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European Technical Assessment Body for construction products



European Technical Assessment

ETA-21/0170 of 17 February 2025

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

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

This version replaces

Deutsches Institut für Bautechnik

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Metal Injection anchors for use in masonry

SOUDAL N.V. Everdongenlaan 18-20 2300 Turnhout **BELGIEN GERMANY**

Soudal NV, Plant1 Germany

77 pages including 3 annexes which form an integral part of this assessment

EAD 330076-01-0604, Edition 10/2022

ETA-21/0170 issued on 13 February 2021

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Specific Part

1 Technical description of the product

The "SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry" is a bonded anchor (injection type) consisting of a mortar cartridge with injection mortar SOUDAFIX VE400-SF or SOUDAFIX VE400-SF ARCTIC, a perforated sleeve and an anchor rod with hexagon nut and washer or an Internal threaded rod. The steel elements are made of zinc coated steel, stainless steel or high corrosion resistant steel.

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

The product description is given in Annex A.

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

The performances given in Section 3 are only valid if the fastener 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 fastener 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 static and quasi-static loading	See Annexes B 5, B 6 C 1 to C 56
Characteristic resistance and displacements for seismic loading	No performance assessed

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire under tension and shear loading with and without lever arm. Minimum edge distances and spacing	See Annexes C2, C7, C8, C13, C14, C17, C18, C19, C20, C37, C38, C43, C44, C45, C46, C51 and C52

3.3 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content, emission and/or release of dangerous substances	No performance assessed

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

In accordance with the European Assessment Document EAD 330076-01-0604 the applicable European legal act is: [97/177/EC].

The system to be applied is: 1

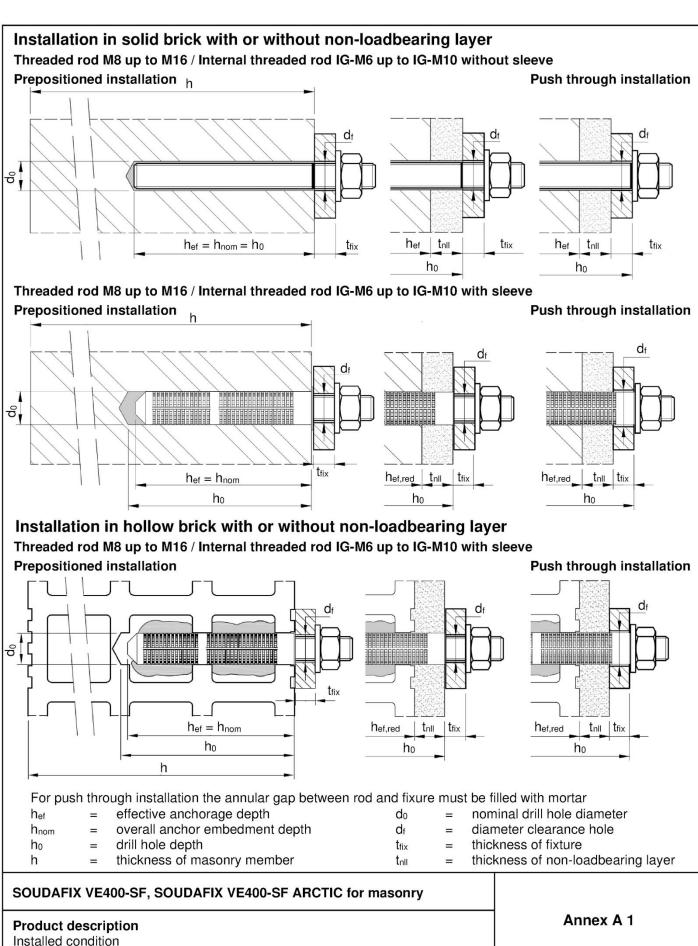
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

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

Issued in Berlin on 17 February 2025 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock Head of Section beglaubigt: Baderschneider

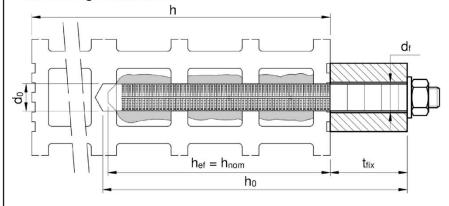


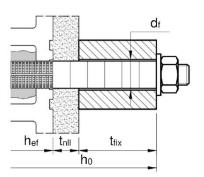




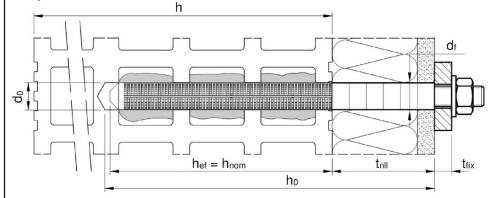
Installation in hollow brick with or without non-loadbearing layer and / or thermal isolation

Threaded rod M8 and M10 / Internal threaded rod IG-M6 with sleeve SH 16x130/330 Push through installation

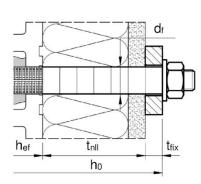




Prepositioned installation



Push through installation



hef = effective anchorage depth

h_{nom} = overall anchor embedment depth

 h_0 = drill hole depth

h = thickness of masonry member

d₀ = nominal drill hole diameter

d_f = diameter clearance hole

t_{fix} = thickness of fixture

t_{nll} = thickness of non-loadbearing layer

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Product description

Installed condition

Annex A 2



Cartridge system

Coaxial Cartridge:

