T8-36,5-MW, ≥ 5,0 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	0,9	0,9
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,6	0,75
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5	

Footnotes see Annex C 3

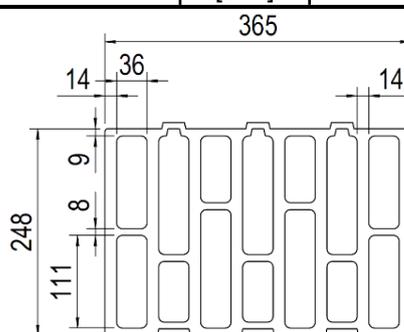| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick: POROTON-T8-36.5-MW** Brick data, Installation parameters, Characteristic resistance	**Annex C 24**

Base material hollow masonry: POROTON T9-36,5-P

Table C 10.11.1: Brick data

Description of brick	771-1-003; 771-1-007	POROTON T9-36,5-P	
Type of brick		Hollow brick POROTON T9-36.5-P	
Bulk density $\rho \geq$	[kg/dm³]	0,6	
Standard, approval/type-approval		EN 771-1:2011+A1:2015	
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]	12DF (248x365x249)	

Table C 10.11.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge $s_{1,min}/s_{2,min}$	[mm]		200 / 250	200 / 250
Minimum edge distance $c_{min} \geq$	[mm]		100	100

Table C 10.11.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth $h_{nom} =$	[mm]		**70**	**70**
Mean compressive strength according to EN 771				
POROTON T9-36,5-P,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	9)	1,5
$\geq$ 6,84 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	9)	0,9
POROTON T9-36,5-P,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,5	9)
$\geq$ 6,09 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,9	9)
POROTON T9-36,5-P,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,2	0,9
$\geq$ 5,0 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,9	0,75
Partial safety factor $\gamma_{Mm}^{2)}$	[-]		2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 25**
Performances **Hollow brick: POROTON T9-36.5-P** Brick data, Installation parameters, Characteristic resistance	

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Base material hollow masonry: POROTON Planziegel T10

Table C 10.12.1: Brick data

Description of brick		771-1-033	**POROTON Planziegel T10**
Type of brick			Hollow brick POROTON Planziegel T10
Bulk density	$\rho \geq$	[kg/dm³]	0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover / Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)		[mm]	10DF (248x300x249)

Table C 10.12.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.12.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
POROTON Planziegel T10-30, $\geq$ 8,23 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
POROTON Planziegel T10-30, $\geq$ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3
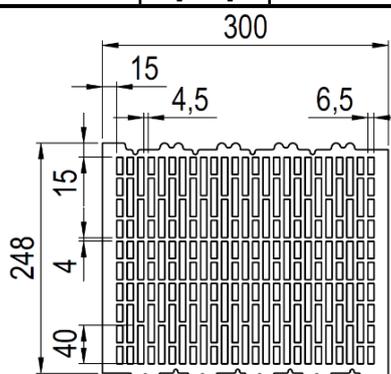

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 26

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English translation prepared by DIBt

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Hollow brick Base material hollow masonry: POROTON S8

Table C 10.13.1: Brick data

Description of brick		771-1-103	**POROTON S8**	
Type of brick			Hollow brick POROTON S8	
Bulk density	$\rho \geq$ [kg/dm³]		0,7	
Standard, approval/type-approval			EN 771-1:2011+A1:2015	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		12DF (248x365x249)	

Table C 10.13.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.13.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
POROTON S8-365, $\geq$ 10,11 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,5
POROTON S8-365, $\geq$ 10,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,2
Partial safety factor	γ_{Mm}[2)]	[-]	2,5

Footnotes see Annex C 3

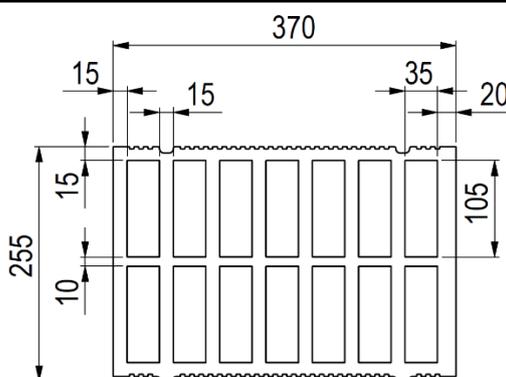
Würth Plastic Anchor W-UR / SHARK UR
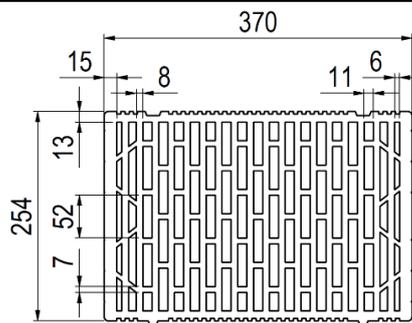
**Performances
Hollow brick: POROTON S8**
Brick data, Installation parameters, Characteristic resistance

Annex C 27

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English translation prepared by DIBt

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Base material hollow masonry: POROTON S9 MV
Table C 10.14.1: Brick data

Description of brick		771-1-134	POROTON S9 MV	
Type of brick			Hollow brick	
Bulk density	$\rho \geq$ [kg/dm³]		0,9	
Standard, approval/type-approval			EN 771-1:2011+A1:2015	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		12DF (248x365x249)	

Table C 10.14.2: Installation parameters

Anchor size			8	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	170 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	85

Table C 10.14.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8	
Installation site[6]			Inside / Outside	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	
Characteristic resistance for single anchor		[kN]	F_{Rk}[1]	F_{Rk}[7]
Mean compressive strength according to EN 771				
POROTON S9 MV,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,0
≥ 13,53 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	2,0
POROTON S9 MV,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,0
≥ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0
POROTON S9 MV,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	1,5
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: POROTON S9 MV** Brick data, Installation parameters, Characteristic resistance	**Annex C 28**

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Base material hollow masonry: POROTON S9 MV
Table C 10.15.1: Brick data

Description of brick		771-1-134	POROTON S9 MV	
Type of brick			Hollow brick POROTON S9 MV	
Bulk density	$\rho \geq$ [kg/dm³]		0,9	
Standard, approval/type-approval			EN 771-1:2011+A1:2015	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)		[mm]	12DF (248x365x249)	

Table C 10.15.2: Installation parameters

Anchor size			10	
Installation site[6]			Inside / Outside	Reveal
Drill hole diameter	$d_0 =$	[mm]	10	
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	10,45	
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	
Drill method		[-]	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	10,5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	150 / 250	180 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	75	90

Table C 10.15.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			10	
Installation site[6]			Inside / Outside	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	
Characteristic resistance for single anchor		[kN]	F_{Rk}[1]	F_{Rk}[7]
Mean compressive strength according to EN 771				
POROTON S9 MV,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	1,5
≥ 13,53 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	1,5
POROTON S9 MV,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	1,2
≥ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,2
POROTON S9 MV,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	0,9
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR
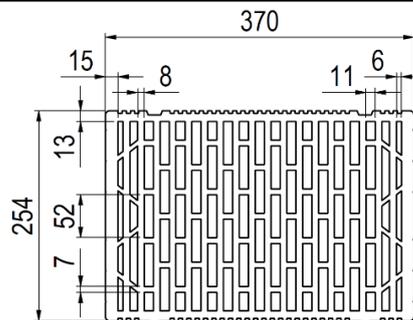
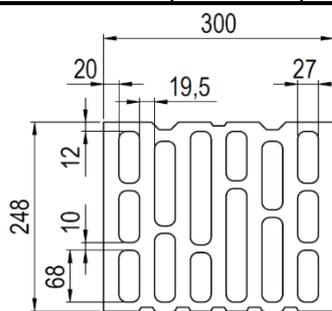**Performances**
Hollow brick: POROTON S9 MV
Brick data, Installation parameters, Characteristic resistance

Annex C 29

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ETA-08/0190 of 4 August 2025**

English translation prepared by DIBt

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Base material hollow masonry: POROTON S10

Table C 10.16.1: Brick data

Description of brick		771-1-032	**POROTON S10**	
Type of brick			Hollow brick POROTON S10	
Bulk density	$\rho \geq$ [kg/dm³]		0,8	
Standard, approval/type-approval			EN 771-1:2011+A1:2015	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		10DF (248x300x249)	

Table C 10.16.2: Installation parameters

Anchor size			8	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	80 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	50	40

Table C 10.16.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8	
Installation site[6]			Inside / Outside	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	
Characteristic resistance for single anchor		[kN]	F_{Rk}[1)]	F_{Rk}[7)]
Mean compressive strength according to EN 771				
POROTON S10, ≥ 11,91 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,5	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,2	0,9
POROTON S10, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,2	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,9	0,9
POROTON S10, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9	0,6
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,75	0,6
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 30**
Performances **Hollow brick: POROTON S10** Brick data, Installation parameters, Characteristic resistance	

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

Table C 10.17.1: Brick data

Description of brick		771-1-025	POROTON-S11-30,0-P	
Type of brick			Hollow brick S11-30,0-P	
Bulk density	$\rho \geq$ [kg/dm³]		0,8	
Standard, approval/type-approval			EN 771-1:2011+A1:2015	
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co. KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		10DF (248x300x249)	

Table C 10.17.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.17.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

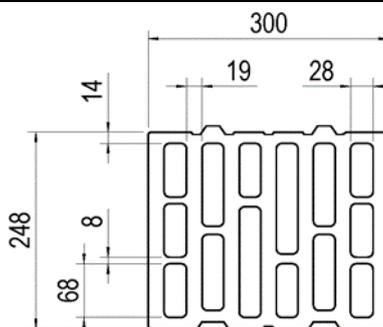| Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
POROTON-S11-30,0-P, ≥ 9,4 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5
POROTON-S11-30,0-P, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,2
POROTON-S11-30,0-P, ≥ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

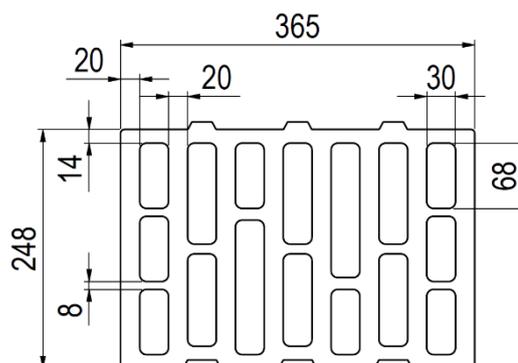**Performances
Hollow brick: POROTON-S11-30,0-P**
Brick data, Installation parameters, Characteristic resistance

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

Table C 10.18.1: Brick data

Description of brick		771-1-009	**POROTON-S11-36,5-P**
Type of brick			Hollow brick S11-36,5-P
Bulk density	$\rho \geq$ [kg/dm³]		0,9
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover	Schlagmann Baustoffwerke GmbH & Co, KG Ziegeleistraße 1 D-84367 Zeilarn
Format (measurement)	[mm]		12DF (248x365x249)

Table C 10.18.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.18.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
POROTON-S11-36,5-P,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	2,5	2,0
≥ 9,7 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	2,5	1,5
POROTON-S11-36,5-P,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	2,0	1,5
≥ 7,5 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,5	1,2
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 32

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

Table C 10.19.1: Brick data

Description of brick	771-1-031	Brick for ceiling (System Filigran) DIN 4160-BN 0.8-530-250-210
Type of brick		Brick for ceiling
Bulk density $\rho \geq$ [kg/dm³]		0,65
Standard, approval/type-approval		-
Producer of brick		Wienerberger GmbH Oldenburger Allee 26 D-30659 Hannover
Format (measurement) [mm]		16DF (252x530x210)
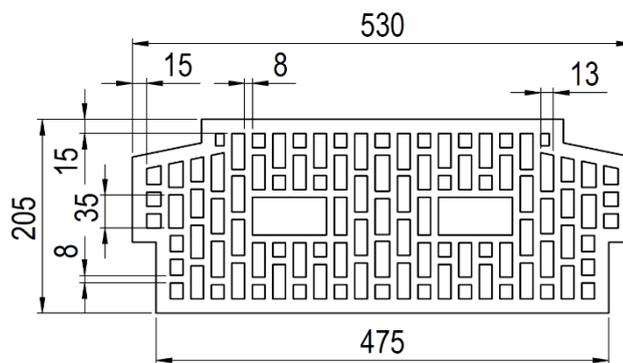
Table C 10.19.2: Installation parameters

Anchor size			8	10
Installation site			bottom view	
Drill hole diameter	$d_0 =$	[mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45	10,45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	80
Drill method		[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5	10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		100 / 100	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.19.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			8	10
Installation site			bottom view	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Brick für ceiling (system Filigran), ≥ 7,38 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,2
Brick für ceiling (system Filigran), ≥ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 33

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

Table C 10.20.1: Brick data

Description of brick		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/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger Ziegelindustrie GmbH Hauptstraße A-2332 Hennersdorf, Austria
Format (measurement)	[mm]		14DF (375x250x249)

Inside / Outside
see Annex C 3
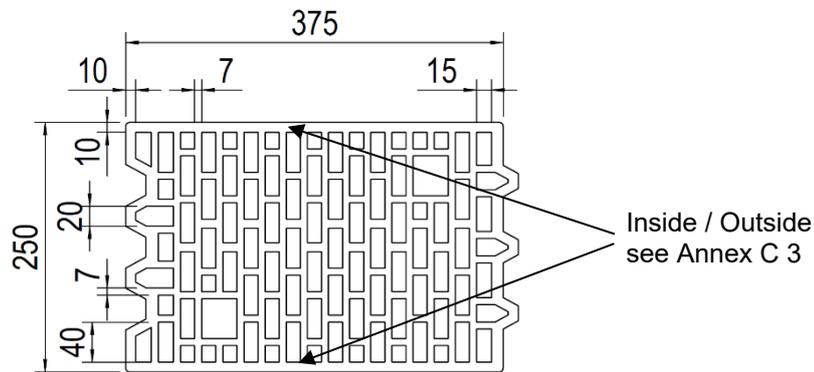
Table C 10.20.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.20.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
POROTHERM 25-38 N+F,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5
≥ 10,36 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,2
POROTHERM 25-38 N+F,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,2
POROTHERM 25-38 N+F,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,2
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 34

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Base material hollow masonry: Blocchi Leggeri

Table C 10.21.1: 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/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger Brunori s.r.l. Via Ringhiera 1 I-40020 Mordano (Bologna) fraz. Bubano Italy
Format (measurement)	[mm]		5DF (248x115x335)
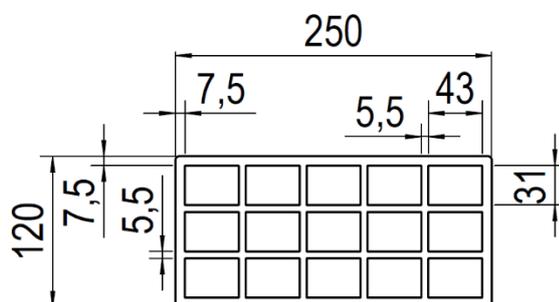
Table C 10.21.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	125	100

Table C 10.21.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Blocchi Leggeri, ≥ 8,99 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,75	0,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6	0,3
Blocchi Leggeri, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,6	0,4
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,5	0,3
Blocchi Leggeri, ≥ 5,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,5	[9)]
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,3	[9)]
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 35

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Hollow brick for ceiling: Blocchi per solaio a travetti

Table C 10.22.1: Brick data

Description of brick	771-1-011		Blocchi per solaio a travetti
Type of brick			Hollow brick for ceiling
Bulk density	$\rho \geq$	[kg/dm³]	0,55
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger Tacconi s.r.l. Via Ringhiera 1 I-40020 Mordano (Bologna) fraz, Bubano Italy, Werk Terni
Format (measurement)		[mm]	7DF (416x123x245)
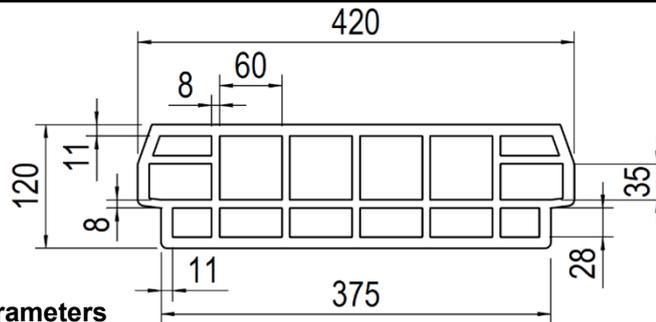
Table C 10.22.2: Installation parameters

Anchor size			8	10
Installation site			bottom view	bottom view
Drill hole diameter	$d_0 =$	[mm]	8	10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45	10,45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	80
Drill method		[-]	Rotary drilling	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5	10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.22.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site			bottom view	bottom view
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Blocchi per solaio a travetti, ≥ 14,81 N/mm²	$F_{Rk}, 30°C$[3)] / $50°C$[4)]	[kN]	1,5	1,2
	$F_{Rk}, 50°C$[3)] / $80°C$[4)]	[kN]	1,2	0,9
Blocchi per solaio a travetti, ≥ 12,5 N/mm²	$F_{Rk}, 30°C$[3)] / $50°C$[4)]	[kN]	1,2	1,2
	$F_{Rk}, 50°C$[3)] / $80°C$[4)]	[kN]	0,9	0,75
Blocchi per solaio a travetti, ≥ 10,0 N/mm²	$F_{Rk}, 30°C$[3)] / $50°C$[4)]	[kN]	0,9	0,9
	$F_{Rk}, 50°C$[3)] / $80°C$[4)]	[kN]	0,75	0,6
Blocchi per solaio a travetti, ≥ 7,5 N/mm²	$F_{Rk}, 30°C$[3)] / $50°C$[4)]	[kN]	0,75	0,6
	$F_{Rk}, 50°C$[3)] / $80°C$[4)]	[kN]	0,6	0,5
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 36**
Performances **Hollow brick: Blocchi per solaio a travetti** Brick data, Installation parameters, Characteristic resistance	

