



Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments



European Technical Assessment

ETA-16/0695 of 24 November 2016

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:

Trade name of the construction product

Product family to which the construction product belongs

Manufacturer

Deutsches Institut für Bautechnik

Chimfix for masonry

Injection system for use in masonry

Rectavit Ambachtenlaan 4 9080 LOCHRISTI BELGIEN

Rectavit Plant 1

Manufacturing plant

This European Technical Assessment contains

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of 61 pages including 3 annexes which form an integral part of this assessment

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 Chimfix for masonry is a bonded anchor (injection type) consisting of a mortar cartridge with injection mortar Chimfix ETA 1 or Chimfix Nordic ETA 1, a perforated sleeve and an anchor rod with hexagon nut and washer. The steel elements are made of zinc coated steel or stainless 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 Illustration and the description of the product are 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 steel elements	See Annex C2
Characteristic resistance for anchors in masonry units	See Annex C3 – C45
Displacements under shear and tension loads	See Annex C4 – C45
Reduction Factor for job site tests (β-Factor)	See Annex C1
Edge distances and spacing	See Annex C3 – C45
Group factor for group fastenings	See Annex C3 – C45

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	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.



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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

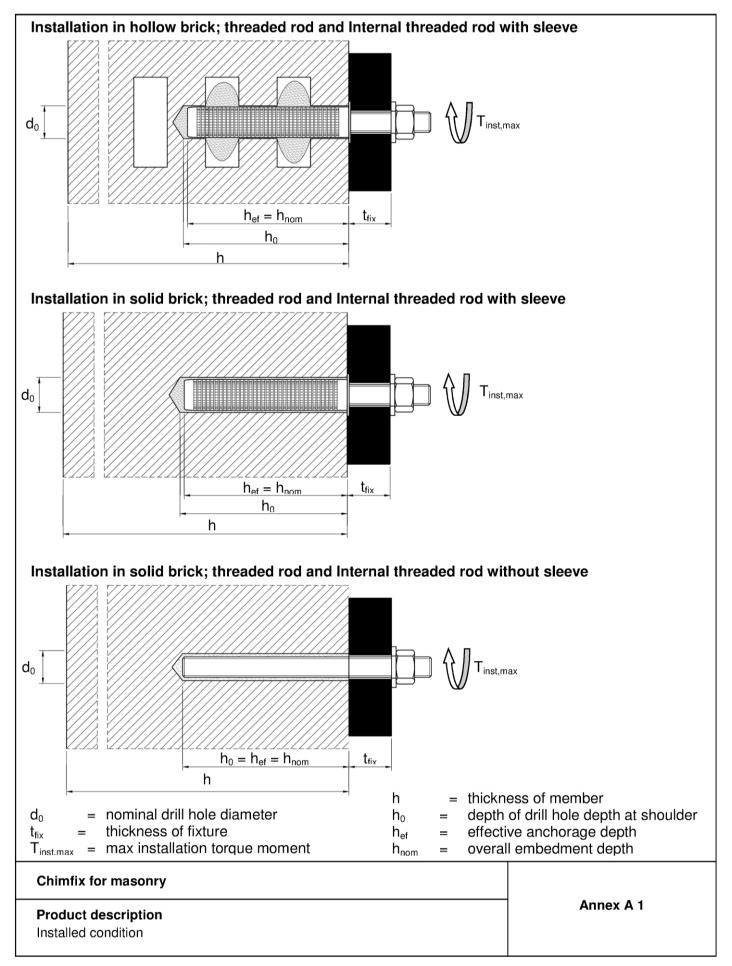
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

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

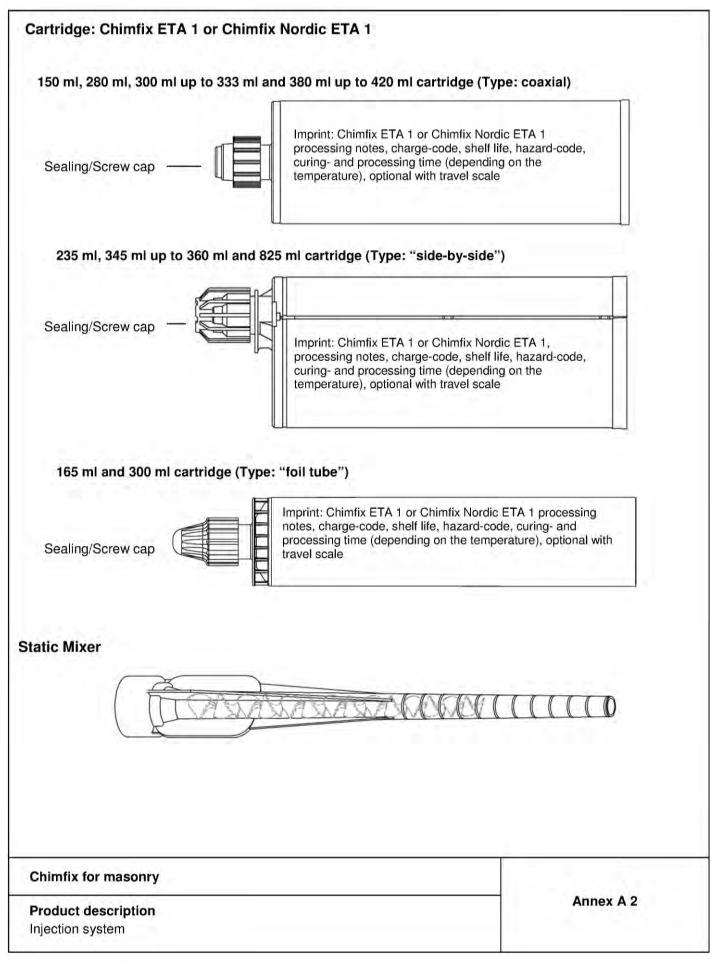
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Uwe Bender Head of Department *beglaubigt:* Baderschneider









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1999 or Steel, 51:2009 and EN ISO 10684:2004+AC:2009				
Steel, EN 10087:1998 or EN 10263:2001 Property class 4.6, 4.8, 5.6, 5.8, 8.8 acc. EN 1993-1-8:2005+AC:2009 A _s > 8% fracture elongation				
Steel acc. EN 10087:1998 or EN 10263:2001 Property class 4 (for class 4.6, 4.8 rod) EN ISO 898-2:2012 Property class 5 (for class 5.6, 5.8 rod) EN ISO 898-2:2012 Property class 8 (for class 8.8 rod) EN ISO 898-2:2012				
Steel, zinc plated or hot-dip galvanised				
Steel, zinc plated Property class 5.6, 5.8 and 8.8 EN ISO 898-1:2013				
Material 1.4401 / 1.4404 / 1.4571, EN 10088-1:2014, Property class 70 EN ISO 3506-1:2009 Property class 80 EN ISO 3506-1:2009				
Material 1.4401 / 1.4404 / 1.4571 EN 10088-1:2014, Property class 70 (for class 70 rod) EN ISO 3506-2:2009 Property class 80 (for class 80 rod) EN ISO 3506-2:2009				
Material 1.4401, 1.4404 or 1.4571, EN 10088-1:2014				
Stainless steel: 1.4401 / 1.4404 / 1.4571, EN 10088-1:201 Property class 70 (for class 70 rod) EN ISO 3506-1:2009				
Material 1.4529 / 1.4565, EN 10088-1:2014, Property class 70 EN ISO 3506-1:2009 Property class 80 EN ISO 3506-1:2009				
Material 1.4529 / 1.4565, EN 10088-1:2014, Property class 70 (for class 70 rod) EN ISO 3506-2:2009 Property class 80 (for class 80 rod) EN ISO 3506-2:2009				
Material 1.4529 / 1.4565, EN 10088-1:2014				
Stainless steel: 1.4529 / 1.4565, EN 10088-1:2014 Property class 70 (for class 70 rod) EN ISO 3506-1:2009				
Material: Polypropylene				
-				



Table A2: Sleeve (Plastic)									
SH 12x80 SH 16x85 SH 20x85 d _s			L _s =	= h _{ef} = h _{nor}	m				
SH 16x130 SH 20x130 SH 20x200 d _s			L _s = h _e	f = h _{nom}					
Table A3: Sizes sleeve									
		S	leeve	12x80	16x85	16x130	20x85	20x130	20x200
Diameter of sleeve	d _s = d _{nor}		[mm]	12	16	16	20	20	20
Length of sleeve	Ls		[mm]	80	85	130	85	130	200
Effective anchorage depth	h _{ef}		[mm]	80	85	130	85	130	200
Overall anchor embedment	h _{nor}	n	[mm]	80	85	130	85	130	200
Table A4: Steel									
۵	nchor	rod	IG-M6	IG-M8	IG-M10	M8	M10	M12	M16
Outside diameter of anchor	$d_1 = d_{nom}$	[mm]	10 ¹⁾	12 ¹⁾	16 ¹⁾	8	10	12	16
Diameter of internal thread	d ₂	[mm]	6	8	10	-	-	-	-
Thread engagement length Min/max	I _{IG}	[mm]	8/20	8/20	10/25	-	-	-	-
Total length of steel element	I _{ges}	[mm]		th sleeve: he		hef + t _{fix} + 9,5	hef + t _{fix} + 11,5	hef + t _{fix} + 17,5	hef + t _{fi:} + 20,0
¹⁾ Internal threaded rod with me	tric exte	ernal th				-,=		, .	,
Chimfix for masonry									
Product description Sleeves							Aı	nnex A 5	



Specifications of intended use

Anchorages subject to:

Static and guasi-static loads

Base materials:

- Autoclaved Aerated Concrete (Use category d) according to Annex B2
- Solid brick masonry (Use category b), according to Annex B2.
- Hollow brick masonry (use category c), according to Annex B2 and B3 _
- 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, the characteristic resistance of the anchor may be determined by job site tests according to ETAG 029, Annex B under consideration of the β-factor according to Annex C1, Table C1.

Note: The characteristic resistance for solid bricks and autoclaved aerated concrete are also valid for larger brick sizes and larger compressive strength of the masonry unit.

Temperature Range:

- T_a : 40°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C)
- T_b : 40°C to +80°C (max. short term temperature +80°C and max. long term temperature +50°C)
- T_c: 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 (zinc coated steel, stainless steel or high corrosion resistant steel).
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel 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).

Use categories in respect of installation and use:

- Category d/d: Installation and use in dry masonry
- Category w/w: Installation and use in dry or wet masonry (incl. w/d installation in wet masonry and use in dry masonry)

Design:

- Verifiable calculation notes and drawings are 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 anchor is indicated on the design drawings.
- The anchorages are designed in accordance with the ETAG 029, Annex C, Design method A under the responsibility of an engineer experienced in anchorages and masonry work.
- $N_{Rk,p} = N_{Rk,b}$ see Annex C4 to C45; $N_{Rk,s}$ see Annex C3; $N_{Rk,pb}$ see ETAG 029, Annex C $V_{Rk,b}$ and $V_{Rk,c}$ see Annex C4 to C45; $V_{Rk,s}$ see Annex C3; $V_{Rk,pb}$ see ETAG 029, Annex C
- For application with sleeve with drill bit size ≤ 15mm installed in joints not filled with mortar:
 - 0
 - $\begin{array}{l} N_{\text{Rk},p,j} = 0,18 \ ^* N_{\text{Rk},p} \ \text{and} \ N_{\text{Rk},b,j} = 0,18 \ ^* N_{\text{Rk},b} \\ V_{\text{Rk},c,j} = 0,15 \ ^* \ V_{\text{Rk},c} \ \text{and} \ V_{\text{Rk},b,j} = 0,15 \ ^* \ V_{\text{Rk},b} \end{array} \begin{array}{l} (N_{\text{Rk},p} = N_{\text{Rk},b} \ \text{see Annex C4 to C45}) \\ (V_{\text{Rk},b} \ \text{and} \ V_{\text{Rk},c} \ \text{see Annex C4 to C45}) \end{array}$ $(V_{Rk,b} and V_{Rk,c} see Annex C4 to C45)$ 0
- Application without sleeve installed in joints not filled with mortar is not allowed.

Installation:

- Dry or wet structures. _
- 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 (incl. nut and washer) must comply with the appropriate material and property class of the Internal threaded rod .

Chimfix for masonry

Intended Use

Specifications

Annex B 1



Brick-No.	Brick type Picture		Brick size length width height	Compressive strength	Bulk density	Sleeve - Anchor type	Annex
			[mm]	[N/mm ²]	[kg/dm ³]		
1	Autoclaved Aerated Concrete AAC6		499 240 249	6	0,6	M8/M10/M12/M16/IG-M6/IG-M8/IG-M10	C4 - C5
Calc	ium silicate mason	iry units accordi	ng EN 771-2				
2	Calcium silicate solid brick KS-NF		240 115 71	10 20 27	2,0	M8/M10/M12/M16/IG-M6/IG-M8/IG-M10 SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10 SH 20x200 – M12/M16/IG-M8/IG-M10	C6 - C8
3	Calcium silicate hollow brick KSL-3DF		240 175 113	8 12 14	1,4	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10 SH 20x200 – M12/M16/IG-M8/IG-M10	C9 - C11
4	Calcium silicate hollow brick KSL-12DF	all's	498 175 238	10 12 16	1,4	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10	C12 C14
Clay	masonry units acc	ording EN 771-1					
5	Clay solid brick Mz – DF		240 115 55	10 20 28	1,6	M8/M10/M12/M16/IG-M6/IG-M8/IG-M10 SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10 SH 20x200 – M12/M16/IG-M8/IG-M10	C15 C17
6	Clay hollow brick Hlz-16DF		497 240 238	6 8 12 14	0,8	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10 SH 20x200 – M12/M16/IG-M8/IG-M10	C18 C20
7	Clay hollow brick Porotherm Homebric		500 200 299	4 6 10	0,7	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10	C21 C23
Ir	Chimfix for masor Itended Use Irick types and pro		responding fa	stening el	ements	Annex B 2	



Brick-No.	Brick type	Picture	Brick size length width height	Compressive strength	Bulk density	Sleeve - Anchor type	Annex				
8		k type Picture length width height (mm) Compressive strength Bulk density nry units according EN 771-1 [(N/mm ²)] [(kg/dm ³)] SH 12x80 - M8 hollow rick Thermo 500 4 0,6 SH 12x80 - M8 SH 16x85 - M8/M0 SH 16x30 - M12/M SH 20x85 - M12/M SH 20x130 - M12/M SH 20x1									
Clay	masonry units a	according EN 7	71-1	·							
8	Clay hollow brick BGV Thermo		200	6	0,6	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10	C24 C26				
9	Clay hollow brick Calibric R+	brick		brick		brick		9	0,6	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10	C27 C29
10	brick		200	9	0,7	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10	C30 C32				
11	Clay hollow brick Brique creuse C40	brick Brique		8	0,7	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10	C33 C35				
12	Clay hollow brick Blocchi Leggeri	Clay hollow brick Blocchi		6 8	0,6	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10 SH 20x200 – M12/M16/IG-M8/IG-M10	C36 C38				
13	Clay hollow brick Doppio Uni		120	16 20	0,9	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10 SH 20x200 – M12/M16/IG-M8/IG-M10	C39 C41				
Ligh	second the second second second second	te according EN	771-3								
14	Hollow light weight concrete Bloc creux B40		200	4	0,8	SH 12x80 – M8 SH 16x85 – M8/M10/IG-M6 SH 16x130 – M8/M10/IG-M6 SH 20x85 – M12/M16/IG-M8/IG-M10 SH 20x130 – M12/M16/IG-M8/IG-M10	C42 C43				
15	Solid light weight concrete		123	2	0,6	M8/M10/M12/M16/IG-M6/IG-M8/IG-M10	C44 C45				
-	Chimfix for mas	sonry				Annex B 3					



Installation: Steel Brush



Table B2: Installation parameters in autoclaved aerated concrete AAC and solid masonry (without sleeve)

Anchor size			M8	M10	IG-M6	M12	IG-M8	M16	IG-M10
Nominal drill hole diameter	d ₀	[mm]	10	1	2	1	4		18
Drill hole depth	h ₀	[mm]	80	9	0	1	00	1	00
Effective anchorage depth	h _{ef}	[mm]	80 90 100 100				00		
Minimum wall thickness	h _{min}	[mm]				h _{ef} + 30			
Diameter of clearance hole in the fixture	d _f ≤	[mm]	9	12	7	14	9	18	12
Diameter of steel brush	d _b	[mm]	12	1	4	1	6	2	20
Minimum diameter of steel brush	d _{b,min}	[mm]	10,5	12	2,5	14	4,5	1	8,5
Max installation torque moment	T _{inst,max}	[Nm]			2 (1	4 for Mz	DF)	•	

Table B3: Installation parameters in solid and hollow masonry (with sleeve)

Anchor size	M8	M8 / M1	0 / IG-M6	M12 / M	16 / IG-M8	/ IG-M10		
	\$	Sleeve	12x80	16x85	16x130	20x85	20x130	20x200
Nominal drill hole diameter	d ₀	[mm]	12	16	16	20	20	20
Drill hole depth	h _o	[mm]	85	90	135	90	135	205
Effective anchorage depth	h _{ef}	[mm]	80	85	130	85	130	200
Minimum wall thickness	h _{min}	[mm]	115	115	175	115	175	240
Diameter of clearance hole in the fixture	d _f ≤	[mm]	9		-M6) / 12 (M10)		//8) / 12 (IG //12) / 18 (I	
Diameter of steel brush	d _b	[mm]	14	1	8		22	
Minimum diameter of steel brush	d _{b,min}	[mm]	12,5	16	3,5		20,5	
Max installation torque moment	T _{inst,max}	[Nm]			2	2		

Chimfix for masonry

Intended Use

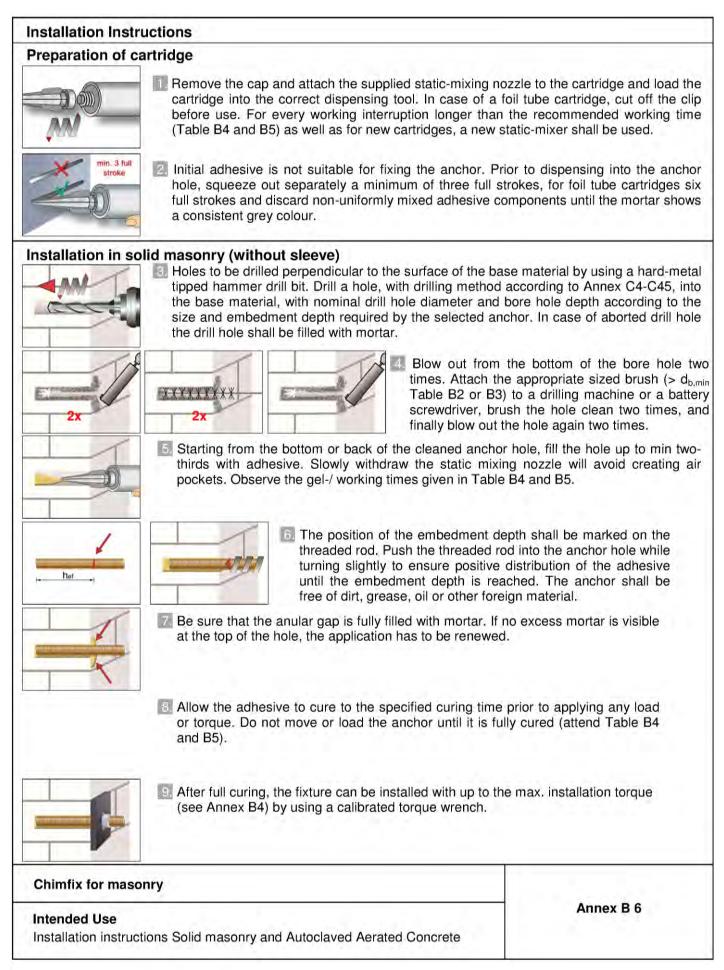
Installation parameters and cleaning brush

