

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-15/0764
of 4 December 2015

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

BTI Universal Component Compound UVT Top for use in
masonry

Product family
to which the construction product belongs

Injection system for use in masonry

Manufacturer

BTI Befestigungstechnik GmbH & Co. KG
Salzstraße 51
74653 Ingelfingen
DEUTSCHLAND

Manufacturing plant

BTI Herstellwerk 1

This European Technical Assessment
contains

98 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

Guideline for European technical approval of "Metal
Injection Anchors for Use in Masonry", ETAG 029,
April 2013,
used as European Assessment Document (EAD)
according to Article 66 Paragraph 3 of Regulation (EU)
No 305/2011.

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Specific Part

1 Technical description of the product

The BTI Universal Component Compound UVT Top for masonry is a bonded anchor (injection type) consisting of a mortar cartridge with injection mortar UVT TOP, UVT TOP S and UVT TOP W, a perforated sieve sleeve and an anchor rod with hexagon nut and washer or an internal threaded rod in the range of M6 to M16. The steel elements are made of zinc coated steel, stainless steel or high corrosion resistant steel.

The anchor rod is placed into a drilled hole filled with injection mortar and is anchored via the bond between steel element, injection mortar and masonry and mechanical interlock.

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 anchor of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

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

3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic resistance for tension and shear loads	See Annex C 1 – C 75
Characteristic resistance for bending moments	See Annex C 76
Displacements under shear and tension loads	See Annex C 78
Reduction Factor for job site tests (β -Factor)	See Annex C 78
Edge distances and spacing	See Annex C 1 – C 75

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Anchorage satisfy requirements for Class A1
Resistance to fire	No performance assessed

3.3 Hygiene, health and the environment (BWR 3)

Regarding dangerous substances there may be requirements (e.g. transposed European legislation and national laws, regulations and administrative provisions) applicable to the products falling within the scope of this European Technical Assessment. In order to meet the provisions of Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

English translation prepared by DIBt

3.4 Safety in use (BWR 4)

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

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

In accordance with guideline for European technical approval ETAG 029, April 2013, used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011, the applicable European legal act is: [97/177/EC].

The system to be applied is: 1

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

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

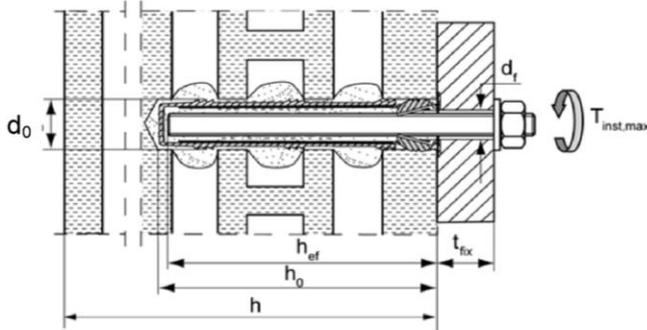
Issued in Berlin on 4 December 2015 by Deutsches Institut für Bautechnik

Uwe Bender
Head of Department

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Wittstock

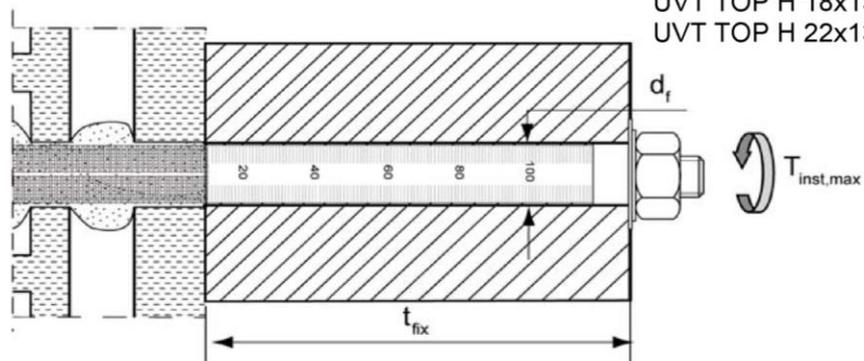
Installation conditions part 1

Threaded rods with perforated sleeve UVT TOP H; installation in perforated and solid brick masonry



Pre-positioned anchorage

- UVT TOP H 12x50
- UVT TOP H 12x85
- UVT TOP H 16x85
- UVT TOP H 16x130
- UVT TOP H 20x85
- UVT TOP H 20x130
- UVT TOP H 20x200

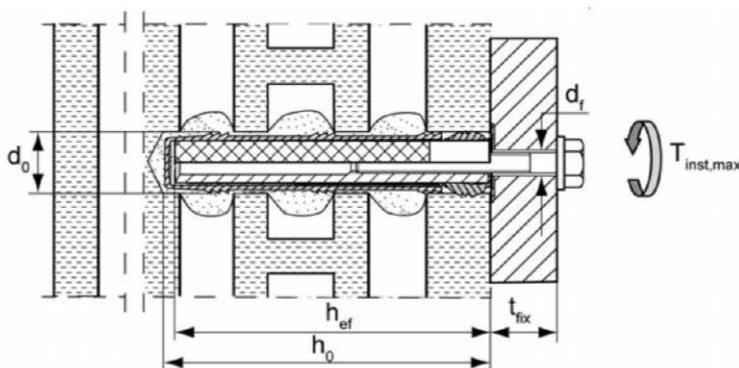


Push through anchorage

- UVT TOP H 18x130/200
- UVT TOP H 22x130/200

Internal threaded anchor UVT TOP E with perforated sleeve UVT TOP H; Installation in perforated and solid brick masonry

Pre-positioned anchorage



d_0 = nominal drill bit diameter

d_f = diameter of clearance hole in the fixture

$T_{inst,max}$ = maximum torque moment

h = thickness of masonry

h_{ef} = effective anchorage depth

h_0 = depth of drill hole

t_{fix} = thickness of fixture

BTI Universal Component Compound UVT TOP for masonry

Product description

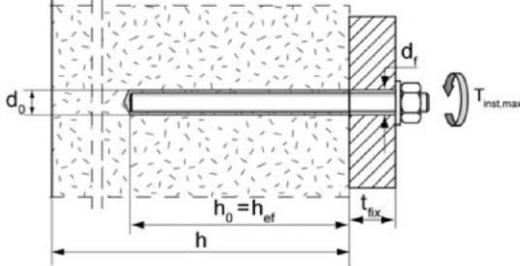
Installation conditions part 1, in perforated brick

Annex A 1

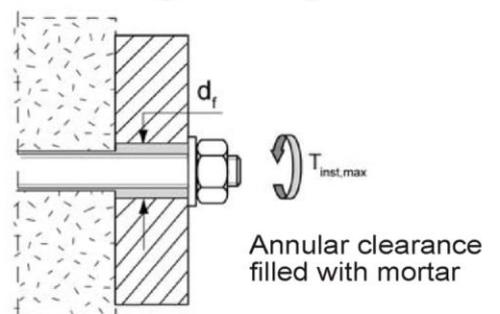
Installation conditions part 2

Threaded rods without perforated sleeve UVT TOP H; installation in solid brick masonry and autoclaved aerated concrete

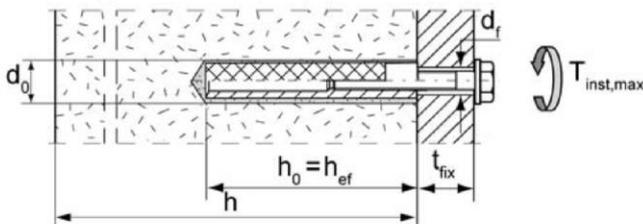
Pre-positioned anchorage



Push-through anchorage



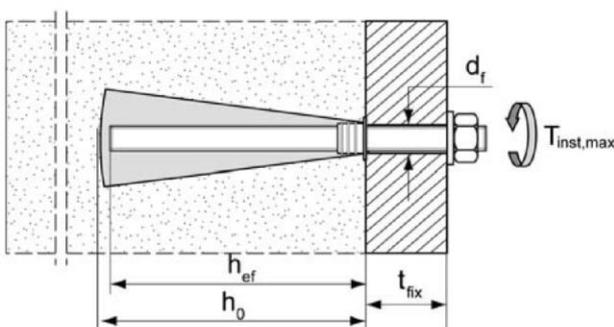
Internal threaded anchors UVT TOP E without perforated sleeve UVT TOP H; installation in solid brick masonry and autoclaved aerated concrete



Threaded rods and internal threaded anchors UVT TOP E without perforated sleeve UVT TOP H; installation in autoclaved aerated concrete (installation with special conic drill bit PBB)

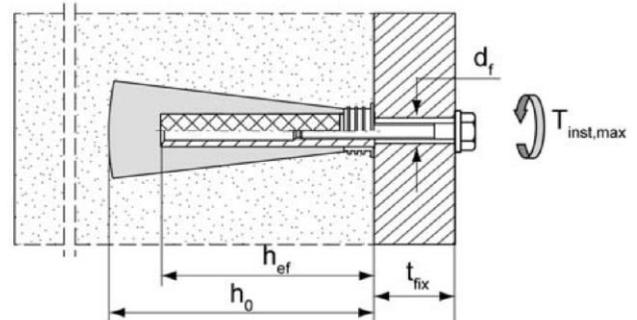
Threaded rods M8, M10, M12

Pre-positioned anchorage



Internal threaded anchor UVT TOP E 11x85 M6 and UVT TOP E 11x85 M8

Pre-positioned anchorage



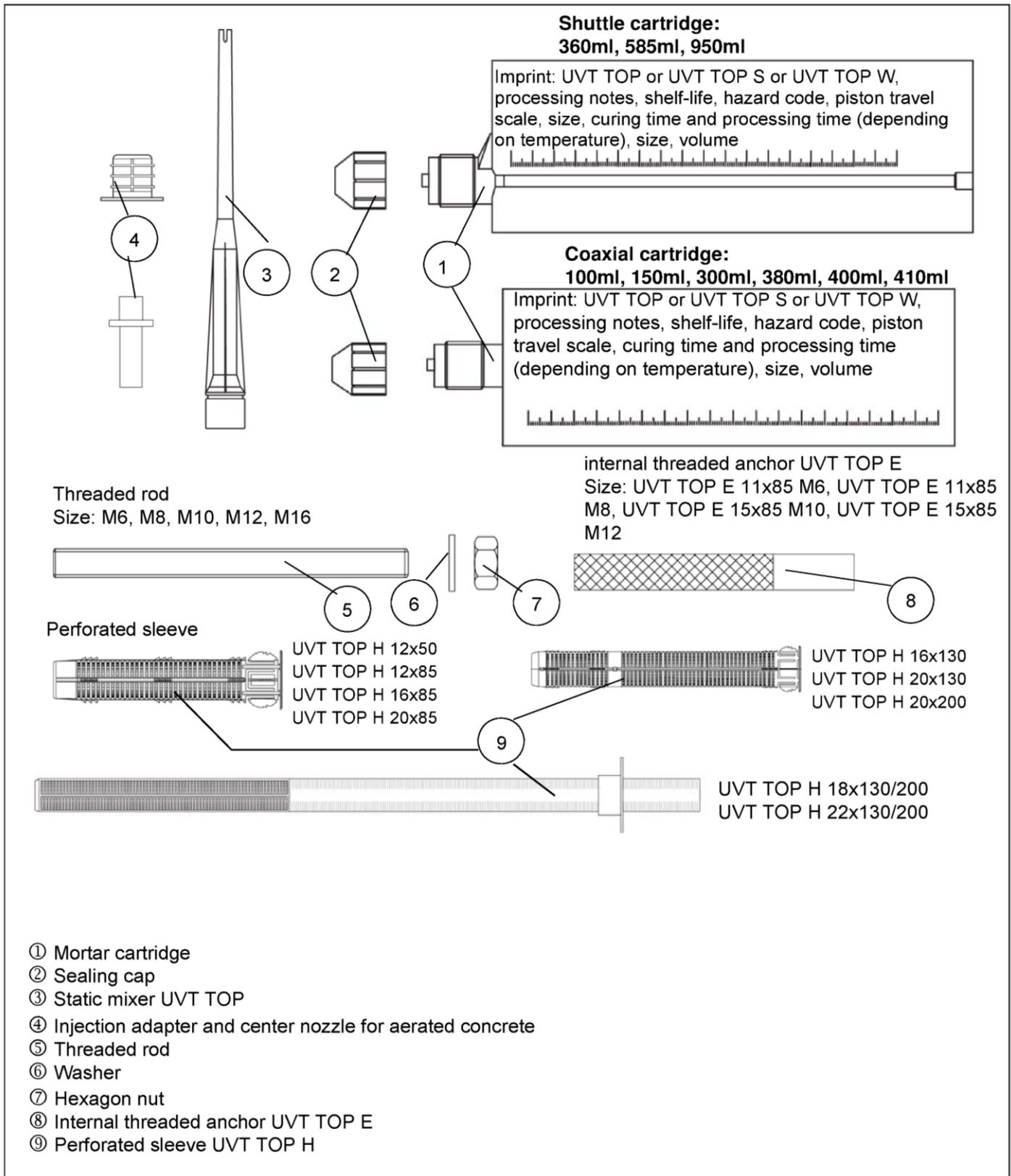
- d_0 = nominal drill bit diameter
- d_f = diameter of clearance hole in the fixture
- $T_{inst,max}$ = maximum torque moment
- h = thickness of masonry

- h_{ef} = effective anchorage depth
- h_0 = depth of drill hole
- t_{fix} = thickness of fixture

BTI Universal Component Compound UVT TOP for masonry

Product description
Installation conditions part 2, in solid bricks

Annex A 2



BTI Universal Component Compound UVT TOP for masonry

Product description
Product

Annex A 3

Table A1: Materials

Part	Designation	Material		
1	Mortar cartridge	Mortar, hardener; filler		
		Steel, zinc plated	Stainless steel A4	High corrosion-resistant steel C
5	Threaded rod	Property class 5.8 or 8.8; EN ISO 898-1: 2013 zinc plated $\geq 5\mu\text{m}$, EN ISO 4042:1999 A2K or hot-dip galvanised EN ISO 10684:2004 $f_{uk} \leq 1000 \text{ N/mm}^2$ $A_5 > 8\%$ fracture elongation	Property class 50, 70 or 80 EN ISO 3506:2009 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362; 1.4062 EN 10088-1:2014 $f_{uk} \leq 1000 \text{ N/mm}^2$ $A_5 > 8\%$ fracture elongation	Property class 50 or 80 EN ISO 3506:2009 or property class 70 with $f_{yk} = 560 \text{ N/mm}^2$ 1.4565; 1.4529 EN 10088-1:2014 $f_{uk} \leq 1000 \text{ N/mm}^2$ $A_5 > 8\%$ fracture elongation
6	Washer ISO 7089:2000	zinc plated $\geq 5\mu\text{m}$, EN ISO 4042:1999 A2K or hot-dip galvanised EN ISO 10684:2004	1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 EN 10088-1:2014	1.4565; 1.4529 EN 10088-1:2014
7	Hexagon nut	Property class 5 or 8; EN ISO 898-2:2013 zinc plated $\geq 5\mu\text{m}$, ISO 4042:1999 A2K or hot-dip galvanised ISO 10684:2004	Property class 50, 70 or 80 EN ISO 3506:2009 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 EN 10088-1:2014	Property class 50, 70 or 80 EN ISO 3506:2009 1.4565; 1.4529 EN 10088-1:2014
8	Internal threaded anchor UVT TOP E	Property class 5.8; EN 10277-1:2008-06 zinc plated $\geq 5\mu\text{m}$, ISO 4042:1999 A2K	Property class 70 EN ISO 3506:2009 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 EN 10088-1:2014	Property class 70 EN ISO 3506-1:2009 1.4565; 1.4529 EN 10088-1:2014
	Screw or threaded rod for internal threaded anchor UVT TOP E	Property class 5.8 or 8.8; EN ISO 898-1:2013 zinc plated $\geq 5\mu\text{m}$, ISO 4042:1999 A2K	Property class 70 EN ISO 3506:2009 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 EN 10088-1:2014	Property class 70 EN ISO 3506-1:2009 1.4565; 1.4529 EN 10088-1:2014
9	Perforated sleeve UVT TOP H	PP / PE		
BTI Universal Component Compound UVT TOP for masonry				Annex A 4
Product description Materials				

Specifications of intended use

Anchorage subject to:

- Static and quasi-static loads

Base materials:

- Solid brick masonry (Use category b) and autoclaved aerated concrete (Use category d), acc. to Annex B10, B11, B12

Note: The characteristic resistance is also valid for larger brick sizes and higher compressive strength of the masonry unit.

- Hollow brick masonry (use category c), according to Annex B10, B11
- Mortar strength class of the masonry M2,5 at minimum according to EN 998-2:2010
- For other bricks in solid masonry and in hollow or perforated masonry and autoclaved aerated concrete, the characteristic resistance of the sleeve may be determined by job site tests according to ETAG 029, Annex B under consideration of the β -factor according to Annex C78, Table C121

Temperature Range:

- **I:** From -40°C to +80°C (max. short term temperature +80°C and max. long term temperature +50°C)
- **II:** From -40°C to +120°C (max. short term temperature +120°C and max. long term temperature +72°C)

Use conditions (Environmental conditions):

- Dry and wet structure (regarding injection mortar)
- Structures subject to dry internal conditions exists
(zinc coated steel, stainless steel or high corrosion resistant steel)
- Structures subject to external atmospheric exposure including industrial and marine environment or exposure to permanently damp internal condition, if no particular aggressive conditions exist exist
(stainless steel or high corrosion resistant steel)
- Structures subject to external atmospheric exposure and to permanently damp internal condition, if other particular aggressive conditions exist (high corrosion resistant steel)

Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used)

BTI Universal Component Compound UVT TOP for masonry

Intended Use
Specifications

Annex B 1

Specifications of intended use

Design:

- The anchorage s have to be designed in accordance with the ETAG 029, Annex C, Design method A under the responsibility of an engineer experienced in anchorages and masonry work

Applies to all bricks, if no other values are specified:

$$N_{Rk} = N_{Rk,s} = N_{Rk,p} = N_{Rk,b} = N_{Rk,pb}$$

$$V_{Rk} = V_{Rk,s} = V_{Rk,b} = V_{Rk,c} = V_{Rk,pb}$$

- Verifiable calculation notes and drawings have to be prepared taking account the relevant masonry in the region of the anchorage , the loads to be transmitted and their transmission to the supports of the structure. The position of the sleeve is indicated on the design drawings

Installation:

- Category d/d: -Installation and use in dry structures
- Category w/w: -Installation and use in dry and wet structures
- Hole drilling by hammer drill mode
- In case of aborted hole: The hole shall be filled with mortar
- Bridging of unbearing layer (e.g. plaster) see Annex B 4 (Table B3)
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site
- Fastening screws or threaded rods (including nut and washer) must comply with the appropriate material and property class of the BTI internal threaded anchor UVT TOP E
- Minimum curing time see Annex B5. Table B6
- Commercial standard threaded rods, washers and hexagon nuts may also be used if the following requirements are fulfilled:

Material dimensions and mechanical properties of the metal parts according to the specifications are given in Annex A4, Table A1

Conformation of material and mechanical properties of the metal parts by inspection certificate 3.1 according to EN 10204:2004, the documents shall be stored

Marking of the threaded rod with the envisage embedment depth. This may be done by the manufacturer of the rod or by a person on job site

BTI Universal Component Compound UVT TOP for masonry

Intended Use
Specifications

Annex B 2

Table B1: Installation parameters for threaded rods in solid bricks and autoclaved aerated concrete without perforated sleeves

Size	M6	M8	M10	M12	M16
Nominal drill hole diameter d_0 [mm]	8	10	12	14	18
Effective anchorage depth AAC cylindrical drill hole $h_{ef}^{1)}$	100				
Effective anchorage depth AAC Conical drill hole $h_{ef}^{1)}$	-	80			-
	-	75			-
Effective anchorage depth $h_{ef}^{1)}$	50				
Depth of drill hole $h_0 = h_{ef}$	$h-30, \leq 200$				
Diameter of clearance hole in the fixture pre-position $d_f \leq$ [mm]	7	9	12	14	18
push through $d_f \leq$ [mm]	9	11	14	16	20
Diameter of steel brush $d_b \geq$ [mm]	See Table B5				
Maximum installation torque $T_{inst,max}$ [Nm]	see parameters of brick				

¹⁾ $h_{ef,min} \leq h_{ef} \leq h_{ef,max}$ is possible.

threaded rods M6, M8, M10, M12, M16



Marking:

Property class 8.8 or high corrosion resistant steel, property class 80: •

Stainless steel A4, property class 50 and high corrosion resistant steel C, property class 50: ••

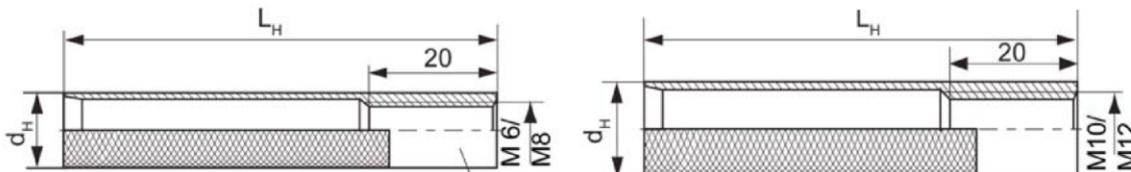
Table B2: Installation parameters for internal threaded sleeves UVT TOP E in solid bricks and autoclaved aerated concrete without perforated sleeves

Size UVT TOP E...	11x85 M6	11x85 M8	15x85 M10	15x85 M12
Diameter of anchor d_H [mm]	11		15	
Nominal drill bit diameter d_0 [mm]	14		18	
Length of anchor L_H [mm]	85			
Drill hole depth $h_0 = h_{ef}$ [mm]	85			
Effective anchorage depth h_{ef} [mm]	85			
Effective anchorage depth AAC h_0 [mm]	100		-	
Conical drill hole h_{ef} [mm]	85		-	
Diameter of steel brush $d_b \geq$ [mm]	See Table B5			
Maximum installation torque $T_{inst,max}$ [Nm]	see parameters of brick			
Diameter of clearance hole in the fixture d_f [mm]	7	9	12	14
Screw-in depth $l_{E,min}$ [mm]	6	8	10	12
$l_{E,max}$ [mm]	60			

Internal threaded sleeve UVT TOP E

UVT TOP E 11x85 M6, UVT TOP E 11x85 M8

UVT TOP E 15x85 M10, UVT TOP E 15x85 M12



Marking: Size, e.g. **M8**, Stainless steel: A4, e.g. **M8 A4** High corrosion resistant steel: C, e.g. **M8 C**

BTI Universal Component Compound UVT TOP for masonry

Intended Use

Installation parameters threaded rods and internal threaded anchors UVT TOP E without perforated sleeves

Annex B 3

Table B3: Installation parameters for threaded rods and internal threaded anchors UVT TOP E with perforated sleeves (pre-positioned anchorage)