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English translation prepared by DIBt

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Base material hollow masonry: POROTHERM MURBRIC T20 and R20

Table C 10.23.1: Brick data

Description of brick			771-1-018	**POROTHERM MURBRIC T20 and R20**
Type of brick				Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]		0,7
Standard, approval/type-approval				EN 771-1:2011+A1:2015
Producer of brick				e.g. Wienerberger SAS 8, Rue du Canal - Achenheim 67087 Strasbourg, France
Format (measurement)		[mm]		T20; R 20: 15DF (500x200x249)

Inside / Outside
see Annex C 3
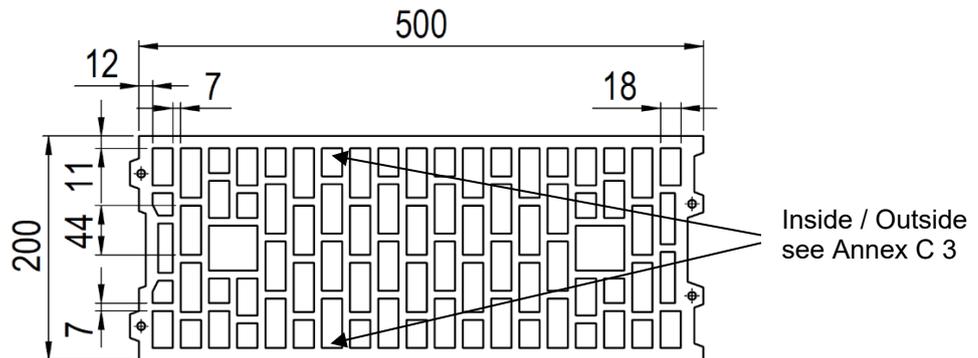
Table C 10.23.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.23.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
POROTHERM MURBRIC T20 and R20, ≥ 14,39 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
POROTHERM MURBRIC T20 and R20, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
POROTHERM MURBRIC T20 and R20, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 37**
Performances **Hollow brick: POROTHERM MURBRIC T20 and R20** Brick data, Installation parameters, Characteristic resistance	

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Base material hollow masonry: POROTHERM MURBRIC Traditionnel Poteau T20

Table C 10.24.1: Brick data

Description of brick		771-1-013	POROTHERM MURBRIC Poteau T20
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			e.g. Wienerberger SAS 8, Rue du Canal - Achenheim 67087 Strasbourg, France
Format (measurement)		[mm]	12DF (448x195x238)
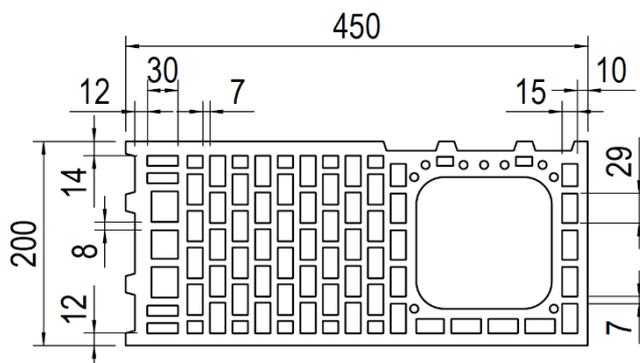
Table C 10.24.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.24.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
POROTHERM MURBRIC Poteau T20, ≥ 10,86 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6	0,9
POROTHERM MURBRIC Poteau T20, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6	0,9
POROTHERM MURBRIC Poteau T20, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,6	0,6
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,5	0,6
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick: POROTHERM MURBRIC T20** Brick data, Installation parameters, Characteristic resistance	**Annex C 38**

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Base material hollow masonry: POROTHERM T30 and POROTHERM R30

Table C 10.25.1: Brick data

Description of brick		771-1-014	POROTHERM T30 and R30
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Wienerberger SAS 8, Rue du Canal - Achenheim 67087 Strasbourg, France
Format (measurement)		[mm]	T30; R30: 16DF (373x300x249)
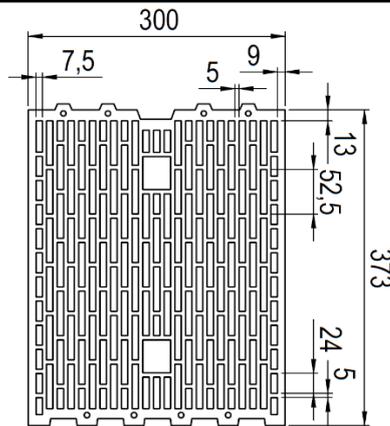
Table C 10.25.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.25.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
POROTHERM T30 and R30, ≥ 10,47 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4
POROTHERM T30 and R30, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4
POROTHERM T30 and R30, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,4
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,3
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 39

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Base material hollow masonry: UNIPOR W07 SILVACOR

Table C 10.26.1: Brick data

Description of brick	771-1-109		UNIPOR W07 SILVACOR
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,55
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	12DF (247x365x249)

Table C 10.26.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.26.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
UNIPOR W07 SILVACOR, ≥ 6,24 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,75
UNIPOR W07 SILVACOR, ≥ 5,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6
Partial safety factor	γ_{Mm}[2)]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 40

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Base material hollow masonry: UNIPOR W07 CORISO

Table C 10.27.1: Brick data

Description of brick	771-1-112	**UNIPOR W07 CORISO**
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,55
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement) [mm]		12DF (247x365x249)

Table C 10.27.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.27.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
UNIPOR W07 CORISO, $\geq$ 6,24 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	0,9
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,75
UNIPOR W07 CORISO, $\geq$ 5,0 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	0,9
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,6
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5

Footnotes see Annex C 3
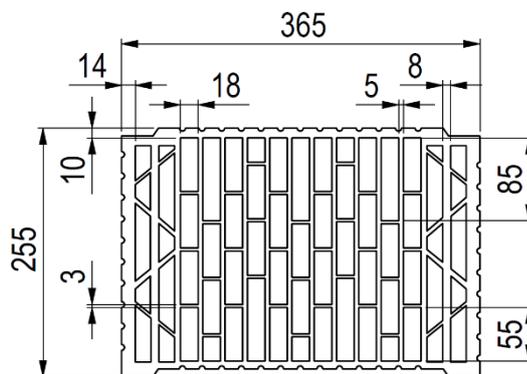
Würth Plastic Anchor W-UR / SHARK UR	**Annex C 41**
Performances **Hollow brick: UNIPOR W07 CORISO** Brick data, Installation parameters, Characteristic resistance	

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

Table C 10.28.1: Brick data

Description of brick		771-1-126	UNIPOR W07 CORISO (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]		12DF (247x365x249)

Table C 10.28.2: Installation parameters

Anchor size			8	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	140 / 250	250 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	70	185

Table C 10.28.3: Characteristic resistance F_{Rk}[7)8)] in [kN] for single anchor

Anchor size			8	
Installation site[6]			Reveal	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771				
UNIPOR W07 CORISO,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	3,0
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	3,0
UNIPOR W07 CORISO,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,0
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	2,0
UNIPOR W07 CORISO,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5
≥ 5,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

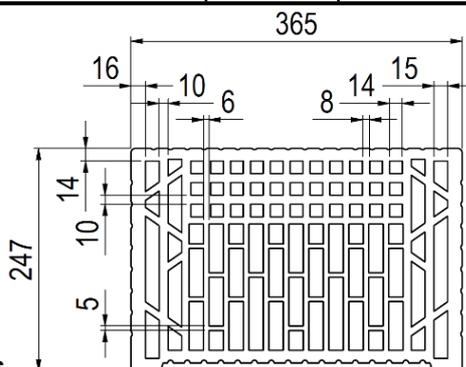|	
Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: UNIPOR W07 CORISO (special shaped)** Brick data, Installation parameters, Characteristic resistance	**Annex C 42**

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

Table C 10.29.1: Brick data

Description of brick	771-1-114		UNIPOR WS08 CORISO UNIPOR WS08 SILVACOR
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,65
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	12DF (247x365x249)

Table C 10.29.2: Installation parameters

Anchor size			8		
Installation site[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		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	140 / 250	180 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	70	90

Table C 10.29.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		
Characteristic resistance for single anchor		[kN]	F_{Rk}[1)]	F_{Rk}[7)]	F_{Rk}[7)]
Mean compressive strength according to EN 771					
UNIPOR WS08 CORISO, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9	0,9	1,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,75	0,9	1,5
UNIPOR WS08 CORISO, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,75	0,6	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6	0,6	0,9
Partial safety factor	γ_{Mm}[2)]	[-]	2,5		

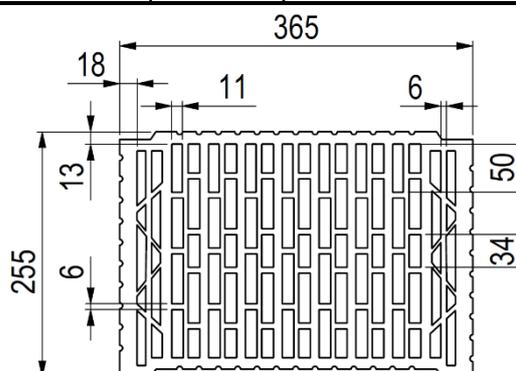Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 43

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English translation prepared by DIBt

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Base material hollow masonry: UNIPOR W08 NOVATHERM

Table C 10.30.1: Brick data

Description of brick	771-1-119	UNIPOR W08 NOVATHERM
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,6
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement) [mm]		12DF (247x365x249)

Table C 10.30.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	250 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	125	100

Table C 10.30.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
UNIPOR W08 NOVATHERM,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,4	0,4
≥ 8,65 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,3	0,3
UNIPOR W08 NOVATHERM,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,4	0,4
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,3	0,3
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR
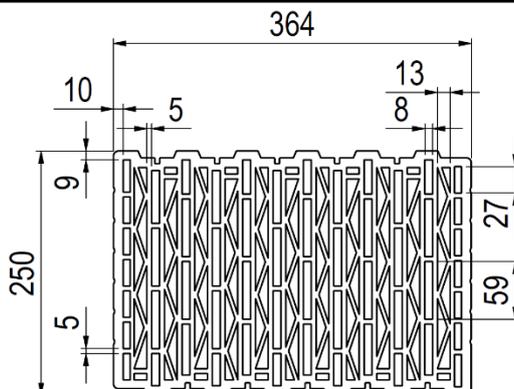
Performances
Hollow brick: UNIPOR W08 NOVATHERM
Brick data, Installation parameters, Characteristic resistance

Annex C 44

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Base material hollow masonry: UNIPOR WS09 CORISO

Table C 10.31.1: Brick data

Description of brick		771-1-115	UNIPOR WS09 CORISO
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]		12DF (247x365x249)

Table C 10.31.2: Installation parameters

Anchor size			8		10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	150 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	75	100

Table C 10.31.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8		10
Installation site[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}[7]	F_{Rk}[1]
Mean compressive strength according to EN 771					
UNIPOR WS09 CORISO, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,5	1,2
UNIPOR WS09 CORISO, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	0,9	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,9	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 45**
Performances **Hollow brick: UNIPOR WS09 CORISO** Brick data, Installation parameters, Characteristic resistance	

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Base material hollow masonry: UNIPOR WH09 Planziegel

Table C 10.32.1: Brick data

Description of brick	771-1-120	UNIPOR WH09 Planziegel
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]	0,6
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	12DF (247x365x249)

Table C 10.32.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.32.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
UNIPOR WH09 Planziegel, $\geq$ 7,8 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,6
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6
UNIPOR WH09 Planziegel, $\geq$ 7,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,6
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,5
UNIPOR WH09 Planziegel, $\geq$ 5,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,4
Partial safety factor	γ_{Mm}[2)]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: UNIPOR WH09 Planziegel** Brick data, Installation parameters, Characteristic resistance	**Annex C 46**

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Base material hollow masonry: UNIPOR WH10 Planziegel

Table C 10.33.1: Brick data

Description of brick	771-1-121	**UNIPOR WH10 Planziegel**
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,65
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement) [mm]		12DF (247x365x249)

Table C 10.33.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.33.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
UNIPOR WH10 Planziegel,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	0,75	0,6
≥ 9,15 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,6	0,5
UNIPOR WH10 Planziegel,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	0,6	0,5
≥ 7,5 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,5	0,4
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5	

Footnotes see Annex C 3

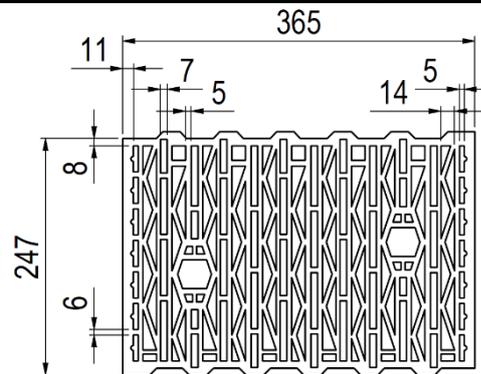| **Würth Plastic Anchor W-UR / SHARK UR**	**Annex C 47**
Performances **Hollow brick: UNIPOR WH10 Planziegel** Brick data, Installation parameters, Characteristic resistance	

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Base material hollow masonry: UNIPOR WS10 CORISO

Table C 10.34.1: Brick data

Description of brick	771-1-116	UNIPOR WS10 CORISO
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,9
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement) [mm]		12DF (247x365x249)

Table C 10.34.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	120 / 240
Minimum edge distance	$c_{min} \geq$	[mm]	60

Table C 10.34.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
UNIPOR WS10 CORISO, $\geq$ 19,18 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,5
UNIPOR WS10 CORISO, $\geq$ 15,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,2
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,2
UNIPOR WS10 CORISO, $\geq$ 10,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,9
Partial safety factor	γ_{Mm}[2)]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 48**
Performances **Hollow brick: UNIPOR WS10 CORISO** Brick data, Installation parameters, Characteristic resistance	

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Base material hollow masonry: UNIPOR WS11 CORISO

Table C 10.35.1: Brick data

Description of brick		771-1-026	UNIPOR WS11 CORISO
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,85
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]		12DF (238x365x249)
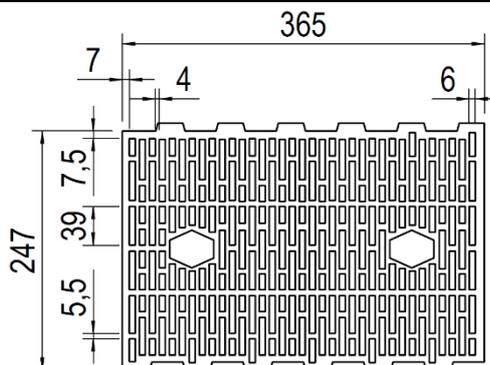
Table C 10.35.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.35.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
UNIPOR WS11 CORISO, $\geq 10,86$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
UNIPOR WS11 CORISO, $\geq 10,0$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 49

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Base material hollow masonry: UNIPOR WS14 and UNIPOR WS12 CORISO

Table C 10.36.1: Brick data

Description of brick	771-1-016	**UNIPOR WS14 and UNIPOR WS12 CORISO**
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,8
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement) [mm]		10DF (248x300x249)

Table C 10.36.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.36.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Installation site[6]			Inside / Outside
Mean compressive strength according to EN 771			
UNIPOR WS14 and UNIPOR WS12 CORISO, ≥ 16,57 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
UNIPOR WS14 and UNIPOR WS12 CORISO, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
UNIPOR WS14 and UNIPOR WS12 CORISO, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: UNIPOR WS14 and UNIPOR WS12 CORISO** Brick data, Installation parameters, Characteristic resistance	**Annex C 50**

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Base material hollow masonry: UNIPOR W14

Table C 10.37.1: Brick data

Description of brick	771-1-015	UNIPOR W14
Type of brick		Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]	0,7
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]	10DF (248x300x249)

Table C 10.37.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.37.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
UNIPOR W14, $\geq$ 8,03 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
UNIPOR W14, $\geq$ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4
Partial safety factor	γ_{Mm}[2]	[-]	2,5

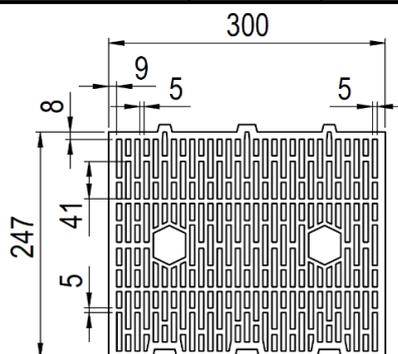Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR
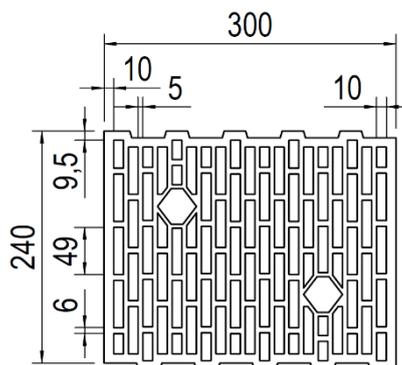
**Performances
Hollow brick: UNIPOR W14**
Brick data, Installation parameters, Characteristic resistance