150 ml, 160ml, 280 ml, 300 ml up to 333 ml and 380 ml up to 420 ml



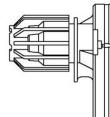
Imprint:

SOUDAFIX VE400-SF or SOUDAFIX VE400-SF ARCTIC

Processing and safety instructions, shelf life, charge number, manufacturer's information, quantity information

Side-by-Side Cartridge:

235 ml, 345 ml up to 360 ml and 825 ml



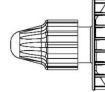
Imprint:

SOUDAFIX VE400-SF or SOUDAFIX VE400-SF ARCTIC

Processing and safety instructions, shelf life, charge number, manufacturer's information, quantity information

Foil Tube Cartridge:

165 ml and 300 ml



Imprint:

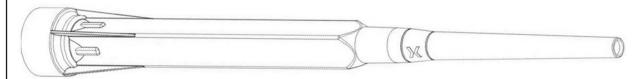
SOUDAFIX VE400-SF or SOUDAFIX VE400-SF ARCTIC

Processing and safety instructions, shelf life, charge number, manufacturer's information, quantity information

Static mixer CRW 14W



Static mixer PM-19E



Mixer extension VL



SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Product description

Injection system

Annex A 3



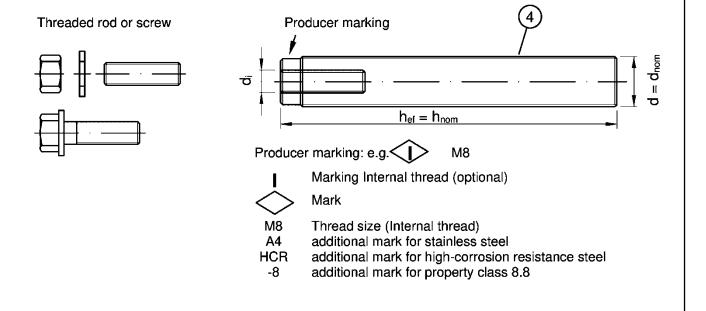
Threaded rod M8 up to M16 with washer and hexagon nut

Mark of the embedment depth L_{ges} $h_{ef} = h_{nom}$ $1 \quad 3 \quad 2$

Commercial standard rod with:

- Materials, dimensions and mechanical properties acc. to Table A1
- Inspection certificate 3.1 acc. to EN 10204:2004. The document shall be stored
- Marking of embedment depth

Internal threaded rod IG-M6 to IG-M10

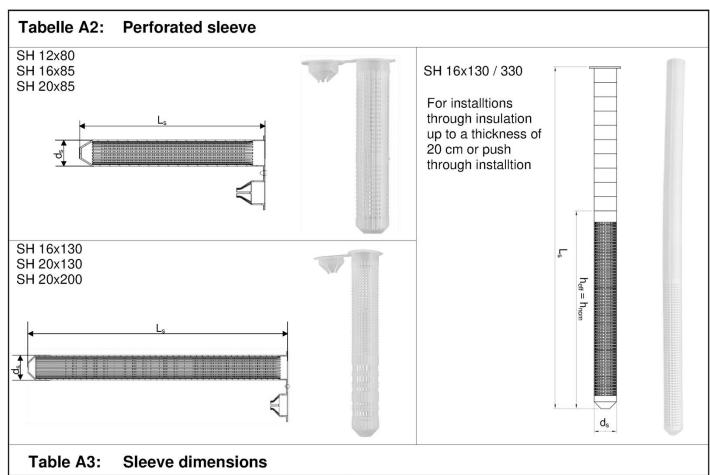


SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Product description Threaded rod and Internal threaded rod	Annex A 4