Annex B 4

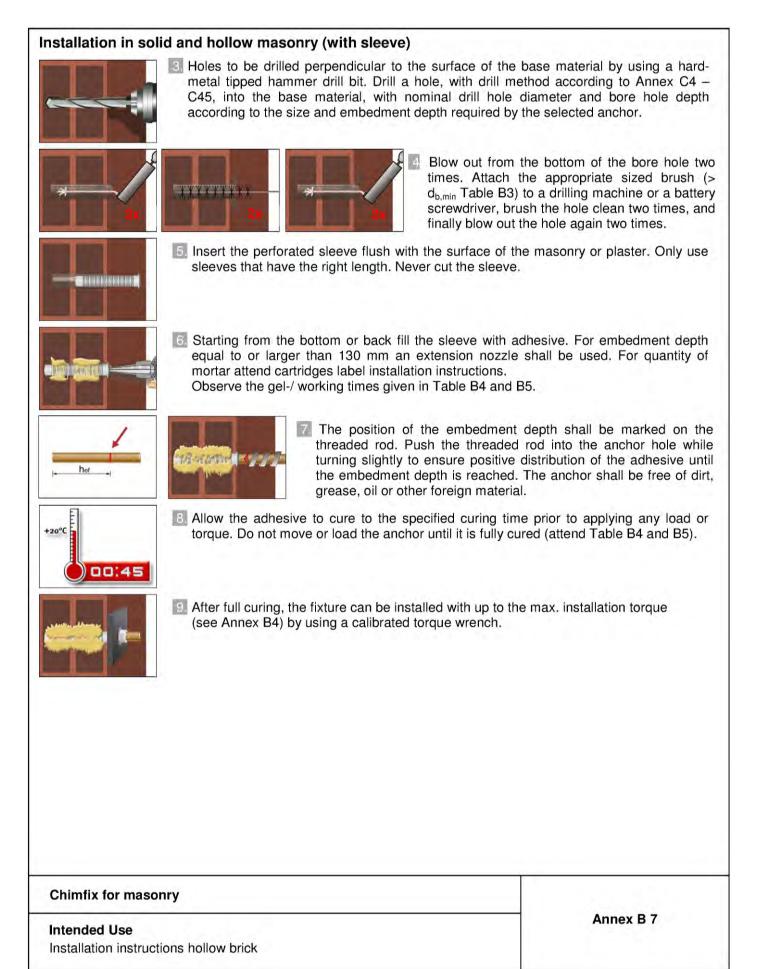


base material T	Temperature of cartridge	Gelling- / working time	Minimum curing time in dry base material ¹⁾			
- 10°C to - 6°C	+15°C to +40°C	90 min	24 h			
- 5°C to - 1°C		90 min	14 h			
0°C to +4 °C		45 min	7 h			
+ 5 °C to + 9 °C		25 min	2 h			
10 °C to + 19 °C	+5°C to +40°C	15 min	80 min			
20 °C to + 29 °C	+5°C (0 +40°C	6 min	45 min			
30 °C to + 34 °C		4 min	25 min			
- 35 °C to + 39 °C		2 min	20 min			
+ 40°C		1,5 min	15 min			
Temperature in the base material T20 °Cto- 16 °C	Temperature of cartridge	Gelling- / working time 75 min	Minimum curing time in dry base material ¹⁾ 24 h			
- 20 °C to - 16 °C	•	75 min	24 h			
- 15 °C to - 11 °C		55 min	16 h			
10 °C to - 6 °C		35 min	10 h			
- 5 °C to - 1 °C	-20°C to +10°C	20 min	5 h			
0 °C to + 4 °C		10 min	2,5 h			
+ 5 °C to + 9 °C		6 min	80 min			
+ 10°C		6 min	60 min			
) In wet base material t	he curing time <u>must</u> be dou	ıbled				
⁷ In wet base material t	he curing time <u>must</u> be dou	ıbled				











Driek Ne	Installation & Use			β-fa	ctor		
Brick-No. and	category	T _a : 40°0	C / 24°C	Т _ь : 80°0	C / 50°C	T _c : 120°	C / 72°C
abbreviation		d/d	w/d w/w	d/d	w/d w/w	d/d	w/d w/w
1 AAC6	For all sizes	0,95	0,86	0,81	0,73	0,81	0,73
2	d₀ ≤ 14 mm	0,93	0,80	0,87	0,74	0,65	0,56
KS-NF	d₀ ≥ 16 mm	0,93	0,93	0,87	0,87	0,65	0,65
3	d₀ ≤ 12 mm	0,93	0,80	0,87	0,74	0,65	0,56
KSL-3DF	d₀≥ 16 mm	0,93	0,93	0,87	0,87	0,65	0,65
4	d₀ ≤ 12 mm	0,93	0,80	0,87	0,74	0,65	0,56
KSL-12DF	d₀≥ 16 mm	0,93	0,93	0,87	0,87	0,65	0,65
5 MZ-DF							
6 Hlz-16DF							
7 Porotherm Homebric							
8 BGV-Thermo							
9 Calibric R+	For all sizes	0,86	0,86	0,86	0,86	0,73	0,73
10 Urbanbric							
11 Brique creuse C40							
12 Blocchi Leggeri							
13 Doppio Uni							
14	d₀ ≤ 12 mm	0,93	0,80	0,87	0,74	0,65	0,56
Bloc creux B40	d₀ ≥ 16 mm	0,93	0,93	0,87	0,87	0,65	0,65
15	d₀ ≤ 12 mm	0,93	0,80	0,87	0,74	0,65	0,56
Solid light weight concrete	d₀ ≥ 16 mm	0,93	0,93	0,87	0,87	0,65	0,65

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Size			IG-M6	IG-M8	IG-M10	M8	M10	M12	M16
Characteristic tension resistance	-		_					-	
steel, property class 4.6	N _{Rk,s}	[kN]	-	-	-	15	23	34	63
	ΎMs	[-]		-			2,		
steel, property class 4.8	N _{Rk,s}	[kN]	-	-	-	15	23	34	63
	ΎMs	[-]	10	-		10	1,		70
steel, property class 5.6	$N_{Rk,s}$	[kN]	10	18	29	18	29	42	79
	ΥMs	[-]	10	2,0	00	10	2,		70
steel, property class 5.8	N _{Rk,s}	[kN]	10	17	29	18	29	42	79
	ΥMs	[-]	10	1,5	40		1,		100
steel, property class 8.8	$N_{Rk,s}$	[kN]	16	27	46	29	46	67	126
	ΥMs	[-]		1,5	44	00	1,		440
Stainless steel A4 / HCR, property class 70	N _{Rk,s}	[kN]	14	26	41	26	41	59	110
	Υ _{Ms}	[-]	10	1,87	40	00	1,8		100
Stainless steel A4 / HCR, property class 80	N _{Rk,s}	[kN]	16	29	46	29	46	67	126
	γ_{Ms}	[-]		1,6			1,	σ	
Characteristic shear resistance		1	1						
steel, property class 4.6	$V_{Rk,s}$	[kN]	-	-	-	7	12	17	31
	γ_{Ms}	[-]		-			1,6		
steel, property class 4.8	$V_{Rk,s}$	[kN]	-	-	-	7	12	17	31
	γMs	[-]		-			1,2		
steel, property class 5.6	$V_{Rk,s}$	[kN]	5	9	15	9	15	21	39
	Ϋ́Ms	[-]		1,67			1,6		
steel, property class 5.8	$V_{Rk,s}$	[kN]	5	9	15	9	15	21	39
	γ _{Ms}	[-]		1,25			1,2	1	
steel, property class 8.8	$V_{Rk,s}$	[kN]	8	14	23	15	23	34	63
	ΎMs	[-]		1,25			1,2		
Stainless steel A4 / HCR, property class 70	$V_{Rk,s}$	[kN]	7	13	20	13	20	30	55
	γ _{Ms}	[-]		1,56			1,	1	
Stainless steel A4 / HCR, property class 80	$V_{Rk,s}$	[kN]	8	15	23	15	23	34	63
	γ _{Ms}	[-]		1,33			1,:	33	
Characteristic bending moment									
steel, property class 4.6	$M_{Rk,s}$	[Nm]	-	-	-	15	30	52	133
steel, property class 4.0	γ_{Ms}	[-]		-			1,6	67	
steel, property class 4.8	$M_{Rk,s}$	[Nm]	-	-	-	15	30	52	133
steel, property class 4.0	γ_{Ms}	[-]		-			1,2	25	
steel, property class 5.6	$M_{Rk,s}$	[Nm]	8	19	37	19	37	66	167
steel, property class 5.0	γ _{Ms}	[-]		1,67			1,0	67	
steel, property class 5.8	$M_{Rk,s}$	[Nm]	8	19	37	19	37	66	167
	γ _{Ms}	[-]		1,25			1,2		
steel, property class 8.8	$M_{Rk,s}$	[Nm]	12	30	60	30	60	105	266
	γ_{Ms}	[-]		1,25			1,2		
Stainless steel A4 / HCR, property class 70	$M_{Rk,s}$	[Nm]	11	26	52	26	52	92	233
	γ _{Ms}	[-]		1,56			1,	56	
Stainless steel A4 / HCR, property class 80	$M_{Rk,s}$	[Nm]	12	30	60	30	60	105	266
oramiess steer A4 / non, property class 80	γ _{Ms}	[-]		1,33			1,:	33	

Chimfix for masonry

Performances

Characteristic resistance under tension and shear load - steel failure



Spacing and edge distances			
Cor		Cmir	1
		Sania II	
	ф (• • • •	Smin I	
	Smin II Smin II		
		Ś.	
	<u>Scr II</u>	- Ť	
	াঁনা -		
	- For a second s	Scr II	
		Scr II	
c _{cr} = Character	istic edge distance		
	Edge distance		
	istic spacing		
s _{min} = Minimum	spacing		
		or anchors placed parallel to b or anchors placed perpendicu	
Load direction	-	Shear load parallel to free	Shear load perpendicular
Anchor position	Tension load	edge	to free edge
Anchors places parallel to bed joint $s_{cr,II}$; ($s_{min,II}$)			
Anchors places perpendicular to bed joint $s_{cr,\perp}$ ($s_{min,\perp}$)		V	
α _{g,N,ll} = Group factor ir	case of tension load for	anchors placed parallel to the	bed joint
D ²		nchors placed parallel to the b	
	case of tension load for	anchors placed perpendicular	to the bed joint
$\alpha_{g,V,\perp} = Group factor in$	n case of shear load for a	nchors placed perpendicular to	o the bed joint
Group of two anchors: N ^g _F	$\alpha_{g,N} * N_{RK}$	and $V_{Rk}^{g} = \alpha_{g,V} * V_{Rk}$	
Group of four anchors: N ⁹ F	$\alpha_{g,N,II} * \alpha_{g,N,\perp} * N_{RK}$	and $V^{g}_{Rk} = \alpha_{g,V,II}^{*} \alpha_{g,V}$	/,⊥ * V _{Rk}
	Rk: N _{Rk,b} or N _{Rk,b,j} for c _{cr})	for a V	
	$_{k:}$ V _{Rk,c} ; V _{Rk,c,j} ; V _{Rk,b} or V _{Rk} the relevant α_g)	b,j IOF C _C r)	
Chimfix for masonry			
Chimfix for masonry			Annex C 3



Bulk density ρ [kg/dnCompressive strength $f_b \ge [N/mn]$ CodeProducer (country code)Brick dimensions[mi]							
Compressive strength $f_b \ge [N/mm]$ Code Producer (country code)	n²] 6				In.		
Code Producer (country code)					1000	1.0	-
Producer (country code)							
	e.g. Porit (DE)						
Drick uniterisions							
Drilling method	Rotary					-	(action)
Table C4: Installation parameter Anchor size	r	[-]	M8	M10/IG-M6	M12/IG	Mg	M16/IG-M10
Effective anchorage depth		[mm]	80	90	100		100
Edge distance	Ccr	[mm]	00	50	1,5*h _{et}		100
	C _{cr} C _{min,N}	[mm]			75		
Minimum edge distance	$C_{\min,V,II} (C_{\min,v,\perp})^{1)}$	[mm]	1		75 (1,5*h _e)	
Spacing	S _{cr}	[mm]	1		3*het	/	
Minimum spacing	Smin	[mm]	1		100		
Configuration	with c ≥ 125 (M8:120))	١	with s ≥ 100			1,8
II: anchors placed parallel to horizontal joint L: anchors placed perpendicular to	with c ≥ 125 (M8:120 1,5*hef 75 1,5*hef)			α _{g,N,I} ii α _{g,N,⊥}	[-]	1,8 2,0 1,4 2,0
II: anchors placed parallel to horizontal joint L: anchors placed perpendicular to horizontal joint Table C6: Group factor for anche	125 (M8:120 1,5*hef 75 1,5*hef or group in case of si		ng par	100 3*hef 100 3*hef callel to free e	α _{g,N,⊥}	[-]	2,0 1,4
II: anchors placed parallel to horizontal joint L: anchors placed perpendicular to horizontal joint Table C6: Group factor for anche Configuration	125 (M8:120 1,5*hef 75 1,5*hef or group in case of sl with c ≥		ng par	100 3*hef 100 3*hef callel to free e	α _{g,N,⊥}	[-]	2,0 1,4 2,0
II: anchors placed parallel to horizontal joint L: anchors placed perpendicular to horizontal joint Table C6: Group factor for anche	125 (M8:120 1,5*hef 75 1,5*hef or group in case of si		ng par	100 3*hef 100 3*hef callel to free e	α _{g,N,⊥}	(-)	2,0 1,4



	Configuration	1		l l	vith c ≥		with	S 2	1		
II: anchors p parallel to hor joint		V			I,5*hef		3,0	hef	α _{g,V}		2,0
⊥: anchors p perpendicul horizontal j	ar to				I,5*hef		3,0'	hef	α _{g.v}	[-]	2,0
Table C8: C	haracteristi	c value	s of I	resistance	under tensio	n and sh	ear	loads			
7					Cha	acteristic	c resi	stance			
						Use cat	egor	у			1
	Effective	-		d/d			-	w/w w/d			d/d w/d w/w
Anchor size	anchorage depth	40°C/2	24°C	80°C/50°C	2 120°C/72°C	40°C/24	4°C	80°C/50°C	12	0°C/72°C	For all temperature range
	h _{ef}			N _{Rk,b} = N _{Rk}	1)			$N_{Rk,b} = N_{Rk,}$	1)		V _{Rk,b} ²⁾³⁾
	[mm]		_		P	[kN					CHN,U
				Compress	ive strength	f _b ≥ 6 N/r	nm²				
M8	80	2,5 (2	2,0)	2,5 (1,5)	2,0 (1,2)	2,5 (1		2,0 (1,5)	1 8	1,5 (1,2)	6,0
M10/IG-M6	90	4,0 (2	2,5)	3,0 (2,0)	2,5 (1,5)	3,5 (2	,5)	3,0 (2,0)	2	2,5 (1,5)	10,0
M12/IG-M8	100	5,0 (3	3,5)	4,0 (3,0)	3,0 (2,5)	4,5 (3	,0)	3,5 (2,5)		3,0 (2,5)	10,0
M16/IG-M10	100	6,5 (4		5,5 (3,5)	4,0 (3,0) for single anch	5,5 (4		5,0 (3,5)	4	4,0 (3,0)	10,0
	s are valid for Displacemen		or gr	eater. ⊢or st	eel 4.6 and 4.8	παιάριγ ν	Rk,b D	y 0,8			
Table C9: L	hef	N	δι	N/N	δΝΟ	δN∞		V	- 5	δνο	δγ∞
						[mm]	[ŀ	(N]		mm]	[mm]
Anchor size	[mm]	[kN]	[m	m/kN]	provid		•				1,20
	[mm] 80	[kN] 0,9				0,32	1	,3		0,8	.,==
Anchor size	1			m/kN]),18		0,32 0,51		,3 ,8		1,2	1,80
Anchor size M8	80	0,9 1,4	C),18	0,16 0,26	0,51	1	,8		1,2	1,80
Anchor size M8 M10/IG-M6	80 90	0,9	C		0,16		1				
Anchor size M8 M10/IG-M6 M12/IG-M8	80 90 100 100	0,9 1,4 1,8	C),18	0,16 0,26 0,14	0,51 0,29	1	,8 2,1		1,2 1,4	1,80 2,10



Brick type	Calcium silicate solid brick KS-NF	1.00
Bulk density ρ [kg/dm ³]	2,0	
Compressive strength $f_b \ge [N/mm^2]$	10, 20 or 27	
Code	EN 771-2	
Producer (country code)	e.g. Wemding (DE)	
Brick dimensions [mm]	240 x 115 x 71	
Drilling method	Hammer	-

Edge distance	Ccr	[mm]	1,5*her	
Minimum edge distance	Cmin	[mm]	60	
Spacing	Scr	[mm]	3*h _{ef}	
Minimum spacing	Smin	[mm]	120	

Table C12: Group factor for anchor group in case of tension loading

Configura	tion	with c ≥	with s ≥	-		
II: anchors placed		60	120			1,0
parallel to horizontal		140	120	α _{g,N,II}		1,5
joint		1,5*hef	3*h _{ef}			2,0
⊥: anchors placed		60	120		[-]	0,5
perpendicular to		1,5*hef	120	α _{g,N,L}		1,0
horizontal joint	10	1,5*hef	3*h _{ef}			2,0

Table C13: Group factor for anchor group in case of shear loading parallel to free edge

Configura	tion	with c ≥	with s ≥			
II: anchors placed	La la	60	120			1,0
parallel to horizontal	1 V 💌	115	120	α _{g,V,II}		1,7
joint		1,5*hef	3*h _{ef}		11	2,0
⊥: anchors placed		60	120		[-]	1,0
perpendicular to	V 💲	1,5*hef	120	$\alpha_{g,V,\perp}$		1,0
horizontal joint		1,5*hef	3*het			2,0

Table C14: Group factor for anchor group in case of shear loading perpendicular to free edge

Configuration	with c ≥	with s ≥			
II: anchors placed	60	120	1 Acres 1		1,0
parallel to horizontal joint	1,5*hef	3*h _{ef}	α(g, V,I)		2,0
L: anchors placed	60	120		E	1,0
perpendicular to horizontal joint	1,5*hef	3*h _{er}	α _{g,V,⊥}		2,0

Chimfix for masonry

Performances calcium solid brick KS-NF Installation parameters

Deutsches Institut D für Bautechnik

Brick t	type: Cal	cium silicat	e solid br	ick KS-NF	:				
Table (C15: Cł	naracteristic	values of r	esistance ı	under tensio	on and she	ar loads		
					Cha	racteristic r	esistance		
						Use categ	jory		
Anchor	Sleeve	Effective anchorage depth		d/d			w/d w/w		d/d w/d w/w
size	Sleeve	h _{ef} [mm]	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	For All temperature range
	-	h _{ef}		$N_{Rk,b} = N_{Rk,r}$	1)		$N_{Rk,b} = N_{Rk,p}$	1)	$V_{Rk,b}^{(2)3)}$
		[mm]				[kN]			1.0012
			Con	npressive	strength f _b ≥	: 10 N/mm ²			
M8	-	80	4,5 (2,0)	4,5 (2,0)	3,0 (1,5)	3,5 (1,5)	3,5 (1,5)	2,5 (1,2)	2,5 (1,5)
M10 / IG-M6	-	90	4,5 (2,0)	4,5 (2,0)	3,0 (1,5)	3,5 (1,5)	3,5 (1,5)	2,5 (1,2)	3,0 (2,0)
M12 / IG-M8	-	100	4,5 (2,0)	4,5 (2,0)	3,0 (1,5)	3,5 (1,5)	3,5 (1,5)	2,5 (1,2)	2,5 (1,5)
M16 / IG-M10	-	100	3,5 (1,5)	3,5 (1,5)	2,5 (1,2)	3,0 (1,5)	3,5 (1,5)	2,0 (0,9)	2,5 (1,5)
M8	12x80	80	3,5 (1,5)	3,5 (1,5)	2,5 (1,2)	3,5 (1,5)	3,0 (1,5)	2,5 (1,2)	2,5 (1,5)
M8 /	16x85	85	3,5 (1,5)	3,0 (1,5)	2,0 (0,9)	3,5 (1,5)	3,0 (1,5)	2,5 (1,2)	2,5 (1,5)
M10/ IG-M6	16x130	130	3,5 (1,5)	3,0 (1,5)	2,0 (0,9)	3,5 (1,5)	3,0 (1,5)	2,5 (1,2)	2,5 (1,5)
M12 /	20x85	85	3,0 (1,5)	2,5 (1,2)	2,0 (0,9)	3,0 (1,5)	2,5 (1,2)	2,0 (0,9)	2,5 (1,5)
M16 /	20x130	130	3,0 (1,5)	2,5 (1,2)	2,0 (0,9)	3,0 (1,5)	2,5 (1,2)	2,0 (0,9)	2,5 (1,5)
IG-M8 / IG-M10	20x200	200	3,0 (1,5)	2,5 (1,2)	2,0 (0,9)	3,0 (1,5)	2,5 (1,2)	2,0 (0,9)	2,5 (1,5)
	1	1			strength f _b ≥				
M8	-	80	6,0 (3,0)	5,5 (2,5)	4,0 (2,0)	5,0 (2,5)	5,0 (2,5)	3,5 (1,5)	4,0 (2,5)
M10 / IG-M6	-	90	6,0 (3,0)	5,5 (2,5)	4,0 (2,0)	5,0 (2,5)	5,0 (2,5)	3,5 (1,5)	4,5 (2,5)
M12/ IG- M8	•	100	6,0 (3,0)	5,5 (2,5)	4,0 (2,0)	5,0 (2,5)	5,0 (2,5)	3,5 (1,5)	4,0 (2,5)
M16/ IG- M10	-	100	5,0 (2,5)	5,0 (2,5)	3,5 (1,5)	5,0 (2,5)	5,0 (2,5)	3,5 (1,5)	4,0 (2,5)
M8	12x80	80	5,5 (2,5)	5,0 (2,5)	3,5 (1,5)	4,5 (2,0)	4,5 (2,0)	3,0 (1,5)	4,0 (2,5)
M8 /	16x85	85	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	4,0 (2,5)
M10/ IG- M6	16x130	130	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	4,0 (2,5)
M12 /	20x85	85	4,0 (2,0)	4,0 (2,0)	3,0 (1,5)	4,0 (2,0)	4,0 (2,0)	3,0 (1,5)	4,0 (2,5)
M16 /	20x130	130	4,0 (2,0)	4,0 (2,0)	3,0 (1,5)	4,0 (2,0)	4,0 (2,0)	3,0 (1,5)	4,0 (2,5)
IG-M8 / IG-M10	20x200	200	4,0 (2,0)	4,0 (2,0)	3,0 (1,5)	4,0 (2,0)	4,0 (2,0)	3,0 (1,5)	4,0 (2,5)