Annex C 51

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

Table C 10.38.1: Brick data

Description of brick	771-1-137771-1-117	UNIPOR WS CORISO (special shaped)	
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,75
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	12DF (250x365x250)
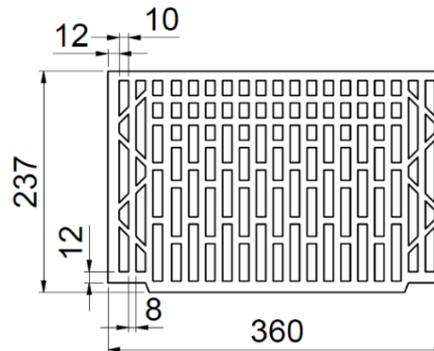
Table C 10.38.2: Installation parameters

Anchor size			8		10
Installation site[6]			Reveal		Reveal
Drill hole diameter	$d_0 =$	[mm]	8		10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45		10,45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80		80
Drill method		[-]	Rotary drilling		Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		140 / 250	180 / 250	140 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	70	90	90

Table C 10.38.3: Characteristic resistance F_{Rk}[7)8)] in [kN] for single anchor

Anchor size			8		10
Installation site[6]			Reveal		Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**		**70**
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771					
UNIPOR WS CORISO 12DF,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	4,0	3,0
≥ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	4,0	3,0
UNIPOR WS CORISO 12DF,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	3,0	2,5
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	3,0	2,5
UNIPOR WS CORISO 12DF,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	2,0	1,5
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0	1,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: UNIPOR WS CORISO (special shaped)** Brick data, Installation parameters, Characteristic resistance	**Annex C 52**

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

Table C 10.39.1: Brick data

| Description of brick		771-1-136	UNIPOR WS CORISO (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,85
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)		[mm]	6DF (123x365x249)

Table C 10.39.2: Installation parameters

Anchor size			8	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	250 / 250	
Minimum edge distance	$c_{min} \geq$	[mm]	70	90

Table C 10.39.3: Characteristic resistance F_{Rk}[7)8)] in [kN] for single anchor

Anchor size			8	
Installation site[6]			Reveal	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]	
Mean compressive strength according to EN 771				
UNIPOR WS CORISO 6DF, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5	3,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,5	3,0
UNIPOR WS CORISO 6DF, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	2,5
UNIPOR WS CORISO 6DF, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	2,0
UNIPOR WS CORISO 6DF, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances Hollow brick: UNIPOR WS CORISO (special shaped) Brick data, Installation parameters, Characteristic resistance	**Annex C 53**

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

Table C 10.40.1: Brick data

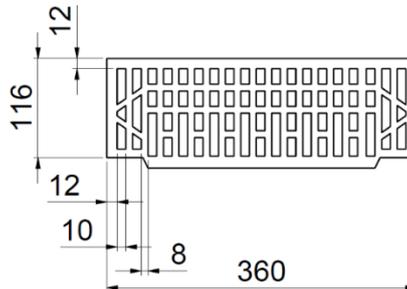| Description of brick		771-1-077	UNIPOR 6DF EWS 365 (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,9
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]		6DF (118x365x249)

Table C 10.40.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	130 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	65

Table C 10.40.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
UNIPOR 6DF EWS 365 ≥ 12,7 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
UNIPOR 6DF EWS 365 ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
UNIPOR 6DF EWS 365 ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
UNIPOR 6DF EWS 365 ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

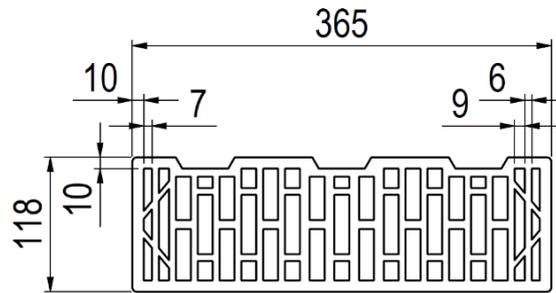|	
Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: UNIPOR 6DF EWS 365 (special shaped)** Brick data, Installation parameters, Characteristic resistance	**Annex C 54**

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

Table C 10.41.1: Brick data

Description of brick		771-1-074	UNIPOR 6DF EW 365 (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,65
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement)	[mm]		6DF (118x365x249)

Table C 10.41.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	130 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	65

Table C 10.41.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
UNIPOR 6DF EW 365, ≥ 8,89 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
UNIPOR 6DF EW 365, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
UNIPOR 6DF EW 365, ≥ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3
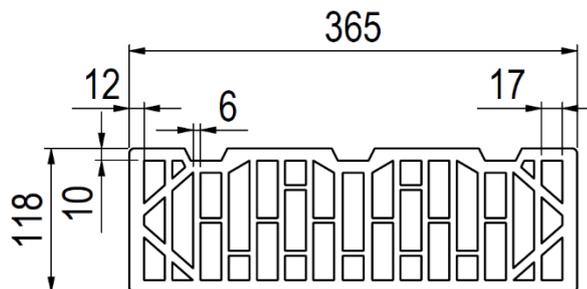

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 55

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

Table C 10.42.1: Brick data

Description of brick	771-1-122	UNIPOR W08, WH09, WH10 (special shaped)
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,65
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		ZIZ Ziegel-Innovations-Zentrum GmbH Landsberger Straße 392 D-81241 München
Format (measurement) [mm]		12DF (248x365x249)

Table C 10.42.2: Installation parameters

Anchor size			8	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	210 / 250	250 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	105	135

Table C 10.42.3: Characteristic resistance F_{Rk}[7)8)] in [kN] for single anchor

Anchor size			8	
Installation site[6]			Reveal	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771				
UNIPOR W08, WH09, WH10, $\geq$ 9,08 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,5
UNIPOR W08, WH09, WH10, $\geq$ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,2
UNIPOR W08, WH09, WH10, $\geq$ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

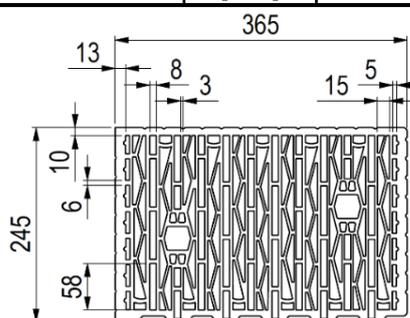| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick: UNIPOR W08, WH09, WH10 (special shaped)** Brick data, Installation parameters, Characteristic resistance	**Annex C 56**

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Base material hollow masonry: ThermoPlan MZ7

Table C 10.43.1: Brick data

Description of brick			ThermoPlan MZ7
	771-1-052		
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,6
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	10DF (248x300x249)

Table C 10.43.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.43.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
ThermoPlan MZ7,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0
≥ 8,42 N/mm	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
ThermoPlan MZ7,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 57

**Deutsches
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DIBt

Base material hollow masonry: ThermoPlan MZ70

Table C 10.44.1: Brick data

Description of brick	771-1-100		ThermoPlan MZ70
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,5
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	12DF (248x365x249)

Table C 10.44.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.44.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
ThermoPlan MZ70,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
≥ 7,62 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
ThermoPlan MZ70,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR
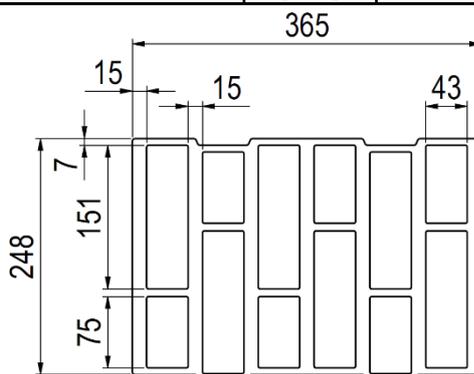
**Performances
Hollow brick: ThermoPlan MZ70**
Brick data, Installation parameters, Characteristic resistance

Annex C 58

Base material hollow masonry: ThermoPlan MZ70 (special shaped)

Table C 10.45.1: Brick data

Description of brick		771-1-098	ThermoPlan MZ70 (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,6
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	12DF (248x365x249)

Table C 10.45.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	250 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	135

Table C 10.45.3: Characteristic resistance F_{Rk}[7)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]
Mean compressive strength according to EN 771			
ThermoPlan MZ70 special shaped,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	4,0
≥ 10,21 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	4,0
ThermoPlan MZ70 special shaped,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,5
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	3,5
ThermoPlan MZ70 special shaped,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,0
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	3,0
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

Performances **Hollow brick: ThermoPlan MZ70 (special shaped)** Brick data, Installation parameters, Characteristic resistance	**Annex C 59**

Base material hollow masonry: ThermoPlan MZ8

Table C 10.46.1: Brick data

Description of brick		771-1-023	ThermoPlan MZ8
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,65
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	12DF (248x365x249)

Table C 10.46.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.46.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
ThermoPlan MZ8,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: ThermoPlan MZ8** Brick data, Installation parameters, Characteristic resistance	**Annex C 60**

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Base material hollow masonry: ThermoPlan MZ10

Table C 10.47.1: Brick data

Description of brick		771-1-034	ThermoPlan MZ10
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,75
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	10DF (248x300x249)

Table C 10.47.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.47.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

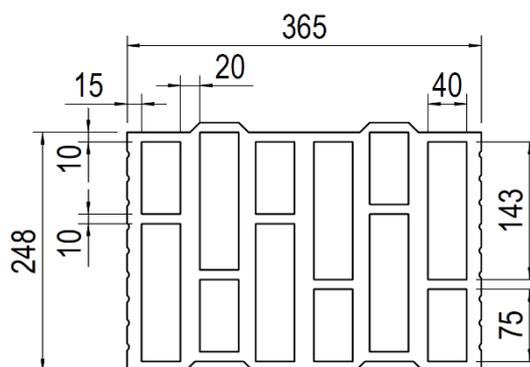| Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
ThermoPlan MZ10, ≥ 10,0 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	2,0
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,5
ThermoPlan MZ10, ≥ 7,5 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,5
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,2
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 61

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

Table C 10.48.1: Brick data

Description of brick	771-1-081	ThermoPlan MZ (special shaped)
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,8
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement) [mm]		6DF (119x365x249)
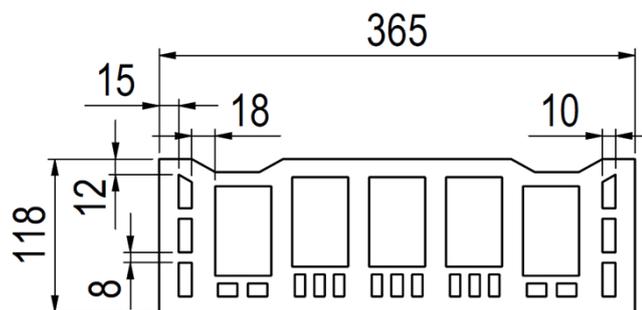
Table C 10.48.2: Installation parameters

Anchor size			8		10
Installation site[6]			Reveal		Reveal
Drill hole diameter	$d_0 =$	[mm]	8		10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45		10,45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80		80
Drill method		[-]	Rotary drilling		Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	110 / 250	110 / 250	120 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	55	55	60

Table C 10.48.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8		10
Installation site[6]			Reveal		Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**		**70**
Characteristic resistance for single anchor		[kN]	F_{Rk}[1]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771					
ThermoPlan MZ (special shaped), ≥ 8,01 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	2,0	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0	2,0
ThermoPlan MZ (special shaped), ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	2,0	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0	2,0
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 62

Deutsches Institut für Bautechnik
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Base material hollow masonry: ThermoPlan S8/S9/SX (special shaped)

Table C 10.49.1: Brick data

Description of brick		771-1-101	ThermoPlan S8/S9/SX (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)	[mm]		12DF (248x365x249)

Table C 10.49.2: Installation parameters

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	Reveal
Drill hole diameter	$d_0 =$	[mm]	8		
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45		
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80		
Drill method		[-]	Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		200 / 250	160 / 250	250 / 250
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100	80	130

Table C 10.49.3: Characteristic resistance F_{Rk} [1)7)8)] in [kN] for single anchor

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**		
Characteristic resistance for single anchor		[kN]	F_{Rk}[1]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771					
ThermoPlan S8/S9/SX, ≥ 10,55 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,2	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75	1,2	2,0
ThermoPlan S8/S9/SX, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,2	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75	1,2	2,0
ThermoPlan S8/S9/SX, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75	0,9	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,9	1,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

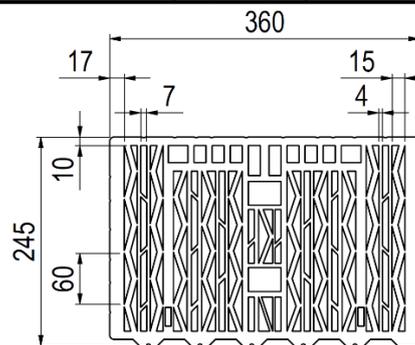
Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 63

Deutsches Institut für Bautechnik DIBt

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

Table C 10.50.1: Brick data

Description of brick		771-1-102	ThermoPlan S8/S9/SX (special shaped)
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,8
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement)		[mm]	6DF (123x365x249)

Table C 10.50.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		170 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	85

Table C 10.50.3: Characteristic resistance F_{Rk}[7)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]
Mean compressive strength according to EN 771			
ThermoPlan S8/S9/SX, ≥ 14,31 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5
ThermoPlan S8/S9/SX, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5
ThermoPlan S8/S9/SX, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
ThermoPlan S8/S9/SX, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3
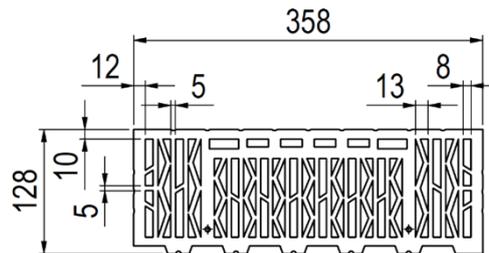
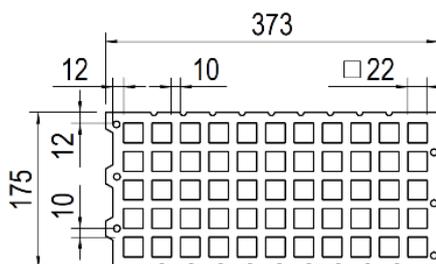| Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: ThermoPlan S8/S9/SX (special shaped)** Brick data, Installation parameters, Characteristic resistance	**Annex C 64**

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Base material hollow masonry: ThermoPlan TS²

Table C 10.51.1: Brick data

Description of brick	771-1-024	ThermoPlan TS²
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,85
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement) [mm]		9DF (373x175x249)

Table C 10.51.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 /100	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.51.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
ThermoPlan TS²,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,5
≥ 17,32 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,5
ThermoPlan TS²,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,5
≥ 16,7 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,5
ThermoPlan TS²,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5
≥ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,2
ThermoPlan TS²,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,5
≥ 10,4 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,9
ThermoPlan TS²,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,2
≥ 8,3 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

**Performances
Hollow brick: ThermoPlan TS²**
Brick data, Installation parameters, Characteristic resistance

Annex C 65

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Base material hollow masonry: ThermoPlan TS 13

Table C 10.52.1: Brick data

Description of brick	771-1-035	ThermoPlan TS 13
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,8
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Mein Ziegelhaus GmbH & Co, KG Märkerstraße 44 D-63755 Alzenau
Format (measurement) [mm]		10DF (247x300x249)

Table C 10.52.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.52.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
ThermoPlan TS 13,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75
$\geq 11,0$ N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
ThermoPlan TS 13,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
$\geq 10,0$ N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
ThermoPlan TS 13,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,5
$\geq 7,5$ N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3
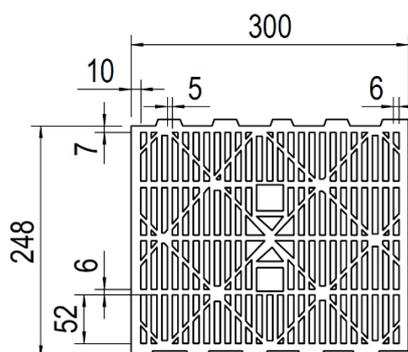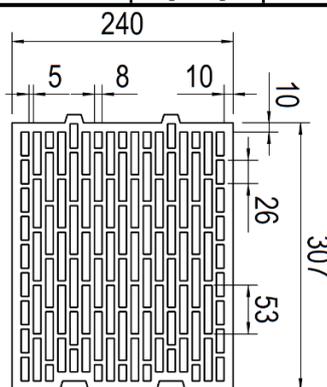

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: ThermoPlan TS 13** Brick data, Installation parameters, Characteristic resistance	**Annex C 66**

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Base material hollow masonry: THERMOPOR ISO-PD Plus

Table C 10.53.1: Brick data

Description of brick		771-1-028	**THERMOPOR ISO-PD Plus**
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Format (measurement)		[mm]	10DF (247x300x249)

Table C 10.53.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.53.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
THERMOPOR ISO-PD Plus, ≥ 10,73 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
THERMOPOR ISO-PD Plus, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
THERMOPOR ISO-PD Plus, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 67

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Base material hollow masonry: THERMOPOR TV 7-Plan

Table C 10.54.1: Brick data

Description of brick		771-1-030	THERMOPOR TV 7-Plan
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,5
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Format (measurement)	[mm]		12DF (247x365x249)

Table C 10.54.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.54.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
THERMOPOR TV 7-Plan, ≥ 5,59 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
THERMOPOR TV 7-Plan, ≥ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3
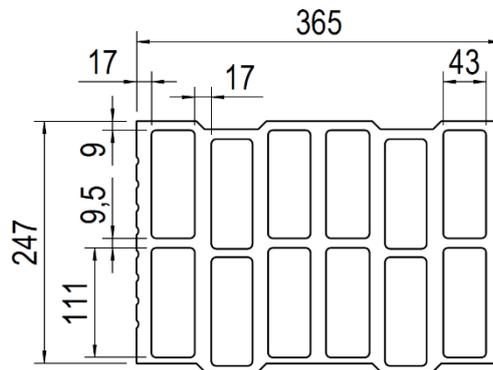