Size UVT TOP H	12x50	12x85	16x85	16x130 ²⁾	20x85	20x130 ²⁾	20x200 ²⁾
Nominal drill hole diameter $d_0 = D_{\text{sleeve, nom}}$	12		16		20		
Depth of drill hole h_0 [mm]	55	90	90	135	90	135	205
Effective anchorage depth	$h_{\text{ef, min}}$ [mm]	50	85	85	85	110	180
	$h_{\text{ef, max}}$ [mm]	50	85	85	130	85	200
Size of threaded rod [-]	M6 or M8		M8 or M10		M12 or M16		
Size of internal threaded anchor UVT TOP E	---	---	11x85	---	15x85	---	---
Diameter of steel brush ¹⁾ $d_b \geq$ [mm]	See Table B5						
Maximum installation torque $T_{\text{inst, max}}$ [Nm]	see parameters of brick						

¹⁾ Only for solid areas in hollow bricks and solid bricks

²⁾ Bridging of unbearing layer (e.g. plaster) possible

Perforated sleeves

UVT TOP H 12x50; UVT TOP H 12x85; UVT TOP H 16x85; UVT TOP H 16x130;
UVT TOP H 20x85; UVT TOP H 20x130; UVT TOP H 20x200

Marking:

Size $D_{\text{sleeve, nom}} \times L_{\text{sleeve}}$
(e. g.: 16x85)



$D_{\text{sleeve, nom}}$

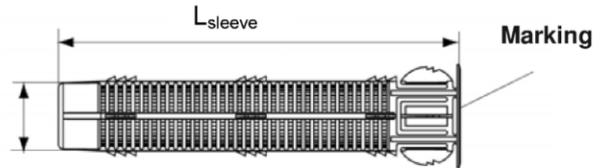
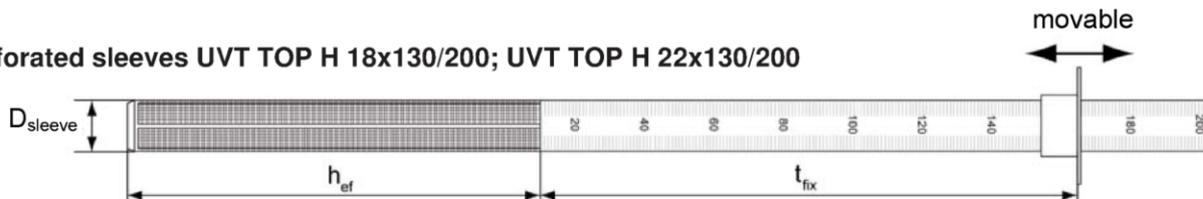


Table B4: Installation parameters for threaded rods with perforated sleeves (push through anchorage)

Size UVT TOP H	18x130/200	22x130/200	
Nominal sleeve diameter $D_{\text{sleeve, nom}}$ [mm]	16	20	
Nominal drill hole diameter d_0 [mm]	18	22	
Depth of drill hole h_0 [mm]	$135 + t_{\text{fix}}$		
Effective anchorage depth h_{ef} [mm]	≥ 130		
Diameter of steel brush ¹⁾ $d_b \geq$ [mm]	See Table B5		
Size of threaded rod [-]	M10	M12	M16
Maximum installation torque $T_{\text{inst, max}}$ [Nm]	see parameters of brick		
Thickness of fixture $t_{\text{fix, max}}$ [mm]	200		

¹⁾ Only for solid areas in hollow bricks and solid bricks

Perforated sleeves UVT TOP H 18x130/200; UVT TOP H 22x130/200



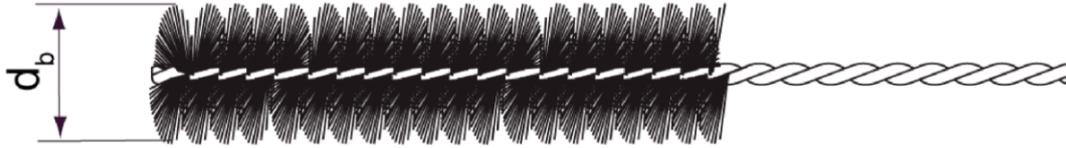
BTI Universal Component Compound UVT TOP for masonry

Intended Use

Installation parameters threaded rods and internal threaded anchors UVT TOP E with perforated sleeves

Annex B4

Steel brush



Only for solid bricks and autoclaved aerated concrete

Table B5: Parameters of steel brush

Drill hole diameter	d_0	[mm]	8	10	12	14	16	18	20	22
Brush diameter	$d_{b,nom}$	[mm]	9	11	14	16	20	20	25	25

Table B6: Maximum processing times and minimum curing times

(During the curing time of the mortar the masonry temperature may not fall below the listed minimum temperature).

Temperature at anchoring base [°C]	Minimum curing time ¹⁾ t_{cure} [minutes]		
	BTI TOP W ³⁾	BTI TOP ²⁾	BTI TOP S ²⁾
-10 to -5	12 hours		
>-5 to ±0	3 hours	24 hours	
>±0 to +5	90	3 hours	6 hours
>+5 to +10	45	90	3 hours
>+10 to +20	30	60	2 hours
>+20 to +30		45	60
>+30 to +40		35	30

System-temperature (mortar) [°C]	Maximum processing time t_{work} [minutes]		
	BTI TOP W ³⁾	BTI TOP ²⁾	BTI TOP S ²⁾
±0	5		
+5	5	13	20
+10	3	9	20
+20	1	5	10
+30		4	6
+40		2	4

¹⁾ For wet bricks the curing time must be doubled

²⁾ Minimum cartridge temperature +5°C

³⁾ Minimum cartridge temperature ±0°C

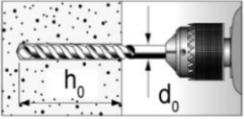
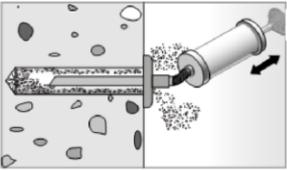
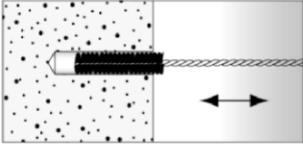
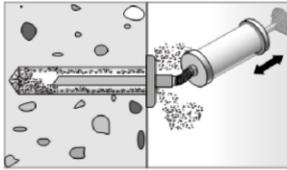
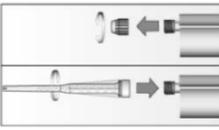
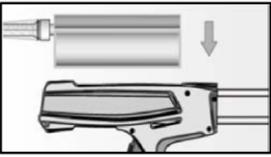
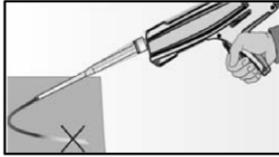
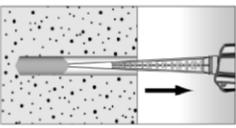
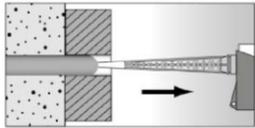
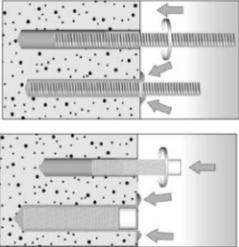
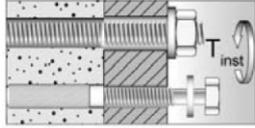
BTI Universal Component Compound UVT TOP for masonry

Intended Use
Steel brush
Maximum processing times and minimum curing times

Annex B 5

Installation instruction part 1

Installation in solid brick and autoclaved aerated concrete (without perforated sleeve)

1		<p>Drill the hole in hammer drill function. Depth of drill hole h_0 and drill hole diameter d_0 see Table B1; B2</p>	
2			 <p>Blow out the drill hole twice. Brush twice and blow out twice again.</p>
3		<p>Remove the sealing cap. Screw on the static mixer. (the spiral in the static mixer must be clearly visible)</p>	
4		<p>Place the cartridge into a suitable dispenser</p>	 <p>Press out approximately 10 cm of mortar until the resin is permanently grey in colour. Mortar which is not grey in colour will not cure and must be disposed off.</p>
5		<p>Fill approximately 2/3 of the drill hole with mortar beginning from the bottom of the hole¹⁾. Avoid bubbles!</p>	 <p>For push through anchorage fill the annular clearance with mortar.</p>
6		<p>Only use clean and oil-free sleeve elements. Mark the threaded rod for setting depth. Insert the anchor or internal threaded anchor UVT TOP E by hand using light turning motions. When reaching the setting depth marking, excess mortar must emerge from the mouth of the drill hole.</p>	
7		<p>Do not touch. Minimum curing time see Table B6.</p>	 <p>Mounting the fixture. $T_{inst,max}$ see parameter of brick.</p>

¹⁾ Exact volume of mortar see manufacturer's specification.

BTI Universal Component Compound UVT TOP for masonry

Intended Use
Installation instruction (without perforated sleeve) Part 1

Annex B 6

Installation instruction, part 2

Installation in perforated or solid brick with perforated sleeve (pre-positioned anchorage)

1		Drill the hole (hammer drill). Depth of drill hole h_0 and drill hole diameter d_0 see Table B3	When install perforated sleeves in solid bricks or solid areas of hollow bricks, also clean the hole by blowing out and brushing.
2		Remove the sealing cap. Screw on the static mixer. (the spiral in the static mixer must be clearly visible)	
3		Place the cartridge into a suitable dispenser	 Press out approximately 10 cm of mortar until the resin is permanently grey in colour. Mortar which is not grey in colour will not cure and must be disposed off.
4		Insert the perforated sleeve flush with the surface of the masonry or plaster	 Fill the perforated sleeve completely with mortar beginning from the bottom of the hole ¹⁾ .
5		Only use clean and oil-free sleeve elements. Mark the threaded rod for setting depth. Insert the threaded rod or the internal threaded anchor UVT TOP E by hand using light turning motions until reaching the setting depth marking (threaded rod) or flush with the surface (internal threaded sleeve).	
6		Do not touch. Minimum curing time see Table B6 .	 Mounting the fixture. $T_{inst,max}$ see parameter of brick.

¹⁾ Exact volume of mortar see manufacturer's specification.

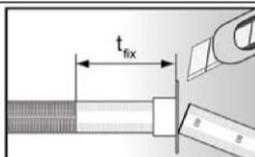
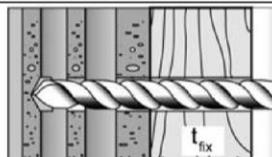
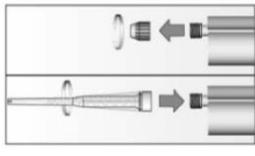
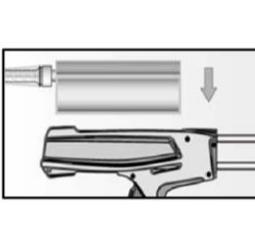
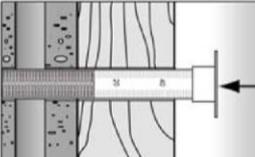
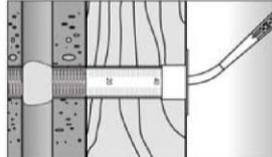
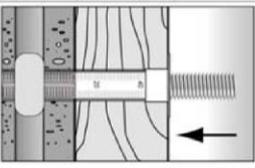
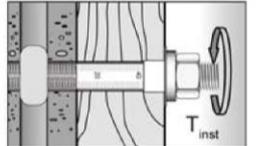
BTI Universal Component Compound UVT TOP for masonry

Intended Use
Installation instruction (with perforated sleeve) Part 2

Annex B 7

Installation instruction, part 3

Installation in perforated or solid brick with perforated sleeve (push through anchorage)

1		<p>Push the movable stop up to the correct thickness of fixture and cut the overlap.</p>		<p>Drill the hole through the fixture. Depth of drill hole ($h_0 + t_{fix}$) and drill hole diameter see Table B4.</p>
2		<p>Remove the sealing cap. Screw on the static mixer. (the spiral in the static mixer must be clearly visible)</p>		
3		<p>Place the cartridge into a suitable dispenser</p>		<p>Press out approximately 10 cm of mortar until the resin is permanently grey in colour. Mortar which is not grey in colour will not cure and must be disposed off.</p>
4		<p>Insert the perforated sleeve flush with the surface of the fixture into the drill hole.</p>		<p>Fill the sleeve with mortar beginning from the bottom of the hole¹⁾. For deep drill holes use an extension tube.</p>
5		<p>Only use clean and oil-free sleeve elements. Mark the threaded rod for setting depth. Insert the threaded rod by hand using light turning motions until reaching the setting depth marking.</p>		
6		<p>Do not touch. Minimum curing time see Table B6.</p>		<p>Mounting the fixture. $T_{inst,max}$ see parameter of brick.</p>

¹⁾ Exact volume of mortar see manufacturer's specification.

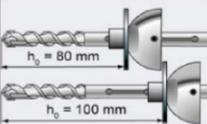
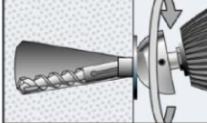
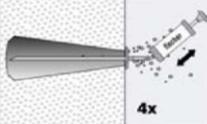
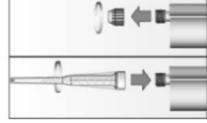
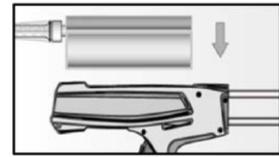
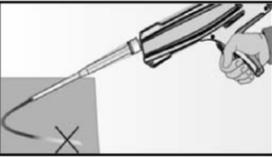
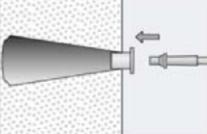
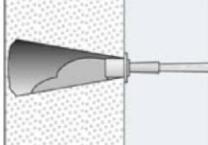
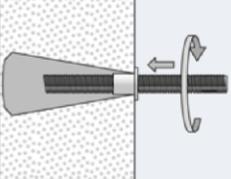
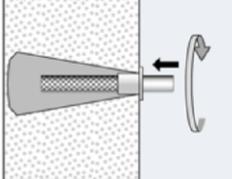
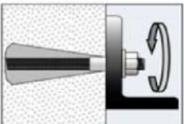
BTI Universal Component Compound UVT TOP for masonry

Intended Use
Installation instruction (with perforated sleeve) Part 3

Annex B 8

Installation instruction, part 4

Installation in autoclaved aerated concrete with special conic drill bit PBB (pre-positioned anchorage)

1		<p>Position the movable drill bit arrester on the used drill hole depth. For this, unlock the clamp screw and slide the arrester. Now fix the clamp screw.</p>	
2		<p>Drill the cylindrical hole with rotating drill until the arrester contact the material surface.</p>	
3		<p>Deviate the working power drill circulate to generate a conic undercut in the material.</p>	
4		<p>Blow out the drill hole four times.</p>	
5		<p>Remove the sealing cap. Screw on the static mixer. (the spiral in the static mixer must be clearly visible)</p>	
6		<p>Place the cartridge into a suitable dispenser</p>	 <p>Press out approximately 10 cm of mortar until the resin is permanently grey in colour. Mortar which is not grey in colour will not cure and must be disposed off.</p>
7		<p>Put the center sleeve into the drill hole and adapt the injection adapter onto the static mixer</p>	 <p>Fill the drill hole with injection mortar.</p>
8			<p>Only use clean and oil-free anchor elements. Mark the threaded rod for setting depth. Insert the anchor or internal threaded anchor UVT TOP E by hand using light turning motions. When reaching the setting depth marking, excess mortar must emerge from the mouth of the drill hole.</p>
9		<p>Do not touch. Minimum curing time see Table B6.</p>	 <p>Mounting the fixture. $T_{inst,max}$ see parameter of brick.</p>

BTI Universal Component Compound UVT TOP for masonry

Intended Use
Installation instruction (without perforated sleeve special conic drill bit PBB) Part 4

Annex B 9

Table B7.1: Summary of German bricks and blocks

Kind of masonry	Brick format [mm]	Compressive strength [N/mm ²]	Density [kg/dm ³]	Annex
Solid bricks				
Solid brick Mz EN 771-1	≥ 240x115x113	10 / 16	≥1,8	C1/C2
Solid brick Mz EN 771-1	≥ 240x115x71	10 / 20	≥1,8	C3/C4
Solid sand- lime brick KS EN 771-2	≥ 250x240x240	10 / 20 / 28	≥2,0	C5/C6/C7
Solid light-weight concrete block Vbl	≥ 372x300x254	2	≥0,6	C8/C9
Solid light-weight concrete block Vbl	≥ 250x240x239	4 / 6 / 8	≥1,6	C10/C11/C12
Perforated bricks and hollow blocks				
Perforated brick HLz EN 771-1 e.g. Poroton	500(370)x175(240)x237	4 / 6 / 8 / 10 / 12	≥1,0	C13/C14/C15
Perforated brick HLz EN 771-1	240x115x113	6 / 10 / 16 / 20 / 28	≥1,4	C16/C17/C18
Sand- lime hollow block KSL	240x175x113	8 / 10 / 12 / 16 / 20	≥1,4	C19/C20/C21
Light-weight concrete hollow block Hbl	362x240x240	2 / 4	≥1,0	C22/C23/C24

Table B7.2: Summary of French bricks and blocks

Kind of masonry	Brick format [mm]	Compressive strength [N/mm ²]	Density [kg/dm ³]	Annex
Perforated bricks and hollow blocks				
Perforated brick HLz EN 711-1	500x200x315	4 / 6 / 8	≥0,6	C25/C26/C27
Perforated brick HLz EN 711-1	500x200x300	4 / 6 / 8 / 10	≥0,7	C28/C29/C30
Perforated brick HLz EN 711-1	500x200x315	2 / 4 / 6 / 8	≥0,7	C31/C32/C33
Perforated brick HLz EN 711-1	520x200x275	4 / 6 / 8	≥0,7	C34/C35
Light-weight concrete hollow block Hbl	500x200x200	2 / 4 / 6	≥1,0	C36/C37

BTI Universal Component Compound UVT TOP for masonry

Intended Use

Summary of especially German and French bricks and blocks

Annex B 10

Table B7.3: Summary of Italian bricks

Kind of masonry	Brick format [mm]	Compressive strength [N/mm ²]	Density [kg/dm ³]	Annex
Solid bricks				
Solid brick Mz EN 771-1	≥ 245x118x54	10 / 20	≥1,8	C38/C39
Perforated bricks				
Perforated brick HLz EN 771-1	255x120x118	2 / 4 / 6 / 8 / 10 / 12	≥1,0	C40/C41/C42
Perforated brick LLz EN 771-1	248x78x250	2 / 4 / 6	≥0,7	C43/C44

Table B7.4: Summary of Spanish and Portuguese bricks

Kind of masonry	Brick format [mm]	Compressive strength [N/mm ²]	Density [kg/dm ³]	Annex
Perforated bricks				
Perforated brick HLz EN 771-1	275x130x94	6 / 8 / 12 / 16 / 20	≥0,8	C45/C46/C47
Perforated bricks				
Perforated brick LLz EN 771-1	128x88x275	2	≥0,8	C48/C49
Perforated brick HLz EN 771-1	190x290x220	6 / 8 / 10	≥0,7	C50/C51/C52

Table B7.5: Summary of Austrian bricks

Kind of masonry	Brick format [mm]	Compressive strength [N/mm ²]	Density [kg/dm ³]	Annex
Perforated bricks				
Perforated brick HLz EN 771-1	253x300x240	2 / 4 / 6	≥0,8	C53/C54/C55

Table B7.6: Summary of Irish and English bricks

Kind of masonry	Brick format [mm]	Compressive strength [N/mm ²]	Density [kg/dm ³]	Annex
Solid blocks				
Solid light-weight concrete brick Vbl	≥ 440x100x215	4 / 6 / 8 / 10	≥2,0	C56/C57
Solid light-weight concrete brick Vbl	≥ 440x95x215	6 / 8 / 10 / 12	≥2,0	C58/C59
Perforated blocks				
Light-weight concrete hollow block Hbl	440x215x215	4 / 6 / 8 / 10	≥1,2	C60/C61/C62

BTI Universal Component Compound UVT TOP for masonry

Intended Use

Summary of especially Italian, Spanish, Portuguese, Austrian, Irish and English bricks and blocks

Annex B 11

Table B7.7: Summary of Dutch and Danish bricks and blocks

Kind of masonry	Brick format [mm]	Compressive strength [N/mm ²]	Density [kg/dm ³]	Annex
Solid bricks				
Solid brick Mz EN 771-1	≥ 230x108x55	10 / 20	≥1,8	C63/C64
Solid sand-lime brick KS EN 771-2	≥ 997x214x538	10 / 20 / 36	≥1,8	C65/C66/C67
Perforated bricks				
Perforated brick HLz EN 771-1	230x108x55	2 / 4 / 6 / 8	≥1,4	C68/C69/C70

Table B7.8: Summary of autoclaved aerated concrete blocks

Autoclaved aerated concrete			
Property class		Density [kg/dm ³]	Annex
2 / 4 / 6	Cylindrical drill hole	350, 500, 650	C71/C72/C73
	Conical drill hole (special drill bit PBB)	350, 500, 650	C74/C75

BTI Universal Component Compound UVT TOP for masonry

Intended Use
Summary of especially Danish and Dutch bricks and blocks
Summary of autoclaved aerated concrete

Annex B 12

Kind of masonry: Solid brick Mz, 2 DF

Table C1: Parameters of brick

Species of brick		Solid brick Mz, 2DF
Density	$\rho \geq [\text{kg/dm}^3]$	1.8
Compressive strength	$f_b \geq [\text{N/mm}^2]$	10 or 16
Standard or approval		EN 771-1
Producer		e.g. Wienerberger
Size, dimensions	[mm]	$\geq 240 \times 115 \times 113$
Minimum thickness of masonry	$h_{\min} [\text{mm}]$	115

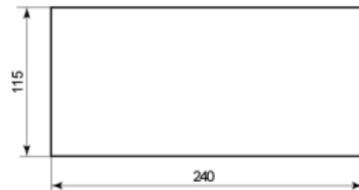


Table C2: Installation parameters for threaded rod and internal threaded anchor without perforated sleeve

Size of threaded rod	M6		M8		M10		M12		M16		UVT TOP E 11x85 ¹⁾	UVT TOP E 15x85 ¹⁾
	50	100	50	100	50	100	50	100	50	100	85	85
Effective anchorage depth $h_{\text{ef}} [\text{mm}]$												
Edge distance $c_{\min} [\text{mm}]$	60											
Spacing	$s_{\min} \parallel [\text{mm}]$											
	120											
	$s_{\text{cr}} \parallel [\text{mm}]$											
240												
$s_{\text{cr}} \perp = s_{\min} \perp$												
115												
Group-factor	$\alpha_{\text{g,N}} \parallel [-]$											
	1,5											
	$\alpha_{\text{g,V}} \parallel [-]$											
	1,4											
$\alpha_{\text{g,N}} \perp [-]$												
2,0												
$\alpha_{\text{g,V}} \perp [-]$												
Max. installation torque $T_{\text{inst,max}} [\text{Nm}]$	4				10							