1)

Values are valid for c_{cr} , values in brackets are valid for single anchors with c_{min} For c_{cr} calculation of $V_{Rk,c}$ see ETAG 029, Annex C; values in brackets $V_{Rk,b} = V_{Rk,c}$ for single anchors with c_{min} The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply $V_{Rk,b}$ by 0,8 2)

3)

Chimfix for masonry

Performances calcium solid brick KS-NF

Characteristic values of resistance under tension and shear load



					Cha	racteristic r	esistance		
						Use cate			
Anchor	Sleeve	Effective anchorage depth		d/d			w/d w/w		d/d w/d w/w
size	Sleeve	h _{ef} [mm]	40°C/24°C	80°C/50°C					For All temperature range
		h _{ef}		$N_{Rk,b} = N_{Rk,j}$	1) >		$N_{Rk,b} = N_{Rk,p}$	1)	V _{Rk,b} ²⁾³⁾
		[mm]				[kN]			
			Com	pressive s	strength f _b ≥	27 N/mm ²			
M8	-	80	7,0 (3,5)	6,5 (3,0)	5,0 (2,5)	6,0 (3,0)	5,5 (2,5)	4,0 (2,0)	4,5 (2,5)
M10 / IG-M6	-	90	7,0 (3,5)	6,5 (3,0)	5,0 (2,5)	6,0 (3,0)	5,5 (2,5)	4,0 (2,0)	5,5 (3,0)
M12 / IG-M8	-	100	7,0 (3,5)	6,5 (3,0)	5,0 (2,5)	6,0 (3,0)	5,5 (2,5)	4,0 (2,0)	4,5 (2,5)
M16 / IG-M10	-	100	6,0 (3,0)	5,5 (2,5)	4,5 (2,0)	6,0 (3,0)	5,5 (2,5)	4,0 (2,0)	4,5 (2,5)
M8	12x80	80	6,5 (3,0)	6,0 (3,0)	4,5 (2,0)	5,5 (2,5)	5,0 (2,5)	3,5 (1,5)	4,5 (2,5)
M8 /	16x85	85	5,5 (2,5)	5,0 (2,5)	4,0 (2,0)	5,5 (2,5)	5,0 (2,5)	4,0 (2,0)	4,5 (2,5)
/110/ IG- M6	16x130	130	5,5 (2,5)	5,0 (2,5)	4,0 (2,0)	5,5 (2,5)	5,0 (2,5)	4,0 (2,0)	4,5 (2,5)
M12 /	20x85	85	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	4,5 (2,5)
M16 /	20x130	130	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	4,5 (2,5)
IG-M8 / IG-M10	20x200	200	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	5,0 (2,5)	4,5 (2,0)	3,5 (1,5)	4,5 (2,5)

1)

Values are valid for c_{cr} , values in brackets are valid for single anchors with c_{min} For c_{cr} calculation of $V_{Rk,c}$ see ETAG 029, Annex C; values in brackets $V_{Rk,b} = V_{Rk,c}$ for single anchors with c_{min} The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply $V_{Rk,b}$ by 0,8 2)

3)

Table C17: Displacements

Anchor size	Sleeve	Effective anchorage depth h _{ef}	N	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δ _{V∞}
		[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	-	80					1,7	0,90	1,35
M10 / IG-M6	-	90	2,0		0,30	0,60	2,0	1,10	1,65
M12 / IG-M8	-	100							
M16 / IG-M10	-	100	1,7	0,15	0,26	0,51			
M8	12x80	80		0,10					
M8 / M10/	16x85	85	1,4		0,21	0,43	1,7	0,90	1,35
IG-M6	16x130	130	1,4		0,21	0,43			
M12 / M16 /	20x85	85							
IG-M8 /	20x130	130	1,3		0,19	0,39			
IG-M10	20x200	200]						

Performances calcium solid brick KS-NF Characteristic values of resistance under tension and shear load (continue)

Annex C 8

Displacements



Brick type		Calcium silicate ho	ollow brick				
	a flea (daa 31	KSL-3DF 1,4			100	6	
Bulk density	$\rho [kg/dm^3]$ _b ≥ [N/mm ²]				0.0	100	2
Compressive strength f _t Code	_b ≥ [iv/mm]	8, 12 or 14 EN 771-2			10	1.00	P
			:)		-	Υ.	L
Producer (country code) Brick dimensions	[mm]	e.g. Wemding (DE 240 x 175 x 113	:)			110	
Drilling method	[mm]	Rotary	_			÷	
	175		95	14 44 14 32 14			
Table C19: Installation	n parameters		, 38 ,14,	44 14 44 16			
				14	All sizes		
Anchor size	n parameters		, 38 ,14,	14)	
Anchor size Edge distance			[-]	14	All sizes 100 (120) ¹ 60)	
Anchor size Edge distance Minimum edge distance	n parameters		[-] [mm] [mm] [mm]	14	100 (120) ¹ 60 240	}	
Anchor size Edge distance Minimum edge distance Spacing	C _{or} C _{min} S _{or,1}		[-] [mm] [mm] [mm] [mm]	14	100 (120) ¹ 60 240 120)	
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH Table C20: Group fact	C _{cr} C _{min} S _{cr,I} S _{cr,L} S _{min} H20x85; SH20x	s (130 and SH20x200 or group in case of t	[-] [mm] [mm] [mm] [mm] [mm]	14 44 16	100 (120) ¹ 60 240		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH	C _{cr} C _{min} S _{cr,I} S _{cr,L} S _{min} H20x85; SH20x	s :130 and SH20x200	[-] [mm] [mm] [mm] [mm] [mm]		100 (120) ¹ 60 240 120		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH Table C20: Group fact Configuration II: anchors placed	C _{cr} C _{min} S _{cr,I} S _{cr,L} S _{min} H20x85; SH20x	s (130 and SH20x200 or group in case of t	[-] [mm] [mm] [mm] [mm] [mm]	14 44 16	100 (120) ¹ 60 240 120		1,5
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH Table C20: Group fact Configuration II: anchors placed parallel to horizontal	C _{cr} C _{min} S _{cr,I} S _{cr,L} S _{min} H20x85; SH20x	s 130 and SH20x200 or group in case of t with c ≥	[-] [mm] [mm] [mm] [mm] [mm]	14 44 16 44 16 ading with s ≥	100 (120) ¹ 60 240 120		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH Table C20: Group fact Configuration II: anchors placed	Cor Cmin Sor.II Sor.L Smin H20x85; SH20x tor for ancho	130 and SH20x200 or group in case of 1 with c ≥ 60	[-] [mm] [mm] [mm] [mm] [mm]	14 44 16 44 16 44 16 44 16	100 (120) ¹ 60 240 120 120		2,0
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing 1) Value in brackets for SH Table C20: Group fact Configuration II: anchors placed parallel to horizontal joint ⊥: anchors placed	Cor Cmin Sor.II Sor.L Smin H20x85; SH20x tor for ancho	130 and SH20x200 or group in case of 1 with c ≥ 60 C _{or}	[-] [mm] [mm] [mm] [mm] [mm]	14 44 16 44 16 ading with s ≥ 120 240	100 (120) ¹ 60 240 120 120		1,5 2,0 2,0 1,0
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH Table C20: Group fact Configuration II: anchors placed parallel to horizontal joint	Cor Cmin Sor.II Sor.L Smin H20x85; SH20x tor for ancho	s 130 and SH20x200 or group in case of t with c ≥ 60 c _{cr} 160	[-] [mm] [mm] [mm] [mm] [mm]	ading with $s \ge 120$ 240 120	100 (120) ¹ 60 240 120 120		2,0 2,0



	Configur	ation		with c ≥		with s	2			1
II: ancho	rs placed	1 III	T	60		120				1,0
parallel to	horizontal	V ••		160		120	α	g,V,II		1,6
joi	int		1	Ccr		240			E	2,0
	rs placed		1	60		120			L2	1,0
perpend horizon	licular to Ital joint	V		Ccr		120	α	g,V,⊥		2,0
Table C2	2: Grou	p factor for a	inchor grou	up in case	of shear loa	ding perpe	endicular to	o free e	dge	
	Configur	ation		with c ≥	1	with s	2			
	rs placed			60		120		_		1,0
	horizontal int	V		Ccr		240	α	g,V,II		2,0
⊥: ancho			T	60		120			[-]	1,0
	licular to	V		Cor		120	α	g,V,		2,0
Table C2					das tanalan		landa			1
Table C2	s: char	acteristic va	lues of res	istance une		acteristic re				
					Unar	Use catego				
		Effective anchorage		d/d	10.00		w/d; w/w	2	-	d/d; w/d; w/w
Anchor size	Sleeve	depth	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/	72°C	For all temperature range
	1	h _{ef}		$N_{Rk,b} = N_{Rk,p}$	1)		$N_{Rk,b} = N_{Rk,i}$	1)		V _{Rk,b} ⁴⁾
-		[mm]		The The		[kN]	100			1.1110
			Comp	pressive str	rength $f_b \ge 8$	8 N/mm ²				
M8	12x80	80	1,5	1,5	1,2	1,5	1,2	0,9	-	$2,5^{2}(0,9)^{3}$
M8 / M10	16x85	85	1,5	1,5	1,2	1,5	1,5	1,2		$4,0^{2}$ (1,5) ³
/ IG-M6	16x130	130	1,5	1,5	1,2	1,5	1,5	1,2	2	$4,0^{2}$ $(1,5)^{3}$
M12/	20x85	85	4,5	4,0	3,0	4,5	4,0	3,0)	$4,0^{2}$ (1,5) ³
M16 / IG-M8 /	20x130	130	4,5	4,0	3,0	4,5	4,0	3,0)	$4,0^{2}$ $(1,5)^{3}$
IG-M10	20x200	200	4,5	4,0	3,0	4,5	4,0	3,0)	$4,0^{2}$ $(1,5)^{3}$
			Comp	ressive str	ength $f_b \ge 1$	2 N/mm ²				
M8	12x80	80	2,0	2,0	1,5	2,0	1,5	1,2	2	$3,0^{2}(1,2)^{3}$
M8 / M10	16x85	85	2,0	2,0	1,5	2,0	2,0	1,5	5	$4,5^{2}(1,5)^{3}$
/ IG-M6	16x130	130	2,5	2,5	1,5	2,5	2,5	1,5	5	$4,5^{2}$ $(1,5)^{3}$
M12/	20x85	85	6,0	5,5	4,0	6,0	5,5	4,0)	$4,5^{2}$ $(1,5)^{3}$
M16 / IG-M8 /	20x130	130	6,0	5,5	4,0	6,0	5,5	4,0)	$4,5^{2}$ $(1,5)^{3}$
IG-MI0	20x200	200	6,0	5,5	4,0	6,0	5,5	4,0	j	$4,5^{2}$ $(1,5)^{3}$
 Value: Value: V_{Rk,c,II} V_{Rk,c,⊥} 	= V _{Rk,b} valic = V _{Rk,b} (valu	or c _{cr} and c _{min} I for shear load ues in brackets Ilid for steel 5.6) valid for she	ear load in di			,8			
The va										



					Char	acteristic re	sistance		
						Use catego	ory		
Anchor		Effective anchorage		d/d			w/d w/w		d/d; w/d; w/w
size	Sleeve	depth		40°C/24°C 80°C/50°C			80°C/50°C	120°C/72°C	For all temperature range
		h _{ef}		$N_{\text{Rk},b} = N_{\text{Rk},p}^{1} \qquad \qquad N_{\text{Rk},b} = N_{\text{Rk},p}$					V _{Rk,b} ⁴⁾
		[mm]		$[kN]$ Compressive strength $f_b \ge 14 \text{ N/mm}^2$					
			Comp	ressive str	ength f _b ≥ 1	4 N/mm ²			
M8	12x80	80	2,5	2,5	1,5	2,0	2,0	1,5	$3,5^{2}(1,5)^{3}$
M8 / M10	16x85	85	2,5	2,5	1,5	2,5	2,5	1,5	$6,0^{2}$ (2,0) ³⁾
/ IG-M6	16x130	130	2,5	2,5	2,0	2,5	2,5	2,0	$6,0^{2}$ $(2,0)^{3}$
M12 /	20x85	85	6,5	6,0	4,5	6,5	6,0	4,5	$6,0^{2}$ (2,0) ³⁾
M16 / IG-M8 /	20x130	130	6,5	6,0	4,5	6,5	6,0	4,5	$6,0^{2)}(2,0)^{3)}$
IG-M10	20x200	200	6,5	6,0	4,5	6,5	6,0	4,5	$6,0^{2}$ (2,0) ³⁾
 V_{Rk,c,II} V_{Rk,c,⊥} 	= V _{Rk,b} valic = V _{Rk,b} (vali alues are va	or c _{cr} and c _{min} I for shear load Jes in brackets Ilid for steel 5.6 lacements) valid for sh	ear load in di			8		
		and	ective horage pth h _{ef}	Ν δ _N /	Ν δ _{ΝΟ}	δ _{N∞}	V	δ_{V0}	δ _{V∞}
Anchor si	ze Sle	de de	Purret			ı] [mm	i] [kN]	[mm]	[mm]
Anchor si	ze Sle	de		[kN] [mm/	kN] [mm	վ լոու			
Anchor si M8		de		[kN] [mm/	kN] [mm	. <u>)</u> [1,0	1,0	1,50
	12	de	mm] 80	[kN] [mm/ 0,71	KN] [mm 0,64		1,0	1,0	1,50
M8	12	x80 x85	mm] 80	0,71	0,64		1,0	1,0	1,50
M8 M8 / M10	12) / 16 16)	x80 x85	mm] 80 85		0,64		1,0	1,0	2,85
M8 M8 / M10 IG-M6	12) / 16 16 6 / 20 20	x80 x85 x130 x85	mm] 80 85 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	0,71	0,64	4 1,29	1,0 1,7		



Brick type		Calcium silicate ho	ollow brick				
Bulk density	ρ [kg/dm³]	KSL-12DF 1,4			12		
	p [kg/dm] $b \ge [N/mm^2]$	10, 12 or 16					
Compressive strength in	b ≤ [iv/iiiii]	EN 771-2					ú
Producer (country code)		e.g. Wemding (DE	3)			-	1
Brick dimensions	[mm]	498 x 175 x 238	.)			P	
Drilling method	funul	Rotary				· · ·	
						59 23 59 17	*
, 35 , 59	, 64 ,	59 64	59	64	59 y 35		
Table C27: Installation Anchor size Edge distance	n parameters	1 .	[-] [mm]	/ ⁶⁴ /	All sizes 100 (120) ¹)	
Table C27: Installation Anchor size Edge distance Minimum edge distance Minimum edge distance	n parameters	1 .	[-] [mm] [mm]	f 64 f	All sizes 100 (120) ¹ 100 (120) ¹)	
Table C27: Installation Anchor size Edge distance Minimum edge distance Minimum edge distance	C _{cr} C _{min} ²⁾ S _{cr,II}	1 .	[-] [mm] [mm] [mm]	f 64 f	All sizes 100 (120) ¹)	
Table C27: Installation Anchor size	Ccr Cmin ²⁾ Scr.II Scr Smin	5	[-] [mm] [mm]	f 64 f	All sizes 100 (120) ¹ 100 (120) ¹ 498)	
Table C27: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : Cmin according Table C28: Group fact Configuration II: anchors placed parallel to horizontal joint	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,I} S _{min} H20x85 and SH to ETAG 029, tor for ancho	20x130 Annex C	[-] [mm] [mm] [mm] [mm] [mm]		All sizes 100 (120) ¹ 100 (120) ¹ 498 238)	1,0 2,0 1,0
Table C27: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : cmin according Table C28: Group fact Configuration II: anchors placed parallel to horizontal joint ⊥: anchors placed perpendicular to	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,⊥} S _{min} H20x85 and SH to ETAG 029,	s 20x130 Annex C or group in case of 1 with c ≥ 100 C _{cr} 100	[-] [mm] [mm] [mm] [mm] [mm]	ading with s ≥ 120 498	All sizes 100 (120) ¹ 100 (120) ¹ 498 238 120)	2,0 1,0
Table C27: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : Cmin according Table C28: Group fact Configuration II: anchors placed parallel to horizontal joint ⊥: anchors placed Initian of the splaced	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,I} S _{min} H20x85 and SH to ETAG 029, tor for ancho	20x130 Annex C or group in case of 1 with c ≥ 100 C _{cr}	[-] [mm] [mm] [mm] [mm] [mm]	ading with s ≥ 120 498 120	All sizes 100 (120) ¹ 100 (120) ¹ 498 238 120 α _{g,N,II})	2,0



	Configuration	r i		with c ≥		with s ≥	8		1
II: anchors p parallel to hor joint	laced	V ••		Ccr		498	α	g,V,II	2,0
⊥: anchors p perpendicul horizontal j	ar to			Ccr		238	α	g,V,⊥	2,0
Table C30:	Group fac	ctor for anch	or group	in case of	shear load	ling perpe	ndicular t	o free edge	
	Configuration	0	-	with c ≥	1	with s ≥			1
II: anchors p parallel to hor joint	laced	V		Ccr		498	α	α _{g,V,li} [-]	
⊥: anchors p perpendicul horizontal j	ar to			C _{cr}		238	α	g,V,⊥	2,0
Table C31:	Characte	eristic values	of resist	ance unde	an an sur to the s	202 10 11 2 97 1	and show the		
			-		Cha	racteristic r			
					_	Use categ	Jory		d/d
Annhanalas	Oleanne	Effective anchorage depth		d/d			w/d w/w		d/d w/d w/w
Anchor size	Sleeve	depth	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	For all temperature range
		h _{et}		N _{Rk,b} = N _{Rk,}	1) P	N	$N_{Rk,b} = N_{Rk,b}$	1)	V _{Rk,b} ²⁾³⁾
		[mm]				[kN]		A	
		1			gth f _b ≥ 10			6.00	
M8	12x80	80	0,6	0,6	0,4	0,5	0,5	0,4	2,5
M8 / M10 /	16x85	85	0,6	0,6	0,4	0,6	0,6	0,4	5,5
IG-M6	16x130	130	2,5	2,5	2,0	2,5	2,5	2,0	5,5
M12 / M16 / IG-M8 /	20x85	85	1,5	1,5	0,9	1,5	1,5	0,9	5,5
IG-M10	20x130	130	2,5	2,5	2,0	2,5	2,5	2,0	5,5
			Compre	ssive stren	gth $f_b \ge 12$	N/mm ²			
M8	12x80	80	0,75	0,6	0,5	0,6	0,6	0,4	3,0
M8 / M10 /	16x85	85	0,75	0,6	0,5	0,75	0,6	0,5	6,5
IG-M6	16x130	130	3,0	3,0	2,0	3,0	3,0	2,0	6,5
M12 / M16 /	20x85	85	1,5	1,5	1,2	1,5	1,5	1,2	6,5
IG-M8 / IG-M10	20x130	130	3,0	3,0	2,0	3,0	3,0	2,0	6,5
¹⁾ Values ar ²⁾ Calculatio		and c _{min} e ETAG 029, A or steel 5.6 or g			ar load parall	el to free ed		120 mm: V _{Rk}	c,II = V _{Rk,b}
Chimelin fa	r masonry								



Brick type:	Calcium s	ilicate holl	ow brick	KS L-12D)F				
Table C32:	Character	ristic values	of resista	ance unde	r tension a	nd shear	loads (cor	ntinue)	
					Char	acteristic r			
						Use cate	gory		
Anchoroine	Cleave	Effective anchorage depth		d/d			w/d w/w		d/d w/d w/w
Anchor size	Sleeve	depth	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	For all temperature range
		h _{ef}	$N_{\text{Rk,b}} = N_{\text{Rk,p}}^{11} \qquad N_{\text{Rk,b}} = N_{\text{Rk,p}}^{11}$						V _{Rk,b} ²⁾³⁾
		[mm]				[kN]			
·			Compres	sive stren	gth f _b ≥ 16	N/mm ²			
M8	12x80	80	0,9	0,9	0,6	0,75	0,75	0,5	3,5
M8 / M10 /	16x85	85	0,9	0,9	0,6	0,9	0,9	0,6	8,0
IG-M6	16x130	130	4,0	3,5	2,5	4,0	3,5	2,5	8,0
M12 / M16 /	20x85	85	2,0	2,0	1,5	2,0	2,0	1,5	8,0
IG-M8 / IG-M10	20x130	130	4,0	3,5	2,5	4,0	3,5	2,5	8,0

1)

Values are valid for c_{cr} and c_{min} Calculation of $V_{Rk,c}$ see ETAG 029, Annex C, except for shear load parallel to free edge with $c \ge 120 \text{ mm}$: $V_{Rk,c,II} = V_{Rk,b}$ The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply $V_{Rk,b}$ by 0,8 2) 3)