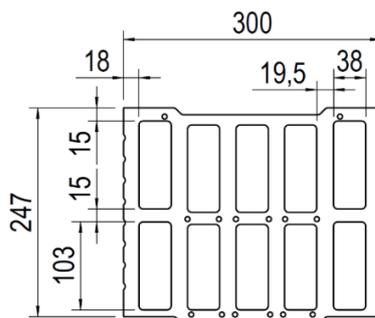**Würth Plastic Anchor W-UR / SHARK UR**

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

Annex C 68

Base material hollow masonry: THERMOPOR TV 9-Plan

Table C 10.55.1: Brick data

Description of brick		771-1-029	**THERMOPOR TV 9-Plan**
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,75
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Thermopor Ziegel-Kontor Ulm GmbH Olgastraße 94 D-89073 Ulm
Format (measurement)	[mm]		10DF (247x300x249)

Table C 10.55.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.55.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
THERMOPOR TV 9-Plan,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0
≥ 13,75 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5
THERMOPOR TV 9-Plan,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0
≥ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5
THERMOPORTV 9-Plan,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
THERMOPOR TV 9-Plan,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick: THERMOPOR TV 9-Plan** Brick data, Installation parameters, Characteristic resistance	**Annex C 69**

Base material hollow masonry: THERMOPOR Plan TV Aero

Table C 10.56.1: Brick data

Description of brick	771-1-127		THERMOPOR Plan TV Aero
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,65
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Otto Staudacher Vertriebs GmbH St.-Leonhard-Str. 86483 Balzhausen
Format (measurement)		[mm]	12DF (247x365x249)
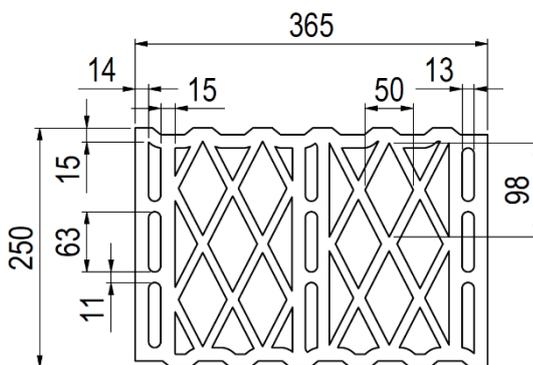
Table C 10.56.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.56.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
THERMOPOR Plan TV Aero, ≥ 9,36 N/mm²	$F_{Rk, 30°C^{3)}} / 50°C^{4)}$	[kN]	0,9	0,9
	$F_{Rk, 50°C^{3)}} / 80°C^{4)}$	[kN]	0,75	0,75
THERMOPOR Plan TV Aero, ≥ 7,5 N/mm²	$F_{Rk, 30°C^{3)}} / 50°C^{4)}$	[kN]	0,9	0,9
	$F_{Rk, 50°C^{3)}} / 80°C^{4)}$	[kN]	0,6	0,6
THERMOPOR Plan TV Aero, ≥ 5,0 N/mm²	$F_{Rk, 30°C^{3)}} / 50°C^{4)}$	[kN]	0,6	0,6
	$F_{Rk, 50°C^{3)}} / 80°C^{4)}$	[kN]	0,4	0,4
Partial safety factor	$\gamma_{Mm}{}^{2)}$	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances Hollow brick: THERMOPOR Plan TV Aero Brick data, Installation parameters, Characteristic resistance	**Annex C 70**

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Base material hollow masonry: Kellerer ZMK-P 7,5

Table C 10.57.1: Brick data

Description of brick	771-1-068	**Kellerer ZMK-P 7,5**
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,6
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Ziegelsystem Michael Kellerer GmbH & Co KG Ziegeleistraße 13 D-82281 Egenhofen
Format (measurement) [mm]		12DF (247x365x249)

Table C 10.57.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.57.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Kellerer ZMK-P 7,5,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75
≥ 6,83 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
Kellerer ZMK-P 7,5,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
≥ 5,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

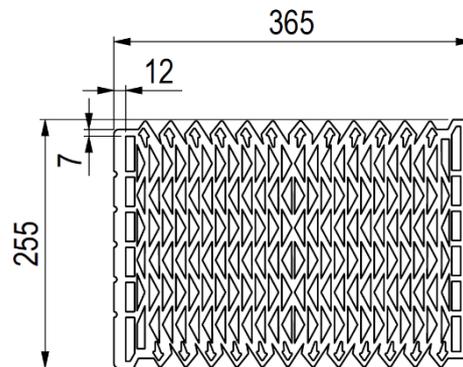| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick: Kellerer ZMK-P-7,5** Brick data, Installation parameters, Characteristic resistance	**Annex C 71**

Base material hollow masonry: Kellerer ZMK X6

Table C 10.58.1: Brick data

Description of brick	771-1-049		Kellerer ZMK X6
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,55
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Ziegelsystem Michael Kellerer GmbH & Co KG Ziegeleistraße 13 D-82281 Egenhofen
Format (measurement)		[mm]	10DF (247x300x249)

Table C 10.58.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.58.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Kellerer ZMK X6,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
≥ 7,22 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
Kellerer ZMK X6,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75
≥ 5,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 72**
Performances **Hollow brick: Kellerer ZMK X6** Brick data, Installation parameters, Characteristic resistance	

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Base material hollow masonry: Kellerer ZMK TX8

Table C 10.59.1: Brick data

Description of brick	771-1-050	**Kellerer ZMK TX8**
Type of brick		Hollow brick
Bulk density $\rho \geq$ [kg/dm³]		0,6
Standard, approval/type-approval		EN 771-1:2011+A1:2015
Producer of brick		Ziegelsystem Michael Kellerer GmbH & Co KG Ziegeleistraße 13 D-82281 Egenhofen
Format (measurement) [mm]		10DF (247x300x249)

Table C 10.59.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.59.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Kellerer ZMK TX8, ≥ 7,66 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
Kellerer ZMK TX8, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 73**
Performances **Hollow brick: Kellerer ZMK TX8** Brick data, Installation parameters, Characteristic resistance	

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English translation prepared by DIBt

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Base material hollow masonry: Eder XV 7,5 S

Table C 10.60.1: Brick data

Description of brick	771-1-130		Eder XV 7,5 S
Type of brick			Hollow brick
Bulk density	$\rho \geq$	[kg/dm³]	0,75
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Ziegelwerk Freital Eder GmbH Wilsdruffer Straße 25 01705 Freital
Format (measurement)		[mm]	10DF (200x365x249)

Table C 10.60.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.60.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Eder XV 7,5 S, $\geq$ 9,16 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,2
Eder XV 7,5 S, $\geq$ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	0,9
Eder XV 7,5 S, $\geq$ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	0,6
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

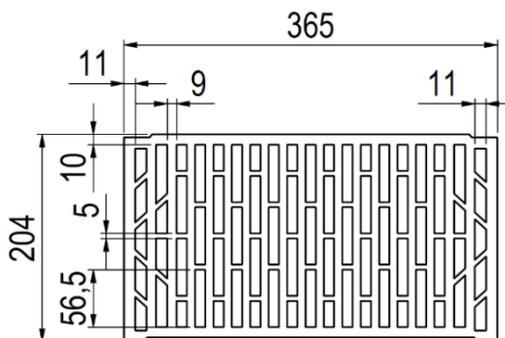| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick: Eder XV 7,5 S** Brick data, Installation parameters, Characteristic resistance	**Annex C 74**

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Base material hollow masonry: Eder XP 9

Table C 10.61.1: Brick data

Description of brick		771-1-131	Eder XP 9
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		0,7
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Ziegelwerk Freital Eder GmbH Wilsdruffer Straße 25 01705 Freital
Format (measurement)	[mm]		10DF (200x365x249)

Table C 10.61.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.61.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

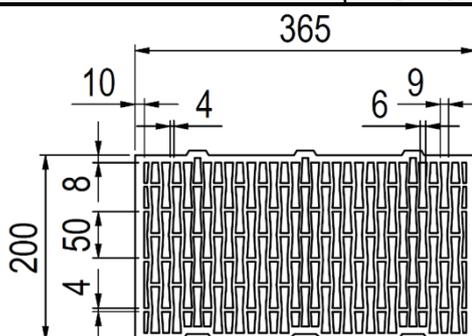| Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Eder XP 9,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75	0,9
≥ 11,53 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,6
Eder XP 9,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	0,75
≥ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5	0,5
Eder XP 9,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,5	0,6
≥ 7,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,4	0,4
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 75

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Base material hollow masonry: Ladrillo P NV R150

Table C 10.62.1: Brick data

Description of brick		771-1-017	Hollow brick Ladrillo P NV R150
Type of brick			Hollow brick
Bulk density	$\rho \geq$ [kg/dm³]		1,2
Standard, approval/type-approval			EN 771-1:2011+A1:2015
Producer of brick			Ceramica La Corona, S.A. Carreta de Caldes, km 8, 9 08420 Canovelles, Spain
Format (measurement)	[mm]		2DF (278x135x95)
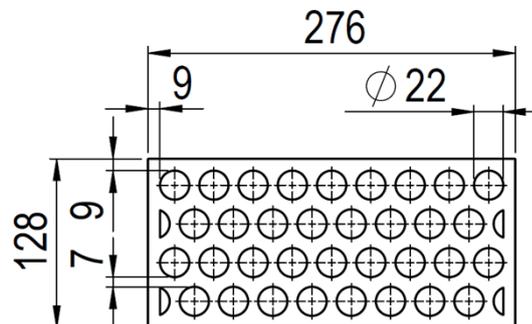
Table C 10.62.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.62.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Installation site[6]			Inside / Outside
Mean compressive strength according to EN 771			
Ladrillo P NV R150, ≥ 46,17 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
Ladrillo P NV R150, ≥ 35,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Ladrillo P NV R150, ≥ 25,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
Ladrillo P NV R150, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5
Footnotes see Annex C 3			

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick: Ladrillo P NV R150** Brick data, Installation parameters, Characteristic resistance	**Annex C 76**

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

Table C 10.63.1: Brick data

Description of brick		771-2-002	KS	
Type of brick			Sand-lime solid brick	
Bulk density	$\rho \geq$	[kg/dm³]	2,0	
Standard, approval/type-approval			EN 771-2:2011+A1:2015	
Producer of brick			-	
Format (measurement)		[mm]	$\geq$ NF ($\geq$ 240x115x71)	
Minimum thickness of member	$h_{min} =$	[mm]	115	

Table C 10.63.2: Installation parameters

Anchor size			8		10	
Installation site[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	
Spacing perpendicular to free edge	$s_{1,min}$	[mm]	100		100	100
Spacing parallel to free edge	$s_{2,min}$	[mm]	100		100	100
Minimum edge distance	$c_{min} \geq$	[mm]	100		100	100

Table C 10.63.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8		10	
Installation site[6]			Inside / Outside		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**50**	**70**	**50**	**70**
Mean compressive strength according to EN 771						
Sand-lime solid brick KS, $\geq$ 40,71 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,5	5,5	4,0	6,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	3,0	5,5	2,5	4,0
Sand-lime solid brick KS, $\geq$ 35,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,0	4,5	3,5	5,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,5	4,5	2,0	3,5
Sand-lime solid brick KS, $\geq$ 25,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	3,5	2,5	3,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	3,5	1,5	2,5
Sand-lime solid brick KS, $\geq$ 20,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,5	2,0	3,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	2,5	1,2	2,0
Sand-lime solid brick KS, $\geq$ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	2,0	1,5	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	2,0	0,9	1,5
Sand-lime solid brick KS, $\geq$ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5	1,2	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,5	0,75	1,2
Partial safety factor	γ_{Mm}[2]	[-]	2,5			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 77

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

Table C 10.64.1: Brick data

Description of brick	771-2-045		**KS**
Type of brick			Sand-lime solid brick
Bulk density	$\rho \geq$	[kg/dm³]	1,8
Standard, approval/type-approval			EN 771-2:2011+A1:2015
Producer of brick			-
Format (measurement)		[mm]	≥ 4DF (≥ 248x115x248)
Minimum thickness of member	h_{min} =	[mm]	115 (Reveal = 248)
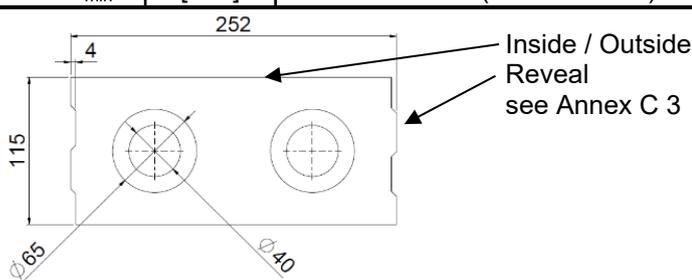
Table C 10.64.2: Installation parameters

Anchor size			**8**		**10**
Installation site[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		[-]	Hammer drilling		Hammer drilling
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	70		70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	70 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	35	100

Table C 10.64.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**		**10**
Installation site[6]			Inside / Outside	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**70**		**70**
Mean compressive strength according to EN 771					
Sand-lime solid brick KS, ≥ 26,93 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,0	3,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	2,0	2,5
Sand-lime solid brick KS, ≥ 25,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,0	3,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0	2,5
Sand-lime solid brick KS, ≥ 20,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	1,5	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,5	2,0
Sand-lime solid brick KS, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,2	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,2	1,5
Sand-lime solid brick KS, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	0,9	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,9	1,2
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Sand-lime solid brick: KS, 4DF** Brick data, Installation parameters, Characteristic resistance	**Annex C 78**

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

Table C 10.65.1: Brick data

Description of brick		771-2-010	Silka XL Basic, Silka XL Plus
Type of brick			Sand-lime solid brick
Bulk density	$\rho \geq$ [kg/dm³]		2,0
Standard, approval/type-approval			EN 771-2:2011+A1:2015
Producer of brick			Xella Deutschland GmbH Dr.-Hammacher-Str. 49 D-47119 Duisburg
Format (measurement)	[mm]		≥ 248x175x498
Minimum thickness of member	$h_{min} =$ [mm]		175

Table C 10.65.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	50	50

Table C 10.65.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside Reveal	Inside / Outside Reveal
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Sand-lime solid brick Silka XL Basic, Silka XL Plus, ≥ 39,06 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	5,0	6,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	5,0	6,0
Sand-lime solid brick Silka XL Basic, Silka XL Plus, ≥ 35,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	4,5	5,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	4,5	5,5
Sand-lime solid brick Silka XL Basic, Silka XL Plus, ≥ 25,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	3,0	4,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	3,0	4,0
Sand-lime solid brick Silka XL Basic, Silka XL Plus, ≥ 20,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,5	3,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	2,5	3,0
Sand-lime solid brick Silka XL Basic, Silka XL Plus, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,0	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	2,0	1,5
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

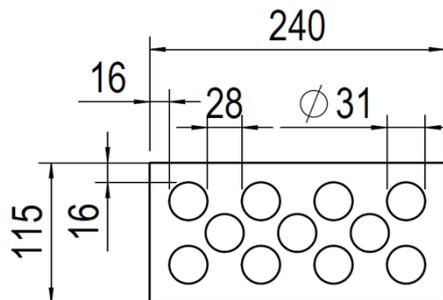**Würth Plastic Anchor W-UR / SHARK UR**

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

Annex C 79

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

Table C 10.66.1: Brick data

Description of brick		771-2-003 771-2-004	KS L
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$ [kg/dm³]		1,4
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			-
Format (measurement)	[mm]		2DF (240x115x113)

Table C 10.66.2: Installation parameters

Anchor size			8		10	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100		100 / 100	
Minimum edge distance	$c_{min} \geq$	[mm]	100		100	

Table C 10.66.3: Characteristic resistance F_{Rk}[1)5)8)] in [kN] for single anchor

Anchor size			8		10	
Installation site[6]			Inside / Outside		Inside / Outside	
Overall plastic anchor embedment depth	h_{nom}	[mm]	≥ 50[5]	$= 70$	≥ 50[5]	$= 70$
Mean compressive strength according to EN 771						
Sand-lime perforated brick KS L,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,5	2,0	2,5
$\geq$ 22,61 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,5	1,2	2,5
Sand-lime perforated brick KS L,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,0	1,5	2,0
$\geq$ 20,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0	0,9	2,0
Sand-lime perforated brick KS L,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,5	1,2	1,5
$\geq$ 15,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,5	0,75	1,5
Sand-lime perforated brick KS L,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,2	0,9	1,2
$\geq$ 12,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75	1,2	0,6	1,2
Sand-lime perforated brick KS L,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75	0,9	0,9	0,9
$\geq$ 10,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,9	0,6	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Sand-lime perforated brick: KS L, 2DF** Brick data, Installation parameters, Characteristic resistance	**Annex C 80**

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

Table C 10.67.1: Brick data

Description of brick	771-2-005 771-2-013	KS L
Type of brick		Sand-lime perforated brick
Bulk density	$\rho \geq$ [kg/dm³]	1,4
Standard, approval/type-approval		EN 771-2:2011+ A1:2015
Producer of brick		e.g. Xella Deutschland GmbH
Format (measurement)	[mm]	8DF (248x240x238)
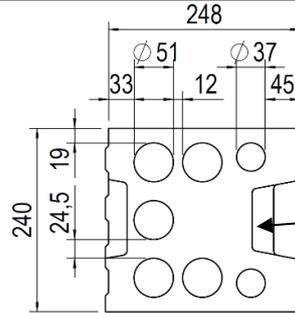
Installation site Reveal:
Setting the anchor in the area of the handle hole is not permitted!