¹⁾ For UVT TOP E 11x85 with screw M6: $T_{\text{inst,max}} = 4 \text{ Nm}$

Table C3: Installation parameters for threaded rod and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	16x85			
Size of threaded rod	M8	M10	M6	M8
Size of internal threaded anchor UVT TOP E	11x85			
Edge distance $c_{\min} [\text{mm}]$	60			
Spacing	$s_{\min} \parallel [\text{mm}]$			
	120			
	$s_{\text{cr}} \parallel [\text{mm}]$			
240				
$s_{\text{cr}} \perp = s_{\min} \perp [\text{mm}]$				
115				
Group-factor	$\alpha_{\text{g,N}} \parallel [-]$			
	1,5			
	$\alpha_{\text{g,V}} \parallel [-]$			
	1,4			
$\alpha_{\text{g,N}} \perp [-]$				
2				
$\alpha_{\text{g,V}} \perp [-]$				
Max. installation torque $T_{\text{inst,max}} [\text{Nm}]$	10	4	10	

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid brick Mz, 2DF
Species of brick, installation parameters

Annex C 1

Kind of masonry: Solid brick Mz 2 DF

Table C4: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
50	M6, M8, M10	1,50	1,50	3,00	2,50
	M12, M16	2,00			
85	UVT TOP E 11x85 M6/M8, UVT TOP E 15x85 M10/M12		2,00	1,50	3,00
100	M10	3,00	2,50	4,50	4,00
	M12, M16	3,50		5,50	4,50
Perforated sleeve 16x85	UVT TOP E 11x85 M6/M8, M8, M10	1,50	1,20	3,00	2,50
Compressive strength $f_b = 16 \text{ N/mm}^2$					
50	M6, M8	2,50	2,00	4,50	4,00
	M10				3,50
	M12, M16				4,50
85	UVT TOP E 11x85 M6/M8, UVT TOP E 15x85 M10/M12	3,50	2,00	5,50	4,50
100	M6, M8	4,00	3,00	7,00	5,50
	M10	4,50	4,00	7,50	6,50
	M12, M16	5,50	4,50	8,00	7,00
Perforated sleeve 16x85	UVT TOP E 11x85 M6/M8, M8, M10	2,50	2,00	4,50	4,00

Calculation of pulling out of one brick (tension load): $N_{Rk,pb}$ see ETAG 029, Annex C

Table C5: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6	2,50			
85	UVT TOP E 11x85 M6				
≥ 50	M8	3,00			
85	UVT TOP E 11x85 M8				
≥ 50	M10, M12	3,50			
85	UVT TOP E 15x85 M10/M12, M12, M16	3,00			
Compressive strength $f_b = 16 \text{ N/mm}^2$					
≥ 50	M6	4,00			
85	UVT TOP E 11x85 M6				
≥ 50	M8	5,00			
85	UVT TOP E 11x85 M8				
≥ 50	M10	5,50			
≥ 50	M12	5,50			
85	UVT TOP E 15x85 M10/M12, M12, M16	5,00			

Calculation of pulling out of one brick (tension load): $N_{Rk,pb}$ see ETAG 029, Annex C

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid brick Mz, 2DF
Characteristic values

Annex C 2

Kind of masonry: Solid brick Mz, NF

Table C6: Parameters of brick

Species of brick	Solid brick Mz, NF	
Density	$\rho \geq [\text{kg/dm}^3]$	1.8
Compressive strength	$f_b \geq [\text{N/mm}^2]$	10 or 20
Standard or approval		EN 771-1
Producer		e.g. Wienerberger
Size, dimensions	[mm]	$\geq 240 \times 115 \times 71$
Minimum thickness of masonry	h_{\min} [mm]	115

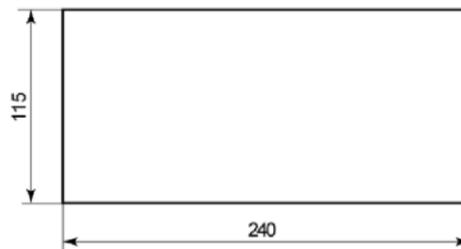


Table C7: Installation parameters (threaded rod and internal threaded anchor without perforated sleeve)

Size of threaded rod	M6		M8			M10			M12			UVT TOP E ¹⁾ M6/M8
Effective anchorage depth h_{ef} [mm]	50	80	50	80	200	50	80	200	50	80	200	85
Edge distance c_{\min} [mm]	100											
Edge distance $h_{\text{ef}} = 200\text{mm}$ c_{\min} [mm]	150											
Spacing	$s_{\min \parallel, N}$ [mm]	60										
	$h_{\text{ef}}=200$ $s_{\min \parallel, N}$ [mm]	240										
	$s_{\min \parallel, V}$ [mm]	240										
	$s_{\text{cr} \parallel}$ [mm]	240										
	$s_{\text{cr} \perp} = s_{\min \perp}$ [mm]	75										
Group-factor	$\alpha_{g, N \parallel}$ [-]	1,5										
	$\alpha_{g, V \parallel}$ [-]	2,0										
	$\alpha_{g, N \perp}$ [-]	2										
	$\alpha_{g, V \perp}$ [-]	2										
Max. installation torque $T_{\text{inst, max}}$ [Nm]	4		10									

¹⁾ For UVT TOP E with screw M6: $T_{\text{inst, max}} = 4 \text{ Nm}$

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid brick Mz, NF
Species of brick, installation parameters

Annex C 3

Kind of masonry: Solid brick Mz, NF

Table C8: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
50	M6	2,50	2,00	4,00	3,50
	M8	2,50	2,00	4,00	3,00
	M10	2,00	1,50	3,50	3,00
80	M10	3,00	2,50	5,00	4,00
200	M10	7,50	6,50	12,00	10,50
50	M12	2,00	1,50	3,00	2,50
80	M12	3,50	3,00	5,50	4,50
200	M12	5,00	4,00	8,00	6,50
85	UVT TOP E 11x85 M6/M8	3,50	3,00	5,50	4,50
Compressive strength $f_b = 20 \text{ N/mm}^2$					
50	M6	3,50	2,50	5,50	5,00
	M8	3,50	2,50	5,50	4,50
	M10	3,00	2,50	5,00	4,00
80	M10	4,50	3,50	7,00	6,00
200	M10	11,00	9,00	12,00	12,00
50	M12	3,00	2,50	4,50	4,00
80	M12	5,00	4,00	8,00	6,50
200	M12	7,00	6,00	11,50	9,50
85	UVT TOP E 11x85 M6/M8	5,00	4,00	8,00	6,50

Calculation of pulling out of one brick (tension load): $N_{Rk,pb}$ see ETAG 029, Annex C

Table C9: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6, M8	2,50			
85	UVT TOP E 11x85 M6/M8				
$\geq 50 - 80$	M10	4,00			
200	M10	8,50			
≥ 50	M12	4,00			
200	M12	11,50			
Compressive strength $f_b = 20 \text{ N/mm}^2$					
≥ 50	M6, M8	4,00			
85	UVT TOP E 11x85 M6/M8				
$\geq 50 - 80$	M10	6,00			
200	M10	12,00			
≥ 50	M12	5,50			
200	M12	12,00			

Calculation of pushing out of one brick (shear load): $V_{Rk,pb}$ see ETAG 029, Annex C

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid brick Mz, NF
Characteristic values

Annex C 4

Kind of masonry: Solid sand-lime block

Table C10: Parameters of brick

Species of brick		Solid sand-lime block
Density	$\rho \geq [\text{kg/dm}^3]$	2.0
Compressive strength	$f_b \geq [\text{N/mm}^2]$	10, 20 or 28
Standard or approval		EN 771-1
Producer		
Size, dimensions	[mm]	$\geq 250 \times 240 \times 240$
Minimum thickness of wall	$h_{\min} [\text{mm}]$	240

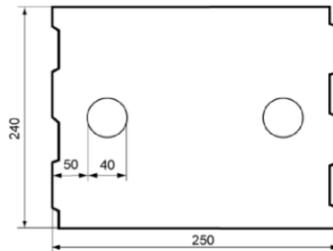


Table C11: Installation parameters for threaded rod and internal threaded anchor without perforated sleeve

Size of threaded rod	M6		M8		M10		M12		M16		UVT TOP E ¹⁾ 11x85 M6/M8	UVT TOP E 15x85 M10/M12
	Effective anchorage depth $h_{\text{ef}} [\text{mm}]$	50	100	50	100	50	100	50	100	50	100	85
Edge distance $c_{\min} [\text{mm}]$	60											
Spacing	$s_{\min} \parallel [\text{mm}]$	80										
	$s_{\text{cr}} \parallel [\text{mm}]$	250										
	$s_{\min} \perp [\text{mm}]$	80										
	$s_{\text{cr}} \perp [\text{mm}]$	240										
Group-factor	$\alpha_{\text{g,N}} \parallel [-]$	1,5										
	$\alpha_{\text{g,V}} \parallel [-]$	1,2										
	$\alpha_{\text{g,N}} \perp [-]$	1,5										
	$\alpha_{\text{g,V}} \perp [-]$	1,2										
Max. installation torque $T_{\text{inst,max}} [\text{Nm}]$	4		10									

¹⁾ For UVT TOP E with screw M6: $T_{\text{inst,max}} = 4 \text{ Nm}$

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid sand-lime block
Species of brick, installation parameters

Annex C 5

Kind of masonry: Solid sand-lime block

Table C12: Installation parameters for threaded rod and internal threaded sleeve with perforated sleeve

Size of perforated sleeve		16x85			
Size of threaded rod		M8	M10	M6	M8
Size of internal threaded anchor UVT TOP E		UVT TOP E 11 x 85			
Edge distance	c_{min} [mm]	60			
Spacing	$s_{min \parallel}$ [mm]	80			
	$s_{cr \parallel}$ [mm]	250			
	$s_{min \perp}$ [mm]	80			
	$s_{cr \perp}$ [mm]	240			
Group-factor	$\alpha_{g,N \parallel}$ [-]	1,5			
	$\alpha_{g,V \parallel}$ [-]	1,2			
	$\alpha_{g,N \perp}$ [-]	1,5			
	$\alpha_{g,V \perp}$ [-]	1,2			
Max. installation torque	$T_{inst,max}$ [Nm]	10		4	10

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid sand-lime block
Species of brick, installation parameters

Annex C 6

Kind of masonry: Solid sand-lime block					
Table C13: Characteristic values of resistance; tension load (N_{Rk})					
Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥50	M6	3,00	2,50	5,00	4,50
85	UVT TOP E 11x85 M6				
≥50	M8	4,00	3,50	7,00	5,50
	M10 / M12	4,50	3,50	7,00	5,50
85	M16	3,50	3,00	5,50	4,50
	UVT TOP E 11x85 M8 UVT TOP E 15x85 M10 / M12				
Perforated sleeve 16x85	UVT TOP E 11x85 M6	3,00	2,50	5,00	4,50
	M8 / M10 / UVT TOP E 11x85 M8	4,50	3,50	8,00	6,50
Compressive strength $f_b = 20 \text{ N/mm}^2$					
≥50	M6	4,50	3,50	7,50	6,50
85	UVT TOP E 11x85 M6				
≥50	M8	6,00	5,00	10,00 (9,0) ¹⁾	8,00
	M10 / M12	6,00	5,00	10,00 (9,0) ¹⁾	8,00
85	M16	5,00	4,00	7,50	6,50
	UVT TOP E 11x85 M8 UVT TOP E 15x85 M10 / M12				
Perforated sleeve 16x85	UVT TOP E 11x85 M6	4,50	3,50	7,50	6,50
	M8 / M10 / UVT TOP E 11x85 M8	6,50	5,00	11,00 (9,0) ¹⁾	9,00
Compressive strength $f_b = 28 \text{ N/mm}^2$					
≥50	M6	5,00	4,00	8,50	8,50
85	UVT TOP E 11x85 M6				
≥50	M8	8,00	7,00	12,00 (9,0) ¹⁾	8,00
	M10 / M12	8,50	7,00	12,00 (9,0) ¹⁾	11,50 (9,0)
85	M16	7,00	6,00	11,00 (9,0) ¹⁾	9,00
	UVT TOP E 11x85 M8 UVT TOP E 15x85 M10 / M12				
Perforated sleeve 16x85	UVT TOP E 11x85 M6	5,00	4,00	8,50	8,50
	M8 / M10 / UVT TOP E M8	8,50	7,00	12,00 (9,0) ¹⁾	12,00 (9,0) ¹⁾
¹⁾ Characteristic value of pulling out of one brick $N_{Rk,pb} = 9,0 \text{ kN}$					
Table C14: Characteristic values of resistance; shear load (V_{Rk})					
Compressive strength [N/mm^2]		10	20	28	
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
≥ 50	M6	2,5	4,0	5,0	
85	UVT TOP E 11x85 M6				
≥ 50	M8 / M10 / M12 / M16,	4,5	6,5	9,0	
85	UVT TOP E 11x85 M8 UVT TOP E 15x85 M10 / M12				
Perforated sleeve 16x85	UVT TOP E 11x85 M6	2,5	4,0	5,0	
	M8 / M10 / UVT TOP E 11x85 M8	4,5	6,5	9,0	
Factor for job site tests and displacements see Annex C78.					
BTI Universal Component Compound UVT TOP for masonry				Annex C 7	
Performances Solid sand-lime block Characteristic values					

Kind of masonry: Light-weight concrete block Vbl

Table C15: Parameters of brick

Species of brick		Light-weight concrete block Vbl
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	0,6
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	2
Standard or approval		EN 771-3
Producer		e.g. Sepa
Size, dimensions	[mm]	$\geq 372 \times 300 \times 254$
Minimum thickness of brick	h_{min} [mm]	300

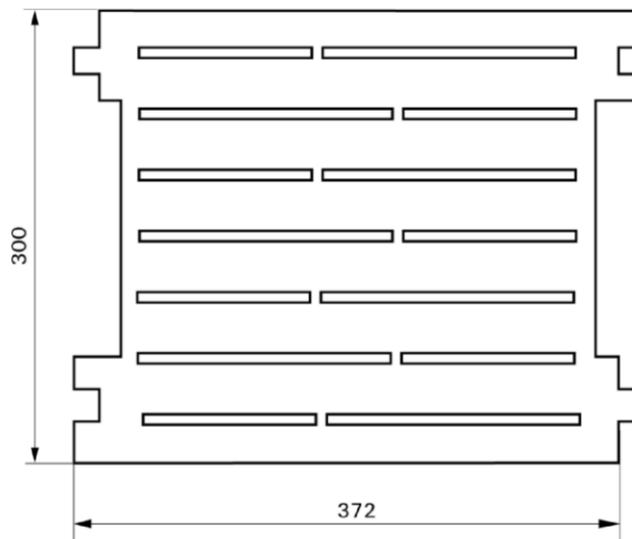


Table C16: Installation parameters for threaded rod with perforated sleeve

Size of perforated sleeve	16x130		18x130/200		20x130		22x130/200	20x200	
	M8	M10	M10	M12	M12	M16	M16	M12	M16
Edge distance	c_{min} [mm]		130						
Spacing	$s_{\text{cr}} \parallel = s_{\text{min}} \parallel$ [mm]		370						
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]		250						
Group-factor	$\alpha_{\text{g,N}} \parallel$ [-]								
	$\alpha_{\text{g,V}} \parallel$ [-]		2,0						
	$\alpha_{\text{g,N}} \perp$ [-]								
	$\alpha_{\text{g,V}} \perp$ [-]								
Max. installation torque	$T_{\text{inst,max}}$ [Nm]		4						

BTI Universal Component Compound UVT TOP for masonry

Performances

Solid light-weight concrete block Vbl
Species of brick, installation parameters

Annex C 8

Kind of masonry: Solid light-weight concrete block Vbl

Table C17: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
16x130 / M8 / M10	18x130/200 / M10 / M12	2,00	1,50	2,00	2,00
20x130 / M12 / M16	22x130/200 / M16	2,50	2,50	3,00	2,50
20x200 / M12 / M16		3,50	3,00	4,00	3,00

Table C18: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
16x130 / M8 / M10	18x130/200 / M10 / M12	4,50			
20x130 / M12 / M16					
20x200 / M12 / M16	22x130/200 / M16	6,50			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Solid light-weight concrete block Vbl
Characteristic values

Annex C 9

Kind of masonry: Solid light-weight concrete block Vbl

Table C19: Parameters of brick

Species of brick	Solid light-weight concrete block Vbl	
Density	$\rho \geq [\text{kg/dm}^3]$	1,6
Compressive strength	$f_b \geq [\text{N/mm}^2]$	4, 6 or 8
Standard or approval		EN 771-3
Producer		KLB
Size, dimensions	[mm]	$\geq 250 \times 240 \times 239$
Minimum thickness of brick	h_{\min} [mm]	240

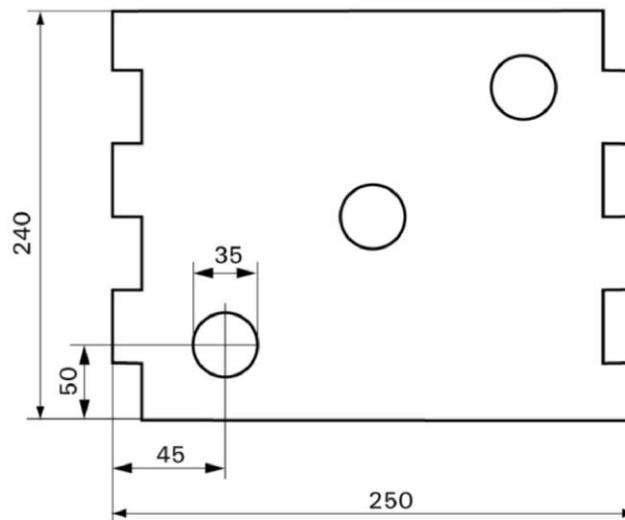


Table C20: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200	20x200									
Size of threaded rod	M6	M8	M6	M8	M8	M10	M8	M10	M10	M12	M12	M16	M12	M16	M16	M16	M12	M16
Size of internal threaded anchor UVT TOP E			11x85			15x85												
			M6/M8			M10/M12												
Edge distance	c_{\min} [mm]		130															
Spacing	$s_{cr \parallel} = s_{\min \parallel}$		250															
	$s_{cr \perp} = s_{\min \perp}$		250															
Group-factor	$\alpha_{g,N \parallel} [-]$		2,0															
	$\alpha_{g,V \parallel} [-]$																	
	$\alpha_{g,N \perp} [-]$																	
	$\alpha_{g,V \perp} [-]$																	
Max. installation torque	$T_{\text{inst,max}}$ [Nm]		4															

BTI Universal Component Compound UVT TOP for masonry

Performances

Solid light-weight concrete block Vbl
Species of brick, installation parameters

Annex C 10

Kind of masonry: Solid light-weight concrete block Vbl

Table C21: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		1,20	0,90	2,00	1,50
12x85 M6 / M8		2,00	1,50	3,50	3,00
16x85 M8 / M10 16x85 UVT TOP E 11x85 M6 / M8	16x130 M8 / M10 18x130/200 M10 / M12	2,50	2,00	4,00	3,50
20x85 M12 / M16 20x85 UVT TOP E 15x85 M10 / M12	20x130 M12 / M16 20x200 M12 / M16 22x130/200 M16	3,00	2,50	5,00	4,50
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		1,50	1,50	3,00	2,50
12x85 M6 / M8		3,00	2,50	5,00	4,00
16x85 M8 / M10 16x85 UVT TOP E 11x85 M6 / M8	16x130 M8 / M10 18x130/200 M10 / M12	4,00	3,00	6,50	5,50
20x85 M12 / M16 20x85 UVT TOP E 15x85 M10 / M12	20x130 M12 / M16 20x200 M12 / M16 22x130/200 M16	5,00	4,00	7,50	6,50
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		2,00	2,00	4,00	3,00
12x85 M6 / M8		4,00	3,00	7,00	5,50
16x85 M8 / M10 16x85 UVT TOP E 11x85 M6 / M8	16x130 M8 / M10 18x130/200 M10 / M12	5,00	4,00	8,50	7,00
20x85 M12 / M16 20x85 UVT TOP E 15x85 M10 / M12	20x130 M12 / M16 20x200 M12 / M16 22x130/200 M16	6,50	5,50	9,00	8,50

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Solid light-weight concrete block Vbl
Characteristic values tension load

Annex C 11

Kind of masonry: Solid light-weight concrete block Vbl

Table C22: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6	16x85 / UVT TOP E 11x85	2,00			
12x85 M6	M6				
12x50 M8	12x85 M8	3,00			
16x85 M8 / M10	16x130 M8 / M10	3,50			
UVT TOP E 11x85 M8	18x130/200 M10 / M12				
20x85 M12 / M16	20x130 M12 / M16	4,50			
UVT TOP E 15x85 M10 / M12	20x200 M12 / M16				
	22x130/200 M16				
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6	16x85 / UVT TOP E 11x85	3,00			
12x85 M6	M6				
12x50 M8	12x85 M8	4,50			
16x85 M8 / M10	16x130 M8 / M10	5,50			
UVT TOP E 11x85 M8	18x130/200 M10 / M12				
20x85 M12 / M16	20x130 M12 / M16	6,50			
UVT TOP E 15x85 M10 / M12	20x200 M12 / M16				
	22x130/200 M16				
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6	16x85 / UVT TOP E 11x85	4,00			
12x85 M6	M6				
12x50 M8	12x85 M8	6,00			
16x85 M8 / M10	16x130 M8 / M10	7,00			
UVT TOP E 11x85 M8	18x130/200 M10 / M12				
20x85 M12 / M16	20x130 M12 / M16	8,50			
UVT TOP E 15x85 M10 / M12	20x200 M12 / M16				
	22x130/200 M16				

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Solid light-weight concrete block Vbl
Characteristic values shear load

Annex C 12

Kind of masonry: Perforated block form B, HLz

Table C23: Parameters of brick

Species of brick		Perforated block form B, HLz
Density	$\rho \geq [\text{kg/dm}^3]$	1,0
Compressive strength	$f_b \geq [\text{N/mm}^2]$	4, 6, 8, 10 or 12
Standard or approval		EN 771-1
Producer		e.g. Wienerberger, Poroton
Size, dimensions	[mm]	500(370)x175(240)x237
Minimum thickness of brick	h_{\min} [mm]	175(240)