Table C33: **Displacements**

Anchor size	Sleeve	Effective anchorage depth h _{ef}	N	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δγ∞
		[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	12x80	80	0,26		0,23	0,46	1,0	1,3	1,95
M8 / M10 /	16x85	85	0,20		0,23	0,40			
IG-M6	16x130	130	1,14	0.90	1,03	2,06			
M12 / M16	20x85	85	0,57		0,51	1,03	2,3	2,5	3,75
/ IG-M8 / IG-M10	20x130	130	1,14		1,03	2,06			

Chimfix for masonry	
Performances calcium hollow brick KS L-12DF	Annex C 14
Characteristic values of resistance under tension and shear load (continue)	
Displacements	



Brick type		Clay solid brick Mz-DF					
Bulk density	ρ [kg/dm³]	1,6	_			1.1	
	$f_b \ge [N/mm^2]$	10, 20 or 28					
Code		EN 771-1					
		and the second se			-		
Producer (country code)	Passing 9	e.g. Unipor (DE)					
Brick dimensions	[mm]	240 x 115 x 55					
Drilling method		Hammer					
	on parameter	P			4.79		
Anchor size	T. S.		[-]		All sizes		
Edge distance	Ccr		[mm]		1,5*h _{et}		
Minimum edge distance	Cmin		[mm]		60		
Spacing	Scr		[mm]		3*her		
Minimum spacing	Smin		[mm]		120		
Table C36: Group fac Configuration		or group in case of with c ≥	tension lo	ading with s ≥			-
II: anchors placed		60		120			0,7
parallel to horizontal joint	••	1,5*hef		3*h _{ef}	α _{g,N,II}	1.51	2,0
⊥: anchors placed		60		120		[-]	0,5
perpendicular to	:	1,5*hef		120	α _{g,N,L}		1,0
horizontal joint		1,5*hef		3*h _{ef}			2,0
Table C37: Group fac Configuration		or group in case of with c ≥	shear load	ling parallel to with s ≥	free edge		
II: anchors placed		60		120	1		0,5
	V	90		120	α _{g,V,II}		1,1
parallel to horizontal		4 5*6-6		3*h _{ef}		Ð	2,0
	il	1,5*hef		120		4	0,5
parallel to horizontal joint		60					1,0
parallel to horizontal joint ⊥: anchors placed perpendicular to		60 1,5*hef		120	α _{g,V,⊥}		2,0
parallel to horizontal joint		60			α _{g,V,⊥}	_	
parallel to horizontal joint	17-1 D-180 0 - 199	60 1,5*hef 1,5*hef or group in case of with c ≥	shear load	120 3*h _{ef} Iing perpendic with s ≥		edge	
parallel to horizontal joint Image: specific text spec	17-1 D-180 0 - 199	60 1,5*hef 1,5*hef or group in case of with c ≥ 60	shear load	120 3*h _{et} Iing perpendic with s ≥ 120		edge	
parallel to horizontal joint Image: specific transmission of tra	17-1 D-180 0 - 199	60 1,5*hef 1,5*hef or group in case of with c ≥ 60 1,5*hef	shear load	120 3*h _{ef} Iing perpendic with s ≥ 120 120		edge	1,0
parallel to horizontal joint Image: specific state	17-1 D-180 0 - 199	60 1,5*hef 1,5*hef or group in case of with c ≥ 60 1,5*hef 1,5*hef	shear load	120 3*h _{ef} Iing perpendic with s ≥ 120 120 3*h _{ef}	ular to free		1,0 2,0
parallel to horizontal joint Image: specific sp	17-1 D-180 0 - 199	60 1,5*hef 1,5*hef or group in case of with c ≥ 60 1,5*hef 1,5*hef 60	shear load	120 3*h _{ef} Iing perpendic with s ≥ 120 120 3*h _{ef} 120	ular to free α _{g,v,ll}	edge [-]	1,0 2,0 0,5
parallel to horizontal joint Image: space disperse di disperse di disperse di disperse disperse disperse disperse di di	17-1 D-180 0 - 199	60 1,5*hef 1,5*hef or group in case of with c ≥ 60 1,5*hef 1,5*hef 60 1,5*hef	shear load	120 3*h _{ef} Iing perpendic with s ≥ 120 120 3*h _{ef} 120 120 120	ular to free		0,5 1,0 2,0 0,5 1,0
parallel to horizontal joint Image: specific sp	17-1 D-180 0 - 199	60 1,5*hef 1,5*hef or group in case of with c ≥ 60 1,5*hef 1,5*hef 60	shear load	120 3*h _{ef} Iing perpendic with s ≥ 120 120 3*h _{ef} 120	ular to free α _{g,v,ll}		1,0 2,0 0,5



					istic resistance	
					category	
		Effective		d/d		d/d
		anchorage		w/d w/w		w/d w/w
Anchor size	Sleeve	depth				For all
			40°C/24°C	80°C/50°C	120°C/72°C	temperature range
		h _{ef}		$N_{Rk,b} = N_{Rk,p}^{1}$)	V _{Rk,b} ²⁾³⁾
		[mm]			[kN]	
I		Compressive s	trength f _b ≥ 10	N/mm ²	• •	
M8	-	80	3,5 (1,5)	3,5 (1,5)	2,5 (1,2)	3,5 (1,2)
M10 / IG-M6	-	90	3,5 (1,5)	3,5 (1,5)	3,0 (1,5)	3,5 (1,2)
M12 / IG-M8	-	100	4,0 (2,0)	4,0 (2,0)	3,5 (1,5)	3,5 (1,2)
M16 / IG-M10	-	100	4,0 (2,0)	4,0 (2,0)	3,5 (1,5)	5,5 (1,5)
M8	12x80	80	3,5 (1,5)	3,5 (1,5)	3,0 (1,2)	3,5 (1,2)
M8 / M10 /	16x85	85	3,5 (1,5)	3,5 (1,5)	3,0 (1,5)	3,5 (1,2)
IG-M6	16x130	130	3,5 (1,5)	3,5 (1,5)	3,0 (1,5)	3,5 (1,2)
M12 / M16 /	20x85	85	3,5 (1,5)	3,5 (1,5)	3,0 (1,5)	3,5 (1,2)
IG-M8 /	20x130	130	3,5 (1,5)	3,5 (1,5)	3,0 (1,5)	3,5 (1,2)
IG-M10	20x200	200	3,5 (1,5)	3,5 (1,5)	3,0 (1,5)	3,5 (1,2)
		Compressive s	trength f _b ≥ 20	N/mm ²		
M8	-	80	4,5 (2,5)	4,5 (2,5)	4,0 (2,0)	5,0 (1,5)
M10 / IG-M6	-	90	5,5 (2,5)	5,5 (2,5)	4,5 (2,0)	5,0 (1,5)
M12 / IG-M8	-	100	6,0 (3,0)	6,0 (3,0)	5,0 (2,5)	5,0 (1,5)
M16 / IG-M10	-	100	6,0 (3,0)	6,0 (3,0)	5,0 (2,5)	8,0 (2,5)
M8	12x80	80	4,5 (2,5)	4,5 (2,5)	4,0 (2,0)	5,0 (1,5)
M8 / M10 /	16x85	85	5,0 (2,5)	5,0 (2,5)	4,0 (2,0)	5,0 (1,5)
IG-M6	16x130	130	5,0 (2,5)	5,0 (2,5)	4,0 (2,0)	5,0 (1,5)
M12 / M16 /	20x85	85	5,0 (2,5)	5,0 (2,5)	4,0 (2,0)	5,0 (1,5)
IG-M8 /	20x130	130	5,0 (2,5)	5,0 (2,5)	4,0 (2,0)	5,0 (1,5)
IG-M10	20x200	200	5,0 (2,5)	5,0 (2,5)	4,0 (2,0)	5,0 (1,5)
		Compressive s				5 5 (0, 0)
M8	-	80	5,5 (2,5)	5,5 (2,5)	4,5 (2,5)	5,5 (2,0)
M10 / IG-M6	•	90	6,0 (3,0)	6,0 (3,0)	5,0 (2,5)	5,5 (2,0)
M12 / IG-M8	-	100	7,0 (3,5)	7,0 (3,5)	6,0 (3,0)	5,5 (2,0)
M16 / IG-M10	-	100	7,0 (3,5)	7,0 (3,5)	6,0 (3,0)	9,0 (3,0)
M8	12x80	80	5,5 (2,5)	5,5 (2,5)	4,5 (2,5)	5,5 (2,0)
M8 / M10 /	16x85	85	6,0 (3,0)	6,0 (3,0)	5,0 (2,5)	5,5 (2,0)
IG-M6	16x130	130	6,0 (3,0)	6,0 (3,0)	5,0 (2,5)	5,5 (2,0)
M12 / M16 /	20x85	85	6,0 (3,0)	6,0 (3,0)	5,0 (2,5)	5,5 (2,0)
IG-M8 / IG-M10	20x130 20x200	130 200	6,0 (3,0) 6,0 (3,0)	6,0 (3,0) 6,0 (3,0)	5,0 (2,5) 5,0 (2,5)	<u>5,5 (2,0)</u> 5,5 (2,0)

2) For c_{cr} calculation of $V_{Rk,c}$ see ETAG 029, Annex C; for c_{min} values in brackets $V_{Rk,b} = V_{Rk,c}$

3) The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply $V_{\text{Rk},\text{b}}$ by 0,8

Chimfix for masonry

Performances clay solid brick Mz-DF

Characteristic values of resistance under tension and shear load



Brick type: Cla	y solid bı	rick Mz-DF							
Table C40: Di	splaceme	nts							
Anchor size	Sleeve	Effective anchorage depth h _{ef}	N	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δ _{v∞}
		[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	-	80	1,3		0,19	0,39			
M10 / IG-M6	-	90	1,6		0,24	0,47	1,9		
M12 / IG-M8	-	100	17		0.06	0.51			
M16 / IG-M10	-	100	1,7		0,26	0,51	2,9		
M8	12x80	80		0.15				1 00	1 50
M8 / M10 /	16x85	85		0,15				1,00	1,50
IG-M6	16x130	130	10		0.10	0.00	1.0		
M12 / M16 /	20x85	85	1,3		0,19	0,39	1,9		
IG-M8 /	20x130	130							
IG-M10	20x200	200							

Performances clay solid brick Mz-DF Displacements



Brick type		Clay hollow brick HLz-16-DF					
	o [kg/dm ³]	0,8		_	100	-	
	2 [N/mm ²]	6, 8, 12, 14					
Code	- [remmi]	EN 771-1		_		221	11
Producer (country code)		e.g. Unipor DE)		_			
Brick dimensions	[mm]	497 x 240 x 238					
Drilling method		Rotary				-	
-04	Πĭ			HUK7			
A. 2	14 *** 14,5	-			9-#13		
Table C42: Installation p		-			# 614		
Table C42: Installation p Anchor size	c _{cr}	-			All sizes 100 (120) ¹	1)	
Table C42: Installation p Anchor size Edge distance	parameters	-	[-] [mm]		All sizes 100 (120) ¹ 100 (120) ¹		
Table C42: Installation p Anchor size Edge distance Minimum edge distance Minimum edge distance	C _{cr} C _{min} ²⁾ S _{cr,II}	-	[-] [mm] [mm] [mm]		All sizes 100 (120) ¹ 100 (120) ¹ 497		
Table C42: Installation p Anchor size Edge distance Edge distance Minimum edge distance Spacing Spacing	C _{or} C _{min} ²⁾ S _{or,II} S _{or,⊥}	-	[-] [mm] [mm] [mm] [mm]		All sizes 100 (120) ¹ 100 (120) ¹ 497 238		
Table C42: Installation p Anchor size Edge distance Edge distance Minimum edge distance Spacing Image: Compare the second se	Cor Cmin Scr.II Sor Smin Dx85; SH20x ETAG 029,	130 and SH20x200 Annex C or group in case of te	[-] [mm] [mm] [mm] [mm] [mm]	g	All sizes 100 (120) ¹ 100 (120) ¹ 497		
Table C42: Installation p Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH2(²⁾ For V _{Rk,c} : cmin according to Table C43: Group factor Configuration Configuration	Cor Cmin Scr.II Sor Smin Dx85; SH20x ETAG 029,	130 and SH20x200 Annex C or group in case of te with c ≥	[-] [mm] [mm] [mm] [mm] [mm]	g with s ≥	All sizes 100 (120) ¹ 100 (120) ¹ 497 238		
Table C42: Installation p Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing 1) Value in brackets for SH20 2) For V _{Rk,c} : cmin according to Table C43: Group factor	Cor Cmin Scr.II Sor Smin Dx85; SH20x ETAG 029,	130 and SH20x200 Annex C or group in case of te	[-] [mm] [mm] [mm] [mm] [mm]	g	All sizes 100 (120) ¹ 100 (120) ¹ 497 238		1,2
Table C42: Installation p Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH2(²⁾ For V _{Rk,c} : cmin according to Table C43: Group factor Configuration II: anchors placed parallel to horizontal Image: Configuration	Cor Cmin Scr.II Sor Smin Dx85; SH20x ETAG 029,	s 130 and SH20x200 Annex C or group in case of te with c ≥ C _{cr}	[-] [mm] [mm] [mm] [mm] [mm]	g with s ≥ 100	All sizes 100 (120) ¹ 100 (120) ¹ 497 238 100		

Chimfix for masonry

1	Performances clay hollow brick HLz-16DF	
	Description of the brick	
	Installation parameters	



Configuration		with c	2	with s ≥				
II: anchors placed parallel to horizontal joint L: anchors placed perpendicular to horizontal joint		C _{cr}		497	α _{g,V,II}	10	2,0	
				238	$\alpha_{g,V,\bot}$	[4]	2,0	
Table C45: Gro	oup factor for and	hor group in case	e of shear load	ding perpend	cular to free e	dge		
Configuration		with c ≥		with s ≥				
II: anchors placed parallel to horizontal joint		C _{cr}		497	α _{g,V,II}		2,0	
L: anchors placed perpendicular to horizontal joint		C _{ar}	Car		$\alpha_{g,v,\perp}$	[-]	2,0	
Table C46: Ch	aracteristic value	es of resistance u	nder tension a	and shear loa	ds			
			Characteristic resistance					
					category			
		Effective		d/d		111	d/d	
1.	Sleeve	anchorage	w/d			w/d		
Anchor size		depth	w/w			w/w		
			40°C/24°C	80°C/50°C	120°C/72°C	For all temperatu range		
		h _{ef}	$N_{Rk,b} = N_{Rk,p}$		V _{Bk,b}		2)3) Rk,b	
		[mm]						
		Compressive s	strength $f_b \ge 6$	N/mm ²				
M8	12x80	80	2,5	2,5	2,0		2,5	
M8 / M10/ IG-	16x85	85	2,5	2,5	2,0	1.000	4,5	
M6	16x130	130	3,5	3,5	3,0	4,5		
	20x85	85	2,5	2,5	2,0	1111	5,0	
M12 / M16 / IG-	20x130	130	3,5	3,5	3,0	1	6,0	
	20x200	200	3,5	3,5	3,0	6,0		
		Compressive s	strength $f_b \ge 8$	N/mm ²		1		
M8	12x80	80	3,0	3,0	2,5		3,0	
M8 / M10/ IG-	16x85	85	3,0	3,0	2,5		5,5	
M6	16x130	130	4,5	4,5	3,5	1	5,5	
M12 / M16 / IG-	20x85	85	3,0	3,0	2,5		6,0	
M8 / IG-M10	20x130	130	4,5	4,5	3,5		7,0	
	20x200	200	4,5	4,5	3,5		7,0	
²⁾ Calculation		29, Annex C, except 6 or greater. For stee				nm: V _{Rk}	$_{c,II} = V_{Rk,b}$	



Brick type: Clay	/ hollow brick H	Lz-16-DF						
Table C47: Ch	aracteristic value	s of resistance u	nder tension a	and shear loa	ds (continue)			
	Sleeve	Effective anchorage depth	Characteristic resistance					
			Use category					
Anchereine				d/d w/d w/w				
Anchor size		depin	40°C/24°C	80°C/50°C	120°C/72°C	For all temperature range		
		h _{ef}		$V_{Rk,b}^{(2)3)}$				
		[mm]						
		Compressive s	trength f _b ≥ 12	N/mm ²				
M8	12x80	80	3,5	3,5	3,0	4,0		
M8 / M10/ IG-	16x85	85	3,5	3,5	3,0	6,5		
M6	16x130	130	5,0	5,0	4,5	6,5		
	20x85	85	3,5	3,5	3,0	7,0		
M12 / M16 / IG- M8 / IG-M10	20x130	130	5,0	5,0	4,5	9,0		
	20x200	200	5,0	5,0	4,5	9,0		
		Compressive s	trength f _b ≥ 14	N/mm ²				
M8	12x80	80	4,0	4,0	3,0	4,0		
M8 / M10/ IG-	16x85	85	4,0	4,0	3,0	6,5		
M6	16x130	130	5,5	5,5	4,5	6,5		
	20x85	85	4,0	4,0	3,0	7,0		
M12 / M16 / IG- M8 / IG-M10	20x130	130	5,5	5,5	4,5	9,0		
	20x200	200	5,5	5,5	4,5	9,0		

1) Values are valid for c_{cr} and c_{min}

2) Calculation of $V_{Rk,c}$ see ETAG 029, Annex C, except for shear load parallel to free edge with $c \ge 125$ mm: $V_{Rk,c,II} = V_{Rk,b}$ 3)

The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply $V_{Rk,b}$ by 0,8

Table C48: **Displacements**

								-	
Anchor size	Sleeve	Effective anchorage depth h _{ef}	N	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δ _{V∞}
		[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	12x80	80	1,14	0.10	0,11	0,23	1,10	1,20	1,80
M8 / M10/ IG- M6	16x85	85					1,86	1,50	0.05
	16x130	130	1,57		0,16	0,31			2,25
M12 / M16 / IG-M8 / IG- M10	20x85	85	1,14	0,10	0,11	0,23	1,86	1,50	2,25
	20x130	130	1,57		0,16	0,31	0.57	0.10	0.15
	20x200	200					2,57	2,10	3,15

Chimfix for masonry	
Performances clay hollow brick HLz-16DF	Annex C 20
Characteristic values of resistance under tension and shear load (continue)	
Displacements	



Brick type		Clay hollow hollow Porotherm Homeb					
Bulk density	ρ [kg/dm³]	0,7	Dric				-
	$p[N/mm^2]$	4, 6 or 10		1	<u>-</u> ₽-₽-₽		HH
Code		EN 771-1					ĊĦ
Producer (country code)		e.g. Wienerberger	(EB)		THE	DHÌH	H H
Brick dimensions	[mm]	500 x 200 x 299		-			
Drilling method	hund	Rotary	-				
4,5							
10,5						<u> </u>	
Table C50: Installation Anchor size	parameters				All sizes	<u>_</u>	
Table C50: Installation Anchor size Edge distance	Ccr		[mm]		100 (120) ¹		
Table C50: Installation Anchor size Edge distance	C _{cr} C _{min} ²⁾		[mm] [mm]		100 (120) ¹ 100 (120) ¹		
Table C50: Installation Anchor size Edge distance Minimum edge distance Minimum edge distance	C _{cr} C _{min} ²⁾ S _{cr.II}		[mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 500		
Table C50: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing	C _{cr} C _{min} ²⁾ S _{cr.⊥} S _{cr.⊥} S _{min}		[mm] [mm]		100 (120) ¹ 100 (120) ¹		
Table C50: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : cmin according	C _{cr} C _{min} ²⁾ S _{cr.1} S _{cr.⊥} S _{min} 120x85 and SH to ETAG 029,	20x130 Annex C	[mm] [mm] [mm] [mm] [mm]	ading with s ≥	100 (120) ¹ 100 (120) ¹ 500 299		
Table C50: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C51: Group fact Configuration II: anchors placed	C _{cr} C _{min} ²⁾ S _{cr.1} S _{cr.⊥} S _{min} 120x85 and SH to ETAG 029,	20x130 Annex C r group in case of 1	[mm] [mm] [mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 500 299 100		2,0
Table C50: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : cmin according Table C51: Group fact Configuration II: anchors placed parallel to horizontal Image: Configuration	C _{cr} C _{min} ²⁾ S _{cr.1} S _{cr.⊥} S _{min} 120x85 and SH to ETAG 029,	20x130 Annex C o r group in case of f with c ≥	[mm] [mm] [mm] [mm] [mm]	with s ≥	100 (120) ¹ 100 (120) ¹ 500 299		2,0
Table C50: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : cmin according Table C51: Group fact Configuration II: anchors placed parallel to horizontal joint	C _{cr} C _{min} ²⁾ S _{cr.1} S _{cr.⊥} S _{min} 120x85 and SH to ETAG 029,	20x130 Annex C or group in case of f with c ≥ 200 c _{cr}	[mm] [mm] [mm] [mm] [mm]	with s ≥ 100 500	100 (120) ¹ 100 (120) ¹ 500 299 100		2,0
Table C50: Installation Anchor size Edge distance Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : cmin according Table C51: Group fact Configuration II: anchors placed parallel to horizontal	C _{cr} C _{min} ²⁾ S _{cr.1} S _{cr.⊥} S _{min} 120x85 and SH to ETAG 029,	20x130 Annex C or group in case of f with c ≥ 200	[mm] [mm] [mm] [mm] [mm]	with s ≥ 100	100 (120) ¹ 100 (120) ¹ 500 299 100		