Table C 10.67.2: Installation parameters

Anchor size			8		10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	90 / 250	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	60	45	100

Table C 10.67.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8		10
Installation site[6]			Inside / Outside	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**	**70**
Mean compressive strength according to EN 771					
Sand-lime perforated brick KS L, ≥ 21,11 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	[9]	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	[9]	2,0
Sand-lime perforated brick KS L, ≥ 20,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	[9]	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	[9]	1,5
Sand-lime perforated brick KS L, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,0	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0	1,2
Sand-lime perforated brick KS L, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	2,0	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	2,0	0,9
Sand-lime perforated brick KS L, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,5	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75	1,5	0,9
Partial safety factor	γ_{Mm}[2]	[-]		2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 81

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

Table C 10.68.1: 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/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			-
Format (measurement)	[mm]		12DF (377x240x238)

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

Inside / Outside Reveal
see Annex C 3

Table C 10.68.2: Installation parameters

Anchor size			8		
Installation site[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	80
Drill method		[-]	Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	50	70	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250	100 / 250
Minimum allowable edge distance	$c_{min} \geq$	[mm]	100	100	50

Table C 10.68.3: Characteristic resistance F_{Rk}[1)5)8] in [kN] for single anchor

Anchor size			8	
Installation site[6]			Inside / Outside	Reveal
Overall plastic anchor embedment depth	h_{nom}	[mm]	**≥ 50[5]**	**$= 70$**
Mean compressive strength according to EN 771				
Sand-lime perforated brick KS L, $\geq$ 18,85 N/mm²	$F_{Rk},$ 30°C[3] / 50°C[4]	[kN]	2,0	3,0
	$F_{Rk},$ 50°C[3] / 80°C[4]	[kN]	1,5	2,0
Sand-lime perforated brick KS L, $\geq$ 15,0 N/mm²	$F_{Rk},$ 30°C[3] / 50°C[4]	[kN]	1,5	2,5
	$F_{Rk},$ 50°C[3] / 80°C[4]	[kN]	1,2	1,5
Sand-lime perforated brick KS L, $\geq$ 12,5 N/mm²	$F_{Rk},$ 30°C[3] / 50°C[4]	[kN]	1,2	2,0
	$F_{Rk},$ 50°C[3] / 80°C[4]	[kN]	0,9	1,5
Sand-lime perforated brick KS L, $\geq$ 10,0 N/mm²	$F_{Rk},$ 30°C[3] / 50°C[4]	[kN]	0,9	1,5
	$F_{Rk},$ 50°C[3] / 80°C[4]	[kN]	0,75	1,2
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3
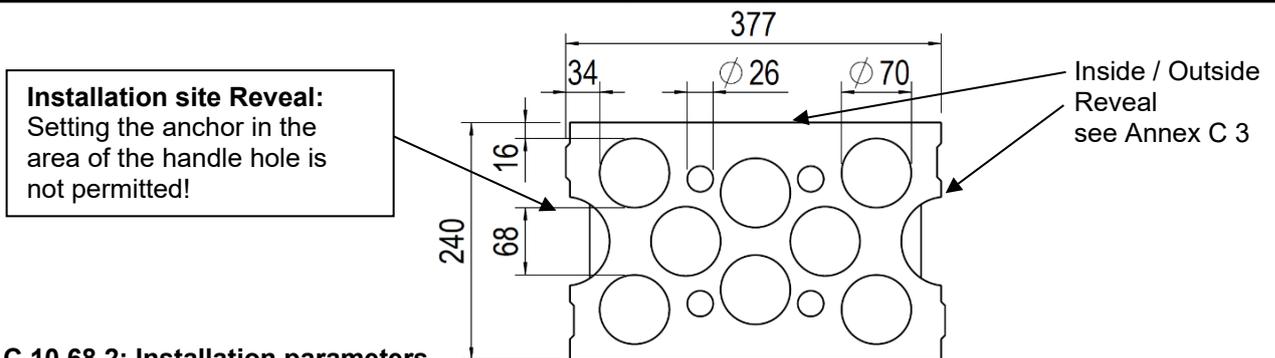

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 82

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

Table C 10.69.1: 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/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			-
Format (measurement)	[mm]		12DF (377x240x238)

Inside / Outside
see Annex C 3

Table C 10.69.2: Installation parameters

Anchor size			10	
Installation site[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 / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.69.3: Characteristic resistance F_{Rk}[1)5)8)] in [kN] for single anchor

Anchor size			10	
Installation site[6]			Inside / Outside	
Overall plastic anchor embedment depth	h_{nom}	[mm]	≥ 50[5)]	$= 70$
Mean compressive strength according to EN 771				
Sand-lime perforated brick KS L, $\geq$ 18,85 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,5	2,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,9	1,5
Sand-lime perforated brick KS L, $\geq$ 15,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,2	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,75	1,2
Sand-lime perforated brick KS L, $\geq$ 12,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,2	1,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6	0,9
Sand-lime perforated brick KS L, $\geq$ 10,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9	1,2
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,5	0,9
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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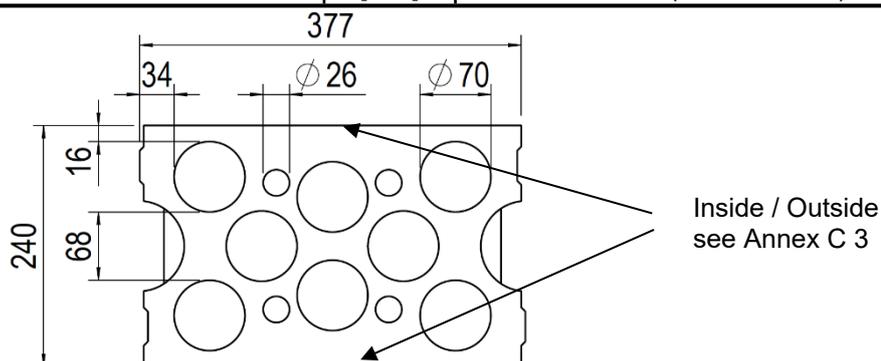**Sand-lime perforated brick: KS L, 12DF**
Brick data, Installation parameters, Characteristic resistance

Annex C 83

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

Table C 10.70.1: 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/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			Xella Deutschland GmbH Dr.-Hammacher-Str. 49 D-47119 Duisburg
Format (measurement)	[mm]		9DF (373x175x238)

Inside / Outside
see Annex C 3

Table C 10.70.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.70.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

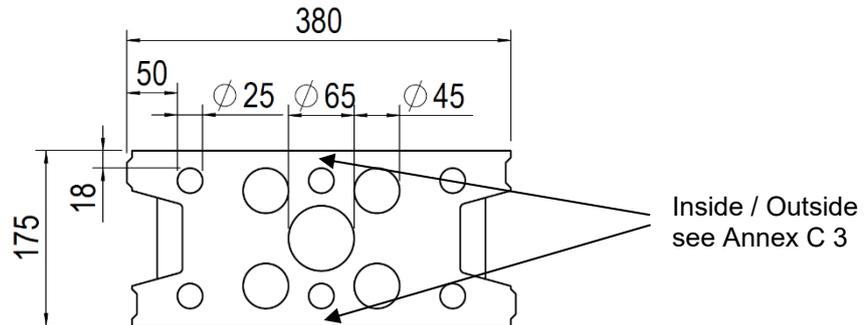| Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Sand-lime perforated brick KS L, $\geq$ 31,90 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
Sand-lime perforated brick KS L, $\geq$ 25,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Sand-lime perforated brick KS L, $\geq$ 20,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75
Sand-lime perforated brick KS L, $\geq$ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 84

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Base material hollow masonry, sand-lime perforated brick: KSL-R(P), 6 DF

Table C 10.71.1: Brick data

Description of brick	771-2-039	KSL-R(P)
Type of brick		Sand-lime perforated brick
Bulk density $\rho \geq$ [kg/dm³]		1,6
Standard, approval/type-approval		EN 771-2:2011+ A1:2015
Producer of brick		H+H Deutschland GmbH Industriestr. 3, 23829 Wittenborn
Format (measurement) [mm]		6DF (248x175x248)
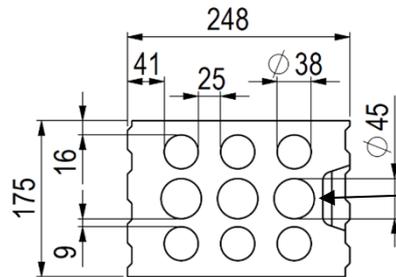
Installation site Reveal: Setting the anchor in the area of the handle hole is not permitted!

Table C 10.71.2: Installation parameters

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	Reveal
Drill hole diameter	$d_0 =$	[mm]	8		
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45		
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80		
Drill method		[-]	Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	130 / 250	80 / 250	180 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	65	40	90

Table C 10.71.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		
Characteristic resistance for single anchor		[kN]	F_{Rk}[1]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771					
Sand-lime perforated brick KSL-R(P) $\geq$ 17,71 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,0	2,5	6,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	2,5	6,0
Sand-lime perforated brick KSL-R(P) $\geq$ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5	2,0	5,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	2,0	5,0
Sand-lime perforated brick KSL-R(P) $\geq$ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	1,5	4,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5	4,0
Sand-lime perforated brick KSL-R(P) $\geq$ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	1,5	3,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,5	3,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 85

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

Table C 10.72.1: Brick data

Description of brick		771-2-040	KS L
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$ [kg/dm³]		1,4
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			H+H Deutschland GmbH Industriestr. 3, 23829 Wittenborn
Format (measurement)	[mm]		8DF (248x240x248)

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

Inside / Outside Reveal see Annex C 3

Table C 10.72.2: Installation parameters

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	Reveal
Drill hole diameter	$d_0 =$	[mm]	8		
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45		
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80		
Drill method		[-]	Rotary drilling		
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	90 / 250	240 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	45	120

Table C 10.72.3: Characteristic resistance F_{Rk}[1][7][8] in [kN] for single anchor

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		
Characteristic resistance for single anchor		[kN]	F_{Rk}[1]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771					
Sand-lime perforated brick KS L, ≥ 15,77 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,5	7,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,5	7,5
Sand-lime perforated brick KS L, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,0	7,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	2,0	7,0
Sand-lime perforated brick KS L, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,0	6,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	2,0	6,0
Sand-lime perforated brick KS L, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5	4,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,5	4,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Sand-lime perforated brick: KS L, 8DF** Brick data, Installation parameters, Characteristic resistance	**Annex C 86**

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

Table C 10.73.1: Brick data

Description of brick		771-2-044	KS L
Type of brick			Sand-lime perforated brick
Bulk density	$\rho \geq$	[kg/dm³]	1,2
Standard, approval/type-approval			EN 771-2:2011+ A1:2015
Producer of brick			H+H Deutschland GmbH Industriestr. 3 23829 Wittenborn
Format (measurement)		[mm]	12DF (498x175x249)
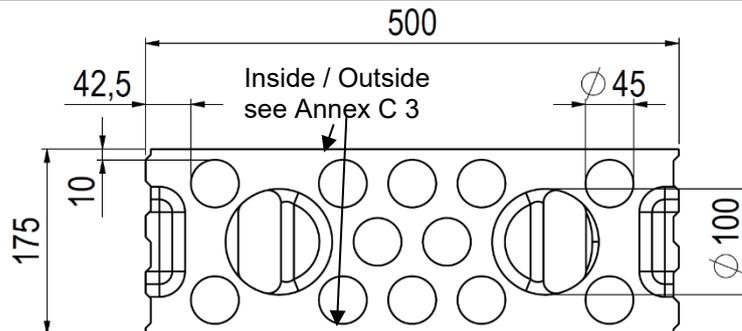
Table C 10.73.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	240 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	120

Table C 10.73.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

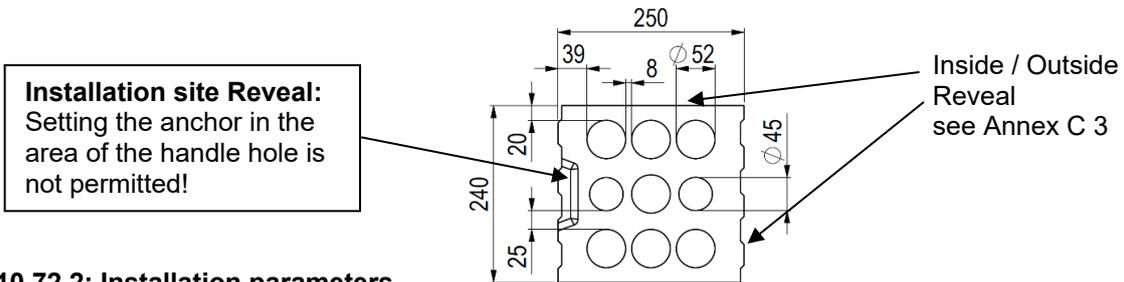| Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Sand-lime perforated brick KS L, $\geq 17{,}86$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5
Sand-lime perforated brick KS L, $\geq 15{,}0$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
Sand-lime perforated brick KS L, $\geq 12{,}5$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Sand-lime perforated brick KS L, $\geq 10{,}0$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 87

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

Table C 10.74.1: 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/type-approval			EN 771-3:2011+A1:2015
Producer of brick			BMO KS-Vertrieb Bielefeld-Münster-Osnabrück GmbH & Co. KG Averdiekstr. 9; D-49078 Osnabrück
Format (measurement)	[mm]		4DF (248x115x248)
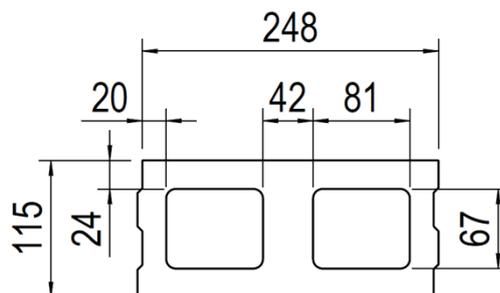
Table C 10.74.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.74.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Sand-lime perforated brick KS-NT, ≥ 24,92 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0
Sand-lime perforated brick KS-NT, ≥ 20,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5
Sand-lime perforated brick KS-NT, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Sand-lime perforated brick KS-NT, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 88

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

Table C 10.75.1: Brick data

Description of brick		771-3-004	Vbn	
Type of brick			Concrete solid block Vbn	
Bulk density	$\rho \geq$	[kg/dm³]	2,0	
Standard, approval/type-approval			EN 771-3:2011+A1:2015	
Producer of brick			-	
Format (measurement)		[mm]	$\geq$ NF ($\geq$ 240x115x71)	
Minimum thickness of member	$h_{min} =$	[mm]	115	

Table C 10.75.2: Installation parameters

Anchor size			8		10	
Installation site[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	
Spacing perpendicular to free edge	$s_{1,min}$	[mm]	80		100	100
Spacing parallel to free edge	$s_{2,min}$	[mm]	80		100	100
Minimum edge distance	$c_{min} \geq$	[mm]	100		100	100

Table C 10.75.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8		10	
Installation site[6]			Inside / Outside		Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**50**	**70**	**50**	**70**
Mean compressive strength according to EN 771						
Concrete solid block Vbn, $\geq$ 39,82 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	5,0	5,5	3,0	5,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	4,0	5,0	2,0	5,5
Concrete solid block Vbn, $\geq$ 35,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	4,5	4,5	2,5	5,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	3,5	4,0	1,5	4,5
Concrete solid block Vbn, $\geq$ 25,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	3,0	3,5	2,0	3,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	2,5	3,0	1,2	3,5
Concrete solid block Vbn, $\geq$ 20,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,5	2,5	1,5	3,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	2,0	2,5	0,9	2,5
Concrete solid block Vbn, $\geq$ 15,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,0	2,0	0,9	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,5	2,0	0,75	2,0
Concrete solid block Vbn, $\geq$ 10,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,2	1,2	0,6	1,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,9	1,2	0,5	1,2
Partial safety factor	γ_{Mm}[2)]	[-]	2,5			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Concrete solid block: Vbn, NF** Brick data, Installation parameters, Characteristic resistance	**Annex C 89**

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

Table C 10.76.1: 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/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Bisoclassic V Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	≥ NF (≥ 240x115x71)
Minimum thickness of member	$h_{min} =$	[mm]	115

Table C 10.76.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.76.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**70**
Mean compressive strength according to EN 771			
Lightweight concrete solid brick V, ≥ 6,09 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,5
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,9
Lightweight concrete solid brick V, ≥ 5,0 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,2
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,9
Lightweight concrete solid brick V, ≥ 2,5 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	0,6
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Lightweight concrete solid brick: V, NF** Brick data, Installation parameters, Characteristic resistance	**Annex C 90**

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

Table C 10.77.1: Brick data

Description of brick	771-3-007	V
Type of brick		Lightweight concrete solid brick
Bulk density $\rho \geq$ [kg/dm³]		1,2
Standard, approval/type-approval		EN 771-3:2011+A1:2015
Producer of brick		e.g. BisoBims, Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement) [mm]		≥ NF (≥ 240x115x71)
Minimum thickness of member $h_{min} =$ [mm]		115

Table C 10.77.2: Installation parameters

Anchor size			8	
Installation site[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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	
Minimum edge distance	$c_{min} \geq$	[mm]	100	

Table C 10.77.3: Characteristic resistance F_{Rk}[1)8]) in [kN] for single anchor