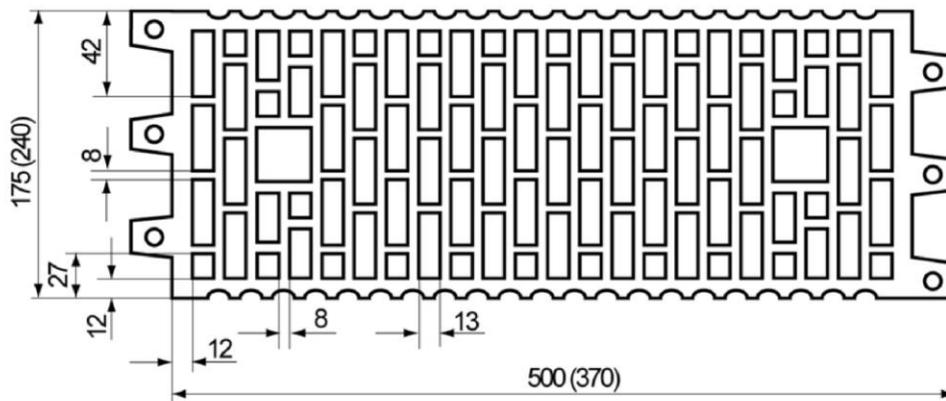


Table C24: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50		12x85		16x85		16x130		20x85		20x130	
Size of threaded rod	M6	M8	M6	M8	M8	M10	M8	M10	M12	M16	M12	M16
Size of internal threaded anchor UVT TOP E					11x85 M6/M8						15x85 M10/M12	
Edge distance	c_{\min} [mm]	100										
Spacing	s_{\min} [mm]	100										
	s_{cr} [mm]	500 (370)										
	s_{\min} \perp [mm]	100										
	s_{cr} \perp [mm]	240										
Group-factor	$\alpha_{g,N}$ [-]	1										
	$\alpha_{g,V}$ [-]											
	$\alpha_{g,N}$ \perp [-]											
	$\alpha_{g,V}$ \perp [-]											
Max. installation torque	$T_{\text{inst,max}}$ [Nm]	2										

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B,HLz
Species of brick, installation parameters

Annex C 13

Kind of masonry: Perforated block form B, HLz

Table C25: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6/M8	0,30	-	0,40	0,30
16x85 M8 / M10	20x85 M12 / M16	0,90	0,75	0,90	0,90
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/ M10		1,20	0,90	1,20	1,20
20x130 M12/M16					
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6/M8	0,50	0,40	0,60	0,50
16x85 M8 / M10	20x85 M12 / M16	1,50	1,20	1,50	1,20
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/ M10		2,0	1,5	2,0	1,5
20x130 M12/M16					
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6/M8	0,75	0,60	0,75	0,60
16x85 M8 / M10	20x85 M12 / M16	2,00	1,50	2,00	1,50
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/ M10		2,50	2,00	2,50	2,00
20x130 M12/M16					
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6/M8	0,90	0,75	0,90	0,75
16x85 M8 / M10	20x85 M12 / M16	2,50	2,00	2,50	2,00
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/ M10		3,00	2,50	3,50	3,00
20x130 M12/M16					
Compressive strength $f_b = 12 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6/M8	0,90	0,90	1,20	0,90
16x85 M8 / M10	20x85 M12 / M16	3,00	2,50	3,00	2,50
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/ M10		3,50	3,00	4,00	3,50
20x130 M12/M16					

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Characteristic values tension load

Annex C 14

Kind of masonry: Perforated block form B, HLz

Table C26: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6 / M8	0,50			
16x85 M8 / M10	20x85 M12 / M16				
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/M10	20x130 M12/M16				
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6 / M8	0,75			
16x85 M8 / M10	20x85 M12 / M16				
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/M10	20x130 M12/M16				
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6 / M8	0,90			
16x85 M8 / M10	20x85 M12 / M16				
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/M10	20x130 M12/M16				
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6 / M8	1,20			
16x85 M8 / M10	20x85 M12 / M16				
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/M10	20x130 M12/M16				
Compressive strength $f_b = 12 \text{ N/mm}^2$					
12x50 M6/M8	12x85 M6 / M8	1,5			
16x85 M8 / M10	20x85 M12 / M16				
16x85 UVT TOP E 11x85 M6 / M8	20x 85 UVT TOP E 15x85 M10 / M12				
16x130 M8/M10	20x130 M12/M16				
2,00					

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Characteristic values shear load

Annex C 15

Kind of masonry: Perforated brick HLz, 2DF

Table C27: Parameters of brick

Species of brick		Perforated brick HLz
Density	$\rho \geq [\text{kg/dm}^3]$	1,4
Compressive strength	$f_b \geq [\text{N/mm}^2]$	6, 10, 16, 20 or 28
Standard or approval		EN 771-1
Producer		e.g. Wienerberger
Size, dimensions	[mm]	240x115x113
Minimum thickness of brick	h_{min} [mm]	115

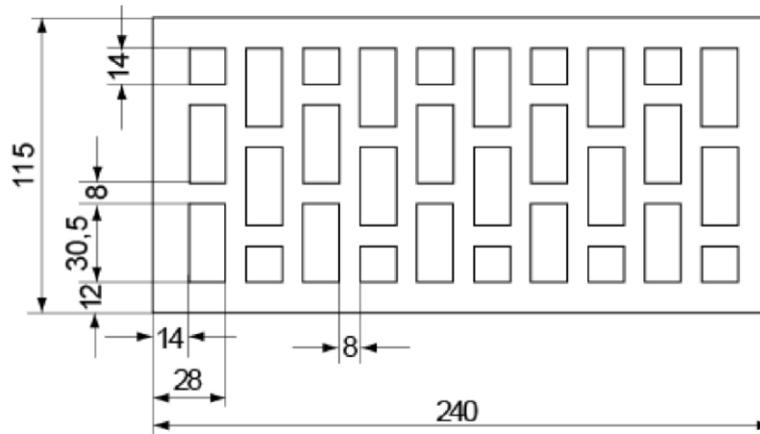


Table C28: Installation parameters for threaded rod with perforated sleeves
and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50		12x85		16x85		20x85	
Size of threaded rod	M6	M8	M6	M8	M8	M10	M12	M16
Size of internal threaded anchor UVT TOP E					11x85 M6/M8		15x85 M10/M12	
Edge distance	c_{min} [mm]		80					
Spacing	$s_{\text{cr}} \parallel = s_{\text{min}} \parallel$ [mm]		240					
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]		115					
Group-factor	$\alpha_{\text{g,N}} \parallel$ [-]		2,0					
	$\alpha_{\text{g,V}} \parallel$ [-]							
	$\alpha_{\text{g,N}} \perp$ [-]							
	$\alpha_{\text{g,V}} \perp$ [-]							
Max. installation torque	$T_{\text{inst,max}}$ [Nm]		2					

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz, 2DF
Species of brick, installation parameters

Annex C 16

Kind of masonry: Perforated brick HLz, 2DF

Table C29: Characteristic values of resistance; tension load (N_{RK})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{RK} [kN]			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		0,75	0,60	0,75	0,60
12x85 M6 / M8		0,90	0,90	1,20	0,90
16x85 M8 / M10	16x85 UVT TOP E 11x85 M6 / M8	0,75	0,60	0,75	0,60
20x85 M12 / M16	20x85 UVT TOP E 15x85 M10 / M12	0,90	0,75	0,90	0,75
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6 / M8		1,20	0,90	1,20	0,90
12x85 M6 / M8		1,50	1,50	2,00	1,50
16x85 M8 / M10	16x85 UVT TOP E 11x85 M6 / M8	1,20	0,90	1,20	1,20
20x85 M12 / M16	20x85 UVT TOP E 15x85 M10 / M12	1,50	1,20	1,50	1,20
Compressive strength $f_b = 16 \text{ N/mm}^2$					
12x50 M6 / M8		2,00	1,50	2,00	1,50
12x85 M6 / M8		2,50	2,00	3,00	2,50
16x85 M8 / M10	16x85 UVT TOP E 11x85 M6 / M8	2,00	1,50	2,00	1,50
20x85 M12 / M16	20x85 UVT TOP E 15x85 M10 / M12	2,00	2,00	2,50	2,00
Compressive strength $f_b = 20 \text{ N/mm}^2$					
12x50 M6 / M8		2,50	2,00	2,50	2,00
12x85 M6 / M8		3,50	3,00	4,00	3,00
16x85 M8 / M10	16x85 UVT TOP E 11x85 M6 / M8	2,50	2,00	2,50	2,00
20x85 M12 / M16	20x85 UVT TOP E 15x85 M10 / M12	3,00	2,50	3,00	2,50
Compressive strength $f_b = 28 \text{ N/mm}^2$					
12x50 M6 / M8		3,00	2,50	3,50	3,00
12x85 M6 / M8		5,00	4,00	5,50	4,50
16x85 M8 / M10	16x85 UVT TOP E 11x85 M6 / M8	3,50	3,00	3,50	3,00
20x85 M12 / M16	20x85 UVT TOP E 15x85 M10 / M12	4,00	3,50	4,50	3,50

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values tension load

Annex C 17

Kind of masonry: Perforated brick, HLz, 2DF				
Table C30: Characteristic values of resistance; shear load (V_{Rk})				
Use category		w/w		d/d
Temperature range [°C]		50/80	72/120	50/80 72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]		
Compressive strength $f_b = 6 \text{ N/mm}^2$				
12x50 M6 12x85 M6	16x85 UVT TOP E 11X85 M6	1,2		
12x85 M8		2,0		
16x85 M8 / M10 12x50 M8	16x85 UVT TOP E 11X85 M8	1,5		
20x85 M12 / M16	20x85 UVT TOP E 15X85 M10 / M12	2,5		
Compressive strength $f_b = 10 \text{ N/mm}^2$				
12x50 M6 12x85 M6	16x85 UVT TOP E 11X85 M6	2,0		
12x85 M8		4,0		
16x85 M8 / M10 12x50 M8	16x85 UVT TOP E 11X85 M8	2,5		
20x85 M12 / M16	20x85 UVT TOP E 15X85 M10 / M12	4,5		
Compressive strength $f_b = 16 \text{ N/mm}^2$				
12x50 M6 12x85 M6	16x85 UVT TOP E 11X85 M6	3,0		
12x85 M8		6,0 (5,5) ¹⁾		
16x85 M8 / M10 12x50 M8	16x85 UVT TOP E 11X85 M8	3,5		
20x85 M12 / M16	20x85 UVT TOP E 15X85 M10 / M12	7,0 (5,5) ¹⁾		
Compressive strength $f_b = 20 \text{ N/mm}^2$				
12x50 M6 12x85 M6	16x85 UVT TOP E 11X85 M6	4,0		
12x85 M8		7,5 (5,5) ¹⁾		
16x85 M8 / M10 12x50 M8	16x85 UVT TOP E 11X85 M8	4,5		
20x85 M12 / M16	20x85 UVT TOP E 15X85 M10 / M12	8,5 (5,5) ¹⁾		
Compressive strength $f_b = 28 \text{ N/mm}^2$				
12x50 M6 12x85 M6	16x85 UVT TOP E 11X85 M6	5,0		
12x85 M8		9,5 (5,5) ¹⁾		
16x85 M8 / M10 12x50 M8	16x85 UVT TOP E 11X85 M8	6,5 (5,5) ¹⁾		
20x85 M12 / M16	20x85 UVT TOP E 15X85 M10 / M12	12,0 (5,5) ¹⁾		
<p>¹⁾ Characteristic value of pushing out of one brick $V_{Rk,pb} = 5,5 \text{ kN}$</p> <p>Factor for job site tests and displacements see Annex C78.</p>				
BTI Universal Component Compound UVT TOP for masonry				Annex C 18
Performances Perforated brick HLz Characteristic values shear load				

Kind of masonry: Sand-lime hollow brick KSL

Table C31: Parameters of brick

Species of brick	Sand-lime hollow brick KSL	
Density	$\rho \geq$ [kg/dm ³]	1,4
Compressive strength	$f_b \geq$ [N/mm ²]	8, 10, 12, 16 or 20
Standard or approval		EN 771-2
Producer		e.g. KS Wemding
Size, dimensions	[mm]	240x175x113
Minimum thickness of brick	h_{min} [mm]	175

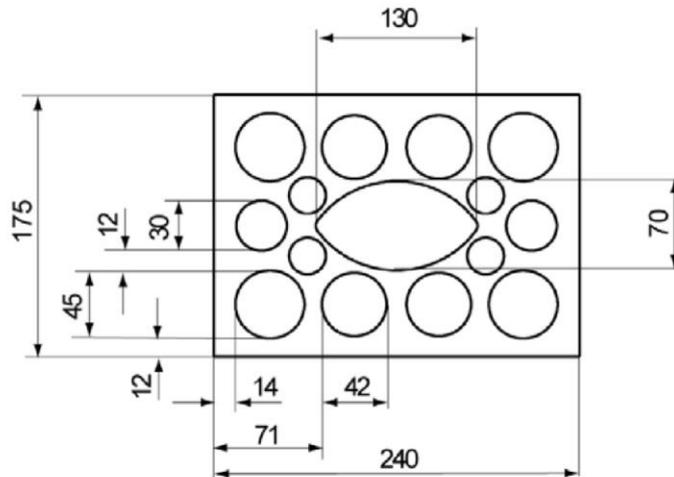


Table C32: Installation parameters for threaded rod with perforated sleeve
and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200
Size of threaded rod	M6 M8	M6 M8	M8 M10	M8 M10	M10 M12	M12 M16	M12 M16	M16
Size of internal threaded anchor UVT TOP E			11x85 M6/M8			15x85 M10/M12		
Edge distance	c_{min} [mm]	60	80					
Spacing	s_{min} [mm]	100						
	s_{cr} [mm]	240						
	$s_{cr} \perp = s_{min} \perp$ [mm]	115						
Group-factor	$\alpha_{g,N}$ [-]	1,5						
	$\alpha_{g,V}$ [-]							
	$\alpha_{g,N} \perp$ [-]	2,0						
	$\alpha_{g,V} \perp$ [-]							
Max. installation torque	$T_{inst,max}$ [Nm]	2						

BTI Universal Component Compound UVT TOP for masonry

Annex C 19

Performances
Sand-lime hollow brick KSL
Species of brick, installation parameters

Kind of masonry: Sand-lime hollow brick KSL

Table C33: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	1,50	1,20	1,50	1,50
16x85 M8 / M10	UVT TOP E 11X85 M6 / M8	2,00	1,50	2,00	1,50
16x130 M8 / M10 18x 130 /200 M10 / M12 20x85 UVT TOP E 15X85 M10 / M12	20x130 M12 / M16 22x130/200 M16	2,00	1,50	2,50	2,00
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	2,00	1,50	2,00	2,00
16x85 M8 / M10	UVT TOP E 11X85 M6 / M8	2,00	2,00	2,50	2,50
16x130 M8 / M10 18x 130 /200 M10 / M12 20x85 UVT TOP E 15X85 M10 / M12	20x130 M12 / M16 22x130/200 M16	2,50	2,00	3,00	2,50
Compressive strength $f_b = 12 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	2,50	2,00	2,50	2,00
16x85 M8 / M10	UVT TOP E 11X85 M6 / M8	2,50	2,00	3,00	2,50
16x130 M8 / M10 18x 130 /200 M10 / M12 20x85 UVT TOP E 15X85 M10 / M12	20x130 M12 / M16 22x130/200 M16	3,00	2,50	3,50	3,00
Compressive strength $f_b = 16 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	3,00	2,50	3,50	3,00
16x85 M8 / M10	UVT TOP E 11X85 M6 / M8	3,50	3,00	4,00	3,50
16x130 M8 / M10 18x 130 /200 M10 / M12 20x85 UVT TOP E 15X85 M10 / M12	20x130 M12 / M16 22x130/200 M16	4,50	3,50	4,50	4,00
Compressive strength $f_b = 20 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	4,00	3,50	4,50	3,50
16x85 M8 / M10	UVT TOP E 11X85 M6 / M8	4,50	4,00	5,00	4,00
16x130 M8 / M10 18x 130 /200 M10 / M12 20x85 UVT TOP E 15X85 M10 / M12	20x130 M12 / M16 22x130/200 M16	5,50	4,50	6,00	5,00

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Sand-lime hollow brick KSL
Characteristic values tension load

Annex C 20

Kind of masonry: Sand-lime hollow brick KSL			
Table C34: Characteristic values of resistance; shear load (V_{Rk})			
Use category		w/w	
Temperature range [°C]		50/80	72/120
Sleeve/anchor combinations		d/d	
Sleeve/anchor combinations		characteristic values V_{Rk} [kN]	
Compressive strength $f_b = 8 \text{ N/mm}^2$			
12x50 M6 / 12x85 M6	16x85 UVT TOP E 11X85 M6	1,50	
12x50 M8 / 12x85 M8		1,50	
16x85 M8 / M10 16x85 UVT TOP E 11X85 M8 16x130 M10 / M12	18x130/200 M10 / M12 20x85 M12 20x85 UVT TOP E 15X85 M10/ M12 20x130 M12	3,00	
20x85 M16 20x130 M16	22x130/200 M16	2,50	
Compressive strength $f_b = 10 \text{ N/mm}^2$			
12x50 M6 / 12x85 M6	16x85 UVT TOP E 11X85 M6	2,00	
12x50 M8 / 12x85 M8		2,00	
16x85 M8 / M10 16x85 UVT TOP E 11X85 M8 16x130 M10 / M12	18x130/200 M10 / M12 20x85 M12 20x85 UVT TOP E 15X85 M10/ M12 20x130 M12	3,50	
20x85 M16 20x130 M16	22x130/200 M16	3,50	
Compressive strength $f_b = 12 \text{ N/mm}^2$			
12x50 M6 / 12x85 M6	16x85 UVT TOP E 11X85 M6	2,50	
12x50 M8 / 12x85 M8		2,50	
16x85 M8 / M10 16x85 UVT TOP E 11X85 M8 16x130 M10 / M12	18x130/200 M10 / M12 20x85 M12 20x85 UVT TOP E 15X85 M10/ M12 20x130 M12	4,50	
20x85 M16 20x130 M16	22x130/200 M16	4,00	
Compressive strength $f_b = 16 \text{ N/mm}^2$			
12x50 M6 / 12x85 M6	16x85 UVT TOP E 11X85 M6	3,00	
12x50 M8 / 12x85 M8		3,50	
16x85 M8 / M10 16x85 UVT TOP E 11X85 M8 16x130 M10 / M12	18x130/200 M10 / M12 20x85 M12 20x85 UVT TOP E 15X85 M10/ M12 20x130 M12	6,00	
20x85 M16 20x130 M16	22x130/200 M16	5,50	
Compressive strength $f_b = 20 \text{ N/mm}^2$			
12x50 M6 / 12x85 M6	16x85 UVT TOP E 11X85 M6	4,00	
12x50 M8 / 12x85 M8		4,50	
16x85 M8 / M10 16x85 UVT TOP E 11X85 M8 16x130 M10 / M12	18x130/200 M10 / M12 20x85 M12 20x85 UVT TOP E 15X85 M10/ M12 20x130 M12	7,50	
20x85 M16 20x130 M16	22x130/200 M16	6,50	
Factor for job site tests and displacements see Annex C78.			
BTI Universal Component Compound UVT TOP for masonry			Annex C 21
Performances Sand-lime hollow brick KSL Characteristic values shear load			

Kind of masonry: Light-weight concrete hollow block Hbl

Table C35: Parameters of brick

Species of brick		Light-weight concrete hollow block Hbl
Density	$\rho \geq$ [kg/dm ³]	1,0
Compressive strength	$f_b \geq$ [N/mm ²]	2 or 4
Standard or approval		EN 771-3
Producer		
Size, dimensions	[mm]	362x240x240
Minimum thickness of brick	h_{min} [mm]	240

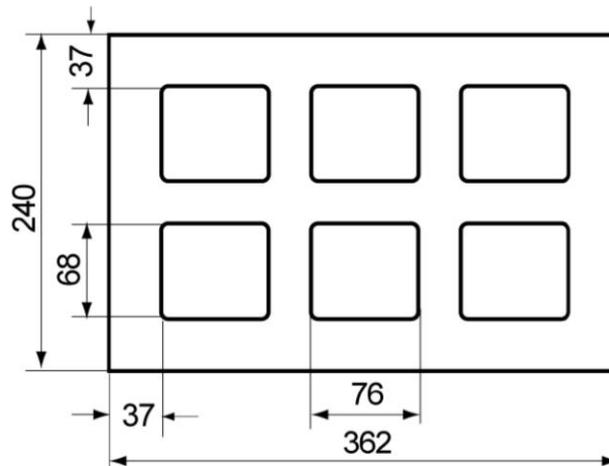


Table C36: Installation parameters for threaded rod with perforated sleeve
and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200	20x200						
Size of threaded rod	M6	M8	M6	M8	M8	M10	M10	M12	M12	M16	M12	M16	M16	M12	M16
Size of internal threaded anchor UVT TOP E			11x85				15x85								
			M6/M8				M10/M12								
Edge distance	c_{min} [mm]		60												
Spacing	s_{min} [mm]		100												
	s_{cr} [mm]		362												
	$s_{cr} \perp = s_{min} \perp$ [mm]		240												
Group-factor	$\alpha_{g,N}$ [-]		1,2												
	$\alpha_{g,V}$ [-]		1,1												
	$\alpha_{g,N}$ \perp [-]		2,0												
	$\alpha_{g,V}$ \perp [-]		2,0												
Max. installation torque	$T_{inst,max}$ [Nm]		2												

BTI Universal Component Compound UVT TOP for masonry

Performances

Light-weight concrete hollow block Hbl
Species of brick, installation parameters

Annex C 22

Kind of masonry: Light-weight concrete hollow block Hbl

Table C37: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range	[°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		1,20	0,90	1,20	0,90
12x85 M6 16x130 M8 / M10	18x130/200 M10 / M12	1,50	1,20	1,50	1,20
16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8	20x85 M12 / M16 20x85 / UVT TOP E 15x85 M10 / M12 20x130 M12 / M16 22x130/200 M16	1,50	1,20	1,50	1,20
20x200 M12 / M16		2,50	2,00	2,50	2,00
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		2,00	2,00	2,50	2,00
12x85 M6 16x130 M8 / M10	18x130/200 M10 / M12	3,00	2,50	3,00	2,50
16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8	20x85 M12 / M16 20x85 / UVT TOP E 15x85 M10 / M12 20x130 M12 / M16 22x130/200 M16	3,00	2,50	3,00	2,50
20x200 M12 / M16		5,00	4,00	5,50	4,50

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Light-weight concrete hollow block Hbl
Characteristic values tension load

Annex C 23

Kind of masonry: Light-weight concrete hollow block Hbl

Table C38: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
All sizes		0,90			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
All sizes		2,00			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Light-weight concrete hollow block Hbl
Characteristic values shear load

Annex C 24

Kind of masonry: Perforated block form B, HLz

Table C39: Parameters of brick

Species of brick	Perforated block form B, HLz	
Density	$\rho \geq [\text{kg/dm}^3]$	0,6
Compressive strength	$f_b \geq [\text{N/mm}^2]$	4, 6, 8
Standard or approval	EN 771-1	
Producer	e.g. Bouyer Leroux	
Size, dimensions	[mm]	500x200x315
Minimum thickness of brick	h_{\min} [mm]	200