Configurati	on	with	102	with s	2			
II: anchors placed parallel to horizontal joint	V	c	Cor	500	α _g ,	Z,II	[-]	2,0
⊥: anchors placed perpendicular to horizontal joint		c	ar	299	α _g ,	/,⊥	14	2,0
able C53: Group I	actor for and	hor group in c	ase of shear	loading perp	endicular to	free ea	dge	
Configurati	on	with	1 C ≥	with s	2			
II: anchors placed parallel to horizontal joint	V	c	cr	500	α_{g_i}	V,II	E	2,0
⊥: anchors placed perpendicular to horizontal joint		c	ca	299	α _{g,} ,	$\alpha_{g,V,\perp}$		2,0
able C54: Charac	teristic value	es of resistance	e under tensio	Chara	toads cteristic resis Jse category	tance		
Anchor size	Sleeve	Effective anchorage depth		d/d w/d w/w	oo outogory	d/d w/d w/w For all temperati		l v
			40°C/24°C	80°C/50°C	120°C/72°C	For	rang	e
		h _{ef}		$N_{Rk,b} = N_{Rk,p}^{1}$)		V _{Rk,b}	2)3)
		[mm]			[kN]		1000	
	1		e strength f _b					
M8	12x80	80	0,9	0,9	0,75		2,0	
M8 / M10/ IG-M6	16x85	85	0,9	0,9	0,75		2,0	
and a monthly see most	16x130	130	1,2	1,2	0,9		2,0	
M12/M16/	20x85	85	0,9	0,9	0,75		2,5	
IG-M8 / IG-M10	20x130	130 Compressiv	1,2 e strength f _b	1,2 > 6 N/mm ²	0,9	-	2,5	
M8	12x80	80	0,9	0,9	0,9		2,5	5
101171 (0.711 (0.100) - 1	16x85	85	0,9	0,9	0,9	-	2,5	
M8 / M10/ IG-M6	16x130	130	1,2	1,2	1,2		2,5	-
M12 / M16 /	20x85	85	0,9	0,9	0,9		3,0	
IG-M8 / IG-M10	20x130	130	1,2	1,2	1,2	-	3,0	
	k,c see ETAG 0	29, Annex C, exca 3 or greater. For s				≥ 200 n	וm: V _{Rk} ,	c,II = V _{Rk,b}



				Chara	Characteristic resistance			
					Use category			
Anchor size	Sleeve	Effective anchorage depth		d/d w/d w/w		d/d w/d w/w		
			40°C/24°C	80°C/50°C	120°C/72°C	For all temperature range		
		h _{ef}		V _{Rk,b} ²⁾³⁾				
		[mm]			[kN]			
		Compressive	strength f _b ≥	10 N/mm ²				
M8	12x80	80	1,2	1,2	1,2	3,0		
	16x85	85	1,2	1,2	1,2	3,0		
M8 / M10/ IG-M6	16x130	130	1,5	1,5	1,5	3,5		
M12 / M16 /	20x85	85	1,2	1,2	1,2	4,0		
IG-M8 / IG-M10	20x130	130	1,5	1,5	1,5	4,0		

2) Calculation of $V_{Rk,c}$ see ETAG 029, Annex C, except for shear load parallel to free edge with $c \ge 200 \text{ mm}$: $V_{Rk,c,II} = V_{Rk,b}$ The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply $V_{Rk,b}$ by 0,8 3)

Table C56: Displacements

Anchor size	Sleeve	Effective anchorage depth h _{ef}	Ν	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δγ∞
		[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	12x80	80	0,34		0,27	0,55	0,9		
M8 / M10/	16x85	85	0,34		0,27	0,55	0,9		
IG-M6	16x130	130	0,43	0,80	0,34	0,69	1,0	1,20	1,80
M12 / M16 /	20x85	85	0,34		0,27	0,55		,	
IG-M8 / IG-M10	20x130	130	0,43		0,34	0,69	1,14		

Chimfix for masonry	
Performances clay hollow brick Porotherm Homebric Characteristic values of resistance under tension and shear load (continue) Displacements	Annex C 23



Brick type		Clay hollow br	ick				
Bulk density	ρ [kg/dm³]	BGV Thermo 0,6		100			
	p [kg/dm] $p \ge [N/mm^2]$	4, 6 or 10					
Compressive strengtri it	5 ≤ [IW/IIIII]	EN 771-1					
Producer (country code)		e.g. Leroux (Fl	D)				
Brick dimensions	[mm]	500 x 200 x 31	,				
Drilling method	hund	Rotary	14				
			500				
						-10	
			22	61			
200						\$5	
0						70	
				5			
and a state of the second s	parameters			5			
Anchor size		3	[-]	5	All sizes		
Anchor size Edge distance	Ccr		[mm]	5	100 (120)1		
Anchor size Edge distance Minimum edge distance	C _{cr} C _{min} ²⁾	3	[mm] [mm]	5	100 (120) ¹ 100 (120) ¹		
Anchor size Edge distance Minimum edge distance	C _{cr} C _{min} ²⁾ S _{cr.II}	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	[mm] [mm] [mm]	5	100 (120) ¹ 100 (120) ¹ 500		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing	C _{cr} C _{min} ²⁾	3	[mm] [mm]	5	100 (120) ¹ 100 (120) ¹		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according	C _{cr} C _{min} ²⁾ S _{cr.II} S _{cr.⊥} S _{min} I20x85 and SH to ETAG 029,	20x130 Annex C	[mm] [mm] [mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 500 314		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according	C _{cr} C _{min} ²⁾ S _{cr.II} S _{cr.⊥} S _{min} I20x85 and SH to ETAG 029,	20x130 Annex C	[mm] [mm] [mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 500 314		
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C59: Group fact Configuration II: anchors placed	C _{or} C _{min} ²⁾ S _{cr.⊥} S _{or.⊥} S _{min} 20x85 and SH to ETAG 029, cor for ancho	20x130 Annex C or group in case	[mm] [mm] [mm] [mm] [mm]	pading	100 (120) ¹ 100 (120) ¹ 500 314 100		1,7
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C59: Group fact Configuration II: anchors placed parallel to horizontal	C _{cr} C _{min} ²⁾ S _{cr.II} S _{cr.⊥} S _{min} I20x85 and SH to ETAG 029,	20x130 Annex C or group in case with c ≥ 200	[mm] [mm] [mm] [mm] [mm]	oading with s ≥	100 (120) ¹ 100 (120) ¹ 500 314		1,7
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C59: Group fact Configuration II: anchors placed parallel to horizontal joint	C _{or} C _{min} ²⁾ S _{cr.⊥} S _{or.⊥} S _{min} 20x85 and SH to ETAG 029, cor for ancho	20x130 Annex C or group in case with c ≥ 200 c _{cr}	[mm] [mm] [mm] [mm] [mm]	20 20 20 20 20 20 20 20 20 20 20 20 20 2	100 (120) ¹ 100 (120) ¹ 500 314 100		2,0
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C59: Group fact <u>Configuration</u> II: anchors placed parallel to horizontal	C _{or} C _{min} ²⁾ S _{cr.⊥} S _{or.⊥} S _{min} 20x85 and SH to ETAG 029, cor for ancho	20x130 Annex C or group in case with c ≥ 200	[mm] [mm] [mm] [mm] [mm]	oading with s ≥ 100	100 (120) ¹ 100 (120) ¹ 500 314 100		1.



Configuration	with c ≥	with s ≥			
II: anchors placed barallel to horizontal joint	Ccr	500	$\alpha_{g,V,II}$	11	2,0
L: anchors placed perpendicular to horizontal joint	Cor	314	$\alpha_{g,V,\perp}$	[-]	2,0
able C61: Group factor for ancl	nor group in case of shear	loading perpendic	ular to free	edge	
Configuration	with c ≥	with s ≥			
II: anchors placed parallel to horizontal joint	C _{cr}	500	$\alpha_{g,V,II}$		2,0
⊥: anchors placed perpendicular to horizontal joint	C _{cr}	314	$\alpha_{g,V,\perp}$	[-]	2,0



Brick type:	Clay hollow	brick BGV The	rmo					
Table C62:	Characterist	ic values of resi	stance under t	ension and sh	ear loads			
					cteristic resistan	се		
					Jse category			
		Effective		d/d		d/d		
		anchorage		w/d		w/d		
Anchor size	Sleeve	depth		w/w		w/w		
			40°C/24°C	80°C/50°C	120°C/72°C	For all temperature range		
		h _{ef}		$N_{Rk,b} = N_{Rk,p}^{1}$		$V_{Rk,b}^{(2)3)}$		
		[mm]			[kN]			
		Comp	ressive streng	th f _b ≥ 4 N/mm ²	2			
M8	12x80	80	0,6	0,6	0,6	2,0		
M8 / M10/	16x85	85	0,6	0,6	0,6	2,0		
IG-M6	16x130	130	1,2	1,2	0,9	2,5		
M12 / M16 / IG-M8 /	20x85	85	0,6	0,6	0,6	2,5		
IG-M10	20x130	130	1,2	1,2	0,9	2,5		
		Comp	ressive streng	th f _b ≥ 6 N/mm ²	2			
M8	12x80	80	0,9	0,9	0,75	2,5		
M8 / M10/	16x85	85	0,9	0,9	0,75	2,5		
IG-M6	16x130	130	1,5	1,5	1,2	3,0		
M12 / M16 / IG-M8 /	20x85	85	0,9	0,9	0,75	3,0		
IG-M10	20x130	130	1,5	1,5	1,2	3,0		
		Compi	essive strengt	h f _b ≥ 10 N/mm	2			
M8	12x80	80	0,9	0,9	0,9	3,5		
M8 / M10/	16x85	85	0,9	0,9	0,9	3,5		
IG-M6	16x130	130	2,0	2,0	1,5	4,0		
M12 / M16 / IG-M8 /	20x85	85	0,9	0,9	0,9	4,0		
IG-M10	20x130	130	2,0	2,0	1,5	4,0		

1) Values are valid for c_{cr} and c_{min}

2) Calculation of V_{Rk,c} see ETAG 029, Annex C, except for shear load parallel to free edge with c ≥ 250 mm: V_{Rk,c,II} = V_{Rk,b} 3)

The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply $V_{\text{Rk},\text{b}}$ by 0,8

Table C63: Displacements

Anchor size	Sleeve	Effective anchorage depth h _{ef}	N	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δγ∞
		[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	12x80	80	0,26		0,21	0,41	0,7		
M8 / M10/	16x85	85	0,20		0,21	0,41	0,7		
IG-M6	16x130	130	0,43	0,80	0,34	0,69		1,00	1,50
M12 / M16 /	20x85	85	0,26		0,21	0,41	0,86	,	,
IG-M8 / IG-M10	20x130	130	0,43		0,34	0,69			

Chimfix for masonry

Performances clay hollow brick BGV Thermo Characteristic values of resistance under tension and shear load Displacements

Annex C 26



Calibric R+ /dm³] 0,6 mm²] 6, 9 or 12 EN 771-1 e.g. Terreal (FR) [mm] 500 x 200 x 314 Rotary Rotary					1	
mm ²] 6, 9 or 12 EN 771-1 e.g. Terreal (FR) [mm] 500 x 200 x 314 Rotary	500		5			
EN 771-1 e.g. Terreal (FR) [mm] 500 x 200 x 314 Rotary	500		5			
e.g. Terreal (FR) [mm] 500 x 200 x 314 Rotary	500		5			
[mm] 500 x 200 x 314 Rotary	500		5			
	500 14 40		5			
	14,40		5			
	14,40		5			
			ĘŬ			
meters						
meters			100			
meters						
meters	 vv					
meters		a see because me had had hanned had had had				
	[-]		All sizes	1		
2) min						
			314			
min	[mm]		100			
and SH20x130 G 029, Annex C		ding				
anchor group in case of	f tension load		-			
anchor group in case of with c ≥	f tension loac	with s ≥			4 7	
	f tension loac		1.00		1,7	
with c ≥	f tension load	with s ≥	α _{g,N,II}		1,7	
with c ≥ 175	f tension load	with s ≥ 100	α _{g,N,II}	[-]		
or min or.II or.1 min ar	2) nd SH20x130	[-] [mm] 2) [mm] [mm] [mm] [mm] 029, Annex C	[-] [mm] 2) [mm] [mm] [mm] d SH20x130 029, Annex C nchor group in case of tension loading	[-] All sizes [mm] 100 (120) ¹⁾ [mm] 100 (120) ¹⁾ [mm] 500 [mm] 500 [mm] 314 [mm] 100 029, Annex C 100 nchor group in case of tension loading 100	[-] All sizes [mm] 100 (120) ¹⁾ [mm] 100 (120) ¹⁾ [mm] 500 [mm] 500 [mm] 314 [mm] 100 029, Annex C 100	



(Configuration		with c ≥	with s ≥			
II: anchors pl parallel to hori joint	aced	••	C _{cr}	500	$\alpha_{g,V,II}$		2,0
⊥: anchors p perpendicula horizontal j	ar to 🔰 🗸 🗸	į	Ccr	314	$\alpha_{g,V,\perp}$	[-]	2,0
Table C68:	Group factor fo	or anchor group in	case of shear	loading perpend	licular to free ed	dge	
(Configuration		with c ≥	with s ≥			
II: anchors pl parallel to hori joint		•••	C _{cr}		α _{g,V,II}	[-]	2,0
⊥: anchors p perpendicula horizontal j	ar to V-		C _{cr}	314	$\alpha_{g,V,\perp}$	E	2,0
Table C69:	Characteristic	values of resistar	nce under tensio	Professional Sector Market	SU-TW.		
					istic resistance		
			1		Use category		
Anchor size		Effective anchorage		d/d w/d w/w			d/d w/d w/w
	Sleeve	depth	40°C/24°C	80°C/50°C	120°C/72°C	For all temperatu range	
		h _{ef}		$N_{Rk,b} = N_{Rk,p}^{(1)}$	Ge		V _{Rk,b} ²⁾³⁾
		[mm]			[kN]		
		Compres	sive strength f	, ≥ 6 N/mm ²			
M8	12x80	80	0,9	0,9	0,75		3,0
M8 / M10/	16x85	85	0,9	0,9	0,75		4,0
IG-M6	16x130	130	1,2	1,2	0,9		4,0
M12/M16/	20x85	85	0,9	0,9	0,75		6,0
IG-M8 /	20x130	130	1,2	1,2	0,9		6,0
IG-M10	The strength of the		sive strength f	A			2012
M8	12x80	80	1,2	1,2	0,9	1	3,5
M8 / M10/	16x85	85	1,2	1,2	0,9		5,0
IG-M6	16x130	130	1,5	1,2	1,2		5,0
M12/M16/	20x85	85	1,5	1,5	0,9	_	7,5
IG-M8 / IG-M10	20x130	130	1,5	1,5	1,2		7,5
¹⁾ Values ²⁾ Calcul	s are valid for c _{cr} an ation of V _{Rk,c} see E	1410	except for shear loa	ad parallel to free e	dge with c ≥ 250 m	חm: V _{Bk}	



Brick type:	Clay hollow b	rick Calibric R+						
Table C70:	Characteristic	values of resistan	ce under tensio	on and shear loa	ads (continue)			
			Characteristic resistance Use category					
Anchoraina	Clasure	Effective anchorage depth		d/d w/d w/w		d/d w/d w/w		
Anchor size	Sleeve	depth	40°C/24°C	80°C/50°C	120°C/72°C	For all temperature range		
		h _{ef}		V _{Rk,b} ²⁾³⁾				
		[mm]	$N_{Rk,b} = N_{Rk,p}^{(1)} V_R$ [kN]					
		Compress	sive strength f _b	≥ 12 N/mm²				
M8	12x80	80	1,2	1,2	0,9	4,0		
M8 / M10/	16x85	85	1,2	1,2	0,9	5,5		
IG-M6	16x130	130	1,5	1,5	1,2	5,5		
M12 / M16 /	20x85	85	1,2	1,2	0,9	8,5		
IG-M8 / IG-M10	20x130	130	1,5	1,5	1,2	8,5		

¹⁾ Values are valid for c_{cr} and c_{min}

²⁾ Calculation of V_{Rk,c} see ETAG 029, Annex C, except for shear load parallel to free edge with $c \ge 250 \text{ mm}$: V_{Rk,c,II} = V_{Rk,b} ³⁾ The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply V_{Rk,b} by 0,8

Table C71: Displacements

Anchor size	Sleeve	Effective anchorage depth h _{ef}	N	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δ _{V∞}
		[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	12x80	80	0,34		0,27	0,55	1,0	1,10	1,65
M8 / M10/	16x85	85	0,34		0,27	0,55	1 4 2		
IG-M6	16x130	130	0,43	0,80	0,34	0,69	1,43		
M12 / M16 /	20x85	85	0,34	,	0,27	0,55		2,00	3,00
IG-M8 / IG-M10	20x130	130	0,43		0,34	0,69	2,14		

Chimfix for masonry	
Performances clay hollow brick Calibric R+	Annex C 29
Characteristic values of resistance under tension and shear load (continue)	
Displacements	

I



Brick type		Clay hollow brick				-	
	- 11	Urbanbric				-	20
Bulk density	ρ [kg/dm ³]	0,7			and the	250	1
	_o ≥ [N/mm ²]	6, 9 or 12			592	10	
Code		EN 771-1			E		
Producer (country code)		e.g. Imerys (FR)					
Brick dimensions	[mm]	560 x 200 x 274					
Drilling method		Rotary					
		560			99,5	T	
		20	6,	,5			
	25		-5,		7/		
(0	(ø40))			100	20	00	
1						1	
	63						
				40			
Table C73: Installation	n parameters	5					
Anchor size	Ccr	3	[-] [mm]		All sizes 100 (120) ¹		
Anchor size Edge distance		5	[mm] [mm]		100 (120) ¹ 100 (120) ¹		
Anchor size Edge distance Minimum edge distance	C _{cr} ²⁾ C _{min} ²⁾ S _{cr} ,II	3	[mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 560		
Anchor size Edge distance Minimum edge distance Spacing	C _{cr} C _{min} ²⁾	\$	[mm] [mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 560 274		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing	Ccr Cmin ²⁾ Scr.II Scr.L Smin		[mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 560		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C74: Group fact	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,⊥} S _{min} H20x85 and SH to ETAG 029,	l20x130 Annex C or group in case of	[mm] [mm] [mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 560 274		
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C74: Group fact Configuration	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,⊥} S _{min} H20x85 and SH to ETAG 029,	I20x130 Annex C or group in case of with c ≥	[mm] [mm] [mm] [mm] [mm]	with s ≥	100 (120) ¹ 100 (120) ¹ 560 274		
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C74: Group fact Configuration II: anchors placed	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,⊥} S _{min} H20x85 and SH to ETAG 029,	l20x130 Annex C or group in case of	[mm] [mm] [mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 560 274 100		1,9
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C74: Group fact Configuration II: anchors placed parallel to horizontal	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,⊥} S _{min} H20x85 and SH to ETAG 029,	I20x130 Annex C or group in case of with c ≥	[mm] [mm] [mm] [mm] [mm]	with s ≥	100 (120) ¹ 100 (120) ¹ 560 274)	1,9
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C74: Group fact Configuration II: anchors placed parallel to horizontal joint	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,⊥} S _{min} H20x85 and SH to ETAG 029,	20x130 Annex C or group in case of with c ≥ 185 c _{cr}	[mm] [mm] [mm] [mm] [mm]	with s ≥ 100 560	100 (120) ¹ 100 (120) ¹ 560 274 100		2,0
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C74: Group fact Configuration II: anchors placed parallel to horizontal	C _{cr} C _{min} ²⁾ S _{cr,I} S _{cr,⊥} S _{min} H20x85 and SH to ETAG 029,	20x130 Annex C or group in case of with c ≥ 185	[mm] [mm] [mm] [mm] [mm]	with s ≥ 100	100 (120) ¹ 100 (120) ¹ 560 274 100)	
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C74: Group fact Configuration II: anchors placed parallel to horizontal joint L: anchors placed perpendicular to	C _{cr} C _{min} ²⁾ S _{cr.⊥} S _{min} d20x85 and SH to ETAG 029, cor for ancho	20x130 Annex C or group in case of with c ≥ 185 c _{cr} 185	[mm] [mm] [mm] [mm] [mm]	with s ≥ 100 560 100	100 (120) ¹ 100 (120) ¹ 560 274 100)	