Anchor size			8	
Installation site[6]			Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**50**	**70**
Mean compressive strength according to EN 771				
Lightweight concrete solid brick V, ≥ 7,29 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	2,0
Lightweight concrete solid brick V, ≥ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5	1,5
Lightweight concrete solid brick V, ≥ 2,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,3	0,75
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	[9]	0,75
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Lightweight concrete solid brick: V, NF** Brick data, Installation parameters, Characteristic resistance	**Annex C 91**

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

Table C 10.78.1: Brick data

Description of brick	771-3-017	V and Vbl
Type of brick		Lightweight concrete solid block Vbl
Bulk density $\rho \geq$ [kg/dm³]		2,0
Standard, approval/type-approval		EN 771-3:2011+A1:2015
Producer of brick		e.g. Bisophon V Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement) [mm]		≥ 3DF (≥ 240x175x113)
Minimum thickness of member h_{min} = [mm]		240

Table C 10.78.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		90 / 180
Minimum edge distance	$c_{min} \geq$	[mm]	45

Table C 10.78.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside /Reveal
Overall plastic anchor embedment depth	$h_{nom} \geq$ [mm]		**70**
Mean compressive strength according to EN 771			
Lightweight concrete solid block V and Vbl, ≥ 25,12 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	6,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	5,0
Lightweight concrete solid block V and Vbl, ≥ 25,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	6,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	5,0
Lightweight concrete solid block V and Vbl, ≥ 20,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	5,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	4,0
Lightweight concrete solid block V and Vbl, ≥ 15,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	3,0
Lightweight concrete solid block V and Vbl, ≥ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,5
Lightweight concrete solid block V and Vbl, ≥ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 92**
Performances **Lightweight concrete solid brick: V and Vbl, 3DF** Brick data, Installation parameters, Characteristic resistance	

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Base material solid masonry, Lightweight concrete solid block: V P 2,0 - 0,55

Table C 10.79.1: Brick data

Description of brick	771-3-032		V P 2,0 - 0,55
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$	[kg/dm³]	0,65
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	$\geq$ 5DF ($\geq$ 123x300x248)
Minimum thickness of member	$h_{min} =$	[mm]	123

Table C 10.79.2: Installation parameters

Anchor size			8	
Installation site[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		[-]	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	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	50	100

Table C 10.79.3: Characteristic resistance F_{Rk}[7)8)] in [kN] for single anchor

Anchor size			8	
Installation site[6]			Reveal	
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**70**	
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771				
Lightweight concrete solid block	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	2,0
V P 2,0 - 0,55, $\geq$ 2,95 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	2,0
Lightweight concrete solid block	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,5
V P 2,0 - 0,55, $\geq$ 2,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,5
Lightweight concrete solid block	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,5
V P 2,0 - 0,55, $\geq$ 2,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Lightweight concrete solid block: V P 2,0 - 0,55** Brick data, Installation parameters, Characteristic resistance	**Annex C 93**

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Base material solid masonry, Lightweight concrete solid block: V P 4,0 - 0,65

Table C 10.80.1: Brick data

Description of brick		771-3-033	V P 4,0 - 0,65
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$ [kg/dm³]		0,8
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)	[mm]		$\geq$ 5DF ($\geq$ 123x300x248)
Minimum thickness of member	h_{min} = [mm]		300 (Reveal = 123)

Table C 10.80.2: Installation parameters

Anchor size			8			10
Installation site[6]			Inside / Outside	Reveal	Reveal	Inside / Outside
Drill hole diameter	d_0 =	[mm]	8			10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45			10,45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80			80
Drill method		[-]	Hammer drilling			Hammer drilling
Overall plastic anchor embedment depth	h_{nom} =	[mm]	70			70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5			10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200/250	100/250	200/250	200/250
Minimum edge distance	$c_{min} \geq$	[mm]	100	50	100	100

Table C 10.80.3: Characteristic resistance F_{Rk}[1][7][8] in [kN] for single anchor

Anchor size			8			10
Installation site[6]			Inside / Outside	Reveal	Reveal	Inside / Outside
Overall plastic anchor embedment depth	h_{nom} =	[mm]	**70**			**70**
Characteristic resistance for single anchor		[kN]	F_{Rk}[1]	F_{Rk}[7]	F_{Rk}[7]	F_{Rk}[1]
Mean compressive strength according to EN 771						
Lightweight concrete solid block V P 4,0 - 0,65, $\geq$ 5,09 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	1,5	4,0	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5	4,0	2,0
Lightweight concrete solid block V P 4,0 - 0,65, $\geq$ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	1,5	4,0	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5	4,0	2,0
Lightweight concrete solid block V P 4,0 - 0,65, $\geq$ 2,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	0,9	2,0	1,2
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75	0,9	2,0	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

**Performances
Lightweight concrete solid block: V P 4,0 - 0,65**
Brick data, Installation parameters, Characteristic resistance

Annex C 94

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Base material solid masonry, Lightweight concrete solid block: V 6 - 0,80

Table C 10.81.1: Brick data

Description of brick		771-3-035	V 6 - 0,80
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$	[kg/dm³]	0,9
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	$\geq$ 5DF ($\geq$ 123x300x248)
Minimum thickness of member	$h_{min} =$	[mm]	300 (Reveal = 123)

Table C 10.81.2: Installation parameters

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	Reveal
Drill hole diameter	$d_0 =$	[mm]	8		
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45		
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80		
Drill method		[-]	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		
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	100 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	50	100

Table C 10.81.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8		
Installation site[6]			Inside / Outside	Reveal	Reveal
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	70		
Characteristic resistance for single anchor		[kN]	F_{Rk}[1]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771					
Concrete solid block V 6 - 0,80, $\geq$ 4,17 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	1,5	3,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5	3,0
Concrete solid block V 6 - 0,80, $\geq$ 2,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	0,9	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	0,9	2,0
Concrete solid block V 6 - 0,80, $\geq$ 2,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	0,6	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75	0,6	1,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 95**
Performances **Lightweight concrete solid block: V 6 - 0,80** Brick data, Installation parameters, Characteristic resistance	

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Base material solid masonry, Lightweight concrete solid block: Vbl

Table C 10.82.1: Brick data

Description of brick		LAC2	**Vbl**
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$	[kg/dm³]	0,6
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Liapor Massivwand LAC2 Liapor GmbH & Co, KG D-91352 Hallerndorf
Format (measurement)		[mm]	$\geq$ 24DF ($\geq$ 500x365x238)
Minimum thickness of member	$h_{min} =$	[mm]	365

Table C 10.82.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	60 / 60	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.82.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Lightweight concrete solid block Vbl, $\geq$ 4,24 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,0	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,5	1,5
Lightweight concrete solid block Vbl, $\geq$ 2,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,2	1,2
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,9	0,9
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Lightweight concrete solid block: Vbl** Brick data, Installation parameters, Characteristic resistance	**Annex C 96**

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Base material solid masonry, Lightweight concrete solid block: Vbl

Table C 10.83.1: Brick data

Description of brick		771-3-012	**Vbl**
Type of brick			Lightweight concrete solid block
Bulk density	$\rho \geq$ [kg/dm³]		0,65
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Liapor Compact von: Liapor GmbH & Co. KG D-91352 Hallerndorf	e.g. Meier Betonwerke GmbH Zur Schanze 2 D-92283 Lauterhofen
Format (measurement)	[mm]		$\geq$ 16DF ($\geq$ 500x240x240)
Minimum thickness of member	h_{min} = [mm]		240

Inside / Outside
see Annex C 3
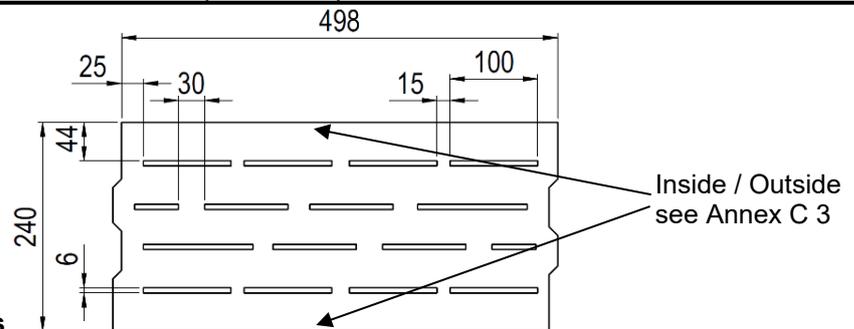
Table C 10.83.2: Installation parameters

Anchor size			**8**
Installation site[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} =	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$		100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.83.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	h_{nom} =	[mm]	**70**
Mean compressive strength according to EN 771			
Lightweight concrete solid block	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2
Vbl, ≥ 3,0 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9
Lightweight concrete solid block	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9
Vbl, ≥ 2,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 97

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Base material solid masonry, Concrete solid block: Vbn

Table C 10.84.1: Brick data

Description of brick		LC16/18	**Vbn**
Type of brick			Concrete solid block
Bulk density	$\rho \geq$	[kg/dm³]	1,4
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Liapor Elementwand LC16/18 von: Liapor GmbH & Co. KG D-91352 Hallerndorf
Format (measurement)		[mm]	$\geq$ 12DF (500x175x238)
Minimum thickness of member	$h_{min} =$	[mm]	175

Table C 10.84.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.84.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Concrete solid block Vbn, $\geq$ 14,7 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,5	4,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	3,5	4,0
Concrete solid block Vbn, $\geq$ 12,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,0	3,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	3,0	3,5
Concrete solid block Vbn, $\geq$ 10,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,5	2,5
Concrete solid block Vbn, $\geq$ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	2,0
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances Concrete solid block: Vbn Brick data, Installation parameters, Characteristic resistance	**Annex C 98**

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

Table C 10.85.1: Brick data

Description of brick		771-3-002	**1K Hbl**
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$ [kg/dm³]		1,2
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Stark Betonwerk GmbH & Co. KG D-74547 Untermünkheim-Kupfer
Format (measurement)	[mm]		12DF (490x175x238)
Minimum thickness of member	$h_{min} =$ [mm]		175
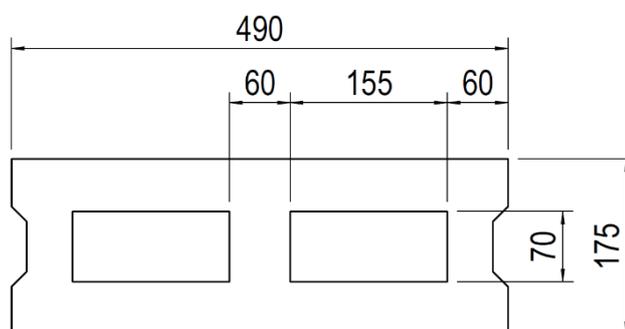
Table C 10.85.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.85.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Hollow brick lightweight concrete	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,5
1K Hbl, ≥ 3,79 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	2,0
Hollow brick lightweight concrete	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	1,5
1K Hbl, ≥ 2,5 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	1,2
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick lightweight concrete: 1K Hbl** Brick data, Installation parameters, Characteristic resistance	**Annex C 99**

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

Table C 10.86.1: Brick data

Description of brick		771-3-005	3K Hbl
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm³]	0,7
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Heinzmann Baustoffe GmbH, Liapor GmbH & Co. KG
Format (measurement)		[mm]	16DF (495x240x240)

Inside / Outside
Reveal
see Annex C 3
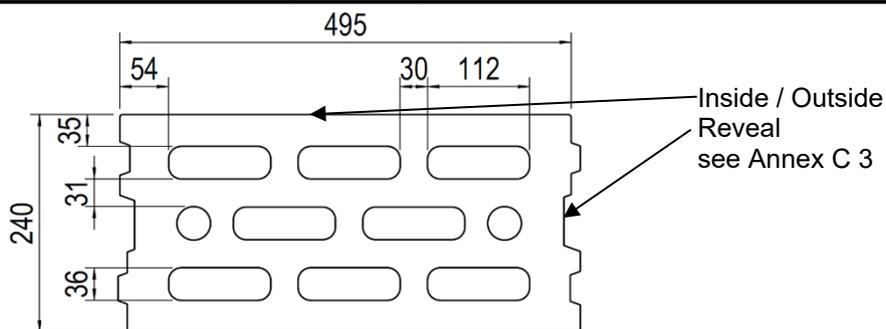
Table C 10.86.2: Installation parameters

Anchor size			8		10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 250	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	50	100

Table C 10.86.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8		10
Installation site[6]			Inside / Outside	Reveal	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**		**70**
Mean compressive strength according to EN 771					
Hollow brick lightweight concrete 3K Hbl, ≥ 4,91 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,5	2,0	1,5
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,2	2,0	0,9
Hollow brick lightweight concrete 3K Hbl, ≥ 2,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9	0,9	0,75
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6	0,9	0,6
Partial safety factor	γ_{Mm}[2)]	[-]	2,5		

Footnotes see Annex C 3

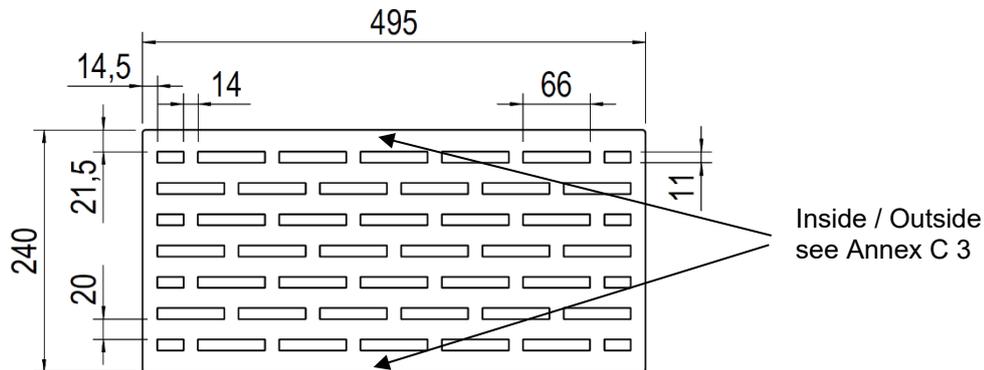
Würth Plastic Anchor W-UR / SHARK UR

Performances **Hollow brick lightweight concrete: 3K Hbl** Brick data, Installation parameters, Characteristic resistance	**Annex C 100**

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

Table C 10.87.1: Brick data

Description of brick		771-3-006	**Liapor-Super-K**
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm³]	0,8
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Liapor GmbH & Co, KG D-91352 Hallerndorf
Format (measurement)		[mm]	16DF (495x240x240)

Inside / Outside
see Annex C 3

Table C 10.87.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.87.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Hollow brick lightweight concrete Liapor-Super-K, ≥ 4,91 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	1,5	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,2	1,2
Hollow brick lightweight concrete Liapor-Super-K, ≥ 2,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,75	0,9
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,6	0,6
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

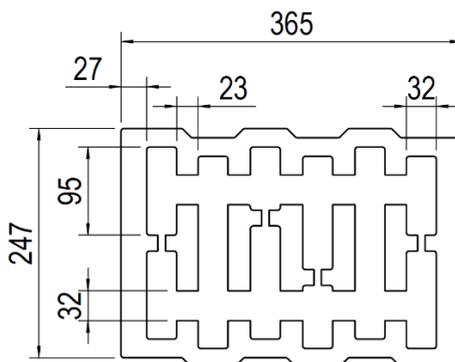Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 101

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

Table C 10.88.1: Brick data

Description of brick		771-3-018	Liapor PLANstein-SL-PLUS Hbl 2
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm³]	0,55
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Liapor GmbH & Co. KG E. KNOBEL GmbH & Co. KG
Format (measurement)		[mm]	12DF (245x365x248)

Table C 10.88.2: Installation parameters

Anchor size			8	10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.88.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8	10
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Liapor PLANstein-SL-PLUS	$F_{Rk, 30°C}$[3)] / $_{50°C}$[4)]	[kN]	0,9	0,75
Hbl, ≥ 2,16 N/mm²	$F_{Rk, 50°C}$[3)] / $_{80°C}$[4)]	[kN]	0,75	0,5
Liapor PLANstein-SL-PLUS	$F_{Rk, 30°C}$[3)] / $_{50°C}$[4)]	[kN]	0,9	0,6
Hbl, ≥ 2,0 N/mm²	$F_{Rk, 50°C}$[3)] / $_{80°C}$[4)]	[kN]	0,6	0,5
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick lightweight concrete: Liapor PLANstein-SL-PLUS Hbl 2** Brick data, Installation parameters, Characteristic resistance	**Annex C 102**

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

Table C 10.89.1: Brick data

Description of brick		771-3-020	Liapor PLANstein-SL-PLUS Hbl 6
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$ [kg/dm³]		0,9
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Liapor GmbH & Co. KG E. KNOBEL GmbH & Co. KG
Format (measurement)	[mm]		12DF (245x365x248)

Table C 10.89.2: Installation parameters

Anchor size			8		10
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250	200 / 250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100	100

Table C 10.89.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8		10
Installation site[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}[7]	F_{Rk}[1]
Mean compressive strength according to EN 771					
Liapor PLANstein-SL-PLUS Hbl, ≥ 6,63 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5	4,0	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	4,0	2,5
Liapor PLANstein-SL-PLUS Hbl, ≥ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	3,0	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	3,0	1,5
Liapor PLANstein-SL-PLUS Hbl, ≥ 2,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	1,5	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,75	1,5	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

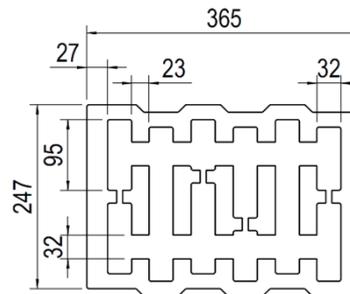**Würth Plastic Anchor W-UR / SHARK UR**

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

Annex C 103

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

Table C 10.90.1: 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/type-approval			EN 771-3:2011+A1:2015
Producer of brick			e.g. Stark Betonwerk GmbH & Co. KG D-74547 Untermünkheim-Kupfer
Format (measurement)	[mm]		12DF (365x240x248)