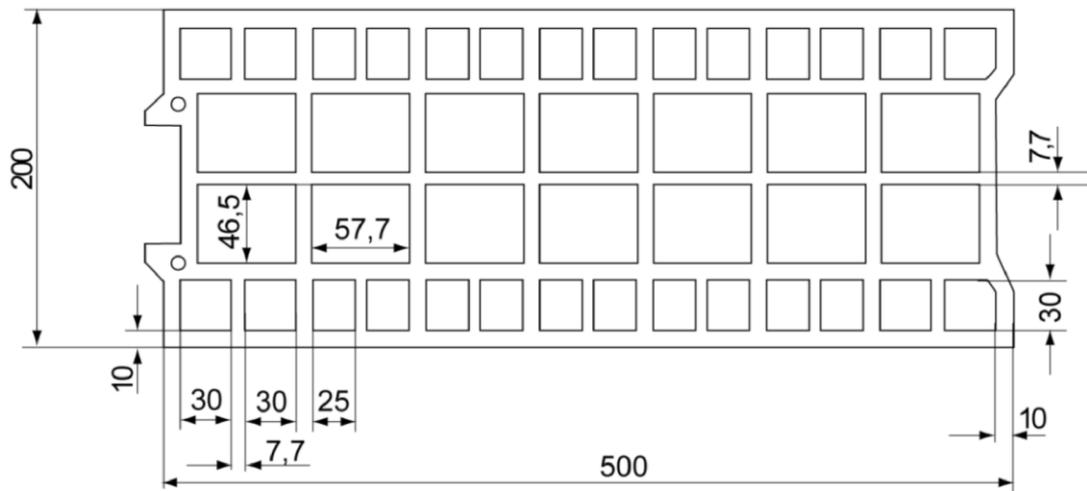


Table C40: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200
Size of threaded rod	M6 M8	M6 M8	M8 M10	M8 M10	M10 M12	M12 M16	M12 M16	M16
Size of internal threaded anchor UVT TOP E			11x85 M6/M8			15x85 M10/M12		
Edge distance c_{\min} [mm]						120		
s_{\min} II [mm]						120		
Spacing s_{cr} II [mm]						500		
$s_{cr}^{\perp} = s_{\min}^{\perp}$ [mm]						315		
Group-factor	$\alpha_{g,N}$ II [-]					1,3		
	$\alpha_{g,V}$ II [-]					1,7		
	$\alpha_{g,N}$ \perp [-]					2,0		
	$\alpha_{g,V}$ \perp [-]							
Max. installation torque $T_{\text{inst,max}}$ [Nm]						2		

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Species of brick, installation parameters

Annex C 25

Kind of masonry: Perforated block form B, HLz

Table C41: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		0,50	0,40	0,60	0,50
12x85 M6 / M8 16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,50	1,20	1,50	1,20
16x130 M8 / M10 18x130/200 M8 / M10		0,75	0,60	0,90	0,75
20x130 M16 22x130/200 M16		1,50	1,20	2,00	1,50
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		0,75	0,60	0,90	0,75
12x85 M6 / M8 16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	2,00	2,00	2,50	2,00
16x130 M8 / M10 18x130/200 M8 / M10		1,20	0,90	1,20	1,20
20x130 M12 / M16 22x130/200 M16		2,50	2,00	2,50	2,00
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		0,90	0,90	1,20	0,90
12x85 M6 / M8 16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	3,00	2,50	3,00	2,50
16x130 M8 / M10 18x130/200 M8 / M10		1,50	1,20	2,00	1,50
20x130 M12 / M16 22x130/200 M16		3,50	2,50	3,50	3,00

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Characteristic values tension load

Annex C 26

Kind of masonry: Perforated block form B, HLz

Table C42: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range	[°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8 12x85 M6 / M8 16x85 M8 / M10	16x85 / UVT TOP E 11X85 M6 / M8 20x85 / UVT TOP E 15X85 M10/M12 20x85 M12	1,50			
20x85 M16		2,50			
16x130 M8 / M10 20x130 M12 / M16	18x130/200 M10 / M12 22x130/200 M16	0,90			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8 12x85 M6 / M8 16x85 M8 / M10	16x85 / UVT TOP E 11X85 M6 / M8 20x85 / UVT TOP E 15X85 M10/M12 20x85 M12	2,50			
20x85 M16		3,50			
16x130 M8 / M10 20x130 M12 / M16	18x130/200 M10 / M12 22x130/200 M16	1,50			
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8 12x85 M6 / M8 16x85 M8 / M10	16x85 / UVT TOP E 11X85 M6 / M8 20x85 / UVT TOP E 15X85 M10/M12 20x85 M12	3,50			
20x85 M16		4,50			
16x130 M8 / M10 20x130 M12 / M16	18x130/200 M10 / M12 22x130/200 M16	2,00			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Characteristic values shear load

Annex C27

Kind of masonry: Perforated block form B, HLz

Table C43: Parameters of brick

Species of brick		Perforated block form B, HLz
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	0,7
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	4, 6, 8 or 10
Standard or approval		EN 771-1
Producer		e.g. Wienerberger
Size, dimensions	[mm]	500x200x300
Minimum thickness of brick	$h_{\text{min}} [\text{mm}]$	200

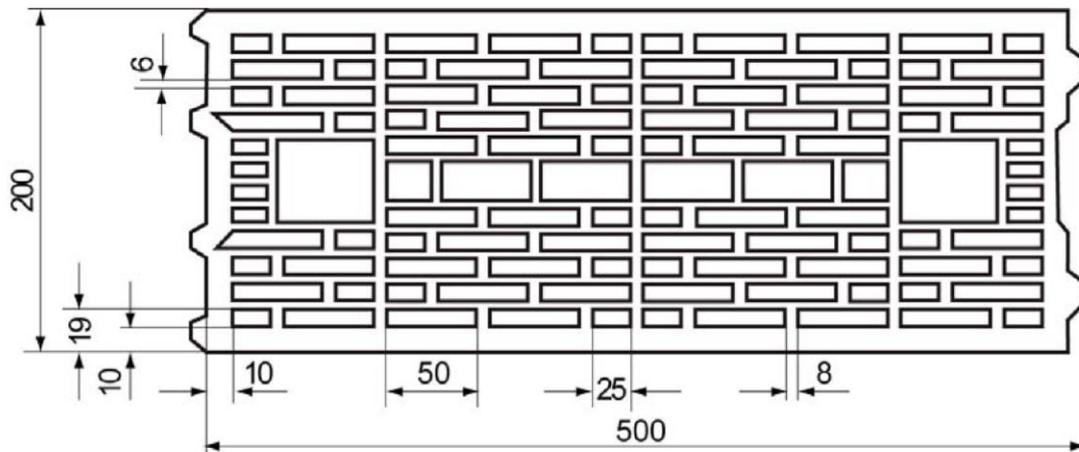


Table C44: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200
Size of threaded rod	M6 M8	M6 M8	M8 M10	M8 M10	M10 M12	M12 M16	M12 M16	M16
Size of internal threaded anchor UVT TOP E			11x85 M6/M8			15x85 M10/M12		
Edge distance $c_{\text{min}} [\text{mm}]$	50		80			50	80	
Spacing	$s_{\text{min}} \parallel [\text{mm}]$	100						
	$s_{\text{cr}} \parallel [\text{mm}]$	500						
	$s_{\text{cr}} \perp = s_{\text{min}} \perp [\text{mm}]$	300						
Group-factor	$\alpha_{g,N} \parallel [-]$	1,4						
	$\alpha_{g,V} \parallel [-]$							
	$\alpha_{g,N} \perp [-]$	2,0						
	$\alpha_{g,V} \perp [-]$							
Max. installation torque $T_{\text{inst,max}} [\text{Nm}]$	2							

BTI Universal Component Compound UVT TOP for masonry

Annex C 28

Performances
Perforated block form B,HLz
Species of brick, installation parameters

Kind of masonry: Perforated block form B, HLz

Table C45: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	0,50	0,40	0,60	0,50
16x85 M8 / M10	16x85 / UVT TOP E 11x85 M6 / M8	0,60	0,50	0,75	0,60
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	0,75	0,60	0,90	0,75
16x130 M8 / M10	18x130/200 M10 / M12	1,20	0,90	1,20	0,90
20x130 M12 / M16	22x130/200 M16	1,50	1,20	1,50	1,20
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	0,75	0,60	0,90	0,75
16x85 M8 / M10	16x85 / UVT TOP E 11x85 M6 / M8	0,90	0,75	1,20	0,90
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	1,20	0,90	1,20	1,20
16x130 M8 / M10	18x130/200 M10 / M12	1,50	1,20	2,00	1,50
20x130 M12 / M16	22x130/200 M16	2,00	1,50	2,50	2,00
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	0,90	0,90	1,20	0,90
16x85 M8 / M10	16x85 / UVT TOP E 11x85 M6 / M8	1,20	1,20	1,50	1,20
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	1,50	1,20	1,50	1,50
16x130 M8 / M10	18x130/200 M10 / M12	2,00	2,00	2,50	2,00
20x130 M12 / M16	22x130/200 M16	2,50	2,50	3,00	2,50
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	1,20	0,90	1,50	1,2
16x85 M8 / M10	16x85 / UVT TOP E 11x85 M6 / M8	1,50	1,20	2,00	1,50
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	2,00	1,50	2,00	2,00
16x130 M8 / M10	18x130/200 M10 / M12	2,50	2,00	3,00	2,50
20x130 M12 / M16	22x130/200 M16	3,50	3,00	4,00	3,00

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Characteristic values tension load

Annex C 29

Kind of masonry: Perforated block form B, HLz

Table C46: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w	d/d
Temperature range	[°C]	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]	
Compressive strength $f_b = 4 \text{ N/mm}^2$			
12x50 M6	16x85 / UVT TOP E 11X85 M6	0,90	
12x50 M8 12x85 M6 / M8	16x85 / UVT TOP E 11X85 M8	1,20	
20x85 M12 / M16	20x85 /UVT TOP E 15X85 M10 / M12	2,00	
16x130 M8 / M10 18x130/200 M10 / M12	20x130 M12 / M16 22x130/200 M16	0,60	
Compressive strength $f_b = 6 \text{ N/mm}^2$			
12x50 M6	16x85 / UVT TOP E 11X85 M6	1,20	
12x50 M8 12x85 M6 / M8	16x85 / UVT TOP E 11X85 M8	1,50	
20x85 M12 / M16	20x85 /UVT TOP E 15X85 M10 / M12	3,00	
16x130 M8 / M10 18x130/200 M10 / M12	20x130 M12 / M16 22x130/200 M16	0,90	
Compressive strength $f_b = 8 \text{ N/mm}^2$			
12x50 M6	16x85 / UVT TOP E 11X85 M6	1,50	
12x50 M8 12x85 M6 / M8	16x85 / UVT TOP E 11X85 M8	2,00	
20x85 M12 / M16	20x85 /UVT TOP E 15X85 M10 / M12	4,00	
16x130 M8 / M10 18x130/200 M10 / M12	20x130 M12 / M16 22x130/200 M16	1,20	
Compressive strength $f_b = 10 \text{ N/mm}^2$			
12x50 M6	16x85 / UVT TOP E 11X85 M6	2,00	
12x50 M8 12x85 M6 / M8	16x85 / UVT TOP E 11X85 M8	3,00	
20x85 M12 / M16	20x85 /UVT TOP E 15X85 M10 / M12	5,00	
16x130 M8 / M10 18x130/200 M10 / M12	20x130 M12 / M16 22x130/200 M16	1,50	

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Characteristic values shear load

Annex C 30

Kind of masonry: Perforated block form B, HLz

Table C47: Parameters of brick

Species of brick		Perforated block form B, HLz
Density	$\rho \geq [\text{kg/dm}^3]$	0,7
Compressive strength	$f_b \geq [\text{N/mm}^2]$	2, 4, 6 or 8
Standard or approval		EN 771-1
Producer		e.g. Terreal
Size, dimensions	[mm]	500x200x315
Minimum thickness of brick	h_{min} [mm]	200

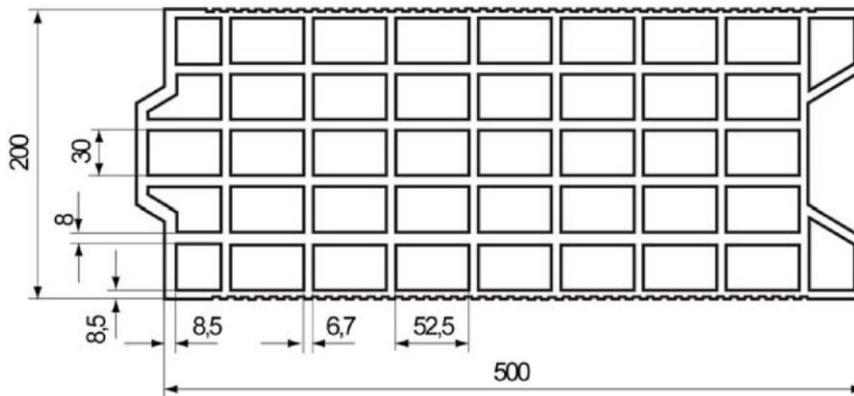


Table C48: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200
Size of threaded rod	M6 M8	M6 M8	M8 M10	M8 M10	M10 M12	M12 M16	M12 M16	M16
Size of internal threaded anchor UVT TOP E			11x85 M6/M8			15x85 M10/M12		
Edge distance	c_{min} [mm]	50		80		50	80	
Spacing	s_{min} [mm]			100				
	s_{cr} [mm]			500				
	s_{min} \perp [mm]			100				
	s_{cr} \perp [mm]			315				
Group-factor	$\alpha_{g,N}$ [-]			1,1				
	$\alpha_{g,V}$ [-]			1,2				
	$\alpha_{g,N}$ \perp [-]			1,1				
	$\alpha_{g,V}$ \perp [-]			1,2				
Max. installation torque	$T_{\text{inst,max}}$ [Nm]			2				

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Species of brick, installation parameters

Annex C 31

Kind of masonry: Perforated block form B, HLz

Table C49: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range	[°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		0,50	0,40	0,50	0,40
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8 20x85 M12 / M16 20x85 /UVT TOP E 15x85 M10 / M12	0,50	0,40	0,50	0,40
20x130 M12 / M16 22x130/200 M16	16x130 M8 / M10 18x130/200 M10 / M12	0,50	0,40	0,60	0,50
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		0,90	0,75	0,90	0,90
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8 20x85 M12 / M16 20x85 /UVT TOP E 15x85 M10 / M12	0,90	0,75	1,20	0,90
20x130 M12 / M16 22x130/200 M16	16x130 M8 / M10 18x130/200 M10 / M12	0,90	0,90	1,20	0,90
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		1,50	1,20	1,50	1,20
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8 20x85 M12 / M16 20x85 /UVT TOP E 15x85 M10 / M12	1,50	1,20	1,50	1,20
20x130 M12 / M16 22x130/200 M16	16x130 M8 / M10 18x130/200 M10 / M12	1,50	1,20	1,50	1,50
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		2,00	1,50	2,00	1,50
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8 20x85 M12 / M16 20x85 /UVT TOP E 15x85 M10 / M12	2,00	1,50	2,00	2,00
20x130 M12 / M16 22x130/200 M16	16x130 M8 / M10 18x130/200 M10 / M12	2,00	1,50	2,00	2,00

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Characteristic values tension load

Annex C 32

Kind of masonry: Perforated block form B, HLz

Table C50: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w	d/d
Temperature range	[°C]	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]	
Compressive strength $f_b = 2 \text{ N/mm}^2$			
12x50 M6	16x85 / UVT TOP E 11X85 M6	0,30	
12x50 M8	16x85 M8	0,60	
12x85 M6 / M8	16x85 / UVT TOP E 11X85 M8		
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	0,90	
16x130 M8 / M10	18x130/200 M10 / M12	0,60	
20x130 M12 / M16	22x130/200 M16	0,75	
Compressive strength $f_b = 4 \text{ N/mm}^2$			
12x50 M6	16x85 / UVT TOP E 11X85 M6	0,75	
12x50 M8	16x85 M8	1,20	
12x85 M6 / M8	16x85 / UVT TOP E 11X85 M8		
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	2,00	
16x130 M8 / M10	18x130/200 M10 / M12	1,20	
20x130 M12 / M16	22x130/200 M16	1,50	
Compressive strength $f_b = 6 \text{ N/mm}^2$			
12x50 M6	16x85 / UVT TOP E 11X85 M6	0,90	
12x50 M8	16x85 M8	2,00	
12x85 M6 / M8	16x85 / UVT TOP E 11X85 M8		
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	3,00	
16x130 M8 / M10	18x130/200 M10 / M12	1,50	
20x130 M12 / M16	22x130/200 M16	2,00	
Compressive strength $f_b = 8 \text{ N/mm}^2$			
12x50 M6	16x85 / UVT TOP E 11X85 M6	1,50	
12x50 M8	16x85 M8	2,50	
12x85 M6 / M8	16x85 / UVT TOP E 11X85 M8		
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	4,00	
16x130 M8 / M10	18x130/200 M10 / M12	2,00	
20x130 M12 / M16	22x130/200 M16	3,00	

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Characteristic values shear load

Annex C 33

Kind of masonry: Perforated block form B, HLz

Table C51: Parameters of brick

Species of brick	Perforated block form B, HLz	
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	0,7
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	4, 6 or 8
Standard or approval		EN 771-1
Producer		e.g. Imery
Size, dimensions	[mm]	500x200x275
Minimum thickness of brick	h_{min} [mm]	200

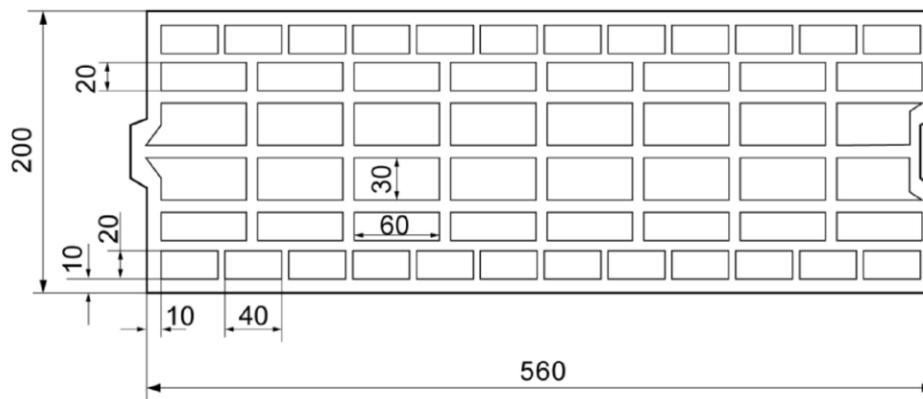


Table C52: Installation parameters for threaded rod with perforated sleeve

Size of perforated sleeve	16x130		18x130/200		20x130		22x130/200	
	M8	M10	M10	M12	M12	M16	M16	
Edge distance	c_{min} [mm]		80					
Spacing	$s_{\text{cr}} \parallel = s_{\text{min}} \perp$ [mm]		560					
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]		275					
Group-factor	$\alpha_{\text{g,N}} \parallel$ [-]		2,0					
	$\alpha_{\text{g,V}} \parallel$ [-]							
	$\alpha_{\text{g,N}} \perp$ [-]							
	$\alpha_{\text{g,V}} \perp$ [-]							
Max. installation torque	$T_{\text{inst,max}}$ [Nm]		2					

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B, HLz
Species of brick, installation parameters

Annex C 34

Kind of masonry: Perforated block form B, HLz

Table C53: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range	[°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
16x130 M8 / M10	18x130/200 M10 / M12	0,90	0,90	1,20	0,90
20x130 M12 / M16	22x130/200 M16	1,20	1,20	1,50	1,20
Compressive strength $f_b = 6 \text{ N/mm}^2$					
16x130 M8 / M10	18x130/200 M10 / M12	1,50	1,20	1,50	1,50
20x130 M12 / M16	22x130/200 M16	2,00	1,50	2,00	2,00
Compressive strength $f_b = 8 \text{ N/mm}^2$					
16x130 M8 / M10	18x130/200 M10 / M12	2,00	1,50	2,50	2,00
20x130 M12 / M16	22x130/200 M16	2,50	2,00	3,00	2,50

Table C54: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range	[°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
16x130 M8 / M10 18x130/200 M10 / M12	20x130 M12 / M16 22x130/200 M16	0,90			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
16x130 M8 / M10 18x130/200 M10 / M12	20x130 M12 / M16 22x130/200 M16	1,50			
Compressive strength $f_b = 8 \text{ N/mm}^2$					
16x130 M8 / M10 18x130/200 M10 / M12	20x130 M12 / M16 22x130/200 M16	2,00			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated block form B,HLz
Characteristic values

Annex C 35

Kind of masonry: Light-weight concrete hollow block Hbl

Table C55: Parameters of brick

Species of brick		Light-weight concrete hollow block Hbl
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	1,0
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	2, 4 or 6
Standard or approval		EN 771-1
Producer		e.g. Sepa
Size, dimensions	[mm]	500x200x200
Minimum thickness of brick	h_{min} [mm]	200

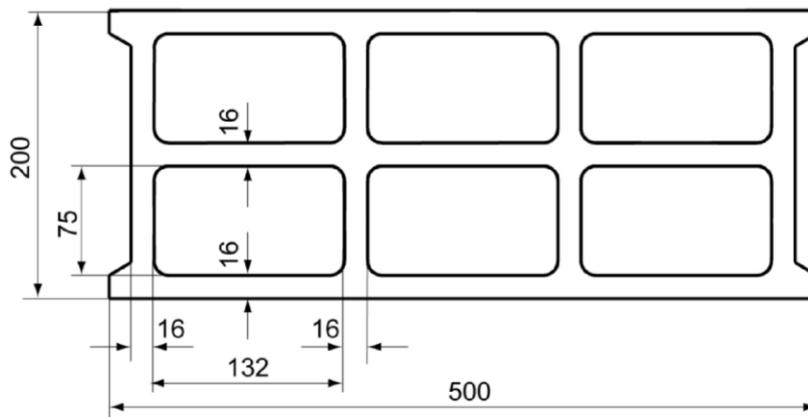


Table C56: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85
Size of threaded rod	M6 M8	M6 M8	M8 M10	M8 M10	M10 M12	M12 M16
Size of internal threaded anchor UVT TOP E			11x85 M6/M8			15x85 M10/M12
Edge distance c_{min} [mm]				100		
Spacing	$s_{\text{cr}} \parallel = s_{\text{min}} \parallel$ [mm]			500		
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]			200		
Group-factor	$\alpha_{\text{g,N}} \parallel$ [-]			2,0		
	$\alpha_{\text{g,V}} \parallel$ [-]					
	$\alpha_{\text{g,N}} \perp$ [-]					
	$\alpha_{\text{g,V}} \perp$ [-]					
Max. installation torque $T_{\text{inst,max}}$ [Nm]	1		2			