Confic	juration	with c	>	with s ≥.			1
II: anchors placed parallel to horizonta joint	E	C _{cr}		560	$\alpha_{g,V,II}$		2,0
⊥: anchors placed perpendicular to horizontal joint	V	C _{cr}		274	$\alpha_{g,V,\perp}$	(F)	2,0
Table C76: Gro	oup factor for anc	hor group in case	e of shear load	ding perpendi	cular to free ed	dge	
Config	juration	with c	2	with s ≥			
II: anchors placed parallel to horizonta joint		C _{cr}		560	α _{g,V,II}	[-]	2,0
⊥: anchors placed perpendicular to horizontal joint		C _{cr}	-	274	$\alpha_{g,V,\perp}$		2,0
Table C77: Ch	aracteristic value	s of resistance u	nder tension a	and shear loa	ds		
				Character	ristic resistance	ñ -	
				Use	category		_
Anchor size	Sleeve	Effective anchorage depth		d/d w/d w/w			d/d w/d w/w
Anchor size	216666	depin	40°C/24°C	80°C/50°C	120°C/72°C	tem r	or all perature ange
		h _{ef}		$N_{Rk,b} = N_{Rk,p}^{1}$)	V	2)3) Rk,b
		[mm]	1	9	[kN]		
		Compressive s					212
M8	12x80	80	0,9	0,9	0,75		3,0
M8 / M10/	16x85	85	0,9	0,9	0,75		3,0
IG-M6	16x130	130 85	2,0	2,0	1,5		3,0
M12 / M16 / IG-M8 / IG-M10	20x85 20x130	130	0,9 2,0	0,9 2,0	0,75		3,5 3,5
	20/100	Compressive s			1,0		5,5
M8	12x80	80	0,9	0,9	0,9	1.	4,0
M8 / M10/	16x85	85	0,9	0,9	0,9		4,0
IG-M6	16x130	130	2,5	2,5	2,0		4,0
M12/M16/	20x85	85	0,9	0,9	0,9		4,5
IG-M8 / IG-M10	20x130	130	2,5	2,5	2,0	1.1.1	4,5
	valid for c_{cr} and c_{min} of $V_{Rk,c}$ see ETAG 02		for shear load p 4.6 and 4.8 mu			וm: V _{Rk.}	$c,II = V_{Rk,b}$
²⁾ Calculation	are valid for steel 5.6						-



Brick type: Cla	ay hollow brick Ur	banbric				
Table C78: C	haracteristic values	s of resistance ur	der tension a	and shear loa	ds (continue)	
				Characte	ristic resistance	
				Use	e category	
		Effective			d/d	
		anchorage		w/d		w/d
Anchor size	Sleeve	depth		w/w		w/w
Anchor Size	Sieeve	dopti				For all
			40°C/24°C	80°C/50°C	120°C/72°C	temperature
						range
		h _{ef}		$N_{Rk,b} = N_{Rk,p}^{1}$)	$V_{Rk,b}^{(2)3)}$
		[mm]			[kN]	
		Compressive st	rength f _b ≥ 12	N/mm ²		
M8	12x80	80	1,2	1,2	0,9	4,5
M8 / M10/	16x85	85	1,2	1,2	0,9	4,5
IG-M6	16x130	130	3,0	3,0	2,5	4,5
M12 / M16 /	20x85	85	1,2	1,2	0,9	5,0
IG-M8 / IG-M10	20x130	130	3,0	3,0	2,5	5,0

1)

Values are valid for c_{cr} and c_{min} Calculation of $V_{Bk,c}$ see ETAG 029, Annex C, except for shear load parallel to free edge with $c \ge 190$ mm: $V_{Bk,c,II} = V_{Bk,b}$ 2)

3) The values are valid for steel 5.6 or greater. For steel 4.6 and 4.8 multiply $V_{\text{Rk},\text{b}}$ by 0,8

Table C79: Displacements

Anchor size	Sleeve	Effective anchorage depth h _{ef}	Ν	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δ _{V∞}
		[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	12x80	80	0,34		0.07	0.55			
M8 / M10/	16x85	85	0,34		0,27	0,55	1,30		
IG-M6	16x130	130	0,86	0,80	0,69	1,37		1,00	1,50
M12 / M16 /	20x85	85	0,34	,	0,27	0,55		,	,
IG-M8 / IG-M10	20x130	130	0,86		0,69	1,37	1,43		

Chimfix for masonry	
Performances clay hollow brick Urbanbric	Annex C 32
Characteristic values of resistance under tension and shear load (continue)	
Displacements	



Driek ture		Clay hollow brick	-	1			
Brick type		Brique creuse C40)			-	
	[kg/dm ³]	0,7			-		
	[N/mm ²]	4, 8 or 12					
Code		EN 771-1					
Producer (country code)		e.g. Terreal (FR)				1	
Brick dimensions	[mm]	500 x 200 x 200					
Drilling method		Rotary				_	
	8 1	200		-1			
	9	funn	8 6	1 37			
			40 - /	200			
Anchor size Edge distance Minimum edge distance Spacing	C _{cr} C _{min} ²⁾ S _{cr.II} S _{or.⊥} S _{min}	3	[-] [mm] [mm] [mm] [mm] [mm]		All sizes 100 (120) ¹ 100 (120) ¹ 500 200 200		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH20x ²⁾ For V _{Rk,c} : c _{min} according to E	$\begin{array}{c} C_{cr} \\ C_{min}^{(2)} \\ S_{cr,II} \\ S_{cr,L} \\ S_{min} \\ c85 \text{ and SH} \\ c85 \text{ and SH} \\ cad SH \\ cad$	I20x130 Annex C	[mm] [mm] [mm] [mm] [mm]	ading	100 (120) ¹ 100 (120) ¹ 500 200		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH20x ²⁾ For V _{Rk,c} : c _{min} according to E Table C82: Group factor f	$\begin{array}{c} C_{cr} \\ C_{min}^{(2)} \\ S_{cr,II} \\ S_{cr,L} \\ S_{min} \\ c85 \text{ and SH} \\ c85 \text{ and SH} \\ cad SH \\ cad$	I20x130 Annex C	[mm] [mm] [mm] [mm] [mm]	ading with s ≥	100 (120) ¹ 100 (120) ¹ 500 200		
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH20x	$\begin{array}{c} C_{cr} \\ C_{min}^{(2)} \\ S_{cr,II} \\ S_{cr,L} \\ S_{min} \\ c85 \text{ and SH} \\ c85 \text{ and SH} \\ cad SH \\ cad$	20x130 Annex C or group in case of t	[mm] [mm] [mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 500 200		2,0
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing 1) Value in brackets for SH20x 2) For V _{Rk,c} : c _{min} according to E Table C82: Group factor f Configuration II: anchors placed parallel to horizontal	C _{cr} C _{min} ²⁾ S _{cr.II} S _{or,⊥} S _{min} (85 and SH TAG 029, for ancho	l20x130 Annex C or group in case of f with c ≥	[mm] [mm] [mm] [mm] [mm]	with s ≥	100 (120) ¹ 100 (120) ¹ 500 200 200		2,0



Config	uration	with c a	2	with s ≥		_	
II: anchors placed parallel to horizonta joint	En IL	C _{cr}		500	α _{g,V,II}		2,0
⊥: anchors placed perpendicular to horizontal joint	V	C _{cr}	·	200	$\alpha_{g,V,\bot}$	[-]	2,0
Table C84: Gro	oup factor for anc	hor group in case	of shear load	ding perpendi	cular to free e	dge	
Config	uration	with c ≥	2	with s ≥			
II: anchors placed parallel to horizonta joint	l V	C _{cr}		500	α _{g,V,II}	E	2,0
⊥: anchors placed perpendicular to horizontal joint		C _{cr}		200	$\alpha_{g,v,\perp}$.EI	2,0
Table C85: Ch	aracteristic value	s of resistance ur	nder tension a	CONFICTION DATE:			
					istic resistance		
					category		324
Analysis size	Classes	Effective anchorage depth		d/d w/d w/w		105	d/d w/d w/w
Anchor size	Sleeve	depin	40°C/24°C	80°C/50°C	120°C/72°C	tem	or all perature ange
		h _{ef}		$N_{Rk,b} = N_{Rk,p}^{\dagger}$)		2)3) Rk,b
		[mm]			[kN]		
		Compressive s	trength $f_b \ge 4$	N/mm ²	1. A. g	_	2
M8	12x80	80	0,6	0,6	0,6		0,9
M8 / M10/	16x85	85	0,6	0,6	0,6	-	0,9
IG-M6	16x130	130	0,6	0,6	0,6	-	0,9
M12/M16/	20x85	85	0,6	0,6	0,6		0,9
G-M8 / IG-M10	20x130	130	0,6	0,6	0,6		0,9
T. T.	10.00	Compressive s					1.5
M8	12x80	80	0,9	0,9	0,75		1,2
M8 / M10/	16x85	85	0,9	0,9	0,75		1,2
IG-M6	16x130	130	0,9	0,9	0,75		1,2
M12 / M16 / G-M8 / IG-M10	20x85 20x130	85	0,9	0,9	0,75		1,2
 Values are v Calculation 	valid for c _{cr} and c _{min} of V _{Rk,c} see ETAG 02	130 29, Annex C 5 or greater. For steel	0,9 4.6 and 4.8 mu	0,9 Itiply V _{Rk.b} by 0,8	0,75	1	1,2
				1			



							ristic resist	ance	
							category		
			Effectiv			d/d w/d			d/d w/d
			anchora	ge		w/w			w/w
Anchor size	Slee	ve	depth						For all
				40°	°C/24°C	80°C/50°C	120°C/72	°C ter	nperature
			h _{ef}			$N_{Rk,b} = N_{Rk,p}^{1}$)		$V_{Rk,b}^{2)3)}$
			[mm]			$\mathbf{N}_{\mathrm{Rk},\mathrm{b}} = \mathbf{N}_{\mathrm{Rk},\mathrm{p}}$	[kN]		▼ Rk,b
		Co		ive strengt	h f _b ≥ 12	N/mm ²	[[]		
M8	12x8		80		1,2	1,2	0,9		1,5
M8 / M10/	16x8	35	85		1,2	1,2	0,9		1,5
IG-M6	16x1		130		1,2	1,2	0,9		1,5
M12 / M16 /			85		1,2	1,2	0,9		1,5
G-M8 / IG-M1	$\begin{array}{ c c c c c } 0 & 20x1 \\ \hline s \text{ are valid for } c_{cr} \end{array}$		130		1,2	1,2	0,9		1,5
	Displaceme	Effective	NI	S / NI	2	2	V	2	2
Anchor size	Sleeve	anchorage	Ν	δ _N / N	δ_{N0}	δ _{N∞}	V	δ_{V0}	δ _{V∞}
		depth h _{ef} [mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
M8	12x80	80	0,17		0,14	0,27			
M8 / M10/	16x85	85	0,17		0,14	0,27			
IG-M6	16x130	130	0,14	0,80	0,11	0,23	0,3	0,9	1,35
M12 / M16 /	20x85	85	0,17		0,14	0,27			
IG-M8 / IG-M10	20x130	130	0,14		0,11	0,23			



Brick type		Clay hollow brick						
Bulk density	ρ [kg/dm ³]	Blocchi Leggeri 0,6				-	-	
	p [kg/um] $b \ge [N/mm^2]$	4, 6, 8 or 12				-		
Code	b = [iw/iiiii]	EN 771-1						
Producer (country code)		e.g. Wienerberge	r (IT)			-25		
Brick dimensions	[mm]	250 x 120 x 250	. (11)			640	-	
Drilling method	hund	Rotary						
	-			6	*	7		
						\$6		
1:	20			32	- 43 -			
	}							
	/	2	50			1		
	n parameters	5	[-]	1		All sizes		
Table C89: Installation Anchor size Edge distance	n parameters	5	[-] [mm]			All sizes 100 (120) ¹)	
Anchor size		\$)	
Anchor size Edge distance Minimum edge distance	Ccr	5	[mm] [mm] [mm]			100 (120) ¹ 60 250)	
Anchor size Edge distance Minimum edge distance Spacing	C _{cr} C _{min} S _{cr,II} S _{cr,⊥}	S	[mm] [mm] [mm] [mm]			100 (120) ¹ 60 250 120)	
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH Table C90: Group fact	C _{cr} C _{min} S _{cr,II} S _{cr,⊥} S _{min} H20x85; SH20>	(130 and SH20x200 or group in case of	[mm] [mm] [mm] [mm]		100 m 100	100 (120) ¹ 60 250)	
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH Table C90: Group fact Configuration	C _{cr} C _{min} S _{cr,II} S _{cr,⊥} S _{min} H20x85; SH20>	<130 and SH20x200 or group in case of with c ≥	[mm] [mm] [mm] [mm]		vith s ≥	100 (120) ¹ 60 250 120)	
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH Table C90: Group fact Configuration II: anchors placed	C _{cr} C _{min} S _{cr,II} S _{cr,⊥} S _{min} H20x85; SH20>	(130 and SH20x200 or group in case of	[mm] [mm] [mm] [mm]		100 m 100	100 (120) ¹ 60 250 120 100)	1,0
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH Table C90: Group fact Configuration	C _{or} C _{min} S _{or,⊥} S _{min} H20x85; SH20×	<130 and SH20x200 or group in case of with c ≥	[mm] [mm] [mm] [mm]		vith s ≥	100 (120) ¹ 60 250 120		1,0
Anchor size Edge distance Minimum edge distance Spacing ¹⁾ Value in brackets for SH Table C90: Group fact Configuration II: anchors placed parallel to horizontal	C _{or} C _{min} S _{or,⊥} S _{min} H20x85; SH20×	<130 and SH20x200 or group in case of with c ≥ 60	[mm] [mm] [mm] [mm]		vith s ≥ 100	100 (120) ¹ 60 250 120 100)	



Config	uration	with c ≥		with s ≥			1	
II: anchors placed	he lu	60 ¹⁾		100 ¹⁾			1.0	
parallel to horizonta	V			250	α _{g,V,II}		2,0	
joint		C _{cr}				[-]		
⊥: anchors placed perpendicular to	IV 1	60 ¹⁾		100 ¹⁾	α _{g,V,L}		1,6	
horizontal joint		C _{cr}		250	ωg, ν,, <u>τ</u>		2,0	
	according to Table C up factor for anch			na porpondio	ular to free of			
	uration	with c ≥	or shear loadii	with s ≥	ular to free ed	ge		
II: anchors placed		60 ¹⁾		100 ¹⁾			1.0	
parallel to horizonta	V			250	α _{g,V,II}			
joint		Cor				$[\cdot]$	2,0	
⊥: anchors placed perpendicular to	V	60 ¹⁾		100 ¹⁾	α _{g,V,⊥}		1,6	
horizontal joint	Find the	Cor		250	31 () ±	_	2,0	
Anchor size	Sleeve	anchorage depth	d/d; v		1.5.6 6.5.5		For all	
A Section 1					category w/d; w/w	1	For all	
Anchor Size	Sieeve	doptit	100010100	0000/5000	10000/7000	1.0.0	27 C	
			40°C/24°C	80°C/50°C	120°C/72°C	1.02	nperature range	
		h _{ef}	40°C/24°C	$N_{Rk,b} = N_{Rk,p}^{1}$)	1.02	CONTRACTOR OF A	
		[mm]		$N_{Rk,b} = N_{Rk,p}^{1}$		1.02	range	
	10.00	[mm] Compressive st		$N_{Rk,b} = N_{Rk,p}^{1}$)	1.02	range	
M8	12x80	[mm] Compressive st 80		$N_{Rk,b} = N_{Rk,p}^{1}$)	1.02	range	
M8 / M10/	16x85	[mm] Compressive st 80 85		$N_{Rk,b} = N_{Rk,p}^{1}$)	1.02	range	
	16x85 16x130	[mm] Compressive str 80 85 130		$N_{Rk,b} = N_{Rk,p}^{1}$)		range V _{Rk,b} ⁴⁾	
M8 / M10/ IG-M6 M12 / M16 /	16x85 16x130 20x85	[mm] Compressive str 80 85 130 85	rength f _b ≥ 4 N	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN]		range V _{Rk,b} ⁴⁾	
M8 / M10/ IG-M6 M12 / M16 /	16x85 16x130 20x85 20x130	[mm] Compressive str 80 85 130 85 130 85 130	rength f _b ≥ 4 N	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN]		range V _{Rk,b} ⁴⁾	
M8 / M10/ IG-M6	16x85 16x130 20x85	[mm] Compressive str 80 85 130 85 130 200	rength f _b ≥ 4 N 	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN]		range	
M8 / M10/ IG-M6 M12 / M16 / IG-M8 / IG-M10	16x85 16x130 20x85 20x130 20x200	[mm] Compressive str 80 85 130 85 130 200 Compressive str	rength f _b ≥ 4 N 	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN]		range V _{Rk,b} ⁴⁾	
M8 / M10/ IG-M6 M12 / M16 / IG-M8 / IG-M10 M8	16x85 16x130 20x85 20x130 20x200 12x80	[mm] Compressive st 80 85 130 85 130 200 Compressive st 80	rength f _b ≥ 4 N 	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN]		range V _{Rk,b} ⁴⁾	
M8 / M10/ IG-M6 M12 / M16 / G-M8 / IG-M10 M8 M8 / M10/	16x85 16x130 20x85 20x130 20x200 12x80 16x85	[mm] Compressive str 80 85 130 85 130 200 Compressive str 80 85	rength $f_b \ge 4 N$ 0,4 rength $f_b \ge 6 N$	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN] 0,3	2,0	range V _{Bk,b} ⁴⁾ D ²⁾ (0,9) ³⁾	
M8 / M10/ IG-M6 M12 / M16 / G-M8 / IG-M10 M8 M8 / M10/ IG-M6	16x85 16x130 20x85 20x130 20x200 12x80 16x85 16x130	[mm] Compressive str 80 85 130 85 130 200 Compressive str 80 85 130	rength f _b ≥ 4 N 0,4	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN]	2,0	range V _{Bk,b} ⁴⁾ D ²⁾ (0,9) ³⁾	
M8 / M10/ IG-M6 M12 / M16 / IG-M8 / IG-M10 M8 M8 / M10/ IG-M6 M12 / M16 /	16x85 16x130 20x85 20x130 20x200 12x80 16x85 16x130 20x85	[mm] Compressive str 80 85 130 85 130 200 Compressive str 80 85 130 200 Compressive str 80 85 130 85	rength $f_b \ge 4 N$ 0,4 rength $f_b \ge 6 N$	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN] 0,3	2,0	range V _{Bk,b} ⁴⁾ D ²⁾ (0,9) ³⁾	
M8 / M10/ IG-M6 M12 / M16 / G-M8 / IG-M10 M8 M8 / M10/ IG-M6 M12 / M16 /	16x85 16x130 20x85 20x130 20x200 12x80 16x85 16x130 20x85 20x130	[mm] Compressive sta 80 85 130 85 130 200 Compressive sta 80 85 130 85 130 85 130	rength $f_b \ge 4 N$ 0,4 rength $f_b \ge 6 N$	$N_{Rk,b} = N_{Rk,p}^{1}$) [KN] 0,3	2,0	range V _{Rk,b} ⁴⁾ D ²⁾ (0,9) ³⁾	
M8 / M10/ IG-M6 M12 / M16 / G-M8 / IG-M10 M8 M8 / M10/ IG-M6 M12 / M16 / G-M8 / IG-M10 1) Values are v 2) Calculation 3) Values in br	16x85 16x130 20x85 20x130 20x200 12x80 16x85 16x130 20x85	[mm] Compressive str 80 85 130 85 130 200 Compressive str 80 85 130 200 Compressive str 80 85 130 200 0 0 0 0 0 0 0 0 0 0 0 0	rength $f_b \ge 4 N$ 0,4 rength $f_b \ge 6 N$ 0,5 or shear load par	$N_{Rk,b} = N_{Rk,p}$ $//mm^{2}$ $0,4$ $//mm^{2}$ $0,5$ callel to free edge) [kN] 0,3 0,4	2,0	range V _{Bk,b} ⁴⁾ D ²⁾ (0,9) ³⁾ 5 ²⁾ (1,2) ³⁾	