art	Designation	Material					
	el, zinc plated (Steel acc. to			63:2017)			
	nc plated ≥ 5 µm	acc. to EN ISO 4042:202		EN 100 40004 0004 40			
		acc. to EN ISO 1461:202 acc. to EN ISO 17668:20		S EN ISO 10684:2004+AC):2009 or		
31	Εταιαί26α = 40 μπ	Property class	,10	Characteristic steel ultimate tensile strength	Characteristic steel	Elongation a	
			4.6	f _{uk} = 400 N/mm ²	f _{VK} = 240 N/mm ²	A ₅ > 8%	
	Thus and ad used			f _{uk} = 400 N/mm ²	f _{VK} = 320 N/mm ²	A ₅ > 8%	
1	Threaded rod	acc. to		f _{uk} = 500 N/mm ²	f _{VK} = 300 N/mm ²	A ₅ > 8%	
		EN ISO 898-1:2013		f _{uk} = 500 N/mm ²	f _{VK} = 400 N/mm ²	A ₅ > 8%	
				f _{uk} = 800 N/mm ²	$f_{VK} = 640 \text{ N/mm}^2$	$A_5 > 8\%$	
						A ₅ > 0 / 0	
2	Hexagon nut	acc. to	<u>4</u> 5	for anchor rod class 4.6 for anchor rod class 5.6			
_	Hexagon nut	EN ISO 898-2:2022	8	for anchor rod class 8.8	UI 3.0		
		Steel zinc plated hot-		alvanised or sherardized			
3	Washer			ISO 7089:2000, EN ISO	7093:2000 or EN IS	O 7094:2000	
	Internal threaded	Property class	•	Characteristic steel ultimate tensile strength	Characteristic steel		
4	anchor rod ²⁾	acc. to	5.8	f _{uk} = 500 N/mm ²	f _{VK} = 400 N/mm ²	A ₅ > 8%	
		EN ISO 898-1:2013	8.8	f _{Uk} = 800 N/mm ²	f _{vk} = 640 N/mm ²	A ₅ > 8%	
	inless steel A4 (Material 1.4 h corrosion resistance stee				Characteristic steel	Elongation a	
1	Threaded rod ¹⁾		50	f _{uk} = 500 N/mm ²	f _{VK} = 210 N/mm ²	A ₅ > 8%	
1	Inreaded rod"	acc. to		f _{uk} = 700 N/mm ²	f _{VK} = 450 N/mm ²	A ₅ > 8%	
		EN ISO 3506-1:2020		f _{UK} = 800 N/mm ²	f _{VK} = 600 N/mm ²	A ₅ > 8%	
			50	for anchor rod class 50	yk ssssssss	5. 5.	
2	Hexagon nut ¹⁾	acc. to	70	for anchor rod class 70			
		EN ISO 3506-1:2020	_	for anchor rod class 80			
3	Washer	Stainless steel A2, A4 (e.g.: EN ISO 887:200	or H				
		Property class		Characteristic steel	Characteristic steel		
4	Internal threaded			ultimate tensile strength		fracture	
•	anchor rod ²⁾	acc. to			$f_{yk} = 210 \text{ N/mm}^2$	A ₅ > 8%	
		EN ISO 3506-1:2020	70	f _{uk} = 700 N/mm ²	$f_{yk} = 450 \text{ N/mm}^2$	A ₅ > 8%	
2) (a	roperty class 80 only for stainl Ising internally threaded ancho nd strength class of the interna	or rod screws and threaded		incl. nut and washer) must	at least correspond to	the material	
	stic perforated sleeve			la i des			
Sie	ve sleeve SH			Polypropylene (PP)			
sc	OUDAFIX VE400-SF, SOUL	DAFIX VE400-SF ARCTI	C for	masonry			
	oduct description				Annex A	. 5	





Sleeve								
Size	ds	Ls	$h_{ef} = h_{nom}$					
[mm]	[mm]	[mm]	[mm]					
SH 12x80	12	80	80					
SH 16x85	16	85	85					
SH 16x130	16	130	130					
SH 16x130 / 330 ¹⁾	16	330	130					
SH 20x85	20	85	85					
SH 20x130	20	130	130					
SH 20x200	20	200	200					

¹⁾ In Annxes C4 – C56 this sleeve is covered with SH 16x130

Table A4: Steel parts

Anchor rod								
Size	Size $d = d_{nom}$ d_i							
[mm]	[mm]	[mm]	[mm]					
IG-M6 ¹⁾	10	6	76 -1					
IG-M8 ¹⁾	12	8	with sleeve: hef - 5mm without sleeve: hef					
IG-M10 ¹⁾	16	10	without sleeve. Her					
M8	8	-	$h_{ef} + t_{fix} + 9,5$					
M10	10	-	$h_{ef} + t_{fix} + 11,5$					
M12	12	-	$h_{ef} + t_{fix} + 17,5$					
M16	16		$h_{ef} + t_{fix} + 20,0$					

¹⁾ Internal threaded rod with metric external thread

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Product description

Sleeves and steel parts

Annex A 6



Specifications of intended use						
Anchorages subject to:	Static and quasi-static loads, fire exposure under tens M8 up to M16, IG-M6 up to IG-M10 (with and without					
Base material	Masonry group b: Solid brick masonry Masonry group c: Hollow brick masonry Masonry group d: Autoclaved Aerated Concrete	Annex B 2 Annex B 2 to B 4 Annex B 2				
	Mortar strength class of the masonry M2,5 at minimum according to EN 998-2:2016. For other bricks in solid masonry and in hollow masonry or in autoclaved aerated concrete, the characteristic resistance of the anchor may be determined by job site tests according to EOTA TR 053, Edition July 2022 under consideration of the β-factor according to Annex C 1, Table C1.					
Hole drilling	See Annex C 4 – C 56	See Annex C 4 – C 56				
Use category		Condition d/d: Installation and use in dry masonry Condition w/w: Installation and use in dry or wet masonry (incl. w/d installation in wet masonry and use in dry masonry)				
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 _a : - 40°C to +120°C (max. short term temperature +120°C and max. long term temperature +72°C)					

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.

Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (all materials).
- For all other conditions according to EN 1993-1-4:2006+ A2:2020 corresponding to corrosion resistance classes Annex A (stainless steel and high corrosion resistant steel)

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 EOTA TR 054, Edition July 2022, under the responsibility of an engineer experienced in anchorages and masonry work.
- Applies to all bricks if no other values are specified:
 - $N_{Rk} = N_{Rk,b} = N_{Rk,p} = N_{Rk,b,c} = N_{Rk,p,c}$
 - $V_{Rk} = V_{Rk,b} = V_{Rk,c,ll} = V_{Rk,c,\perp}$
- For the calculation of pulling out a brick under tension loading N_{Rk,pb} or pushing out a brick under shear loading V_{Rk,pb} see EOTA Technical Report TR 054, Edition July 2022.
- N_{Rk,s}, V_{Rk,s} and M⁰_{Rk,s} see annexes C1-C 2
- For application with sleeve with drill bit size ≤ 15mm installed in joints not filled with mortar:
 - $N_{Rk,p,j} = 0.18 * N_{Rk,p}$ and $N_{Rk,b,j} = 0.18 * N_{Rk,b}$ ($N_{Rk,p} = N_{Rk,b}$ see Annex C4 to C56)
 - $V_{Rk,c,j} = 0.15 * V_{Rk,c}$ and $V_{Rk,b,j} = 0.15 * V_{Rk,b}$ ($V_{Rk,b}$ see Annex C4 to C56; and $V_{Rk,c}$ see Annex C3)
- Application without sleeve installed in joints not filled with mortar is not allowed.

Installation:

- Anchor Installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Intended use Specifications	Annex B 1



Table B1: Overview brick types and properties with corresponding fastening elements (Anchor and Sleeves)								
Naming Density [kg/dm³] Dimensions LxBxH [mm] Annex	Picture	Anchor rods	Perforated sleeve	Naming Density [kg/dm³] Dimensions LxBxH [mm] Annex	Picture	Anchor rods	Perforated sleeve	
Hollow light weigh EN 771-4:2011+A1		cc. to		Hollow light weigh		cc. to		
AAC ρ = 0,35 - 0,60 ≥ 499x240x249 Table C4 - C10	I	M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	VBL ρ≥ 0,6 ≥ 240x300x113 Table C187 - C193		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	
	Hollow light v	veight cond	crete brid	ck acc. to EN 771-3	:2011+A1:2015			
HBL 16DF ρ≥ 1,0 500x250x240 Table C172 - C179		M8 - M16 IG-M6 - IG-M10	16x85 16x130 20x85 20x130 20x200	Bloc creux B40 ρ ≥ 0,8 495x195x190 Table C180 - C186	EEE	M8 - M16 IG-M6 - IG-M10	16x130 20x130	
	Calcium si	lica bricks	acc. to E	N 771-2:2011+A1:2	015			
KS ρ≥ 2,0 ≥ 240x115x71 Table C11 - C18		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	KSL-3DF ρ≥1,4 240x175x113 Table C19 - C25		M8 - M16 IG-M6 - IG-M10	16x85 16x130 20x85 20x130	
KSL-8DF ρ≥ 1,4 248x240x238 Table C26 - C32	888	M8 - M16 IG-M6 - IG-M10	16x130 20x130 20x200	KSL-12DF ρ≥ 1,4 498x175x238 Table C33 - C40	3333	M8 - M16 IG-M6 - IG-M10	16x130 20x130	
	Solid	l clay brick	s acc. to	EN 771-1:2011+A1	:2015		I.	
Mz-1DF ρ≥ 2,0 ≥ 240x115x55 Table C41 - C47		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	Mz – 2 DF ρ ≥ 2,0 ≥ 240x115x113 Table C48 - C55		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	
			I			1	I	
Intended use	0-SF, SOUDAFIX V			<u> </u>	An	nex B 2		



Naming Density [kg/dm³] Dimensions LxBxH [mm] Annex	Picture	Anchor rods	Perforated sleeve	Naming Density [kg/dm³] Dimensions LxBxH [mm] Annex	Picture	Anchor rods	Perforated
'	Hollov	w clay brick	ks acc. to	EN 771-1:2011+A	1:2015		
Hlz-10DF ρ≥ 1,25 300x240x249 Table C56 - C63		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	Porotherm Homebric ρ≥0,7 500x200x299 Table C64 - C70		M8 - M16 IG-M6 - IG-M10	12x8 16x8 16x1 20x8 20x1
BGV Thermo ρ ≥ 0,6 500x200x314 Table C71 - C77		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130	Brique creuse C40		M8 - M16 IG-M6 - IG-M10	12x8 16x8 16x1 20x8 20x1
Calibric R+ ρ ≥ 0,6 500x200x314 Table C78 - C84		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130	Blocchi Leggeri ρ ≥ 0,6 250x120x250 Table C99 - C105		M8 - M16 IG-M6 - IG-M10	12x8 16x8 16x1 20x8 20x1
Urbanbric ρ ≥ 0,7 560x200x274 Table C85 - C91		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130	Doppio Uni ρ≥ 0,9 250x120x120 Table C106 - C112		M8 - M16 IG-M6 - IG-M10	12x8 16x8 16x1 20x8 20x1
	Hollow clay brick	s with ther	mal insu	lation acc. to EN 7	71-1:2011+A1:201	5	
Coriso WS07 ρ≥ 0,55 248x365x249 Mineral wool Table C113 - C119		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	T8P ρ ≥ 0,56 248x365x249 Perlite Table C128 - C134		M8 - M16 IG-M6 - IG-M10	12x8 16x8 16x1 20x8 20x1 20x2
T7MW ρ≥ 0,59 248x365x249 Mineral wool Table C120 - C127		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	MZ90-G ρ ≥ 0,68 248x365x249 Mineral wool Table C135 - C141		M8 - M16 IG-M6 - IG-M10	12x8 16x8 16x1; 20x8 20x1; 20x2
OUDARIY VE400)-SF, SOUDAFIX \	/F400-SE A	BCTIC 6	or masonry			
CODATIA VE400		LHUU-SF A		or masoniy			