Inside / Outside
Reveal
see Annex C 3
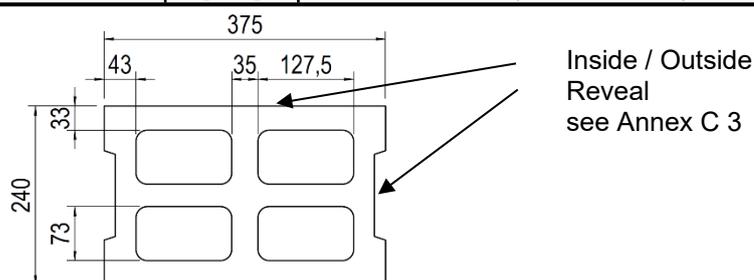
Table C 10.90.2: Installation parameters

Anchor size			8		10
Installation site[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		
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100/100	160/250	160/250	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	80	80	100

Table C 10.90.3: Characteristic resistance F_{Rk}[1)7)8] in [kN] for single anchor

Anchor size			8			10
Installation site[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]
Mean compressive strength according to EN 771						
Hollow brick concrete 2K Hbn, ≥ 8,4 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5	1,5	2,5	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	1,2	2,5	2,0
Hollow brick concrete 2K Hbn, ≥ 7,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	1,5	2,5	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0	0,9	2,5	1,5
Hollow brick concrete 2K Hbn, ≥ 5,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	0,9	2,5	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	0,6	2,5	1,2
Hollow brick concrete 2K Hbn, ≥ 2,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	0,5	1,5	0,6
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	0,4	1,5	0,6
Partial safety factor	γ_{Mm}[2]	[-]	2,5			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 104

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

Table C 10.91.1: 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/type-approval			-
Producer of brick			Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co. Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	15DF (360x300x250)
Minimum thickness of member	$h_{min} =$	[mm]	300
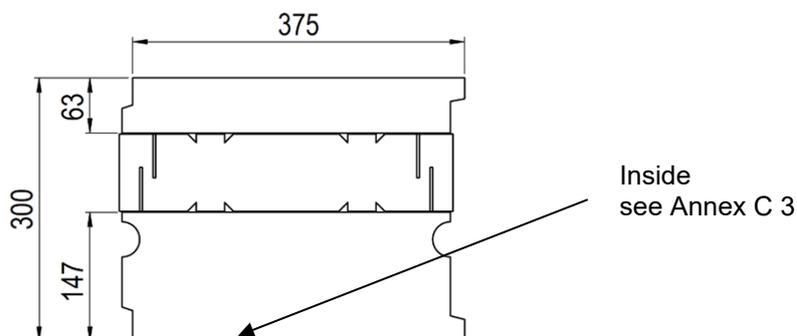
Inside
see Annex C 3

Table C 10.91.2: Installation parameters

Anchor size			**8**
Installation site[6]			Inside
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.91.3: Characteristic resistance F_{Rk}[1)8] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Gisoton WärmeDämmBlock,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	2,0
≥ 4,7 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,5
Gisoton WärmeDämmBlock,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,2
≥ 2,5 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,9
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5

Footnotes see Annex C 3

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

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

Annex C 105

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

Table C 10.92.1: Brick data

Description of brick	771-3-037		GisoPLAN therm 25/10
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm³]	1,3
Standard, approval/type-approval			Z-17.1-672:2021-09
Producer of brick			Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co, Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	6DF (300x150x248)
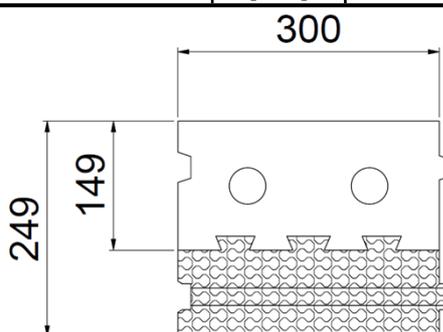
Table C 10.92.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	150 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	75

Table C 10.92.3: Characteristic resistance F_{Rk}[7][8] in [kN] for single anchor

Anchor size			8
Installation site[6]			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]
Mean compressive strength according to EN 771			
GisoPLAN therm 25/10, ≥ 7,95 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	2,5
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	2,5
GisoPLAN therm 25/10, ≥ 7,5 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	2,5
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	2,5
GisoPLAN therm 25/10, ≥ 5,0 N/mm²	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,5
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,5
Partial safety factor	$\gamma_{Mm}{}^{2)}$	[-]	2,5

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick lightweight concrete: GisoPLAN therm 25/10** Brick data, Installation parameters, Characteristic resistance	**Annex C 106**

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

Table C 10.93.1: Brick data

Description of brick		771-3-038	**GISOTON Thermo-Schallstein**
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm³]	0,55
Standard, approval/type-approval			-
Producer of brick			Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co, Hochstraße 2 D-88317 Aichstetten
Format (measurement)		[mm]	12DF (375x249x248)
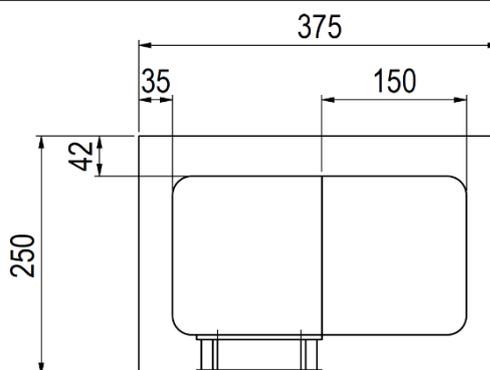
Table C 10.93.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	160 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	80

Table C 10.93.3: Characteristic resistance F_{Rk}[7][8] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Characteristic resistance for single anchor		[kN]	$\mathbf{F_{Rk}}$[7]
Mean compressive strength according to EN 771			
GISOTON Thermo-Schallstein, ≥ 3,61 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	3,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	3,5
GISOTON Thermo-Schallstein, ≥ 2,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick lightweight concrete: GISOTON Thermo-Schallstein** Brick data, Installation parameters, Characteristic resistance	**Annex C 107**

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

Table C 10.94.1: Brick data

Description of brick	771-3-010 771-3-036	**Gisoton Thermo Schall**
Type of brick		Hollow brick lightweight concrete
Bulk density $\rho \geq$ [kg/dm³]		0,45
Standard, approval/type-approval		-
Producer of brick		Gisoton Wandsysteme Baustoffwerke Gebhart & Söhne GmbH & Co. Hochstraße 2 D-88317 Aichstetten
Format (measurement) [mm]		21DF (500x300x250)
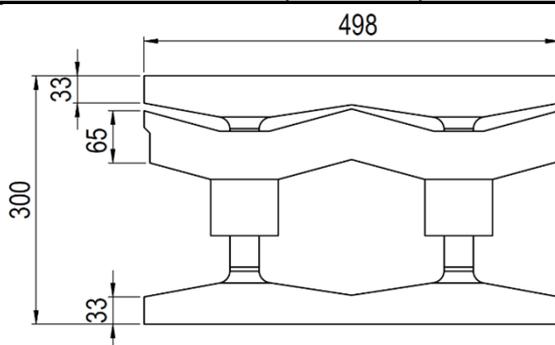
Table C 10.94.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.94.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Gisoton Thermo Schall, $\geq$ 2,54 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,0	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,2	1,5
Gisoton Thermo Schall, $\geq$ 2,5 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	2,0	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	1,2	1,5
Gisoton Thermo Schall, $\geq$ 1,8 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	[9)]	2,0
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	[9)]	1,5
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3
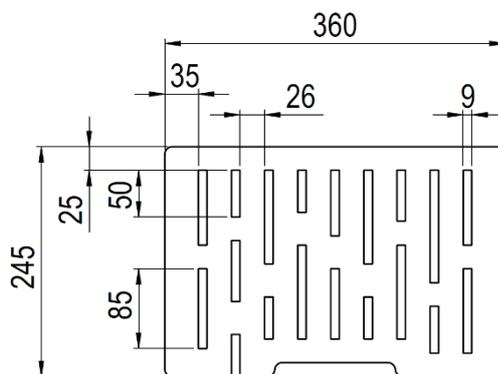
Würth Plastic Anchor W-UR / SHARK UR	
Performances Hollow brick lightweight concrete: Gisoton Thermo Schall Brick data, Installation parameters, Characteristic resistance	**Annex C 108**

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Base material hollow masonry, Hollow brick lightweight concrete: Bisoplan 09 Super 1,6-0,4

Table C 10.95.1: Brick data

Description of brick		771-3-029	**Bisoplan 09 Super 1,6-0,4**
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm³]	0,65
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	12DF (247x365x249)

Table C 10.95.2: Installation parameters

Anchor size			**8**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.95.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Bisoplan 09 Super 1,6-0,4,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6
≥ 1,80 N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5

Footnotes see Annex C 3

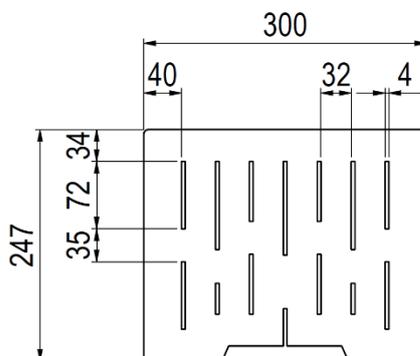| **Würth Plastic Anchor W-UR / SHARK UR**	
Performances **Hollow brick lightweight concrete: Bisoplan 09 Super 1,6-0,4** Brick data, Installation parameters, Characteristic resistance	**Annex C 109**

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Base material hollow masonry, Hollow brick lightweight concrete: Bisoplan 10 Hbl-P 2,0-0,45

Table C 10.96.1: Brick data

Description of brick		771-3-034	**Bisoplan 10 Hbl-P 2,0-0,45**
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm³]	0,6
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	10DF (247x300x249)

Table C 10.96.2: Installation parameters

Anchor size			**8**
Installation site[6]			Inside / Outside
Drill hole diameter	$d_0 =$	[mm]	80
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80
Drill method		[-]	Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	200 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.96.3: Characteristic resistance F_{Rk}[1)5)8)] in [kN] for single anchor

Anchor size			**8**
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Bisoplan 10 Hbl-P 2,0-0,45, ≥ 2,03 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,6
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,4
Bisoplan 10 Hbl-P 2,0-0,45, ≥ 2,0 N/mm²	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,6
	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,4
Partial safety factor	γ_{Mm}[2)]	[-]	2,5

Footnotes see Annex C 3

|	
Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick lightweight concrete: Bisoplan 10 Hbl-P 2,0-0,45** Brick data, Installation parameters, Characteristic resistance	**Annex C 110**

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Base material hollow masonry, Hollow brick lightweight concrete: Bisomark^{TEC}

Table C 10.97.1: Brick data

Description of brick	771-3-015	Bisomark^{TEC}
Type of brick		Hollow brick lightweight concrete
Bulk density $\rho \geq$ [kg/dm³]		0,7
Standard, approval/type-approval		EN 771-3:2011+A1:2015
Producer of brick		Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement) [mm]		20DF (497x300x249)

Inside / Outside see Annex C 3
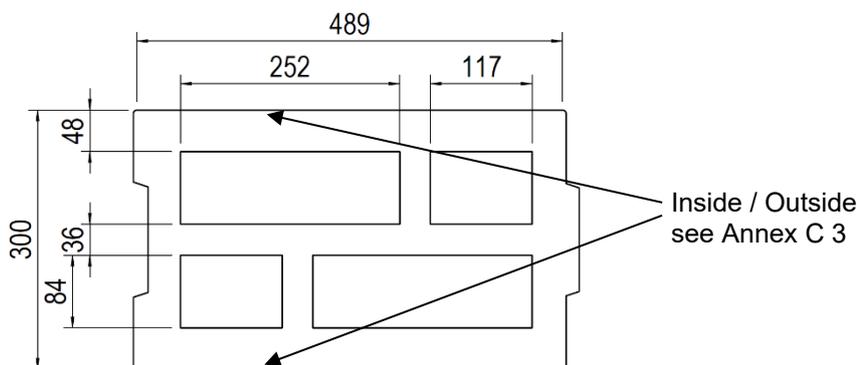
Table C 10.97.2: Installation parameters

Anchor size			8
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100

Table C 10.97.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			8
Installation site[6]			Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Mean compressive strength according to EN 771			
Bisomark^{TEC},	$F_{Rk, 30°C3) / 50°C4)}$	[kN]	1,5
≥ 3,58 N/mm²	$F_{Rk, 50°C3) / 80°C4)}$	[kN]	1,2
Bisomark^{TEC},	$F_{Rk, 30°C3) / 50°C4)}$	[kN]	0,9
≥ 2,5 N/mm²	$F_{Rk, 50°C3) / 80°C4)}$	[kN]	0,75
Partial safety factor	γ_{Mm}[2)]	[-]	2,5

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

Performances
Hollow brick lightweight concrete: Bisomark^{TEC}
Brick data, Installation parameters, Characteristic resistance

Annex C 111

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

Table C 10.98.1: Brick data

Description of brick		771-3-030	**Bisotherm Hbl-P 4.0 – 0.50**
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$	[kg/dm³]	0,55
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)		[mm]	12DF (247x365x249)

Table C 10.98.2: Installation parameters

Anchor size			**8**	**10**
Installation site[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
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	120 / 240	120 / 240
Minimum edge distance	$c_{min} \geq$	[mm]	60	60

Table C 10.98.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			**8**	**10**
Installation site[6]			Inside / Outside	Inside / Outside
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Mean compressive strength according to EN 771				
Bisotherm Hbl-P 4.0 – 0.50,	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9	0,9
≥ 2,3 N/mm²	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,9	0,9
Bisotherm Hbl-P 4.0 – 0.50,	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,9	0,9
≥ 2,0 N/mm²	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,9	0,9
Partial safety factor	γ_{Mm}[2)]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

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

Annex C 112

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

Table C 10.99.1: Brick data

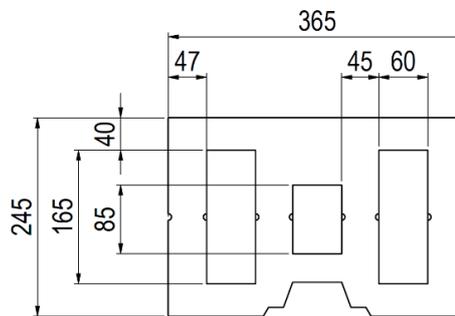| Description of brick		771-3-031	Bisotherm Bisomark plus 4/06 (special shaped)
Type of brick			Hollow brick lightweight concrete
Bulk density	$\rho \geq$ [kg/dm³]		0,65
Standard, approval/type-approval			EN 771-3:2011+A1:2015
Producer of brick			Bisotherm GmbH Eisenbahnstraße 12 D-56218 Mühlheim-Kärlich
Format (measurement)	[mm]		12DF (247x365x249)

Table C 10.99.2: Installation parameters

Anchor size			8		10
Installation site[6]			Reveal		Reveal
Drill hole diameter	$d_0 =$	[mm]	8		10
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45		10,45
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80		80
Drill method		[-]	Rotary drilling		Rotary drilling
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70		70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5		10,5
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	150 / 250	250 / 250	180 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	75	130	90

Table C 10.99.3: Characteristic resistance F_{Rk}[7)8)] in [kN] for single anchor

Anchor size			8		10
Installation site[6]			Reveal		Reveal
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**		**70**
Characteristic resistance for single anchor		[kN]	$\mathbf{F_{Rk}}$[7]	$\mathbf{F_{Rk}}$[7]	$\mathbf{F_{Rk}}$[7]
Mean compressive strength according to EN 771					
Bisoterm Bisomark plus 4/06, ≥ 4,51 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,9	3,0	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,9	3,0	2,5
Bisoterm Bisomark plus 4/06, ≥ 2,5 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	1,5	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	1,5	1,5
Bisoterm Bisomark plus 4/06, ≥ 2,0 N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,5	1,5	0,9
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5	1,5	0,9
Partial safety factor	γ_{Mm}[2]	[-]	2,5		

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

Performances **Hollow brick lightweight concrete: Bisoterm Bisomark plus 4/06 (special shaped)** Brick data, Installation parameters, Characteristic resistance	**Annex C 113**

Base material hollow masonry, Hollow brick lightweight concrete: SEPA Blocs Creux

Table C 10.100.1: 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/type-approval			EN 771-3:2011+A1:2015
Producer of brick			SEPA-Alsace Groupe (France)
Format (measurement)	[mm]		11DF (500x200x200)
Minimum thickness of member	$h_{min} =$ [mm]		200

Inside / Outside
see Annex C 3
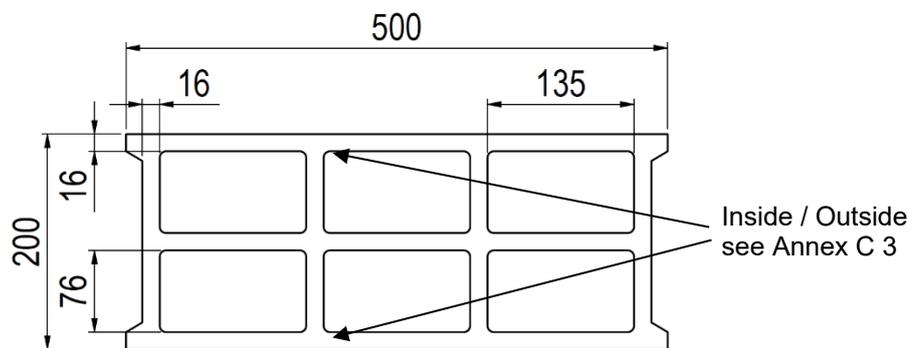
Table C 10.100.2: Installation parameters