BTI Universal Component Compound UVT TOP for masonry

Performances

Light-weight concrete hollow block
Species of brick, installation parameters

Annex C 36

Kind of masonry: Light-weight concrete hollow block Hbl

Table C57: Characteristic values of resistance; tension load (N_{Rk})

Use category	w/w		d/d	
Temperature range [°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$				
All sizes	0,40	0,40	0,50	0,40
Compressive strength $f_b = 4 \text{ N/mm}^2$				
All sizes	0,90	0,75	0,90	0,75
Compressive strength $f_b = 6 \text{ N/mm}^2$				
All sizes	1,20	1,20	1,50	1,20

Table C58: Characteristic values of resistance; shear load (V_{Rk})

Use category	w/w		d/d	
Temperature range [°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$				
All sizes	0,90			
Compressive strength $f_b = 4 \text{ N/mm}^2$				
All sizes	1,50			
Compressive strength $f_b = 6 \text{ N/mm}^2$				
All sizes	2,50			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Light-weight concrete hollow block Hbl
Characteristic values

Annex C 37

Kind of masonry: Solid brick Mz

Table C59: Parameters of brick

Species of brick	Solid brick Mz	
Density	$\rho \geq [\text{kg/dm}^3]$	1,8
Compressive strength	$f_b \geq [\text{N/mm}^2]$	10 or 20
Standard or approval		EN 771-1
Producer		e.g. Nigra
Size, dimensions	[mm]	$\geq 245 \times 118 \times 54$
Minimum thickness of brick	h_{min} [mm]	118

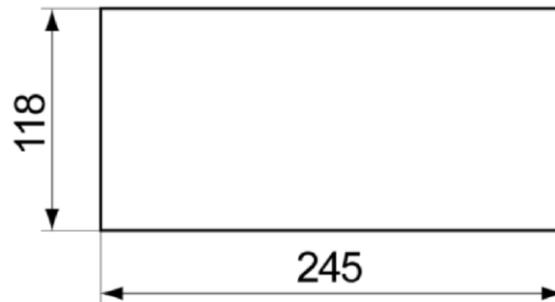


Table C60: Installation parameters for threaded rod and internal threaded anchor UVT TOP E without perforated sleeve

Size of threaded rod	M6		M8		M10		M12		M16		UVT TOP E ¹⁾ M6/M8	UVT TOP E M10/M12
	Effective anchorage depth h_{ef} [mm]	50	100	50	100	50	100	50	100	50	100	85
Edge distance c_{min} [mm]	60											
Spacing	$s_{\text{cr}} \parallel = s_{\text{min}} \parallel$ [mm]											245
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]											60
Group-factor	$\alpha_{\text{g,N}} \parallel$ [-]											2,0
	$\alpha_{\text{g,V}} \parallel$ [-]											
	$\alpha_{\text{g,N}} \perp$ [-]											
	$\alpha_{\text{g,V}} \perp$ [-]											
Max. installation torque $T_{\text{inst,max}}$ [Nm]	4		10									

¹⁾ For UVT TOP E with screw M6: $T_{\text{inst,max}} = 4 \text{ Nm}$

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid brick Mz
Species of brick, installation parameters

Annex C 38

Kind of masonry: Solid brick Mz

Table C61: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6	0,60	0,50	1,20	0,9
85	UVT TOP E 11X85 M6				
≥ 50	M8	0,90	0,90	1,50	1,50
85	UVT TOP E 11X85 M8				
≥ 50	M10 / M12 / M16	0,75	0,60	1,20	1,20
85	UVT TOP E 15X85 M10 / M12				
Compressive strength $f_b = 20 \text{ N/mm}^2$					
≥ 50	M6	0,90	0,75	1,50	1,20
85	UVT TOP E 11X85 M6				
≥ 50	M8	1,50	1,20	2,50	2,00
85	UVT TOP E 11X85 M8				
≥ 50	M10 / M12 / M16	1,20	0,90	2,00	1,50
85	UVT TOP E 15X85 M10 / M12				

Table C62: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6	2,00			
85	UVT TOP E 11X85 M6				
≥ 50	M8	3,00			
85	UVT TOP E 11X85 M8				
≥ 50	M10	4,00			
85	UVT TOP E 15X85 M10				
≥ 50	M12	4,50			
85	UVT TOP E 15X85 M12				
≥ 50	M16	5,50			
Compressive strength $f_b = 20 \text{ N/mm}^2$					
≥ 50	M6	2,50			
85	UVT TOP E 11X85 M6				
≥ 50	M8	4,00			
85	UVT TOP E 11X85 M8				
≥ 50	M10	5,50			
85	UVT TOP E 15X85 M10				
≥ 50	M12	6,00 (5,50) ¹			
85	UVT TOP E 15X85 M12				
≥ 50	M16	8,00 (5,50) ¹			

¹) Characteristic value pushing out of one brick $V_{Rk,pb} = 5,50 \text{ kN}$
Factor for job site tests and displacements see Annex C78

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid brick Mz
Characteristic values

Annex C 39

Kind of masonry: Perforated brick HLz

Table C63: Parameters of brick

Species of brick		Perforated brick HLz
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	1,0
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	2, 4, 6, 8, 10 or 12
Standard or approval		EN 771-1
Producer		e.g. Wienerberger
Size, dimensions	[mm]	255x120x118
Minimum thickness of brick	h_{min} [mm]	120

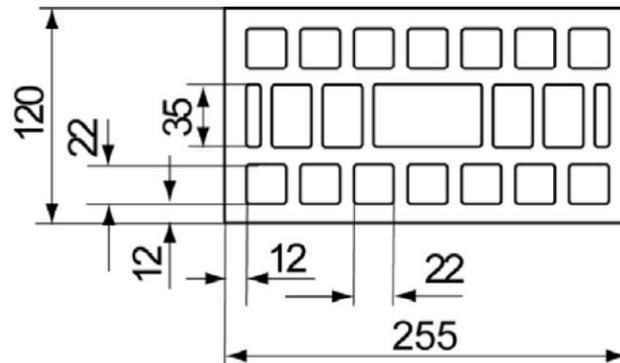


Table C64: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	20x85				
Size of threaded rod	M6	M8	M6	M8	M8	M10	M12	M16
Size of internal threaded anchor UVT TOP E					11x85		11x85	
					M6/M8		M10/M12	
Edge distance	c_{min} [mm]	60						
Spacing	$s_{\text{cr}} \parallel = s_{\text{min}} \parallel$ [mm]	255						
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]	120						
Group-factor	$\alpha_{g,N} \parallel$ [-]	2,0						
	$\alpha_{g,V} \parallel$ [-]							
	$\alpha_{g,N} \perp$ [-]							
	$\alpha_{g,V} \perp$ [-]							
Max. installation torque	$T_{\text{inst,max}}$ [Nm]	2						

BTI Universal Component Compound UVT TOP for masonry

Annex C 40

Performances
Perforated brick HLz
Species of brick, installation parameters

Kind of masonry: Perforated brick HLz					
Table C65: Characteristic values of resistance; tension load (N_{Rk})					
Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		0,40	0,30	0,50	0,40
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	0,50	0,40	0,50	0,50
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	--	--	--	--
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		0,90	0,75	0,90	0,75
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	0,90	0,90	1,20	0,90
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	0,50	0,40	0,50	0,40
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		1,20	0,90	1,50	1,20
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	1,50	1,20	1,50	1,50
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	0,75	0,60	0,75	0,60
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		1,50	1,50	2,00	1,50
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	2,00	1,50	2,00	2,00
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	0,90	0,75	0,90	0,90
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6 / M8		2,00	1,50	2,50	2,00
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	2,50	2,00	2,50	2,50
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	1,20	0,90	1,20	1,20
Compressive strength $f_b = 12 \text{ N/mm}^2$					
12x50 M6 / M8		2,50	2,00	3,00	2,50
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	3,00	2,50	3,50	2,50
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	1,50	1,20	1,50	1,20
Factor for job site tests and displacements see Annex C78.					
BTI Universal Component Compound UVT TOP for masonry				Annex C 41	
Performances Perforated brick HLz Characteristic values tension load					

Kind of masonry: Perforated brick HLz				
Table C66: Characteristic values of resistance; shear load (V_{Rk})				
Use category		w/w		d/d
Temperature range [°C]		50/80	72/120	50/80 72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]		
Compressive strength $f_b = 2 \text{ N/mm}^2$				
12x50 M6	12x85 M6	0,60		
12x50 M8	12x85 M8	0,75		
20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8	0,90		
Compressive strength $f_b = 4 \text{ N/mm}^2$				
12x50 M6	12x85 M6	1,20		
12x50 M8	12x85 M8	1,50		
20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8	2,00		
Compressive strength $f_b = 6 \text{ N/mm}^2$				
12x50 M6	12x85 M6	2,00		
12x50 M8	12x85 M8	2,00		
20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8	2,50		
Compressive strength $f_b = 8 \text{ N/mm}^2$				
12x50 M6	12x85 M6	2,50		
12x50 M8	12x85 M8	3,00		
20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8	3,50		
Compressive strength $f_b = 10 \text{ N/mm}^2$				
12x50 M6	12x85 M6	3,00		
12x50 M8	12x85 M8	3,50		
20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8	4,50		
Compressive strength $f_b = 12 \text{ N/mm}^2$				
12x50 M6	12x85 M6	4,00		
12x50 M8	12x85 M8	4,50		
20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	16x85 M8 / M10 16x85 / UVT TOP E 11x85 M6 / M8	5,50		
Factor for job site tests and displacements see Annex C78.				
BTI Universal Component Compound UVT TOP for masonry				Annex C 42
Performances Perforated brick HLz Characteristic values shear load				

Kind of masonry: Perforated brick LLz

Table C67: Parameters of brick

Species of brick		Perforated brick LLz
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	0,7
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	2, 4 or 6
Standard or approval		EN 771-1
Producer		
Size, dimensions	[mm]	248x78x248
Minimum thickness of brick	h_{min} [mm]	80

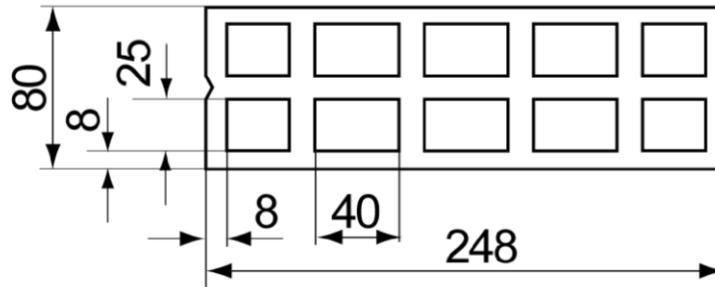


Table C68: Installation parameters for threaded rod with perforated sleeve

Size of perforated sleeve		12x50	
Size of threaded rod		M6	M8
Edge distance	c_{min} [mm]	100	
Spacing	$s_{\text{min}} \parallel$ [mm]	75	
	$s_{\text{cr}} \parallel$ [mm]	250	
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]	250	
Group-factor	$\alpha_{g,N} \parallel$ [-]	1,6	
	$\alpha_{g,V} \parallel$ [-]	1,1	
	$\alpha_{g,N} \perp$ [-]	2,0	
	$\alpha_{g,V} \perp$ [-]		
Max. installation torque	$T_{\text{inst,max}}$ [Nm]	2	

BTI Universal Component Compound UVT TOP for masonry

Annex C 43

Performances
Perforated brick LLz
Species of brick, installation parameters

Kind of masonry: Perforated brick LLz

Table C69: Characteristic values of resistance; tension load (N_{RK})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{RK} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		0,50	0,40	0,60	0,50
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		0,90	0,90	1,20	0,90
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		1,50	1,20	1,50	1,50

Table C70: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{RK} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		0,50			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		0,90			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		1,50			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick LLz
Characteristic values

Annex C 44

Kind of masonry: Perforated brick HLz

Table C71: Parameters of brick

Species of brick		Perforated brick HLz
Density	$\rho \geq [\text{kg/dm}^3]$	0,8
Compressive strength	$f_b \geq [\text{N/mm}^2]$	6, 8, 12, 16 or 20
Standard or approval		EN 771-1
Producer		e.g. Cermanica Farreny S.A.
Size, dimensions	[mm]	275x130x94
Minimum thickness of brick	h_{\min} [mm]	130

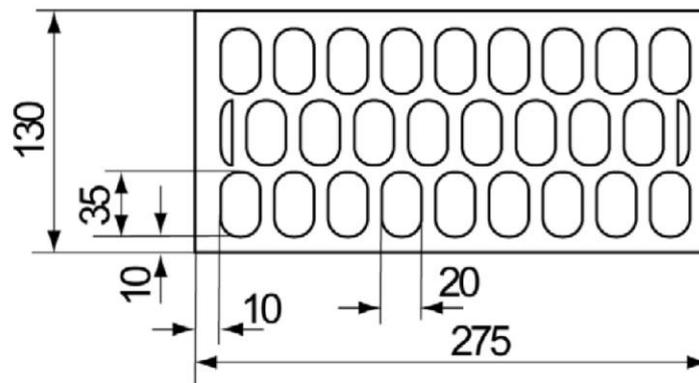


Table C72: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated

Size of perforated sleeve		12x50	12x85	16x85	20x85				
Size of threaded rod		M6	M8	M6	M8	M8	M10	M12	M16
Size of internal threaded anchor UVT TOP E						11x85	15x85		
						M6/M8	M10/M12		
Edge distance	c_{\min} [mm]	100				120			
Spacing	$s_{cr \parallel} = s_{\min \parallel}$ [mm]	275							
	$s_{cr \perp} = s_{\min \perp}$ [mm]	95							
Group-factor	$\alpha_{g,N \parallel}$ [-]	2,0							
	$\alpha_{g,V \parallel}$ [-]								
	$\alpha_{g,N \perp}$ [-]								
	$\alpha_{g,V \perp}$ [-]								
Max. installation torque	$T_{\text{inst,max}}$ [Nm]	2							

BTI Universal Component Compound UVT TOP for masonry

Annex C 45

Performances
Perforated brick HLz
Species of brick, installation parameters

Kind of masonry: Perforated brick HLz

Table C73: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		0,40	0,30	0,40	0,40
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	0,90	0,75	0,90	0,75
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		0,50	0,40	0,60	0,50
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,20	0,90	1,20	0,90
Compressive strength $f_b = 12 \text{ N/mm}^2$					
12x50 M6 / M8		0,75	0,60	0,90	0,75
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,50	1,50	2,00	1,50
Compressive strength $f_b = 16 \text{ N/mm}^2$					
12x50 M6 / M8		0,90	0,90	1,20	0,90
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	2,00	2,00	2,50	2,00
Compressive strength $f_b = 20 \text{ N/mm}^2$					
12x50 M6 / M8		1,20	1,20	1,50	1,20
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	3,00	2,50	3,00	2,50

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values tension load

Annex C 46

Kind of masonry: Perforated brick HLz

Table C74: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		1,2			
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,2			
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		1,5			
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,5			
Compressive strength $f_b = 12 \text{ N/mm}^2$					
12x50 M6 / M8		2,0			
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	2,5			
Compressive strength $f_b = 16 \text{ N/mm}^2$					
12x50 M6 / M8		3,0			
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	3,0			
Compressive strength $f_b = 20 \text{ N/mm}^2$					
12x50 M6 / M8		4,0			
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	4,0			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values shear load

Annex C 47

Kind of masonry: Perforated brick LLz

Table C75: Parameters of brick

Species of brick		Perforated brick LLz
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	0,8
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	2
Standard or approval		EN 771-1
Producer		e.g. Ceramica Farreny S.A.
Size, dimensions	[mm]	128x88x275
Minimum thickness of brick	h_{min} [mm]	88

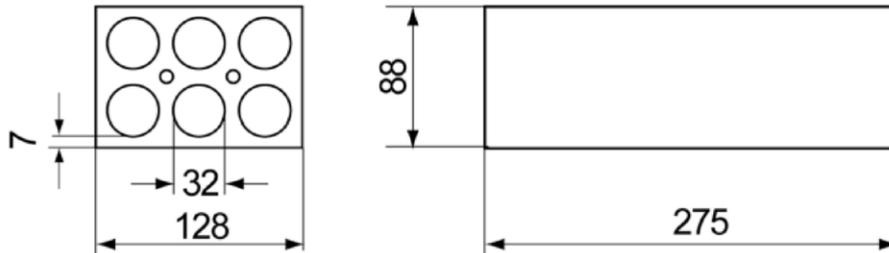


Table C76: Installation parameters for threaded rod with perforated sleeve

Size of perforated sleeve		12x50	
Size of threaded rod		M6	M8
Edge distance	c_{min} [mm]	60	
Spacing	$s_{\text{min}} \parallel$ [mm]	75	
	$s_{\text{cr}} \parallel$ [mm]	275	
	$s_{\text{min}} \perp$ [mm]	75	
	$s_{\text{cr}} \perp$ [mm]	130	
Group-factor	$\alpha_{g,N} \parallel$ [-]	1,3	
	$\alpha_{g,V} \parallel$ [-]	1,5	
	$\alpha_{g,N} \perp$ [-]	1,3	
	$\alpha_{g,V} \perp$ [-]	1,5	
Max. installation torque	$T_{\text{inst,max}}$ [Nm]	2	

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick LLz
Species of brick, installation parameters

Annex C 48

Kind of masonry: Perforated brick LLz

Table C77: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range	[°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		1,50	1,20	1,50	1,20

Table C78: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range	[°C]	50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		1,20			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick LLz
Characteristic values

Annex C 49

Kind of masonry: Perforated brick HLz

Table C79: Parameters of brick

Species of brick	Perforated brick HLz	
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	0,7
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	6, 8 or 10
Standard or approval		EN 771-1
Producer		e.g. Perceram
Size, dimensions	[mm]	220x190x290
Minimum thickness of brick	h_{min} [mm]	190

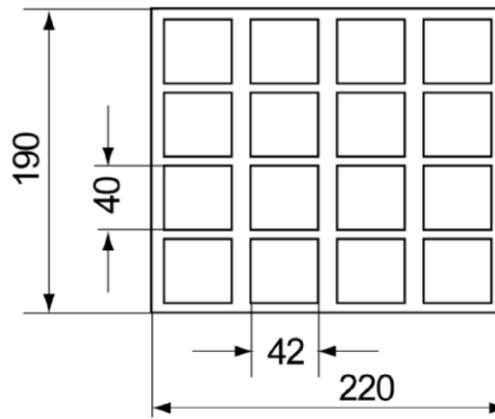


Table C80: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200	
Size of threaded rod	M6 M8	M6 M8	M8 M10	M8 M10	M10 M12	M12 M16	M12 M16	M16	
Size of internal threaded anchor UVT TOP E			11x85 M6/M8			15x85 M10/M12			
Edge distance c_{min} [mm]						110			
Spacing	$s_{\text{cr}} \parallel = s_{\text{min}} \parallel$ [mm]					220			
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]					290			
Group-factor	$\alpha_{\text{g,N}} \parallel$ [-]					2,0			
	$\alpha_{\text{g,V}} \parallel$ [-]								
	$\alpha_{\text{g,N}} \perp$ [-]								
	$\alpha_{\text{g,V}} \perp$ [-]								
Max. installation torque	$T_{\text{inst,max}}$ [Nm]					2			

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Species of brick, installation parameters

Annex C 50

Kind of masonry: Perforated brick HLz

Table C81: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		0,30	--	0,40	0,30
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,20	1,20	1,50	1,20
20x130 M12 / M16 22x130/200 M16	16x130 M8 / M10 18x130/200 M10 / M12	1,50	1,20	1,50	1,50
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		0,50	0,40	0,50	0,40
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,50	1,50	2,00	1,50
20x130 M12 / M16 22x130/200 M16	16x130 M8 / M10 18x130/200 M10 / M12	2,00	1,50	2,50	2,00
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6 / M8		0,60	0,50	0,60	0,50
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	2,00	2,00	2,50	2,00
20x130 M12 / M16 22x130/200 M16	16x130 M8 / M10 18x130/200 M10 / M12	2,50	2,00	3,00	2,00

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values tension load

Annex C 51

Kind of masonry: Perforated brick HLz

Table C82: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations		characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		1,50			
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,50			
16x130 M8 / M10		2,50			
20x130 M12 / M16	22x130/200 M16 18x130/200 M10 / M12	2,00			
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		2,00			
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	2,00			
16x130 M8 / M10		3,50			
20x130 M12 / M16	22x130/200 M16 18x130/200 M10 / M12	3,00			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6 / M8		2,50			
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	3,00			
16x130 M8 / M10		4,50			
20x130 M12 / M16	22x130/200 M16 18x130/200 M10 / M12	3,50			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values shear load

Annex C 52

Kind of masonry: Perforated brick HLz

Table C83: Parameters of brick

pieces of brick		Perforated brick HLz
Density	$\rho \geq [\text{kg/dm}^3]$	0,8
Compressive strength	$f_b \geq [\text{N/mm}^2]$	2, 4 or 6
Standard or approval		EN 771-1
Producer		e.g. Ziegelwerk Brenna
Size, dimensions	[mm]	253x300x240
Minimum thickness of brick	h_{min} [mm]	300

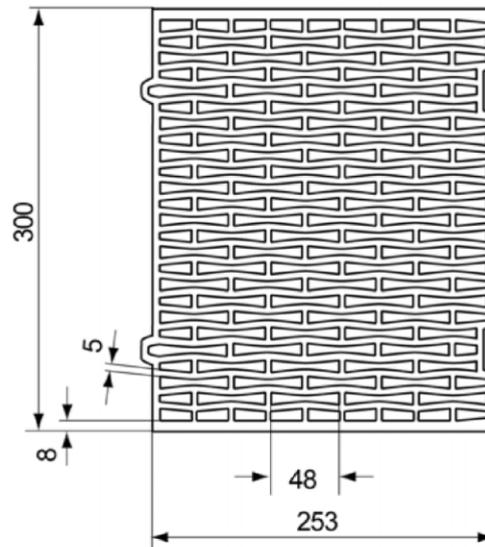


Table C84: Installation parameters for threaded rod with perforated sleeve and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200
Size of threaded rod	M6 M8	M6 M8	M8 M10	M8 M10	M10 M12	M12 M16	M12 M16	M16
Size of internal threaded anchor UVT TOP E			11x85 M6/M8			15x85 M10/M12		
Edge distance	c_{min} [mm]	60						
Spacing	$s_{\text{cr}} \parallel = s_{\text{min}} \parallel$ [mm]	255						
	$s_{\text{cr}} \perp = s_{\text{min}} \perp$ [mm]	240						
Group-factor	$\alpha_{\text{g,N}} \parallel$ [-]	2,0						
	$\alpha_{\text{g,V}} \parallel$ [-]							
	$\alpha_{\text{g,N}} \perp$ [-]							
	$\alpha_{\text{g,V}} \perp$ [-]							
Max. installation torque	$T_{\text{inst,max}}$ [Nm]	2						