Table B1: Overview brick types and properties with corresponding fastening elements (Anchor and Sleeves) (Continued)								
Naming Density [kg/dm³] Dimensions LxBxH [mm] Annex	Picture	Anchor rods	Perforated sleeve	Naming Density [kg/dm³] Dimensions LxBxH [mm] Annex	Picture	Anchor rods	Perforated sleeve	
	Hollow clay brick	s with ther	mal insu	lation acc. to EN 7	71-1:2011+A1:201	5		
Poroton FZ7,5 ρ≥ 0,90 248x365x249 Mineral wool Table C142 - C149		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	Poroton FZ9 ρ ≥ 0,90 248x365x249 Mineral wool Table C150 - C157	The state of the s	M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	
Poroton S9 ρ ≥ 0,85 248x365x249 Perlite Table C158 - C164		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	Thermopor TV8+ ρ ≥ 0,70 248x365x249 Mineral wool Table C165 - C171		M8 - M16 IG-M6 - IG-M10	12x80 16x85 16x130 20x85 20x130 20x200	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Intended use Brick types and properties with corresponding fastening elements	Annex B 4



Table B2: Installation parameters in autoaerted AAC and solid masonry (without sleeve) for prepositioned or push through installation										
Anchor size				M8	M10	IG-M6	M12	IG-M8	M16	IG-M10
Nominal drill hole	e diameter	do	[mm]	10	1	2	1	4		18
Drill hole depth	h ₀	[mm]	h _{ef} + t _{fix} 1)							
Effective anchorage depth		h _{ef}	[mm]	80	≥ 90		≥ 100		≥ 100	
Diameter of	Prepositioned installation	d _f ≤	[mm]	9	12	7	14	9	18	12
clearance hole in the fixture	Push through installation	d _f ≤	[mm]	12	14	14	16	16	20	20
Maximum install	Maximum installation torque			See Annexes C 4 – C 56						
Minimum thickness of member		h _{min}	[mm]	h _{ef} + 30						
Minimum spacing		s _{min}	[mm]	See Annexes C 4 – C 56						
Minimum edge di	stance	C _{min}	[mm]			See All	ilexes C	4 - 0 56		

¹⁾ Consider $t_{\mbox{\scriptsize fix}}$ in case of push through installation.

Table B3: Installation parameters in solid and hollow brick (with perforated sleeve) for prepositioned installation

Anchor size			M8	M8 / M10 / IG-M6			M12 / M16 / IG-M8 / IG-M10		
Perforated sleeve SH			12x80	16x85	16x130	16x130/330	20x85	20x130	20x200
Nominal drill hole diameter	d ₀	[mm]	12	16	16	16	20	20	20
Drill hole depth	h ₀	[mm]	85	90	135	330	90	135	205
Effective anchorage depth	h _{ef}	[mm]	80	85	130	130	85	130	200
Diameter of clearance hole in the fixture	$ Q_t \ge \text{Imm} $		9		7 (IG-M6) V18) / 12 (I			/18) / 12 (10 /112) / 18	
Maximum installation torque	T _{inst}	[Nm]	See Annexes C 4 – C 56						
Minimum thickness of member	h _{min}	[mm]	115	115	195	195	115	195	240
Minimum spacing S _{min} [mm]				Soo Ar	novos C	4 C EC			
Minimum edge distance				+ - 0 30					

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Intended use Installation parameters	Annex B 5



Table B4:	Installation parameters in solid and hollow bricks (with perforated sleeve)
	for prepositioned installation through non-load-bearing layers and/or push-
	through installation

	_							
Anchor size		M8 / I IG-	M10 / M6		M12 / M16 / IG-M8 / IG-M10			
Perforated sleeve SH				16x130	16x130/330	20x130	20x200	
Nominal drill hol	e diameter	d ₀	[mm]	16	16	20	20	
Drill hole depth		h ₀	[mm]		$h_{ef} + 5mm + t_{nll} + t_{fix}^{1}$			
Effective embedment	Prepositioned installation	h _{ef}	[mm]	130	130	130	200	
depth	Push through installation	h _{ef}	[mm]	85	130	85	85	
Maximum thickn loadbearing laye		max t _{nll}	[mm]	45	200	45	115	
Diameter of clearance hole	Prepositioned installation	d _f ≤	[mm]	7 (IG-M6) / 9 (M8) / 12 (M10)		9 (IG-M8) / 12 (IG-M10) / 14 (M12) / 18 (M16)		
in the fixture Push through installation		d _f ≤	[mm]	18		22		
Maximum installation torque		T _{inst}	[Nm]	See Annexes (C 4 – C 56		
Minimum thickness of member		h _{min}	[mm]	195 (115)	195	195 (115)	240 (115)	
Minimum spacin	g	S _{min}	[mm]		Coo Annovo	0 C 4 C E 6		
Minimum edge of	distance	c _{min}	[mm]	See Annexes C 4 – C 56				

¹⁾ Consider t_{nll} and/or t_{fix} in case of non-loadbearing layers and/or push through installation.