Anchor size			10	
Installation site[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 / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	100 / 100	100 / 100
Minimum edge distance	$c_{min} \geq$	[mm]	100	100

Table C 10.100.3: Characteristic resistance F_{Rk}[1)5)8] in [kN] for single anchor

Anchor size			10	
Installation site[6]			Inside / Outside	
Overall plastic anchor embedment depth	h_{nom}	[mm]	**50 mm ≤ h_{nom} ≤ 70 mm[5]**	
Mean compressive strength according to EN 771				
SEPA Blocs Creux,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	1,2	1,2
≥ 7,32 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,6	0,75
SEPA Blocs Creux,	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	0,75	0,75
≥ 5,0 N/mm²	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	0,5	0,5
Partial safety factor	$\gamma_{Mm}^{2)}$	[-]	2,5	

Footnotes see Annex C 3

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

Würth Plastic Anchor W-UR / SHARK UR	
Performances **Hollow brick lightweight concrete: SEPA Blocs Creux** Brick data, Installation parameters, Characteristic resistance	**Annex C 114**

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Base material solid masonry: Autoclaved Aerated Concrete

Table C 10.101.1: Brick data

Description of brick			Autoclaved Aerated Concrete
Type of brick			Blocks of autoclaved aerated concrete
Bulk density	$\rho \geq$	[kg/dm³]	0,3
Standard, approval/type-approval			EN 771-4:2015
Format (measurement)		[mm]	$\geq$ 499x100x249

Table C 10.101.2: Installation parameters

Anchor size			8			10			
Installation site[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 thickness of member	$h_{min} =$	[mm]	115	175		100	175		
Minimum edge distance	$c_{min} \geq$	[mm]	80	80	100	80	80	100	120

Table C 10.101.3: Characteristic resistance F_{Rk}[1] in [kN] for single anchor

Anchor size			8			10			
Installation site[6]			Inside / Outside / Reveal			Inside / Outside / Reveal			
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	**70**			**70**			
Mean compressive strength according to EN 771									
Autoclaved Aerated Concrete,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	1,5	2,5	[9]	1,5	2,5	3,0
$f_{cm,decl} \geq 7,0$ N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5	2,5	[9]	1,5	2,5	3,0
Autoclaved Aerated Concrete,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5	1,5	2,5	[9]	1,5	2,5	3,0
$f_{cm,decl} \geq 6,6$ N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5	2,5	[9]	1,5	2,5	3,0
Autoclaved Aerated Concrete,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	1,2	1,5	1,5	1,5	2,0	2,5
$f_{cm,decl} \geq 5,0$ N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	1,2	1,5	1,5	1,5	2,0	2,0
Autoclaved Aerated Concrete,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	0,6	0,6	0,9	0,9	1,2	1,2
$f_{cm,decl} \geq 2,5$ N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5	0,5	0,5	0,9	0,9	0,9	0,9
Autoclaved Aerated Concrete,	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,6	0,6	0,6	0,9	0,9	0,9	0,9
$f_{cm,decl} \geq 2,0$ N/mm²	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,5	0,5	0,5	0,75	0,75	0,75	0,75
Partial safety factor	γ_{MAAC}[2]	[-]	2,0			2,0			

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR	**Annex C 115**
Performances **Solid masonry: Blocks of Autoclaved Aerated Concrete** Brick data, Installation parameters, Characteristic resistance	

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Base Material: (Prefabricated) Reinforced components made of Autoclaved Aerated Concrete AAC

Table C 10.102.1: Brick data

Description			(Prefabricated) Reinforced components made of Autoclaved Aerated Concrete AAC
Bulk density	$\rho \geq$	[kg/dm³]	0,4
Standard, approval/type-approval			EN 12602:2016
Minimum thickness of member	$h_{min} =$	[mm]	175

Table C 10.102.2: Installation parameters

Anchor size			10	
Installation site[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 thickness of member	$h_{min} =$	[mm]	240	175
Minimum edge distance	$c_{min} \geq$		150	150

Table C 10.102.3: Characteristic resistance F_{Rk}[1)8)] in [kN] for single anchor

Anchor size			10	
Installation site[6]			Inside / Outside	
Overall plastic anchor embedment depth	$h_{nom} \geq$	[mm]	70	
Compressive strength according to EN 12602				
(Prefabricated) Reinforced AAC 6,0 $f_{ck} \geq 6{,}0$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5
(Prefabricated) Reinforced AAC 4,0 $f_{ck} \geq 4{,}0$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,0	2,0
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,5	1,5
(Prefabricated) Reinforced AAC 3,0 $f_{ck} \geq 3{,}0$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,2	[9]
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2	[9]
(Prefabricated) Reinforced AAC 2,0 $f_{ck} \geq 2{,}0$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,75	[9]
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,6	[9]
(Prefabricated) Reinforced AAC 1,5 $f_{ck} \geq 1{,}5$ N/mm²	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	0,4	[9]
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	0,3	[9]
Partial safety factor	γ_{MAAC}[2]	[-]	2,0	

Footnotes see Annex C 3

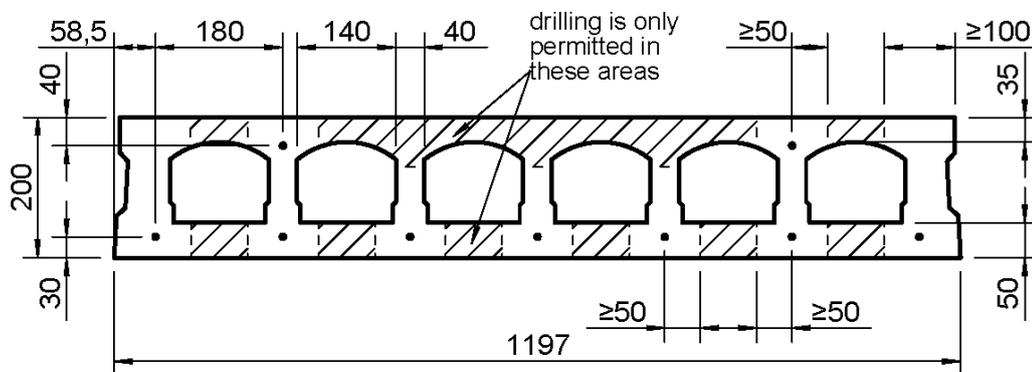|	
Würth Plastic Anchor W-UR / SHARK UR	
Performances **Base Material: (Prefabricated) Reinforced components of AAC** Brick data, Installation parameters, Characteristic resistance	**Annex C 116**

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Base material, Precast prestressed hollow core elements: VMM-L SCD 20

Table C 10.103.1: Brick data

Description of brick			VMM-L SCD 20
Type			Precast prestressed hollow core elements
Bulk density	$\rho \geq$	[kg/dm³]	2,4
Standard, approval/type-approval			EN 1168:2005+A3:2011
Producer of brick			e.g. Ketonia GmbH Spannbeton-Fertigteilwerk Almesbach 4 D-92637 Weiden
Format (measurement)		[mm]	≥ 1200x800x200
Minimum thickness of member	$h_{min} =$	[mm]	200

Table C 10.103.2: Installation parameters

Anchor size			8
Installation site			top view / bottom view
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[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 10.103.3: Characteristic resistance F_{Rk}[1] in [kN] for single anchor

Anchor size			8
Installation site			top view / bottom view
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Precast prestressed hollow core elements VMM-L SCD 20, C45/55	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	1,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	1,2
Partial safety factor	γ_{Mc}[2]	[-]	1,8

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

**Performances
Precast prestressed hollow core elements: VMM-L SCD 20**
Brick data, Installation parameters, Characteristic resistance

Annex C 117

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DIBt

Base material, Precast prestressed hollow core elements: VMM-L EPD 32

Table C 10.104.1: Brick data

Description of brick			VMM-L EPD 32
Type			Precast prestressed hollow core elements
Bulk density	$\rho \geq$	[kg/dm³]	2,4
Standard, approval/type-approval			EN 1168:2005+A3:2011
Producer of brick			e.g. Ketonia GmbH Spannbeton-Fertigteilwerk Almesbach 4 D-92637 Weiden
Format (measurement)		[mm]	≥ 1200x800x320
Minimum thickness of member	$h_{min} =$	[mm]	320

Table C 10.104.2: Installation parameters

Anchor size			8
Installation site			Top view / bottom view
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[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 10.104.3: Characteristic resistance F_{Rk}[1) in [kN] for single anchor

Anchor size			8
Installation site			Top view / bottom view
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Precast prestressed hollow core elements VMM-L EPD 32, C45/55	$F_{Rk}, 30°C^{3)} / 50°C^{4)}$	[kN]	2,0
	$F_{Rk}, 50°C^{3)} / 80°C^{4)}$	[kN]	1,5
Partial safety factor	γ_{Mc}[2)	[-]	1,8

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

**Performances
Precast prestressed hollow core elements: VMM-L EPD 32**
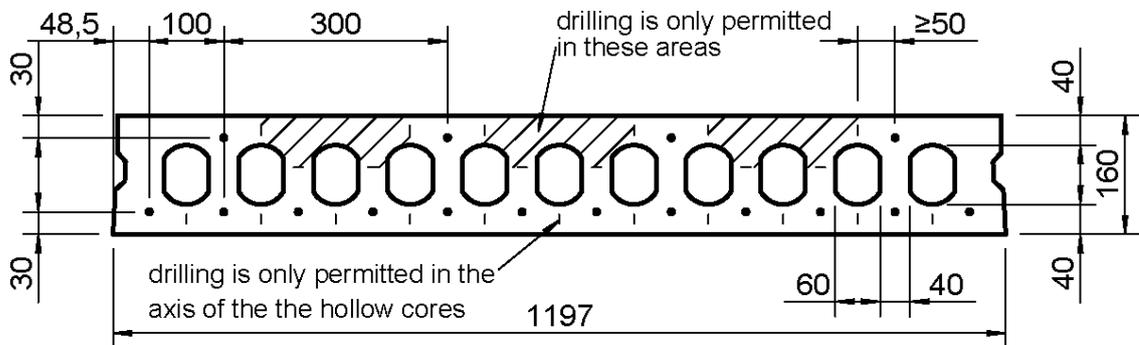Brick data, Installation parameters, Characteristic resistance

Annex C 118

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Base material, Precast prestressed hollow core elements: VMM VSD 16

Table C 10.105.1: Brick data

Description of brick			VMM VSD 16
Type			Precast prestressed hollow core elements
Bulk density	$\rho \geq$	[kg/dm³]	2,4
Standard, approval/type-approval			EN 1168:2005+A3:2011
Producer of brick			e.g. Ketonia GmbH Spannbeton-Fertigteilwerk Almesbach 4 D-92637 Weiden
Format (measurement)		[mm]	≥ 1200x400x160
Minimum thickness of member	$h_{min} =$	[mm]	160

Table C 10.105.2: Installation parameters

Anchor size			8
Installation site			Top view / bottom view
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[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 10.105.3: Characteristic resistance F_{Rk}[1] in [kN] for single anchor

Anchor size			8
Installation site			Top view / bottom view
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**
Precast prestressed hollow core elements VMM VSD 16, C45/55	F_{Rk}, 30°C[3] / 50°C[4]	[kN]	2,5
	F_{Rk}, 50°C[3] / 80°C[4]	[kN]	2,0
Partial safety factor	γ_{Mc}[2]	[-]	1,8

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

**Performances
Precast prestressed hollow core elements: VMM VSD 16**
Brick data, Installation parameters, Characteristic resistance

Annex C 119

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Base material masonry lintel: Rastersturz HLz

Table C 10.106.1: Brick data

Description of brick			Rastersturz HLz
Type of brick			Masonry lintel
Bulk density	$\rho \geq$	[kg/dm³]	1,6
Standard, approval/type-approval			EN 771-1:2011+A1:2015 Z-17.1-981:2024-06
Producer of brick			Ziegelwerk Turber GmbH Riedenburger Straße 25 85104 Pförring
Format (measurement)		[mm]	115x113x >250

Do not drill the rebar
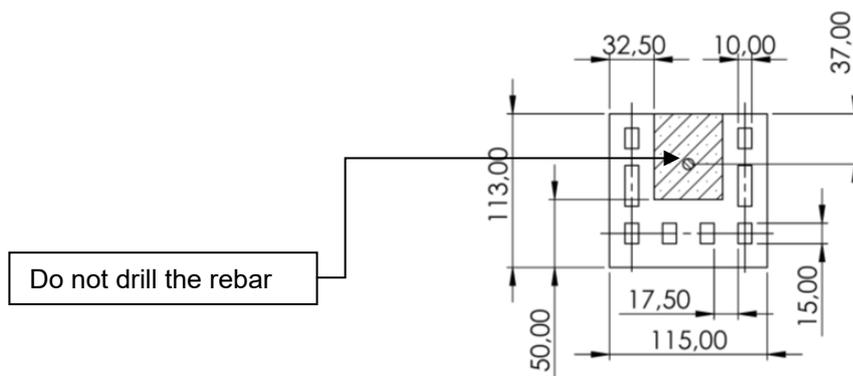
Table C 10.106.2: Installation parameters

Anchor size			8	
Installation site[6]			bottom view	
Drill hole diameter	$d_0 =$	[mm]	8	
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45	
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	60	80
Drill method		[-]	Hammer drilling	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	50	70
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	90 / 180	90 / 180
Minimum edge distance	$c_{min} \geq$	[mm]	45	45

Table C 10.106.3: Characteristic resistance F_{Rk}[1)7)8)] in [kN] for single anchor

Anchor size			8		8
Installation site[6]			bottom view		bottom view
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**50**		**70**
Characteristic resistance for single anchor		[kN]	F_{Rk}[1)]	F_{Rk}[7)]	F_{Rk}[1)]
Mean compressive strength according to EN 771					
Rastersturz HLz,	F_{Rk}, 30°C[3)] / 50°C[4)]	[kN]	0,6	1,2	2,0
≥ 7,5 N/mm²	F_{Rk}, 50°C[3)] / 80°C[4)]	[kN]	0,5	1,2	1,5
Partial safety factor	γ_{Mm}[2)]	[-]	2,5		

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

**Performances
Masonry lintel: Rastersturz HLz**

Brick data, Installation parameters, Characteristic resistance

Annex C 120

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Base material masonry lintel: Dämmsturz HLz

Table C 10.107.1: Brick data

Description of brick			Dämmsturz HLz
Type of brick			Masonry lintel
Bulk density	$\rho \geq$	[kg/dm³]	1,4
Standard, approval/type-approval			EN 771-1:2011+A1:2015 Z-17.1-981:2024-06
Producer of brick			Ziegelwerk Turber GmbH Riedenburger Straße 25 85104 Pförring
Format (measurement)		[mm]	1365x113x >365

Hammer drilling is permitted in the area made of concrete (c_{min} is to be considered)

Do not drill the rebar
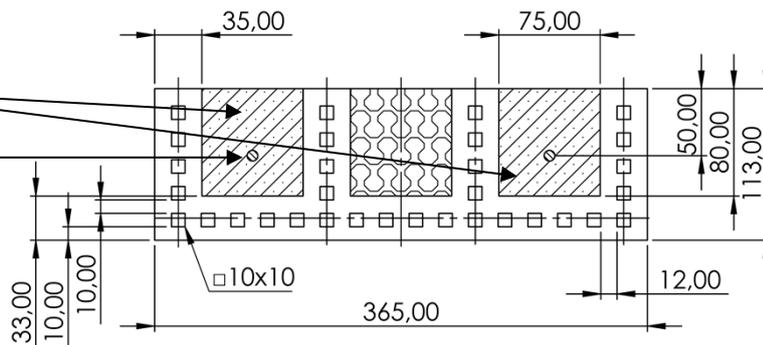
Table C 10.107.2: Installation parameters

Anchor size			8	
Installation site[6]			bottom view	
Drill hole diameter	$d_0 =$	[mm]	8	
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45	
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	80	
Drill method		[-]	Rotary drilling	
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	70	
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	8,5	
Spacing perpendicular / parallel to free edge	$s_{1,min}/s_{2,min}$	[mm]	130 / 250	250 / 250
Minimum edge distance	$c_{min} \geq$	[mm]	65	170

Table C 10.107.3: Characteristic resistance F_{Rk} [7)8)] in [kN] for single anchor

Anchor size			8	
Installation site[6]			bottom view	bottom view
Overall plastic anchor embedment depth	$h_{nom} =$	[mm]	**70**	**70**
Characteristic resistance for single anchor		[kN]	F_{Rk}[7]	F_{Rk}[7]
Mean compressive strength according to EN 771				
Dämmsturz HLz,	$F_{Rk}, 30°C$[3] $/ 50°C$[4]	[kN]	2,0	2,5
≥ 6,5 N/mm²	$F_{Rk}, 50°C$[3] $/ 80°C$[4]	[kN]	2,0	2,5
Dämmsturz HLz,	$F_{Rk}, 30°C$[3] $/ 50°C$[4]	[kN]	1,5	1,5
≥ 5,0 N/mm²	$F_{Rk}, 50°C$[3] $/ 80°C$[4]	[kN]	1,5	1,5
Partial safety factor	γ_{Mm}[2]	[-]	2,5	

Footnotes see Annex C 3

Würth Plastic Anchor W-UR / SHARK UR

**Performances
Masonry lintel: Dämmsturz HLz**
Brick data, Installation parameters, Characteristic resistance

Annex C 121