						Character	ristic resi	stance		
							category			
			Eff	ective			d/d			
				norage			w/d			
Anchor size		Sleeve		epth –		1	w/w		72°C tem	
				-	40°C/24°C	80°C/50°C	120°C	/72°C		•
				h _{ef}		$N_{Rk,b} = N_{Rk,p}$	1)			
				nm]		TARK,D - TARK,D	 [kN]			V RK,D
			Ľ	ining						
			Compre	essive stren	ath f _h ≥ 8 N	/mm ²				
M8		12x80		80	<u> </u>					
M8 / M10/		16x85		85						
IG-M6		6x130		130				_		2) (1 - 3)
		20x85		85	0,6	0,6	0,	9,5 3,0 9,6 3,5	3,0) ^{-/} (1,2) ^{°/}
M12 / M16	/	0x130		130						
G-M8 / IG-M	10	0x200		200					C temp ra V 3,0 ²	
				ssive stren	ath f _b ≥ 12 N	l/mm ²				
	-	12x80		80						
M8										
		16x85		85					C tempera rang $V_{Rk,b}$ 3,0 ²⁾ (1 3,5 ²⁾ (1 mm: V _{Rk,c,II} = V	
M8 M8 / M10/ IG-M6		16x85 6x130		85 130				_	2°C temper rang V _{Rk} 3,0 ²⁾ (3,5 ²⁾ (2) (
M8 / M10/ IG-M6		6x130		130	0,6	0,6	0,	6		5 ²⁾ (1,5) ³
M8 / M10/ IG-M6 M12 / M16	/	6x130 20x85		130 85	0,6	0,6	0,	6	3,5	5 ²⁾ (1,5) ³⁾
M8 / M10/ IG-M6 M12 / M16 G-M8 / IG-M ¹⁾ Value ²⁾ Calcu ³⁾ Value	/ 10 2 es are valid for lation of V _{Rk,c} es in brackets	$6x130$ $20x85$ $0x130$ $0x200$ $r_{c_{rr}} and c_{min}$ see ETAG 029, $V_{Rk,c} = V_{Rk,b} for a$	Annex C	130 85 130 200 2, except for s with c _{min}	hear load par	allel to free edg	ge with c ≥			
M8 / M10/ IG-M6 M12 / M16 G-M8 / IG-M ¹⁾ Value ²⁾ Calcu ³⁾ Value ⁴⁾ The v	/ 10 2 es are valid for ulation of V _{Rk,c} es in brackets values are vali	$6x130$ $20x85$ $0x130$ $0x200$ $c_{cr} and c_{min}$ see ETAG 029, $V_{Rk,c} = V_{Rk,b} \text{ for a}$ d for steel 5.6 or	Annex C	130 85 130 200 2, except for s with c _{min}	hear load par	allel to free edg	ge with c ≥			$5^{(2)} (1,5)^{(3)}$
M8 / M10/ IG-M6 M12 / M16 G-M8 / IG-M ¹⁾ Value ²⁾ Calcu ³⁾ Value	/ 10 2 es are valid for lation of V _{Rk,c} es in brackets	$6x130$ $20x85$ $0x130$ $0x200$ $C_{cr} and C_{min}$ see ETAG 029, $V_{Rk,c} = V_{Rk,b} \text{ for a}$ d for steel 5.6 or ments	Annex C	130 85 130 200 2, except for s with c _{min}	hear load par	allel to free edg	ge with c ≥			
M8 / M10/ IG-M6 M12 / M16 G-M8 / IG-M ¹⁾ Value ²⁾ Calcu ³⁾ Value ⁴⁾ The v Table C95: Anchor	/ 10 2 es are valid for ulation of V _{Rk,c} es in brackets values are vali	$6x130$ $20x85$ $0x130$ $0x200$ $c_{cr} and c_{min}$ see ETAG 029, $V_{Rk,c} = V_{Rk,b} \text{ for a}$ d for steel 5.6 or ments Effective anchorage	Annex C	130 85 130 200 2, except for s with c _{min}	hear load par	allel to free edg	ge with c ≥	: 125 mm	I: V _{Rk,0}	
M8 / M10/ IG-M6 M12 / M16 G-M8 / IG-M ¹⁾ Value ²⁾ Calcu ³⁾ Value ⁴⁾ The v	1 10 20 20 20 20 20 20 20 20 20 2	$6x130$ $20x85$ $0x130$ $0x200$ $C_{cr} and C_{min}$ see ETAG 029, $V_{Rk,c} = V_{Rk,b} \text{ for a}$ $d \text{ for steel 5.6 or}$ $ments$ Effective anchorage $depth h_{ef}$	Annex C anchors of greater.	130 85 130 200 200 2, except for s with c _{min} For steel 4.6 δ _N / N	hear load par and 4.8 multi δ _{N0}	allel to free edg ply V _{Rk,b} by 0,8 δ _{N∞}	ge with c ≥	: 125 mm δ _{vo}	1: V _{Rk,0}	$\delta_{V^{\infty}}$
M8 / M10/ IG-M6 M12 / M16 IG-M8 / IG-M ¹⁾ Value ²⁾ Calcu ³⁾ Value ⁴⁾ The v Table C95: Anchor size	1 10 20 10 20 20 20 20 20 20 20 20 20 2	$6x130$ $20x85$ $0x130$ $0x200$ $C_{cr} and C_{min}$ see ETAG 029, $V_{Rk,c} = V_{Rk,b} \text{ for a}$ d for steel 5.6 or $ments$ Effective anchorage depth h _{ef} [mm]	Annex C anchors v greater.	130 85 130 200 200 2, except for s with c _{min} For steel 4.6 δ _N / N [mm/kN]	hear load para and 4.8 multi δ _{N0} [mm]	allel to free edg ply V _{Rk,b} by 0,8 δ _{N∞} [mm]	ge with c ≥ V [kN]	: 125 mm δ _{V0} [mm	1: V _{Bk,0}	5,II = V δ
M8 / M10/ IG-M6 M12 / M16 G-M8 / IG-M ¹⁾ Value ²⁾ Calcu ³⁾ Value ⁴⁾ The v Table C95: Anchor	1 10 20 20 20 20 20 20 20 20 20 2	$6x130$ $20x85$ $0x130$ $0x200$ $C_{cr} and C_{min}$ see ETAG 029, $V_{Rk,c} = V_{Rk,b} \text{ for a}$ $d \text{ for steel 5.6 or}$ $ments$ Effective anchorage $depth h_{ef}$	Annex C anchors of greater.	130 85 130 200 200 2, except for s with c _{min} For steel 4.6 δ _N / N	hear load par and 4.8 multi δ _{N0}	allel to free edg ply V _{Rk,b} by 0,8 δ _{N∞}	ge with c ≥	: 125 mm δ _{vo}	1: V _{Bk,0}	_{5,11} = V _{Rk} ,



Table C96: Descriptio	on of the brid	:k				
Brick type		Clay hollow brick				
Bulk density	ρ [kg/dm ³]	Doppio Uni 0,9			-	4
	p [kg/dm] $b \ge [N/mm^2]$	10, 16, 20 or 28		-		
Code	6 = [iwiiiii]	EN 771-1				
Producer (country code)		e.g. Wienerberger (IT)				
Brick dimensions	[mm]	250 x 120 x 120				
Drilling method	hund	Rotary				
	11			0		
		250				
	n parameters	5	1	All sizes		
Anchor size	Ccr			All sizes 100 (120) ¹)	
Anchor size Edge distance	13 X 12 2	s [-] [mm] [mm]		100 (120) ¹ 60)	
Anchor size Edge distance Minimum edge distance	Ccr	3 [-] [mm] [mm] [mm]		100 (120) ¹ 60 250)	
Table C97:InstallationAnchor sizeEdge distanceMinimum edge distanceSpacing	C _{cr} C _{min} ²⁾ S _{cr,II} S _{cr,⊥}	s [-] [mm] [mm] [mm] [mm]		100 (120) ¹ 60 250 120)	
Anchor size Edge distance Minimum edge distance	C _{or} C _{min} ²⁾ S _{or,1} S _{or,⊥} S _{min,11}	s [-] [mm] [mm] [mm] [mm] [mm]		100 (120) ¹ 60 250 120 100)	
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C98: Group fact	Cor Cmin ²⁾ Scr,II Sor,⊥ Smin,II Smin,⊥ H20x85; SH20x to ETAG 029,	s [-] [mm] [mm] [mm] [mm] [mm] [130 and SH20x200 Annex C or group in case of tension	- 1 - 1 - 7 - 1	100 (120) ¹ 60 250 120		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C98: Group fact Configuration	Cor Cmin ²⁾ Scr,II Sor,⊥ Smin,II Smin,⊥ H20x85; SH20x to ETAG 029,	s [-] [mm] [mm] [mm] [mm] [mm] (130 and SH20x200 Annex C or group in case of tension with c ≥	with s ≥	100 (120) ¹ 60 250 120 100)	
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C98: Group fact	Cor Cmin ²⁾ Scr,II Sor,⊥ Smin,II Smin,⊥ H20x85; SH20x to ETAG 029,	s [-] [mm] [mm] [mm] [mm] [mm] [130 and SH20x200 Annex C or group in case of tension	- 1 - 1 - 7 - 1	100 (120) ¹ 60 250 120 100		1,0
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according Table C98: Group fact Configuration II: anchors placed parallel to horizontal	C _{cr} C _{min} ²⁾ S _{cr,⊥} S _{rr,⊥} S _{min,⊥} H20x85; SH20x to ETAG 029, tor for ancho	s [-] [mm] [mm] [mm] [mm] [mm] 130 and SH20x200 Annex C or group in case of tension with c ≥ 60	with s ≥ 100	100 (120) ¹ 60 250 120 100 120)	



Config	juration	with c ≥		with s ≥		
II: anchors placed parallel to horizonta joint		C _{cr}		250	$\alpha_{g,V,II}$	2,0
⊥: anchors placed perpendicular to horizontal joint	V	Cor		120	$\alpha_{g,V,\perp}$	[-] 2,0
Table C100: Gro	oup factor for anc	hor group in case of	of shear loadi	ng perpendic	ular to free ed	ge
Config	juration	with c ≥		with s ≥		
II: anchors placed parallel to horizonta joint		Cor		250	α _{g,V,II}	2,0
⊥: anchors placed perpendicular to horizontal joint	V	C _{cr}		120	$\alpha_{g,v,\perp}$	[-] 2,0
Table C101: Ch	aracteristic value	es of resistance un	der tension an	or so the or a state of a	s istic resistance	
				Use	category	
Anchoraine		Effective anchorage depth	d/d w/d w/w			
Anchor size	Sleeve	depin	40°C/24°C	80°C/50°C	120°C/72°C	For All temperatu range
		h _{ef}		$N_{Rk,b} = N_{Rk,p}^{\dagger}$)	V _{Rk,b} ²⁾³⁾
		[mm]			[kN]	
		Compressive stre	ength f _b ≥ 10 N	N/mm ²		
M8	12x80	80				
M8 / M10/	16x85	85				
IG-M6	16x130	130	0,6	0,6	0,5	1,5
M12/M16/	20x85	85	0,0	0,0	0,0	1,5
G-M8 / IG-M10	20x130	130				
	20x200	200				
1		Compressive stre	ength $f_b \ge 16 N$	V/mm²		1
M8	12x80	80				
M8 / M10/	16x85	85	-			
IG-M6	16x130	130	0,75	0,75	0,6	2,0
M12/M16/	20x85	85		1.14.04	14.4	69.5
G-M8 / IG-M10	20×130	130	-			
1)	20×200	200	ļ. — — — — — — — — — — — — — — — — — — —			
²⁾ Calculation	valid for c_{cr} and c_{min} of $V_{Rk,c}$ see ETAG 0 are valid for steel 5.6	29, Annex C 3 or greater. For steel 4	1.6 and 4.8 multi	ply V _{Rk,b} by 0,8		
⁵⁾ The values						



Anchor size	S					Character	ristic resist	tance		
Anchor size	S					Use	category			
Anchor size	S		Eff	ective			d/d			
Anchor size	S			horage			w/d			
		leeve	d	epth			w/w	For All		
					40°C/24°C	80°C/50°C	120°C/7	72°C	temperature range	
				h _{ef}		$N_{Rk,b} = N_{Rk,p}$	1)		$V_{Rk,b}^{(2)3)}$	
				mm]			[kN]			
	1				gth f _b ≥ 20 №	l/mm²	1			
M8		2x80		80						
M8 / M10/		6x85		85						
IG-M6		6x130		130	0,9	0,9	0,75		2,0	
M12 / M16 /		20x85		85						
G-M8 / IG-M10		0x130 0x200		130 200						
	2				gth f _b ≥ 28 N	J/mm ²				
M8	-	2x80		80	$g_{\text{III}} = 20$					
M8 / M10/		6x85		85						
IG-M6		6x130		130						
		20x85		85	1,2	1,2	0,9)	2,5	
M12 / M16 /		0x130		130						
G-M8 / IG-M10	2	0x200	2	200						
	on of $V_{Rk,c}$	c _{cr} and c _{min} see ETAG 029, d for steel 5.6 or			and 4.8 multi	ply V _{Rk,b} by 0,8				
³⁾ The valu	on of $V_{Rk,c}$	c _{cr} and c _{min} see ETAG 029, d for steel 5.6 or)	and 4.8 multi	ply V _{Rk,b} by 0,8	1			
³⁾ The valu	on of V _{Rk,c} es are vali	c _{cr} and c _{min} see ETAG 029, d for steel 5.6 or ments)	and 4.8 multi	ply V _{Rk,b} by 0,8				
³⁾ The valu Table C103:	on of V _{Rk,c} es are vali	c _{cr} and c _{min} see ETAG 029, d for steel 5.6 or)	and 4.8 multi δ _{N0}	ply V _{Rk,b} by 0,8 δ _{N∞}	V	δ _{νο}) δ _{V∞}	
³⁾ The valu Table C103: Anchor size	on of V _{Rk,c} es are valid Displace i	c _{cr} and c _{min} see ETAG 029, d for steel 5.6 or ments Effective anchorage	greater.	For steel 4.6				δ _{να} [mm 0,3	ו] [mm]	



Brick type Bulk density Compressive strength fb Code Producer (country code) Brick dimensions Drilling method	ρ [kg/dm ³] ₅ ≥ [N/mm ²] [mm]	Bloc creux B40 0,8 4 EN 771-3 e.g. Sepa (FR) 494 x 200 x 190 Rotary				-			
Compressive strength f _b Code Producer (country code) Brick dimensions	, ≥ [N/mm²]	4 EN 771-3 e.g. Sepa (FR) 494 x 200 x 190							
Code Producer (country code) Brick dimensions		EN 771-3 e.g. Sepa (FR) 494 x 200 x 190							
Producer (country code) Brick dimensions	[mm]	e.g. Sepa (FR) 494 x 200 x 190							
Brick dimensions	[mm]	494 x 200 x 190					1		
	printj			SI	under an and and an				
		Thoras							
		494							
200			17		17				
Table C105: Installation	n parameters	5							
Anchor size	n parameters		[^]		All sizes				
Anchor size Edge distance	Cor	5 	[mm]		$100(120)^{1}$				
Anchor size Edge distance	C _{cr} C _{min} ²⁾		[mm] [mm]		100 (120) ¹ 100 (120) ¹				
Edge distance Minimum edge distance	C _{cr} C _{min} ²⁾ S _{cr,II}	5	[mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 494				
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing	Ccr Cmin ²⁾ Scr.II Scr.L Smin		[mm] [mm]		100 (120) ¹ 100 (120) ¹				
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH: ²⁾ For V _{Rk,c} : c _{min} according to Table C106: Group facto Configuration	Ccr. Cmin ²⁾ Scr.II Scr.L Smin I20x85 and SH to ETAG 029,	20x130 Annex C or group in case of ten with c ≥	[mm] [mm] [mm] [mm]	with s ≥	100 (120) ¹ 100 (120) ¹ 494 190				
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH: ²⁾ For V _{Rk,c} : c _{min} according to Table C106: Group facto Configuration II: anchors placed	Ccr. Cmin ²⁾ Scr.II Scr.L Smin I20x85 and SH to ETAG 029,	20x130 Annex C r group in case of ter	[mm] [mm] [mm] [mm]		100 (120) ¹ 100 (120) ¹ 494 190 100		1,5		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH ²⁾ For V _{Rk,c} : c _{min} according to Table C106: Group facto Configuration	C _{cr} C _{min} ²⁾ S _{cr,⊥} S _{min} I20x85 and SH to ETAG 029, or for ancho	20x130 Annex C or group in case of ten with c ≥	[mm] [mm] [mm] [mm]	with s ≥	100 (120) ¹ 100 (120) ¹ 494 190		1,5		
Anchor size Edge distance Minimum edge distance Spacing Minimum spacing ¹⁾ Value in brackets for SH: ²⁾ For V _{Rk,c} : c _{min} according for Table C106: Group factor Configuration II: anchors placed parallel to horizontal	C _{cr} C _{min} ²⁾ S _{cr,⊥} S _{min} I20x85 and SH to ETAG 029, or for ancho	20x130 Annex C or group in case of ten with c ≥ 100	[mm] [mm] [mm] [mm]	with s ≥ 100	100 (120) ¹ 100 (120) ¹ 494 190 100				



	Configuratio	on		with c ≥		with s ≥			
II: anchors		4-4-		50		100			1.1
parallel to h		V •	1	Cor		494	α	V,II	2,0
⊥: anchors								[-]	-
perpendic		V.S		100		100	α	V.1	1,1
horizonta	l joint	F it		Ccr		190			2,0
Table C10		actor for anc	hor group	14 2 DAM 11 DA	shear load		ndicular to	free edge	
in a second	Configuratio	on		with c ≥		with s ≥			
II: anchors parallel to h join	orizontal	V		Ccr		494	α.,		2,0
⊥: anchors perpendic horizonta	ular to	V		Car		190	α _g	V,⊥ [-]	2,0
Table C10	9: Characte	ristic values	of resista	ince under		<mark>d shear loa</mark> acteristic re Use catego	sistance		
		EU.				Jose calege			d/d
Anchor size	Sleeve	Effective anchorage depth		d/d			w/d w/w		w/d w/w
And for size	Sieeve	uopin	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	range
		h _{ef}		$N_{Rk,b} = N_{Rk,j}$	1)	1	$N_{Rk,b} = N_{Rk,p}$	1)	V _{Rk,b} ²⁾³⁾
		[mm]	0			[kN]			
M8	12x80	80	1,2	0,9	ngth f _b ≥ 4 0,75	0,9	0,9	0,75	3,0
M8 / M10/	16x85	85	1,2	0,9	0,75	1,2	0,9	0,75	3,0
IG-M6	16x130	130	1,2	0,9	0,75	1,2	0,9	0,75	3,0
M12/M16/	20x85	85	1,2	0,9	0,75	1,2	0,9	0,75	3,0
IG-M8 / IG-M10	20x130	130	1,2	0,9	0,75	1,2	0,9	0,75	3,0
¹⁾ Valu ²⁾ Calo ³⁾ The	es are valid f ulation of V _R	for c _{cr} and c _{min} _{k,c} see ETAG 02 alid for steel 5.6	29, Annex C	C, except for	shear load pa	arallel to free	edge with c		C
		Effective				1			
Anchor size	Sleeve	anchorag depth h _{et}	e N	δ _N / N	δ _{ND}	δ _{N∞}	V	δ _{V0}	δ _{V∞}
AUL	A.V	[mm]	[kN]	[mm/kN]	[mm]	[mm]	[kN]	[mm]	[mm]
All sizes	All sizes	All sizes	0,34	0,90	0,31	0,62	0,86	0,9	1,35
	for masonr								-