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for mason	nry
Intended use Installation parameters	Annex B 6



Anchor rod	Perforated sleeve	d₀ Drill bit - Ø HD, CA	В	d₀ rush - Ø	d _{b,min} min. Brush - Ø	
[mm]		[mm]		[mm]	[mm]	
Autoaerted ACC and solid masonry (without sleeve)						
M8	-	10	RBT10	12	10,5	
M10	-	12	RBT12	14	12,5	
M12	-	14	RBT14	16	14,5	
M16	-	18	RBT18	20	18,5	
	Solid and	hollow masonry	y (with slee	ve)		
M8	SH 12x80	12	RBT12	14	12,5	
	SH 16x85					
M8 / M10 / IG-M6	SH 16x130	16	RBT16	18	16,5	
	SH 16x130/330					
M12 / M16 /	SH 20x85					
IG-M8 / IG-M10	SH 20x130	20	RBT20	22	20,5	
IG-1010 / IG-10110	SH 20x200				1000	

Hand pump (Volume ≥ 750 ml)



Compressed air tool (min 6 bar)



Brush RBT



Brush extension RBL



SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Intended use Cleaning and installation tools	Annex B 7



+5°C to +40°C

15 min

Table B6: Working and curing time - SOUDAFIX VE400-SF							
Temperature in base material Maximum working time Minimum curing time							
	Т		t _{work}	t _{cure}			
- 10°C	to	- 6°C	90 min ²⁾	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	15 min	80 min			
+ 20°C	to	+ 24 °C	6 min	45 min			
+ 25 °C	to	+ 29 °C	4 min	25 min			
+ 30 °C	to	+ 39 °C	2 min	20 min			

1,5 min

+ 40 °C

Cartridge temperature

Table B7: Working and curing time - SOUDAFIX VE400-SF ARCTIC

Temperature in base material			Maximum working time	Minimum curing time 1)
	Т		^t work	t _{cure}
- 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 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
Cartridge temperature			-20°C to	o +10°C

¹⁾ The minimum curing time is only valid for dry base material. In wet base material the curing time must be doubled.

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Intended use Working and curing time	Annex B 8

¹⁾ The minimum curing time is only valid for dry base material. In wet base material the curing time must be doubled.

²⁾ Cartridge temperature must be at minimum +15°C



Installation instructions Drill a hole to the required embedment depth with drilling method according to Annex C 4 - C 56. Drill bit diameter according to Table B5. Blow the bore hole clean minimum 2x from the bottom or back by hand pump or compressed air tool (Annex B 7). For applications in solid masonry with a bore hole depth $h_0 > 100$ mm cleaning with compressed air is required. Attach brush RBT according to Table B5 to a drilling machine or a cordless screwdriver. Brush the bore hole minimum 2x with brush over the entire embedment depth in a twisting motion (if necessary, use a brush extension RBL). Finally blow the bore hole clean minimum 2x from the bottom or back by hand pump or compressed air tool (Annex B 7). For applications in solid masonry with a bore hole depth $h_0 > 100$ mm cleaning with compressed air is required. Screw on static-mixing nozzle CRW 14W / PM-19E, and load the cartridge into an appropriate dispensing tool. If necessary, cut off the foil tube clip before use. For every working interruption longer than the maximum working time twork (Annex B 8) as well as for new cartridges, a new static-mixer shall be used. Mark setting position on the anchor rod. Consider t_{nll} and/or t_{fix} in case of installation through non-loadbearing layers and/or push through installation. The anchor rod shall be free of dirt, grease, oil or other foreign material. $h_{ef} + (t_{nll}) + (t_{fix})$ Not proper mixed mortar is not sufficient for fastening. Dispense and discard mortar until an uniform grey colour is shown (at least 3 full strokes; for foil tube cartridges at least 6 full strokes).

Intended use
Installation instructions

Annex B 9

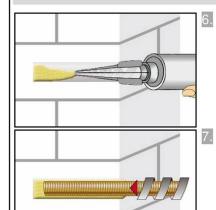
Z1000567.24 8.06.04-34/24

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry



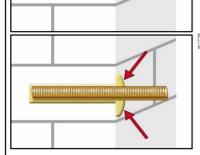
Installation instructions (continuation)

Installation without sleeve



Starting at bottom of the hole and fill the hole up to approximately two-thirds with adhesive. (If necessary, a mixer nozzle extension VL shall be used.) Slowly withdraw of the static mixing nozzle avoid creating air pockets Observe the temperature related working time t_{work} (Annex B 8).

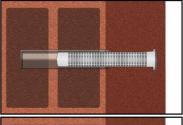
Insert the anchor rod while turning slightly up to the embedment mark.



Annular gap between anchor rod and base material must be completely filled with mortar. For push through installation the annular gap between anchor rod and fixture must be filled with mortar.

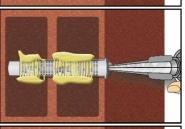
Otherwise, the installation must be repeated starting from step 6 before the maximum working time $\rm t_{\rm work}$ has expired.

Installation with sleeve



Insert the perforated sleeve into the hole flush with the surface of the masonry. Never modify the sleeve in anchoring area ($h_{\rm ef}$).

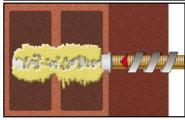
For installation with sleeve SH 16x130/330 through a non-load-bearing layer and/or fixture the clamping area may be reduced to the thickness of the non-load-bearing layer and/or attachment.