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Species of brick, installation parameters

Annex C 53

Kind of masonry: Perforated brick HLz

Table C85: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		--	--	0,30	--
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	0,50	0,40	0,50	0,40
20x130 M12 / M16 22x130/200 / M16	16x130 M8 / M10 18x130/200 M10 / M12	0,40	0,30	0,50	0,40
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		0,50	0,40	0,60	0,50
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	0,90	0,75	0,90	0,90
20x130 M12 / M16 22x130/200 / M16	16x130 M8 / M10 18x130/200 M10 / M12	0,90	0,75	0,90	0,75
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		0,75	0,60	0,90	0,75
12x85 M6 / M8	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 20x85 M12 / M16 20x85 / UVT TOP E 15X85 M10 / M12	1,50	1,20	1,50	1,20
20x130 M12 / M16 22x130/200 / M16	16x130 M8 / M10 18x130/200 M10 / M12	1,20	0,90	1,50	1,20

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values tension load

Annex C 54

Kind of masonry: Perforated brick HLz

Table C86: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w	d/d
Temperature range	[°C]	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]	
Compressive strength $f_b = 2 \text{ N/mm}^2$			
12x50 M6 / M8		0,50	
12x85 M6 / M8 16x130 M8 / M10	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 18x130/200 M10 / M 12 20x85 / UVT TOP E 15X85 M10	0,50	
20x130 M12 / M16 22x130/200 M16	20x85 M12 / M16 20x85, UVT TOP E 15X85 M12	0,60	
Compressive strength $f_b = 4 \text{ N/mm}^2$			
12x50 M6 / M8		0,90	
12x85 M6 / M8 16x130 M8 / M10	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 18x130/200 M10 / M 12 20x85 / UVT TOP E 15X85 M10	0,90	
20x130 M12 / M16 22x130/200 M16	20x85 M12 / M16 20x85, UVT TOP E 15X85 M12	1,20	
Compressive strength $f_b = 6 \text{ N/mm}^2$			
12x50 M6 / M8		1,50	
12x85 M6 / M8 16x130 M8 / M10	16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8 18x130/200 M10 / M 12 20x85 / UVT TOP E 15X85 M10	1,50	
20x130 M12 / M16 22x130/200 M16	20x85 M12 / M16 20x85, UVT TOP E 15X85 M12	1,50	

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values shear load

Annex C 55

Kind of masonry: Solid light-weight concrete block Vbl

Table C87: Parameters of brick

Species of brick	Solid light-weight concrete block Vbl	
Density $\rho \geq$ [kg/dm ³]	2,0	
Compressive strength $f_b \geq$ [N/mm ²]	4, 6, 8 or 10	
Standard or approval		
Producer	e.g. Roadstone wood	
Size, dimensions [mm]	$\geq 440 \times 100 \times 215$	
Minimum thickness of brick h_{\min} [mm]	100	

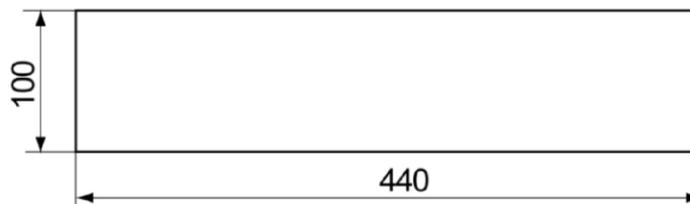


Table C88: Installation parameters for threaded rod (without perforated sleeve)

Size of threaded rod	M6		M8		M10		M12		M16		
Effective anchorage depth h_{ef} [mm]	50	70	50	70	50	70	50	70	50	70	
Edge distance c_{\min} [mm]	100										
Spacing	s_{\min} [mm]		75								
	s_{cr} [mm]		440								
	s_{\min} \perp [mm]		75								
	s_{cr} \perp [mm]		215								
Group-factor	$\alpha_{g,N}$ [-]		1,6								
	$\alpha_{g,V}$ [-]		1,3								
	$\alpha_{g,N}$ \perp [-]		1,4								
	$\alpha_{g,V}$ \perp [-]		1,3								
Max. installation torque $T_{inst,max}$ [Nm]	4		10								

BTI Universal Component Compound UVT TOP for masonry

Performances

Solid light-weight concrete block Vbl
Species of brick, installation parameters

Annex C 56

Kind of masonry: Solid light-weight concrete block Vbl

Table C89: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
≥ 50	M6	1,20	0,90	2,00	1,50
	M8 / M10 / M12 / M16	1,20	1,20	2,00	2,00
Compressive strength $f_b = 6 \text{ N/mm}^2$					
≥ 50	M6	1,50	1,50	3,00	2,50
	M8 / M10 / M12 / M16	2,00	1,50	3,50	2,50
Compressive strength $f_b = 8 \text{ N/mm}^2$					
≥ 50	M6	2,00	2,00	4,00	3,00
	M8 / M10 / M12 / M16	2,50	2,00	4,50	3,50
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6	3,00	2,50	5,00	4,00
	M8 / M10 / M12 / M16	3,50	2,50	5,50	4,50

Table C90: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
≥ 50	M6	1,20			
	M8	1,50			
	M10 / M12	1,50			
	M16	1,50			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
≥ 50	M6	2,00			
	M8	2,00			
	M10 / M12	2,50			
	M16	2,50			
Compressive strength $f_b = 8 \text{ N/mm}^2$					
≥ 50	M6	2,50			
	M8	2,50			
	M10 / M12	3,00			
	M16	3,50			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6	3,00			
	M8	3,50			
	M10 / M12	4,00			
	M16	4,50			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid light-weight concrete block Vbl
Characteristic values

Annex C 57

Kind of masonry: Solid light-weight concrete block Vbl

Table C91: Parameters of brick

Species of brick	Solid light-weight concrete block Vbl	
Density $\rho \geq [\text{kg}/\text{dm}^3]$	2,0	
Compressive strength $f_b \geq [\text{N}/\text{mm}^2]$	6, 8 ,10 or 12	
Standard or approval		
Producer	e.g. Tramac	
Size, dimensions [mm]	$\geq 440 \times 95 \times 215$	
Minimum thickness of brick h_{min} [mm]	95	

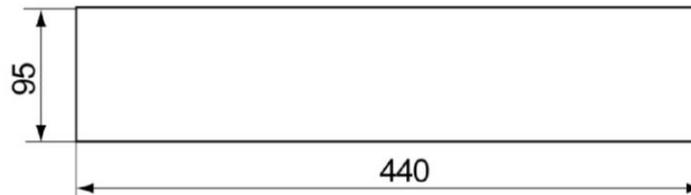


Table C92: Installation parameters for threaded rod without perforated sleeve

Size of threaded rod	M6		M8		M10		M12		M16		
Effective anchorage depth h_{ef} [mm]	50	70	50	70	50	70	50	70	50	70	
Edge distance c_{min} [mm]	60										
Spacing	s_{min} [mm]	75									
	s_{cr} [mm]	440									
	s_{min} \perp [mm]	75									
	s_{cr} \perp [mm]	215									
Group-factor	$\alpha_{\text{g,N}}$ [-]	1,9									
	$\alpha_{\text{g,V}}$ [-]	1,4									
	$\alpha_{\text{g,N}}$ \perp [-]	1,9									
	$\alpha_{\text{g,V}}$ \perp [-]	1,4									
Max. installation torque $T_{\text{inst,max}}$ [Nm]	4		10								

BTI Universal Component Compound UVT TOP for masonry

Performances

Solid light-weight concrete block Vbl
Species of brick, installation parameters

Annex C 58

Kind of masonry: Solid light-weight concrete block Vbl

Table C93: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
50	M6 / M8 / M10 / M12 / M16	1,50	1,20	2,50	2,00
70	M6 / M8	2,00	1,50	3,50	3,00
	M10 / M12 / M16	2,00	2,00	3,50	3,00
Compressive strength $f_b = 8 \text{ N/mm}^2$					
50	M6 / M8 / M10 / M12 / M16	2,00	1,50	3,50	3,00
70	M6 / M8	2,50	2,00	4,50	4,00
	M10 / M12 / M16	3,00	2,50	5,00	4,00
Compressive strength $f_b = 10 \text{ N/mm}^2$					
50	M6 / M8 / M10 / M12 / M16	2,50	2,00	4,50	3,50
70	M6 / M8	3,50	3,00	6,00	5,00
	M10 / M12 / M16	3,50	3,00	6,00	5,00
Compressive strength $f_b = 12 \text{ N/mm}^2$					
50	M6 / M8 / M10 / M12 / M16	3,00	2,50	5,00	4,50
70	M6 / M8	4,00	3,50	7,00	6,00
	M10 / M12 / M16	4,50	3,50	7,50	6,00

Table C94: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
≥ 50	M6 / M8	2,00			
	M10	2,00			
	M12 / M16	1,50			
Compressive strength $f_b = 8 \text{ N/mm}^2$					
≥ 50	M6 / M8	2,50			
	M10	3,00			
	M12 / M16	2,50			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6 / M8	3,50			
	M10	4,00			
	M12 / M16	3,00			
Compressive strength $f_b = 12 \text{ N/mm}^2$					
≥ 50	M6 / M8	4,00			
	M10	4,50			
	M12 / M16	3,50			

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid light-weight concrete block Vbl
Characteristic values

Annex C 59

Kind of masonry: Light-weight concrete hollow block Hbl

Table C95: Parameters of brick

Species of brick	Light-weight concrete hollow block Hbl	
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	1,2
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	4, 6, 8 or 10
Standard or approval		EN771-3
Producer		e.g. Roadstone wood
Size, dimensions	[mm]	$\geq 440 \times 215 \times 215$
Minimum thickness of brick	h_{\min} [mm]	215

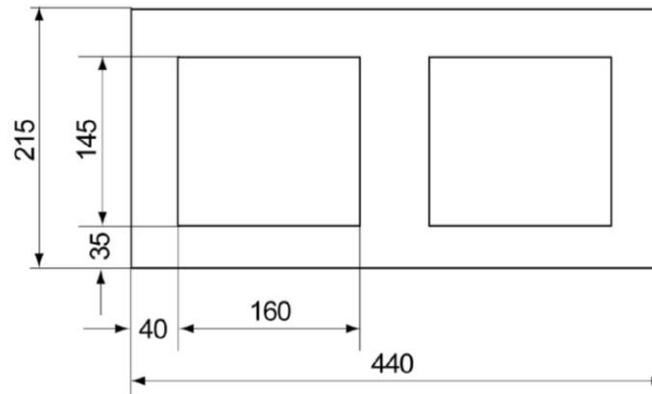


Table C96: Installation parameters for threaded rod and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve	12x50	12x85	16x85	16x130	18x130/200	20x85	20x130	22x130/200	
Size of threaded rod	M6/M8	M6/M8	M8/M10	M8/M10	M10	M12	M12/M16	M16	
Size of internal threaded anchor UVT TOP E			11x85 M6/M8			15x85 M10/M12			
Edge distance c_{\min} [mm]	110								
Spacing	s_{\min} [mm]	100							
	s_{cr} [mm]	440							
	s_{\min} \perp [mm]	100							
	s_{cr} \perp [mm]	215							
Group-factor	$\alpha_{g,N}$ [-]	1,4							
	$\alpha_{g,V}$ [-]	2,0							
	$\alpha_{g,N}$ \perp [-]	1,4							
	$\alpha_{g,V}$ \perp [-]	1,2							
Max. installation torque $T_{\text{inst,max}}$ [Nm]	2								

BTI Universal Component Compound UVT TOP for masonry

Performances

Light-weight concrete hollow block Hbl
Species of brick, installation parameters

Annex C 60

Kind of masonry: Light-weight concrete hollow block Hbl

Table C97: Characteristic values of resistance; tension load (N_{RK})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations		Sleeve/anchor combinations		characteristic values N_{RK} [kN]	
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	0,90	0,90	1,20	0,90
16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	16x130 M8 / M10 18x130/200 M10 / M12	1,20	0,90	1,50	1,20
20x85 M12 / M16 20x130 M12 / M16	22x130/200 M16 20x85 UVT TOP E 15X85 M10 / M 12	2,00	1,50	2,00	1,50
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	1,50	1,20	1,50	1,50
16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	16x130 M8 / M10 18x130/200 M10 / M12	2,00	1,50	2,00	1,50
20x85 M12 / M16 20x130 M12 / M16	22x130/200 M16 20x85 UVT TOP E 15X85 M10 / M 12	3,00	2,50	3,00	2,50
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	2,00	1,50	2,00	2,00
16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	16x130 M8 / M10 18x130/200 M10 / M12	2,50	2,00	3,00	2,50
20x85 M12 / M16 20x130 M12 / M16	22x130/200 M16 20x85 UVT TOP E 15X85 M10 / M 12	3,50	3,00	4,00	3,50
Compressive strength $f_b = 10 \text{ N/mm}^2$					
12x50 M6 / M8	12x85 M6 / M8	2,50	2,00	3,00	2,50
16x85 M8 / M10 16x85 / UVT TOP E 11X85 M6 / M8	16x130 M8 / M10 18x130/200 M10 / M12	3,00	2,50	3,50	3,00
20x85 M12 / M16 20x130 M12 / M16	22x130/200 M16 20x85 UVT TOP E 15X85 M10 / M 12	4,50	4,00	5,00	4,50

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Light-weight concrete hollow block Hbl
Characteristic values tension load

Annex C 61

Kind of masonry: Light-weight concrete hollow block Hbl

Table C98: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w	d/d
Temperature range [°C]		50/80	72/120
Sleeve/anchor combinations		characteristic values V_{Rk} [kN]	
Compressive strength $f_b = 4 \text{ N/mm}^2$			
12x50 M6 12x85 M6	16x85 / UVT TOP E 11X85 M6	0,75	
12x50 M8 12x85 M8 16x85 M8 / M10 16x85 / UVT TOP E 11X85 M8 16x130 M8 / M10	20x85 M12 / M16 20x85 UVT TOP E 15X85 M10 / M12 20x130 M12 / M16 18x130/200 M12 22x130/200 M16	1,20	
Compressive strength $f_b = 6 \text{ N/mm}^2$			
12x50 M6 12x85 M6	16x85 / UVT TOP E 11X85 M6	1,20	
12x50 M8 12x85 M8 16x85 M8 / M10 16x85 / UVT TOP E 11X85 M8 16x130 M8 / M10	20x85 M12 / M16 20x85 UVT TOP E 15X85 M10 / M12 20x130 M12 / M16 18x130/200 M12 22x130/200 M16	2,00	
Compressive strength $f_b = 8 \text{ N/mm}^2$			
12x50 M6 12x85 M6	16x85 / UVT TOP E 11X85 M6	1,50	
12x50 M8 12x85 M8 16x85 M8 / M10 16x85 / UVT TOP E 11X85 M8 16x130 M8 / M10	20x85 M12 / M16 20x85 UVT TOP E 15X85 M10 / M12 20x130 M12 / M16 18x130/200 M12 22x130/200 M16	2,50	
Compressive strength $f_b = 10 \text{ N/mm}^2$			
12x50 M6 12x85 M6	16x85 / UVT TOP E 11X85 M6	2,00	
12x50 M8 12x85 M8 16x85 M8 / M10 16x85 / UVT TOP E 11X85 M8 16x130 M8 / M10	20x85 M12 / M16 20x85 UVT TOP E 15X85 M10 / M12 20x130 M12 / M16 18x130/200 M12 22x130/200 M16	3,00	

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Light-weight concrete hollow block Hbl
Characteristic values shear load

Annex C 62

Kind of masonry: Solid brick Mz

Table C99: Parameters of brick

Species of brick		Solid brick Mz
Density	$\rho \geq [\text{kg/dm}^3]$	1,8
Compressive strength	$f_b \geq [\text{N/mm}^2]$	10 or 20
Standard or approval		EN 771-2
Producer		e.g. Wienerberger
Size, dimensions	[mm]	$\geq 228 \times 108 \times 54$
Minimum thickness of brick	h_{\min} [mm]	108

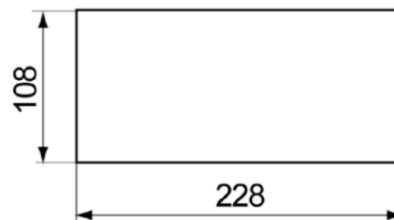


Table C100: Installation parameters for threaded rod and internal threaded anchor without perforated sleeve

Size of threaded rod	M6		M8		M10		M12		M16		UVT TOP E ¹⁾ 11x85	UVT TOP E 15x85
	Effective anchorage depth h_{ef} [mm]	50	90	50	90	50	90	50	90	50	90	85
Edge distance c_{\min} [mm]	60											
Spacing	$s_{\text{cr}} \parallel = s_{\min} \parallel$ [mm]											
	$s_{\text{cr}} \perp = s_{\min} \perp$ [mm]											
Group-factor	$\alpha_{\text{g,N}} \parallel$ [-]											
	$\alpha_{\text{g,V}} \parallel$ [-]											
	$\alpha_{\text{g,N}} \perp$ [-]											
	$\alpha_{\text{g,V}} \perp$ [-]											
Max. installation torque $T_{\text{inst,max}}$ [Nm]	4		10									

¹⁾ For UVT TOP E with screw M6: $T_{\text{inst,max}} = 4 \text{ Nm}$

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid brick Mz
Characteristic values

Annex C 63

Kind of masonry: Solid brick Mz

Table C101: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6	0,60	0,50	1,20	0,90
≥ 50	M8	0,90	0,90	1,50	1,50
≥ 50	M10 / M12 / M16	0,75	0,60	1,20	1,20
85	UVT TOP E 11X85 M6 / M8 UVT TOP E 15X85 M10 / M12				
Compressive strength $f_b = 20 \text{ N/mm}^2$					
≥ 50	M6	0,90	0,75	1,50	1,20
≥ 50	M8	1,50	1,20	2,50	2,00
≥ 50	M10 / M12 / M16	1,20	0,90	2,00	1,50
85	UVT TOP E 11X85 M6 / M8 UVT TOP E 15X85 M10 / M12				

Table C102: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥ 50	M6	2,00			
85	UVT TOP E 11X85 M6				
≥ 50	M8	3,00			
85	UVT TOP E 11X85 M8				
≥ 50	M10	4,00			
85	UVT TOP E 15X85 M10				
≥ 50	M12	4,50			
85	UVT TOP E 15X85 M12				
≥ 50	M16	5,50			
Compressive strength $f_b = 20 \text{ N/mm}^2$					
≥ 50	M6	2,50			
85	UVT TOP E 11X85 M6				
≥ 50	M8	4,00			
85	UVT TOP E 11X85 M8				
≥ 50	M10	5,50			
85	UVT TOP E 15X85 M10				
≥ 50	M12	6,00 (5,5) ¹			
85	UVT TOP E 15X85 M12				
≥ 50	M16	8,00 (5,5) ¹			

¹⁾ Characteristic value pushing out of one brick $V_{Rk,pb} = 5,50 \text{ kN}$

Factor for job site tests and displacements see Annex C78

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid brick Mz
Characteristic values

Annex C 64

Kind of masonry: Solid sand-lime block KS

Table C103: Parameters of brick

Species of brick		Solid sand-lime block KS	
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	1,8	2,2
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	10, 20	36
Standard or approval		EN 771-2	
Producer		e.g. Calduran	
Size, dimensions	[mm]	$\geq 997 \times 214 \times 538$	
Minimum thickness of brick	h_{\min} [mm]	214	

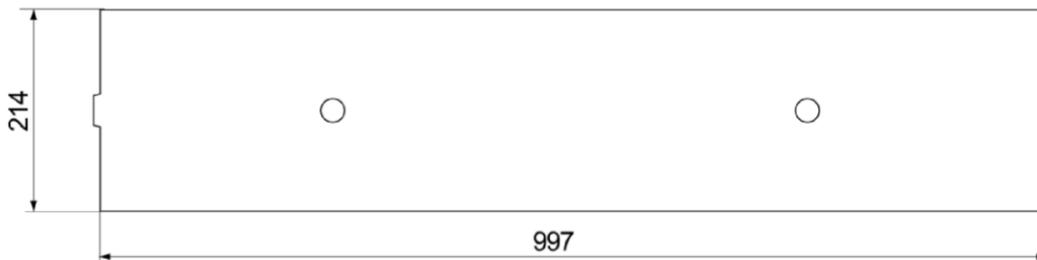


Table C104: Installation parameters for threaded rod and internal threaded anchor UVT TOP E without perforated sleeve

Size of threaded rod	M6		M8		M10		M12		M16		UVT TOP E ¹⁾ 11x85	UVT TOP E 15x85	
	Effective anchorage depth h_{ef} [mm]	50	100	50	100	50	100	50	100	50	100	85	85
Edge distance c_{\min} [mm]	75												
Spacing	$s_{\min \parallel} = s_{\min \parallel}$ [mm]											300	
	$s_{\min \perp} = s_{\min \perp}$ [mm]											300	
Group-factor	$\alpha_{g,N \parallel}$ [-]											2,0	
	$\alpha_{g,V \parallel}$ [-]												
	$\alpha_{g,N \perp}$ [-]												
	$\alpha_{g,V \perp}$ [-]												
Max. installation torque $T_{\text{inst,max}}$ [Nm]	4		10										

¹⁾ FOR UVT TOP E 11x85 with screw M6: $T_{\text{inst,max}} = 4 \text{ Nm}$

BTI Universal Component Compound UVT TOP for masonry

Performances

Solid sand-lime block KS
Species of brick, installation parameters

Annex C 65

Kind of masonry: Solid sand-lime block KS

Table C105: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
50, 100	M6	4,00	3,00	7,00	5,50
50	M8	4,00	3,50	7,00	6,00
100	M8	7,00	6,00	12,00	10,00
50	M10	5,00	4,00	8,00	7,00
100	M10	6,00	5,00	9,50	8,00
50	M12	5,00	4,00	8,00	6,50
100	M12	6,00	5,00	10,00	8,00
≥50	M16				
85	UVT TOP E 11X85 M6/M8, UVT TOP E 15X85 M10/M12	5,50	4,50	9,00	7,50
100	M16	7,50	6,00	11,50	9,50
Compressive strength $f_b = 20 \text{ N/mm}^2$					
50, 100	M6	5,50	4,50	8,50	8,00
50	M8	6,00	5,00	10,50	8,50
100	M8	10,00	8,50	12,00	12,00
50	M10	7,00	6,00	11,50	10,00
100	M10	8,5	7,00	12,00	10,00
50	M12	7,00	6,00	11,00	9,50
100	M12	9,00	7,50	12,00	12,00
≥50	M16				
85	UVT TOP E 11X85 M6/M8, UVT TOP E 15X85 M10/M12	8,00	7,00	12,00	10,50
100	M16	11,00	9,00	12,00	12,00
Compressive strength $f_b = 36 \text{ N/mm}^2$					
50, 100	M6	4,50	3,50	8,00	6,50
50	M8	8,00	6,50	12,00	11,00
100	M8	12,00	12,00	12,00	12,00
50	M10	11,50	9,50	12,00	12,00
100	M10	12,00	12,00	12,00	12,00
50	M12	12,00	11,50	12,00	12,00
100	M12	12,00	12,00	12,00	12,00
≥50	M16				
85	UVT TOP E 11X85 M6/M8, UVT TOP E 15X85 M10/M12	12,00	12,00	12,00	12,00
100	M16	12,00	12,00	12,00	12,00