Bulk density $p [kg/dm^3]$ 0.6 Compressive strength $f_9 \ge [N/mm^3]$ 2 Code EN 771-3 Producer (country code) e.g. Bisotherm (DE) Brick dimensions [mm] 300 x 123 x 248 Diffiling method Retary Table C112: Installation parameter Anchor size [-] All sizes Edge distance Com [mm] 1,5 ⁺ hat Minimum edge distance Com [mm] 60 Spacing Sam [mm] 3 ⁺ hat Minimum spacing Sam [mm] 120 Table C113: Group factor for anchor group in case of tension loading Configuration with $c \ge$ with $s \ge$ 1 II: anchors placed 90 120 1 2 0 II: anchors placed 90 120 $q_{0,N,II}$ [F] 2 0 II: anchors placed 90 120 $q_{0,N,II}$ 0 2 0 0 2 0 Table C113: Group factor for anchor group in case of shear loading parallel to free edge 0 2 <th>Brick type</th> <th></th> <th>Solid light weight</th> <th>concrete br</th> <th>ick</th> <th></th> <th></th> <th></th>	Brick type		Solid light weight	concrete br	ick			
Compressive strength $f_b \ge [N/mm^2]$ 2 Code EN 771-3 Producer (country code) e.g. Bisotherm (DE) Brick dimensions [mm] 300 x 123 x 248 Image: Compressive strength Image: Compressive strength Drilling method Rotary Rotary Table C112: Installation parameter Anchor size [-] All sizes Edge distance Common (mm) 1,5*har Minimum edge distance Common (mm) 120 Spacing Sem 11 Table C113: Group factor for anchor group in case of tension loading 11: anchors placed 90 120 11,1 parallel to horizontal joint Image: Configuration with c 2 with s 2 1 1,2 Table C114: Group factor for anchor group in case of shear loading parallel to tree edge 0,6 1,2 0,6 Configuration with c 2 with s 2 [-] 0,6 0,6 0,6 It: anchors placed 90 120 Gay.r.l		o [ka/dm ³]					- HATTENS	
Code EN 771-3 Producer (country code) e.g. Bisotherm (DE) Brick dimensions [mm] Solutions [mm] Offling method Rotary Table C112: Installation parameter Anchor size [-] All sizes Edge distance C_{cr} [mm] 1,5*h _{all} Minimum dge distance C_{cr} [mm] 3*h _{all} Minimum spacing Sev [mm] 3*h _{all} Minimum spacing Sev [mm] 1,20 Table C113: Group factor for anchor group in case of tension loading 1,1* Configuration with $c \ge$ with $s \ge$ 1,1* parallel to horizontal joint Imm 1,5*hef 3*h _{ell} 2,0 Table C114: Group factor for anchor group in case of shear loading parallel to free edge 0,6 2,0 2,0 Configuration with $c \ge$ with $s \ge$ [-] 0,6 2,0 2,0 L: anchors placed 60 120 $a_{g,V,ll}$ [-] 2,0 2,0 2,0 2,0 L: anchors placed						Call in		
Brick dimensions [mm] 300 × 123 × 248 Drilling method Rotary Table C112: Installation parameter Anchor size [-] All sizes Edge distance G_{min} $1.5^{n}h_{el}$ Minimum edge distance G_{min} (mm) $3^{n}h_{el}$ Spacing See (mm) $3^{n}h_{el}$ Minimum spacing Sem (mm) 120 Table C113: Group factor for anchor group in case of tension loading Configuration with $c \ge$ with $s \ge$ $[-1]$ $1,1$ Parallel to horizontal joint $1.5^{n}hel$ $3^{n}hel$ $\alpha_{g,N,II}$ $[-1]$ $1,2$ L: anchors placed perpendicular to free adge $1.5^{n}hel$ $3^{n}hel$ $\alpha_{g,N,II}$ $[-1]$ 2.6 Configuration with $c \ge$ with $s \ge$ $[-1]$ 2.6 Lit anchors placed perpendicular to free adge Configuration with $c \ge$ with $s \ge$ $[-1]$ 2.6 Lit anchors placed perpendicular to free adge 60 120 $\alpha_{g,V,II}$ 2.6		5 [1	and the second					
Brick dimensions [mm] 300 × 123 × 248 Drilling method Rotary Table C112: Installation parameter Anchor size [-] All sizes Edge distance G_{min} $1.5^{n}h_{el}$ Minimum edge distance G_{min} (mm) $3^{n}h_{el}$ Spacing See (mm) $3^{n}h_{el}$ Minimum spacing Sem (mm) 120 Table C113: Group factor for anchor group in case of tension loading Configuration with $c \ge$ with $s \ge$ $[-1]$ $1,1$ Parallel to horizontal joint $1.5^{n}hel$ $3^{n}hel$ $\alpha_{g,N,II}$ $[-1]$ $1,2$ L: anchors placed perpendicular to free adge $1.5^{n}hel$ $3^{n}hel$ $\alpha_{g,N,II}$ $[-1]$ 2.6 Configuration with $c \ge$ with $s \ge$ $[-1]$ 2.6 Lit anchors placed perpendicular to free adge Configuration with $c \ge$ with $s \ge$ $[-1]$ 2.6 Lit anchors placed perpendicular to free adge 60 120 $\alpha_{g,V,II}$ 2.6	Producer (country code)		e.g. Bisotherm (D	E)				
Drilling method Rotary Table C112: Installation parameter Anchor size C_{0} [mm] $All sizes$ Edge distance C_{ore} [mm] B_{0} Spacing S_{0^2} [mm] B_{0} Spacing S_{0^2} [mm] $3^{+}h_{et}$ Minimum dge distance C_{ore} [mm] $3^{+}h_{et}$ Minimum spacing S_{0^2} [mm] $3^{+}h_{et}$ Table C113: Group factor for anchor group in case of tension loading Configuration with $c \ge$ with $s \ge$ 11, 1, 2, 2, 0, 3, 11, 11, 2, 2, 0, 3, 11, 12, 2, 0, 11, 12, 12, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,		[mm]		.,		and the second	ST ENGLY	
Table C112: Installation parameter Anchor size [-] All sizes Edge distance C_{cr} [mm] 1,5 ⁻ h _{eff} Minimum edge distance C_{min} [mm] 3 ⁻ h _{eff} Minimum edge distance C_{min} [mm] 3 ⁻ h _{eff} Minimum edge distance C_{min} [mm] 3 ⁻ h _{eff} Minimum spacing Swe [mm] 3 ⁻ h _{eff} Table C113: Group factor for anchor group in case of tension loading Configuration with c ≥ with s ≥ 1 II: anchors placed perpendicular to frizental joint I.5 ⁻ hef 3 ⁺ heff $\alpha_{g,V,I}$ [-] 2.0 Table C114: Group factor for anchor group in case of shear loading parallel to free edge Configuration with c ≥ with s ≥ 0 II: anchors placed parallel to finizontal joint IV 0 120 $\alpha_{g,V,I}$ 0 0	Drilling method		Rotary			and Marille	S	
Edge distance C_{cr} [mm] 1,5"het Minimum edge distance C_{min} [mm] 60 Spacing Sw [mm] 3"het Minimum spacing Sw [mm] 120 Table C113: Group factor for anchor group in case of tension loading Configuration with $c \ge$ with $s \ge$ 11,1 Parallel to horizontal joint 90 120 40,91,8 2,01 L: anchors placed perpendicular to horizontal joint 1,5"hef 3"het $\alpha_{0,N,L}$ [-] 1,1,1 Bis anchors placed perpendicular to horizontal joint 1,5"hef 3"het $\alpha_{0,N,L}$ [-] 2,0 Table C114: Group factor for anchor group in case of shear loading parallel to free edge Configuration with $c \ge$ with $s \ge$ [-] 2,0 L: anchors placed parallel to horizontal joint 90 120 α_0,v_L [-] 2,0 Distances 60 120 α_0,v_L [-] 2,0 0,6 L: anchors placed parallel to horizontal joint 124 120 α_0,v_L 2,0 Distances	Table C112: Installatio	n parameter						
Edge distance C_{crit} [mm] 1,5"het Minimum edge distance C_{mm} [mm] 60 Spacing So [mm] 3"het Minimum spacing Smm [mm] 120 Table C113: Group factor for anchor group in case of tension loading Configuration with $c \ge$ with $s \ge$ 1,1,1 parallel to horizontal joint Image for the second se	Anchor size			E		All sizes		
Spacing s_{cr} [mm] $3^{h}erl$ Minimum spacing s_{mn} [mm] $3^{h}erl$ Table C113: Group factor for anchor group in case of tension loading Configuration with $c \ge$ with $s \ge$ 11.1 Barlale to horizontal joint 90 120 $\alpha_{g,N,II}$ 2.7 Description with $c \ge$ with $s \ge$ (-1).1 1.1 Description 1.24 120 $\alpha_{g,N,II}$ 2.7 Description 1.24 120 $\alpha_{g,N,II}$ 2.7 1.1 Description 1.24 120 $\alpha_{g,N,II}$ 2.7 1.1 Description 1.24 120 $\alpha_{g,N,II}$ 2.7 1.1 Description with $c \ge$ with $s \ge$ 0.7 0.6 2.7 0.6 Description with $c \ge$ with $s \ge$ 0.7 0.6 2.7 0.6 2.7 0.6 2.7 0.6 2.7 0.6 2.7 0.6 2.7 0.6 2.7 0.6 2.7 0.6 2.7 0.6 2.7 0.6 2.7	Edge distance	Ccr				1,5*h _{ef}		
Minimum spacing smm [mm] 120 Table C113: Group factor for anchor group in case of tension loading Configuration with $c \ge$ with $s \ge$ 1 II: anchors placed parallel to horizontal joint 90 120 $q_{g,NH}$ 1,1 L: anchors placed perpendicular to horizontal joint II: anchors placed perpendicular to horizontal joint 124 120 $\alpha_{g,NH}$ [-] 1,1 Table C114: Group factor for anchor group in case of shear loading parallel to free edge Configuration with $c \ge$ with $s \ge$ [-] Table C114: Group factor for anchor group in case of shear loading parallel to free edge Configuration with $c \ge$ with $s \ge$ [-] 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0 0,6 2,0	Minimum edge distance	Cmin		[mm]				
Table C113: Group factor for anchor group in case of tension loading Table C113: Group factor for anchor group in case of tension loading II: anchors placed joint 90 120 $\alpha_{g,N,I}$ 1,1 Jain chors placed perpendicular to horizontal joint 124 120 $\alpha_{g,N,I}$ [-] 1,1 L: anchors placed perpendicular to horizontal joint 1,5'hef 3'hef $\alpha_{g,N,I}$ [-] 1,1 Table C114: Group factor for anchor group in case of shear loading parallel to free edge Configuration with c ≥ with s ≥ 0,6 Ji: anchors placed perpendicular to horizontal joint 90 120 $\alpha_{g,V,I}$ [-] 0,6 L: anchors placed perpendicular to horizontal joint V 60 120 $\alpha_{g,V,I}$ [-] 0,6 Li anchors placed perpendicular to for anchor group in case of shear loading perpendicular to free edge Configuration with c ≥ with s ≥ 0,6 II: anchors placed perpendicular to for anchor group in case of shear loading perpendicular to free edge Configuration with c ≥ with s ≥ 0,6 II: anchors placed perpendicular to		Scr		[mm]		3*het		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Minimum spacing	Smin		[mm]		120		
joint1,5*hef $3^{h}hef$ $2^{h}hef$ 2,0L: anchors placed perpendicular to horizontal joint124120 $\alpha_{0,N,\perp}$ 1,11,5*hef $3^{h}hef$ $\alpha_{0,N,\perp}$ 1,21,1Table C114: Group factor for anchor group in case of shear loading parallel to free edgeConfigurationwith $c \ge$ with $s \ge$ II: anchors placed perpendicular to horizontal joint $0,0$ $0,0$ L: anchors placed perpendicular to horizontal joint $0,0$ $0,0$ II: anchors placed perpendicular	II: anchors placed				N 10 2 2			1,1
joint1.5'hef 3^{h} and1.2'1: anchors placed perpendicular to horizontal joint124120 $\alpha_{0,N,\perp}$ 1.11.5'hef3'her $\alpha_{0,N,\perp}$ 1.2'Table C114: Group factor for anchor group in case of shear loading parallel to free edgeConfigurationwith $c \ge$ II: anchors placed perpendicular to horizontal joint 0.6 12: anchors placed perpendicular to horizontal joint 0.6 11: anchors placed perpendicular to horizontal joint 0.6 12: anchors placed perpendicular to horizontal joint 0.6 11: anchors placed perpendicular to horizontal joint 0.6 12: anchors placed perpendicular to horizontal joint 0.6 12: anchors placed perpendicular to horizontal joint 0.6 13: anchors placed perpendicular to horizontal joint 0.6 14: anch	II: anchors placed parallel to horizontal	••				α _{g,N,II}		1,1
1241201,1perpendicular to horizontal joint1,5'hef3'her $\alpha_{g,N,\perp}$ 1,1Table C114: Group factor for anchor group in case of shear loading parallel to free edge0,6Configurationwith c ≥with s ≥0,61: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ 60120 $\alpha_{g,V,\parallel}$ 1,11: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ 60120 $\alpha_{g,V,\parallel}$ 1,21: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ 60120 $\alpha_{g,V,\parallel}$ 1,21: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ 60120 $\alpha_{g,V,\parallel}$ 1,21: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ 60120 $\alpha_{g,V,\parallel}$ 1,21: anchors placed parallel to horizontal joint $V \bullet \bullet$ Θ 120 $\alpha_{g,V,\parallel}$ 1,61: anchors placed parallel to horizontal joint $V \bullet \bullet$ Θ 120 $\alpha_{g,V,\parallel}$ 1,61: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ Θ 120 $\alpha_{g,V,\parallel}$ 0,61: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ Θ 120 $\alpha_{g,V,\parallel}$ 1,61: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ Θ 120 $\alpha_{g,V,\parallel}$ 0,61: anchors placed perpendicular to horizontal joint $V \bullet \bullet$ Θ 120 $\alpha_{g,V,\parallel}$ 1,61: anchors placed perpendicular to horiz	joint	11					1-1	
horizontal joint1,5*hef3*her1.02,0Table C114: Group factor for anchor group in case of shear loading parallel to free edgeConfigurationwith c ≥with s ≥0,6II: anchors placed perpendicular to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 L: anchors placed perpendicular to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 Diameter is anchors placed perpendicular to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 Configurationwith c ≥with s ≥ 0.6 Configuration 00 120 $\alpha_{g,V,II}$ 0.6 Configurationwith c ≥with s ≥ 0.6 L: anchors placed parallel to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 L: anchors placed perpendicular to parallel to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 L: anchors placed perpendicular to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 L: anchors placed perpendicular to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 L: anchors placed perpendicular to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 L: anchors placed perpendicular to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 L: anchors placed perpendicular to horizontal joint 00 120 $\alpha_{g,V,II}$ 0.6 L: anchors placed perpendicular to horizontal joint		•	124		120			1,1
Table C114: Group factor for anchor group in case of shear loading parallel to free edge Configuration with $c \ge$ with $s \ge$ 0.00000000000000000000000000000000000			1,5*hef		3*hef	ug,N 1		2,0
II: anchors placed parallel to horizontal joint 60 120 $\alpha_{g,V,II}$ $0,6$ 120 $\alpha_{g,V,II}$ $0,0,0$ $0,0,0,0$ $0,0,0,0,0$ $0,0,0,0,0$ $0,0,0,0,0,0$ $0,0,0,0,0,0,0,0$ 1 : anchors placed perpendicular to horizontal joint 124 120 $\alpha_{g,V,L}$ $0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,$		tor for ancho		shear load		free edge		-
parallel to horizontal jointV90120 $\alpha_{9,V,II}$ 2.0L: anchors placed perpendicular to horizontal jointV60120 $\alpha_{9,V,II}$ [-]0.6124120 $\alpha_{9,V,II}$ 2.02.02.0Table C115: Group factor for anchor group in case of shear loading perpendicular to free edgeConfigurationwith c ≥with s ≥II: anchors placed parallel to horizontal joint60120 $\alpha_{9,V,II}$ 0.6L: anchors placed perpendicular to horizontal joint60120 $\alpha_{9,V,II}$ 0.6L: anchors placed perpendicular to horizontal joint60120 $\alpha_{9,V,II}$ 0.6L: anchors placed perpendicular to horizontal joint1.5*hef120 $\alpha_{9,V,II}$ 0.61.5*hef120 $\alpha_{9,V,II}$ 1.00.62.01.5*hef3*her0.6								0.6
L: anchors placed perpendicular to horizontal joint 60 120 $\alpha_{9,V,L}$ $0,e$ Table C115: Group factor for anchor group in case of shear loading perpendicular to free edgeConfigurationwith $c \ge$ with $s \ge$ $0,e$ II: anchors placed parallel to horizontal joint $0,e$ $0,e$ L: anchors placed perpendicular to free edge $0,e$ $1:$ anchors placed perpendicular to horizontal joint $0,e$ $1:$ anchors placed perpendicular to horizontal joint $0,e$ $0,e$ $1,5^{*}hef$ 120 $\alpha_{9,V,II}$ $0,e$ $1,5^{*}hef$ 120 $\alpha_{9,V,II}$ $1,c$ $1,5^{*}hef$ $3^{*}h_{ef}$ $0,e$	parallel to horizontal	V •				α _{g,V,II}		2,0
horizontal joint1241201202,0Table C115: Group factor for anchor group in case of shear loading perpendicular to free edgeConfigurationwith $c \ge$ with $s \ge$ 0II: anchors placed parallel to horizontal joint001200,01: anchors placed perpendicular to horizontal joint0,00,01: anchors placed perpendicular to horizontal joint0,00,01. anchors placed perpendicular to horizontal joint0,00,01. anchors placed perpendicular to horizontal joint0,00,01. 5*hef120 $\alpha_{g,V,II}$ 0,02. 00,01,00,00,01. 5*hef120 $\alpha_{g,V,II}$ 2,02. 00,00,00,00,01. 5*hef120 $\alpha_{g,V,II}$ 0,02. 00,00,00,00,01. 5*hef120 $\alpha_{g,V,II}$ 0,02. 00,00,00,00,01. 5*hef120 $\alpha_{g,V,II}$ 0,01. 00,00,00,01. 00,00,00,01. 00,00,00,01. 00,00,00,01. 00,00,00,01. 00,00,00,01. 00,00,00,01. 00,00,00,01. 00,00,00,01. 00,00,01. 00,00,0 </td <td>L: anchors placed</td> <td></td> <td>60</td> <td></td> <td>120</td> <td>1</td> <td>E</td> <td>0,6</td>	L: anchors placed		60		120	1	E	0,6
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		V	124		120	α _{g,V,L}	12 21	2,0
II: anchors placed parallel to horizontal joint 60 120 $\alpha_{g,V,II}$ $0,6$ 90 120 $\alpha_{g,V,II}$ $2,0$ L: anchors placed perpendicular to horizontal joint $1,5^*hef$ 120 $\alpha_{g,V,II}$ $1,0$ $1,5^*hef$ 3^*h_{ef} $2,0$								
parallel to horizontal joint $V \longrightarrow I$ 90120 $\alpha_{g,V,II}$ 2,0L: anchors placed perpendicular to horizontal joint $V \longrightarrow I$ 60120 $\alpha_{g,V,II}$ [-]0,61,5*hef120 $\alpha_{g,V,L}$ 1,01,01,01,5*hef3*hef3*hef2,0	horizontal joint	tor for ancho	or group in case of	shear load	ling perpendic	ular to free	edge	
joint90120902,0L: anchors placed perpendicular to horizontal joint $V \rightarrow \bullet$ 60120[-]0,61,5*hef120 $\alpha_{g,V,\perp}$ 1,01,01,01,5*hef3*hef3*hef2,0	horizontal joint	tor for ancho		shear load	007720770722	ular to free	edge	
L: anchors placed perpendicular to horizontal joint V 1,5*hef 120 α _{g,V,⊥} 1,0 1,5*hef 3*hef 3*hef 2,0	horizontal joint Table C115: Group fac Configuration II: anchors placed	tor for ancho	with c ≥	shear load	with s ≥		edge	0,6
perpendicular to horizontal joint V 1,5*hef 120 αg,v,⊥ 1,0 1,5*hef 3*hef 2,0	horizontal joint Table C115: Group fac Configuration II: anchors placed parallel to horizontal	tor for ancho	with c ≥ 60	shear load	with s ≥ 120			
	horizontal joint Table C115: Group fac Configuration II: anchors placed parallel to horizontal joint	tor for ancho	with c ≥ 60 90	shear load	with s ≥ 120 120			2,0
Chimfix for masonry	horizontal joint Table C115: Group fac Configuration II: anchors placed parallel to horizontal joint ⊥: anchors placed perpendicular to	tor for ancho	with c ≥ 60 90 60	shear load	with s ≥ 120 120 120	α _{g,v,ii}		0,6 2,0 0,6 1,0
	horizontal joint Table C115: Group fac Configuration II: anchors placed parallel to horizontal joint ⊥: anchors placed perpendicular to	tor for ancho	with c ≥ 60 90 60 1,5*hef	shear load	with s ≥ 120 120 120 120 120	α _{g,v,ii}		2,0 0,6 1,0

Deutsches Institut für Bautechnik

					Char	acteristic re	sistance		
						Use catego	ory		1
Amelaan		Effective		d/d			w/d w/w		d/d w/d w/w
Anchor size	Sleeve	depth	40°C/24°C	80°C/50°	C 120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	For all temperature range
		h _{ef}		$N_{Rk,b} = N_{Rl}$	1)		$N_{Rk,b} = N_{Rk,j}$	1)	V _{Rk,b} ²⁾³⁾
		[mm]				[kN]		þ	- 11,0
	1		Con	npressive	strength f _b ≥				
M8	-	80	3,0	2,5	2,0	2,5	2,0	1,5	3,0
M8 / M10/ IG-M6	-	90	3,0	3,0	2,0	2,5	2,5	2,0	3,0
M10 / IG-M8	-	100	3,5	3,0	2,5	3,0	2,5	2,0	3,0
M16 / IG-M10	-	100	3,0	3,0	2,0	3,0	3,0	2,0	3,0
M8	12x80	80	2,5	2,5	2,0	2,5	2,0	1,5	3,0
M8 / M10/	16x85	85	3,0	2,5	2,0	3,0	2,5	2,0	3,0
IG-M6	16x130	130	3,0	2,5	2,0	3,0	2,5	2,0	3,0
M12 / M16		85	2,5	2,5	2,0	2,5	2,5	2,0	3,0
/ IG-M8 /	20x130	130	2,5	2,5	2,0	2,5	2,5	2,0	3,0
IG-M10	20x200	200	2,5	2,5	2,0 single anchors	2,5	2,5	2,0	3,0
²⁾ For ca	lculation o alues are v	f V _{Rk,c} see E ralid for steel placements	TAG029, Ann 5.6 or greater	ex C	I.6 and 4.8 mult		0,8		
Anchor	size	Sleave a	Effective Inchorage depth h _{ef}		_N / Ν δ _N			δ _{vo}	δ _{V∞}
			[mm]	[kN] [m	m/kN] [mr	n] [mr	n] [kN	l] [mm]	[mm]
M8		-	80	0.00			~		
M8 / M IG-M	6	-	90		0,50 0,4				
M10 / IG		-	100	1,00	0,35				
M16 / IG		-	100	0,86	0,3				
M8		12x80	80	(0,50 0,3	6 0,7	1 0,9	0,25	0,38
M8 / M		16x85	85						
IG-M	6	16x130	130	0,71					
		20x85	85	0,71	0.25 0.2	5 05	0		

	20x85	85	0,71	0,35	0,25	0,50		
M12 / M16 / IG-M8 / IG-M10	20x130	130						
	20x200	200						
Chimfix for ma	asonry							
Performances	solid light	weight cond	rete bri	ck - LAC			Annex C 45	
Characteristic va	lues of resis	tance under ter	ision and	l shear load				
Displacements								