Starting from the bottom or back fill the sleeve with mortar. (If necessary, a mixer nozzle extension VL shall be used.)

Refer to the cartridge label or the technical data sheet for the exact amount of mortar. For push-through installation through the fixture the sleeve must also be completely filled with mortar up to the fixture.

Observe the temperature related working time twork (Annex B 8).



Insert the anchor rod with a slight twist up to the mark

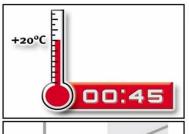
SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Intended use Installation instructions (continuation)	Annex B 10

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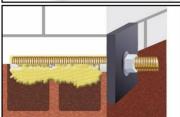
English translation prepared by DIBt



Installation instructions (continuation)



Temperature related curing time t_{cure} (Annex B 8) must be observed. Do not move or load the fastener during curing time.



Install the fixture by using a calibrated torque wrench. Observe maximum installation torque (Annex C 4 to C 56).

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Intended use
Installation instructions (continuation)

Annex B 11



					Ancho	rage				β-Factor			
Base material	anchor	size	Perforate sleeve S	-	dep			: 40°C	/ 24°C	T _b : 80°0	C / 50°C	T _c : 120°	°C / 72°C
			3,0040 0	· [h _e	f	-	d/d	w/d w/w	d/d	w/d w/w	d/d	w/d w/w
Autoclaved aerated concrete	all siz	es	with and without S		all		С),95	0,86	0,81	0,73	0,81	0,73
	d₀ ≤ 14	mm	with CLI		الم		C),93	0,80	0,87	0,74	0,65	0,56
	d₀≥ 16	mm	with SH		all		C),93	0,93	0,87	0,87	0,65	0,65
Calcium silica bricks	d₀ ≤ 14	mm	t. C		- 100		С),93	0,80	0,87	0,74	0,65	0,56
Dricks	d₀≥ 16	mm	without S	·	≤ 100	HIIII	С),93	0,93	0,87	0,87	0,65	0,65
	all siz	es	without S	Н	> 100	mm	C),93	0,56	0,87	0,52	0,65	0,40
			with SH		all		C),86	0,86	0,86	0,86	0,73	0,73
Clay Bricks	Clay Bricks all sizes		without S	Н	≤ 100	mm	C),93	0,80	0,87	0,74	0,65	0,56
-	.,		without S	Н	> 100	mm),86	0,43	0,86	0,43	0,73	0,37
d ₀ ≤ 12 mm		with and	1),93	0,80	0,87	0,74	0,65	0,56	
Concrete bricks	d ₀ ≥ 16 mm without				all		-),93	0,93	0,87	0,87	0,65	0,65
Table C2: C	haracte	ristic	steel resi	stan	ce								
Anchor size							M8	M10	M12	M16	IG-M6	IG-M8	IG-M10
Cross section area				As	[mm	²] (36,6	58	84,3	157	-	-	-
Characteristic tens	sion resis	stance	Steel failu	re ¹⁾	•				•	•	•		
		4.6 aı	nd 4.8	N _{Rk,}	s [kN]	15	5 (13)	23 (21) 34	63	_3)	_3)	_3)
Steel, Property class		5.6 aı	nd 5.8	N _{Rk,}	s [kN]	18	3 (17)	29 (27) 42	78	10	17	29
		8.8	N			29	9 (27)	46 (43) 67	125	16	27	46
Stainless steel A2, A	A4 and	50	N _{RI}				18	29	42	79	_3)	_3)	_3)
HCR, class	AT AND	70		N _{Rk} ,			26	41	59	110	14	26	41
A2 only class 50 ar	nd 70)	80	N _{Rk}					29 46		126	_3)	_3)	_3)
Characteristic tens	sion resis	stance	Partial fac	tor ²⁾	•				•		•		
			nd 5.6	γ _{Ms,l}				- 2	2,0			_3)	
Steel, Property class	S	4.8, 5	5.8 and 8.8	γ _{Ms,l}			,			1,5			
Stainless steel A2, A	M and	50		γMs,ľ	1		2,86					_3)	
HCR, class	14 anu	70		γ _{Ms,l}	1		2,00			1,87	1		
A2 only class 50 ar	nd 70)	80		γ _{Ms,I}					1,6	,		_3)	
Characteristic shea	ar resista	ance, S	teel failure	with	out leve	r arr	n 1)						
			nd 4.8	V ⁰ Rk	s [kN]		7 (6)	12 (10) 17	31	_3)	_3)	_3)
Steel, Property class	s	5.6 aı	nd 5.8	V ⁰ Rk	cs [kN]	_	9 (8)	15 (13) 21	39	5	9	15
		8.8		V_0^{Bk}	_{k,s} [kN]	15	5 (13)	23 (21) 34	63	8	14	23
Stainless steel A2, A	A4 and	50		$V_0^{R_k}$	_{k,s} [kN]		9	15	21	39	_3)	_3)	_3)
HCR, class		70		V_{Rk}	_{ςs} [kN]		13	20	30	55	7	13	20
A2 only class 50 and 70) 80				V ⁰ Rk	_{k,s} [kN]		15	23	34	63	_3)	_3)	_3)
SOUDAFIX VE40 Performances	0-SF, SC	DUDAF	FIX VE400-	SF AI	RCTIC 1	or n	nason	iry			Anne	ex C 1	