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid sand-lime block KS
Characteristic values tension load

Annex C 66

Kind of masonry: Solid sand-lime block KS

Table C106: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range	[°C]	50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 10 \text{ N/mm}^2$					
≥50	M6	3,00			
85	UVT TOP E 11X85 M6				
≥50	M8	5,00			
85	UVT TOP E 11X85 M8				
≥50	M10	5,50			
85	UVT TOP E 15X85 M10				
≥50	M12 / M16	4,00			
85	UVT TOP E 15X85 M12				
Compressive strength $f_b = 20 \text{ N/mm}^2$					
≥50	M6	4,50			
85	UVT TOP E 11X85 M6				
≥50	M8	7,00			
85	UVT TOP E 11X85 M8				
≥50	M10	7,50			
85	UVT TOP E 15X85 M10				
≥50	M12 / M16	6,00			
85	UVT TOP E 15X85 M12				
Compressive strength $f_b = 36 \text{ N/mm}^2$					
≥50	M6	4,50			
85	UVT TOP E 11X85 M6				
≥50	M8	9,00			
85	UVT TOP E 11X85 M8				
≥50	M10	11,00			
85	UVT TOP E 15X85 M10				
≥50	M12 / M16	12,00			
85	UVT TOP E 15X85 M12				

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Solid sand-lime block KS
Characteristic values shear load

Annex C 67

Kind of masonry: Perforated brick HLz

Table C107: Parameters of brick

Species of brick		Perforated brick HLz
Density	$\rho \geq [\text{kg}/\text{dm}^3]$	$\geq 1,4$
Compressive strength	$f_b \geq [\text{N}/\text{mm}^2]$	2, 4, 6 or 8
Standard or approval		EN 771-1
Producer		e.g. Wienerberger
Size, dimensions	[mm]	230x108x55
Minimum thickness of brick	h_{min} [mm]	108

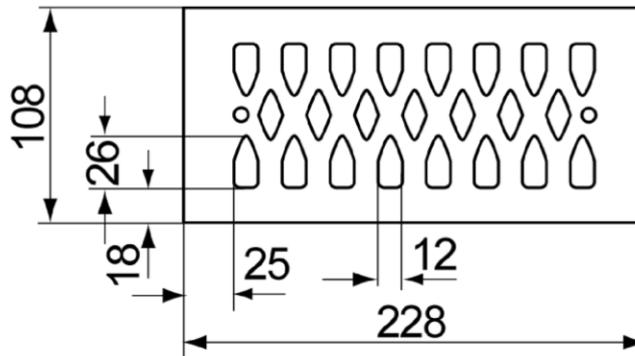


Table C108: Installation parameters for threaded rod with perforated sleeve
and internal threaded anchor UVT TOP E with perforated sleeve

Size of perforated sleeve		12x50	12x85	16x85	20x85
Size of threaded rod		M6 M8	M6 M8	M8 M10	M12 M16
Size of internal threaded anchor UVT TOP E				11x85 M6/M8	15x85 M10/M12
Edge distance	c_{min} [mm]	60			
Spacing	$s_{\text{min}} \parallel$ [mm]	80			
	$s_{\text{cr}} \parallel$ [mm]	230			
	$s_{\text{min}} \perp$ [mm]	60			
Group-factor	$\alpha_{g,N} \parallel$ [-]	2,0			
	$\alpha_{g,V} \parallel$ [-]				
	$\alpha_{g,N} \perp$ [-]				
	$\alpha_{g,V} \perp$ [-]				
Max. installation torque	$T_{\text{inst,max}}$ [Nm]	2			

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Species of brick, installation parameters

Annex C 68

Kind of masonry: Perforated brick HLz

Table C109: Characteristic values of resistance; tension load (N_{Rk})¹⁾

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
12x50 M6 / M8		0,30	--	0,30	0,30
12x85 M6 / M8		0,90	0,75	0,90	0,75
16x85 M8 / M10	16x85 / UVT TOP E 11X85 M6 / M8	0,75	0,60	0,90	0,75
20x85 M12 / M16	20x85 / UVT TOP E M10 / M12	0,50	0,40	0,60	0,50
Compressive strength $f_b = 4 \text{ N/mm}^2$					
12x50 M6 / M8		0,60	0,50	0,75	0,60
12x85 M6 / M8		1,50	1,50	2,00	1,50
16x85 M8 / M10	16x85 / UVT TOP E 11X85 M6 / M8	1,50	1,20	1,50	1,50
20x85 M12 / M16	20x85 / UVT TOP E M10 / M12	0,90	0,90	1,20	0,90
Compressive strength $f_b = 6 \text{ N/mm}^2$					
12x50 M6 / M8		0,90	0,75	0,90	0,90
12x85 M6 / M8		2,50	2,00	3,00	2,50
16x85 M8 / M10	16x85 / UVT TOP E 11X85 M6 / M8	2,50	2,00	2,50	2,00
20x85 M12 / M16	20x85 / UVT TOP E M10 / M12	1,50	1,20	1,50	1,50
Compressive strength $f_b = 8 \text{ N/mm}^2$					
12x50 M6 / M8		1,20	0,90	1,50	1,20
12x85 M6 / M8		3,50	3,00	4,00	3,00
16x85 M8 / M10	16x85 / UVT TOP E 11X85 M6 / M8	3,00	2,50	3,50	3,00
20x85 M12 / M16	20x85 / UVT TOP E M10 / M12	2,00	1,50	2,50	2,00

¹⁾ If the fixing is in a solid area, for w/w, the characteristic values shall be reduced with the factor 0,64.

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values tension load

Annex C 69

Kind of masonry: Perforated brick HLz

Table C110: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w	d/d
Temperature range	[°C]	50/80	72/120
Sleeve/anchor combinations	Sleeve/anchor combinations	characteristic values V_{Rk} [kN]	
Compressive strength $f_b = 2 \text{ N/mm}^2$			
12x50 M6 / M8 12x85 M6 / M8	16x85 M8 / M10 16x85 UVT TOP E 11X85 M6 / M8	0,6	
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	0,4	
Compressive strength $f_b = 4 \text{ N/mm}^2$			
12x50 M6 / M8 12x85 M6 / M8	16x85 M8 / M10 16x85 UVT TOP E 11X85 M6 / M8	1,2	
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	0,9	
Compressive strength $f_b = 6 \text{ N/mm}^2$			
12x50 M6 / M8 12x85 M6 / M8	16x85 M8 / M10 16x85 UVT TOP E 11X85 M6 / M8	1,5	
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	1,2	
Compressive strength $f_b = 8 \text{ N/mm}^2$			
12x50 M6 / M8 12x85 M6 / M8	16x85 M8 / M10 16x85 UVT TOP E 11X85 M6 / M8	2,5	
20x85 M12 / M16	20x85 / UVT TOP E 15X85 M10 / M12	1,5	

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances
Perforated brick HLz
Characteristic values shear load

Annex C 70

Kind of masonry: Autoclaved aerated concrete

Cylindrical drill hole

Table C111: Parameters of brick

Species of brick	Autoclaved aerated concrete		
Density $\rho \geq [\text{kg/dm}^3]$	350	500	650
Compressive strength $f_b \geq [\text{N/mm}^2]$	2	4	6
Standard	EN 771-4		
Producer	e.g. Ytong		

Table C112: Installation parameters for threaded rod and internal threaded anchor UVT TOP E without perforated sleeve

Size of threaded rod	M6	M8	M10	M12	M16	UVT TOP E 11x85	UVT TOP E 15X85
Effective anchorage depth h_{ef} [mm]	100					85	
Edge distance c_{min} [mm]	100						
Spacing	$s_{cr \parallel} = s_{min \parallel}$ [mm]					250	
	$s_{cr \perp} = s_{min \perp}$ [mm]					250	
Group-factor	$\alpha_{g,N \parallel}$ [-]						
	$\alpha_{g,V \parallel}$ [-]					2,0	
	$\alpha_{g,N \perp}$ [-]						
	$\alpha_{g,V \perp}$ [-]						
Max. installation torque $T_{inst,max}$ [Nm]	1		2		1		2

BTI Universal Component Compound UVT TOP for masonry

Performances

Autoclaved aerated concrete
Cylindrical drill hole
Installation parameters

Annex C 71

Kind of masonry: Autoclaved aerated concrete (cylindrical drill hole)

Table C113: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
100	M6	1,20		1,50	
	M8	1,50		1,50	
	M10	1,50		1,50	
	M12	1,50		2,00	
	M16	2,00		2,00	
85	UVT TOP E 11X85 M6 / M 8	1,50		1,50	
	UVT TOP E 15X85 M10 / M 12	1,50		1,50	
Compressive strength $f_b = 4 \text{ N/mm}^2$					
100	M6	1,20		1,50	
	M8	2,00		2,00	
	M10	2,50		3,00	
	M12	2,50		2,50	
	M16	2,00		2,00	
85	UVT TOP E 11X85 M6 / M 8	2,00		2,00	
	UVT TOP E 15X85 M10 / M 12	1,50		1,50	
Compressive strength $f_b = 6 \text{ N/mm}^2$					
100	M6	1,50		1,50	
	M8	3,00		3,50	
	M10	4,50		5,00	
	M12	4,50		5,00	
	M16	3,00		3,00	
85	UVT TOP E 11X85 M6 / M 8	3,50		3,50	
	UVT TOP E 15X85 M10 / M 12	2,50		2,50	

Calculation of pulling out of one brick (tension load): $N_{Rk,pb}$ see ETAG 029, Annex C

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Autoclaved aerated concrete
Cylindrical drill hole
Characteristic values tension load

Annex C 72

Kind of masonry: Autoclaved aerated concrete (cylindrical drill hole)

Table C114: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
85	UVT TOP E 11X85 M6	1,20			
	UVT TOP E 11X85 M8				
	UVT TOP E 15X85 M10				
	UVT TOP E 15X85 M12				
100	M12	1,50			
100	M6, M8, M10, M16	1,20			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
85	UVT TOP E 11X85 M6	2,00			
	UVT TOP E 11X85 M8				
	UVT TOP E 15X85 M10				
	UVT TOP E 15X85 M12				
100	M8, M12	2,50			
100	M6, M10, M16	2,00			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
85	UVT TOP E 11X85 M6	2,50			
	UVT TOP E 11X85 M8				
	UVT TOP E 15X85 M10				
	UVT TOP E 15X85 M12				
100	M6	2,5			
100	M8, M10	3,0			
100	M12	3,50			
100	M16	4,50			

Calculation of pushing out of one brick (shear load): $V_{Rk,pb}$ see ETAG 029, Annex C

Factor for job site tests and displacements see Annex C78.

BTI Universal Component Compound UVT TOP for masonry

Performances

Autoclaved aerated concrete
Cylindrical drill hole
Characteristic values shear load

Annex C 73

Kind of masonry: Autoclaved aerated concrete

Conical drill hole (with special drill bit PBB)

Table C115: Parameters of brick

Species of brick	Autoclaved aerated concrete		
Density $\rho \geq [\text{kg}/\text{dm}^3]$	350	500	650
Compressive strength $f_b \geq [\text{N}/\text{mm}^2]$	2	4	6
Standard or approval	EN 771-4		
Producer	e.g. Ytong		

Table C116: Installation parameters for threaded rod and internal threaded anchor UVT TOP E without perforated sleeve

Size of threaded rod	M8	M10	M12	M8	M10	M12	UVT TOP E 11x85
Effective anchorage depth h_{ef} [mm]	75			95			85
Edge distance c_{min} [mm]	120			150			
Spacing	$s_{cr \parallel} = s_{min \parallel}$ [mm]		240	300			
	$s_{cr \perp} = s_{min \perp}$ [mm]		240	250			
Group-factor	$\alpha_{g,N \parallel}$ [-]						2,0
	$\alpha_{g,V \parallel}$ [-]						
	$\alpha_{g,N \perp}$ [-]						
	$\alpha_{g,V \perp}$ [-]						
Max. installation torque $T_{inst,max}$ [Nm]			2				

BTI Universal Component Compound UVT TOP for masonry

Performances

Autoclaved aerated concrete
Conical drill hole with drill bit PBB
Installation parameters

Annex C 74

Kind of masonry: Autoclaved aerated concrete

Conical drill hole (with special drill bit PBB)

Table C117: Characteristic values of resistance; tension load (N_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values N_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
75	M8 / M10 / M12	2,00	1,50	2,00	2,00
95	M8 / M10 / M12	2,50	2,00	2,50	2,50
85	UVT TOP E 11x85 M6 / M8	2,00	1,50	2,00	2,00
Compressive strength $f_b = 4 \text{ N/mm}^2$					
75	M8 / M10 / M12	3,00	1,50	3,00	2,50
95	M8 / M10 / M12	3,50	3,00	3,50	3,00
85	UVT TOP E 11X85 M6 / M8	3,00	2,50	3,00	2,50
Compressive strength $f_b = 6 \text{ N/mm}^2$					
75	M8 / M10 / M12	3,50	3,00	4,00	3,50
95	M8 / M10 / M12	4,00	4,00	4,50	4,00
85	UVT TOP E 11X85 M6 / M8	3,50	3,00	4,00	3,50

Calculation of pulling out of one brick (tension load): $N_{Rk,pb}$ see ETAG 029, Annex C

Table C118: Characteristic values of resistance; shear load (V_{Rk})

Use category		w/w		d/d	
Temperature range [°C]		50/80	72/120	50/80	72/120
Effective anchorage depth	Anchor size	characteristic values V_{Rk} [kN]			
Compressive strength $f_b = 2 \text{ N/mm}^2$					
75, 95, 85	all sizes	2,50			
Compressive strength $f_b = 4 \text{ N/mm}^2$					
75, 95, 85	all sizes	4,50			
Compressive strength $f_b = 6 \text{ N/mm}^2$					
75, 95, 85	all sizes	6,00			

Calculation of pushing out of one brick (shear load): $V_{Rk,pb}$ see ETAG 029, Annex C

Factor for job site tests and displacements see Annex C78

BTI Universal Component Compound UVT TOP for masonry

Performances

Autoclaved aerated concrete
Conical drill hole with drill bit PBB
Characteristic values

Annex C 75

Table C119: Characteristic bending moments for threaded rods

Size				M6	M8	M10	M12	M16	
Characteristic bending moments $M_{Rk,s}$	zinc plated steel	Property class	5.8 [Nm]	8	19	37	65	166	
			8.8 [Nm]	12	30	60	105	266	
	stainless steel A4	Property class	50 [Nm]	8	19	37	65	166	
			70 [Nm]	11	26	52	92	232	
	high corrosion resistant steel C	Property class	80 [Nm]	12	30	60	105	266	
			50 [Nm]	8	19	37	65	166	
				70 ¹⁾ [Nm]	11	26	52	92	232
				80 [Nm]	12	30	60	105	266

¹⁾ $f_{uk} = 700 \text{ N/mm}^2$; $f_{yk} = 560 \text{ N/mm}^2$

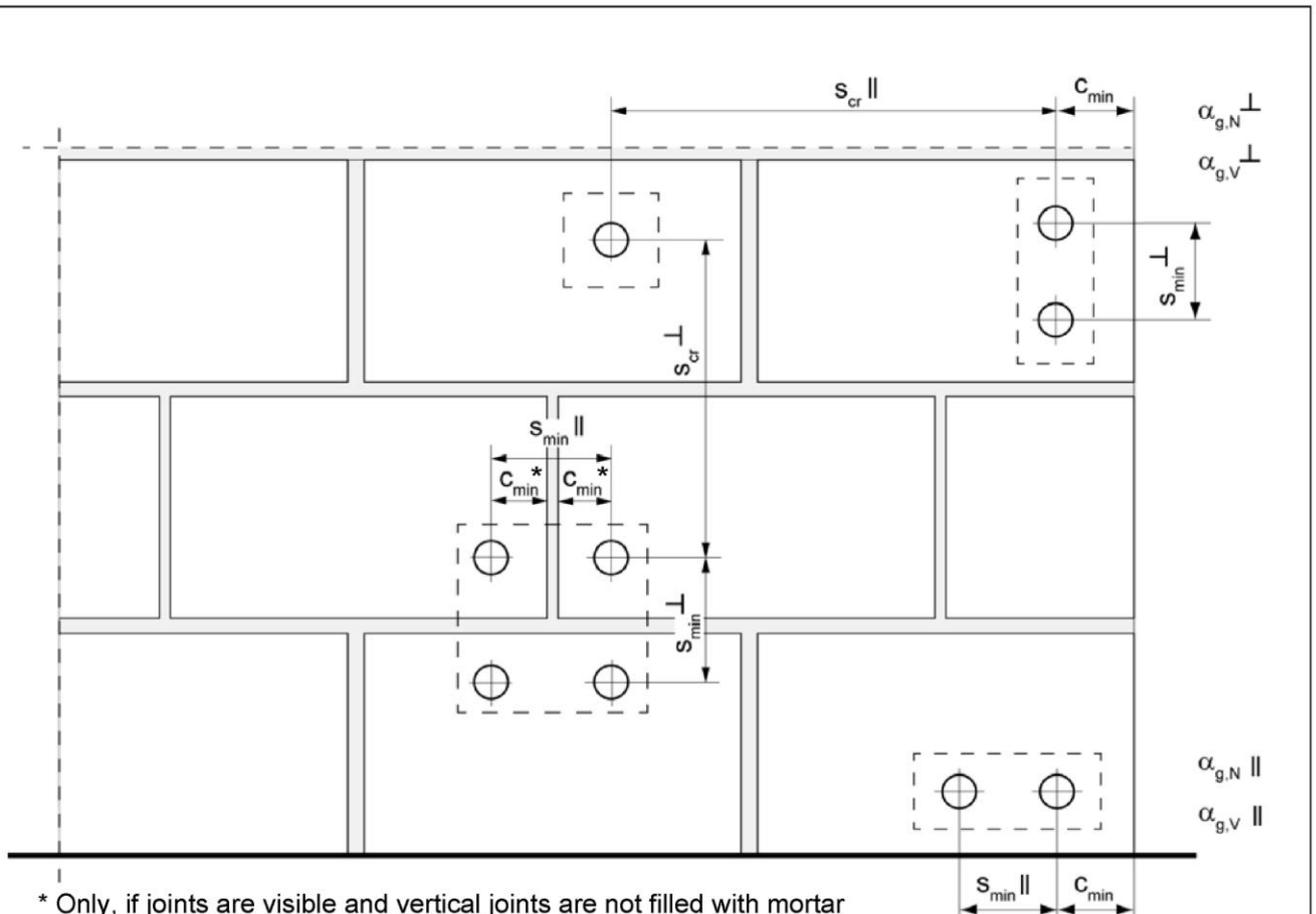
Table C120: Characteristic bending moments for internal threaded anchors UVT TOP E

Size UVT TOP E				M6	M8	M10	M12
Characteristic bending moments $M_{Rk,s}$	zinc plated steel,	Property class of screw	5.8 [Nm]	8	19	37	65
			8.8 [Nm]	12	30	60	105
	stainless steel A4	Property class of screw	70 [Nm]	11	26	52	92
			70 [Nm]	11	26	52	92

BTI Universal Component Compound UVT TOP for masonry

Intended Use
Characteristic bending moments

Annex C 76



* Only, if joints are visible and vertical joints are not filled with mortar

- $s_{min \parallel}$ = Minimum spacing parallel to bed joint
- $s_{min \perp}$ = Minimum spacing vertical to bed joint
- $s_{cr \parallel}$ = Characteristic spacing parallel to bed joint
- $s_{cr \perp}$ = Characteristic spacing vertical to bed joint
- $c_{cr} = c_{min}$ = Edge distance
- $\alpha_{g,N \parallel}$ = Group factor for tension load parallel to bed joint
- $\alpha_{g,V \parallel}$ = Group factor for shear load parallel to bed joint
- $\alpha_{g,N \perp}$ = Group factor for tension load vertical to bed joint
- $\alpha_{g,V \perp}$ = Group factor for shear load vertical to bed joint

For $s > s_{cr}$ $\alpha_g = 2$

For $s_{min} \leq s \leq s_{cr}$ α_g according to installation parameters of brick

$N_{RK}^g = \alpha_{g,N} \cdot N_{RK}$; $V_{RK}^g = \alpha_{g,V} \cdot V_{RK}$ (Group of 2 sleeves)

$N_{RK}^g = \alpha_{g,N \parallel} \cdot \alpha_{g,N \perp} \cdot N_{RK}$; $V_{RK}^g = \alpha_{g,V \parallel} \cdot \alpha_{g,V \perp} \cdot V_{RK}$ (Group of 4 anchors)

BTI Universal Component Compound UVT TOP for masonry

Intended Use

Definition of minimum edge distance, minimum spacing and group factors

Annex C 77

Table C121: β - factors for job site tests

Tension load

Use category		w/w		d/d	
Temperature range		50/80	72/120	50/80	72/120
Material	Size				
solid units	M6	0,55	0,46	0,96	0,80
	M8	0,57	0,51		
	M10	0,59	0,52		
	M12 UVT TOP E 11X85 M6, M8	0,60	0,54		
	M16 UVT TOP E 15X85 M10, M12	0,62	0,52		
	16x85	0,55	0,46		
hollow units	all size	0,86	0,72	0,96	0,80
Autoclaved aerated concrete, cylindrical drill hole	all size	0,73	0,73	0,81	0,81
Autoclaved aerated concrete, conical drill hole	all size	0,66	0,59	0,73	0,66

Table C122: Displacements

Material	N [kN]	δN_0 [mm]	δN_∞ [mm]	V [kN]	δV_0 [mm]	δV_∞ [mm]
Solid units and autoclaved aerated concrete	$\frac{N_{Rk}}{1,4 * \gamma_M}$	0,03	0,06	$\frac{V_{Rk}}{1,4 * \gamma_M}$	0,59	0,88
hollow units	$\frac{N_{Rk}}{1,4 * \gamma_M}$	0,03	0,06	$\frac{V_{Rk}}{1,4 * \gamma_M}$	1,71	2,56
brick Annex C36/C37	$\frac{N_{Rk}}{1,4 * \gamma_M}$	0,03	0,06	$\frac{V_{Rk}}{1,4 * \gamma_M}$	6,44	9,66

BTI Universal Component Compound UVT TOP for masonry

Intended Use
 β - factors for job site tests,
Displacements

Annex C 78