Table C2: Characteristic steel resistance (continuation)												
Anchor size				M8	M10	M12	M16	IG-M6	IG-M8	IG-M10		
Cross section area	36,6	58	84,3	157	-	-	-					
Characteristic shear resista	nce, Steel failure	with lev	er arm	1)								
	4.6 and 4.8	M ⁰ Rk,s	[Nm]	15 (13)	30 (27)	52	133	_3)	_3)	_3)		
Steel, Property class	5.6 and 5.8	М ⁰ Rk,s	[Nm]	19 (16)	37 (33)	65	166	8	19	37		
	8.8	М ⁰ Rk,s	[Nm]	30 (26)	60 (53)	105	266	12	30	60		
Stainless steel A2, A4 and	50	М ⁰ Rk,s	[Nm]	19	37	66	167	_3)	_3)	_3)		
HCR, class	70	М ⁰ Rk,s	[Nm]	26	52	92	232	11	26	52		
(A2 only class 50 and 70)	80	M ⁰ Rk,s	[Nm]	30	59	105	266	_3)	_3)	_3)		
Characteristic shear resista	ınce, Partial facto	r ²⁾						•				
Stool Property class	4.6 and 5.6	γ _{Ms,V}	[-]		1,6	57			_3)			
Steel, Property class	4.8, 5.8 and 8.8	γ _{Ms,V}	[-]				1,25					
Stainless steel A2, A4 and HCR, class	50	γMs,V	[-]		2,3	18			_3)			
	70	γ _{Ms,V}	[-]				1,56					
(A2 only class 50 and 70)	80	γ _{Ms,V}	[-]		1,3	3			_3)			

¹⁾ Values are only valid for the given stress area A_s. Values in brackets are valid for undersized threaded rods with smaller stress area A_s for hot-dip galvanised threaded rods according to EN ISO 10684:2004+AC:2009.

- 2) in absence of national regulation
- 3) Fastener type not part of the ETA

Table C3: Characteristic steel resistance under fire exposure 1)

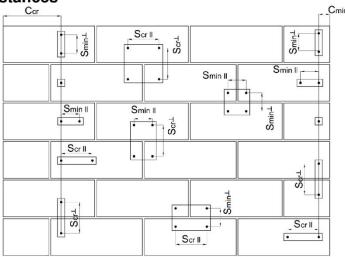
Anchor size		М8	M10	M12	M16	IG-M6	IG-M8	IG-M10		
Characteristic tension resistance, S										
	R30	$N_{Rk,s,fi}$	[kN]	1,1	1,7	3,0	5,7	0,3	1,1	1,7
Steel, Property class 5.8, and higher; Stainless steel A2, A4 and HCR,	R60	$N_{Rk,s,fi}$	[kN]	0,9	1,4	2,3	4,2	0,2	0,9	1,4
class 50 and higher	R90	$N_{Rk,s,fi}$	[kN]	0,7	1,0	1,6	3,0	0,2	0,7	1,0
3	R120	N _{Rk,s,fi}	[kN]	0,5	0,8	1,2	2,2	0,1	0,5	0,8
Characteristic shear resistance, Ste	el failure	without	lever a	arm						
	R30	$V_{Rk,s,fi}$	[kN]	1,1	1,7	3,0	5,7	0,3	1,1	1,7
Steel, Property class 5.8, and higher; Stainless steel A2, A4 and HCR,	R60	$V_{Rk,s,fi}$	[kN]	0,9	1,4	2,3	4,2	0,2	0,9	1,4
class 50 and higher	R90	$V_{Rk,s,fi}$	[kN]	0,7	1,0	1,6	3,0	0,2	0,7	1,0
3	R120	$V_{Rk,s,fi}$	[kN]	0,5	0,8	1,2	2,2	0,1	0,5	0,8
Characteristic shear resistance, Ste	el failure	with lev	er arm	1						
	R30	$M_{Rk,s,fi}$	[Nm]	1,1	2,2	4,7	12,0	0,2	1,1	2,2
Steel, Property class 5.8, and higher:	R60	M _{Rk,s,fi}	[Nm]	0,9	1,8	3,5	9,0	0,2	0,9	1,8
Stainless steel A2, A4 and HCR, class 50 and higher	R90	M _{Rk,s,fi}	[Nm]	0,7	1,3	2,5	6,3	0,1	0,7	1,3
	R120	M _{Rk,s,fi}	[Nm]	0,5	1,0	1,8	4,7	0,1	0,5	1,0

¹⁾ partial factor in case of fire is 1,0 for all steel types and load directions.

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances Characteristic steel resistance under tension and shear load – under fire exposure	Annex C 2







 C_{cr} = Char. Edge distance C_{min} = Minimum Edge distance

S_{cr,II}; (S_{min,II}) = Characteristic (minimum) spacing for anchors placed parallel to horizontal joint

 $S_{cr,\perp}$; $(S_{min,\perp})$ = Characteristic (minimum) spacing for anchors placed perpendicular to horizontal joint

Load direction Anchor position	Tensio	n load		arallel to free e V II	Shear load perpendicular to free edge V ⊥		
Anchors parallel to horizontal joint scr,II; (smin,II)		α_g II,N	V	α _g	V	$\alpha_{g \text{ II,V} \perp}$	
Anchors vertical to horizontal joint $s_{cr,\perp}$; $(s_{min,\perp})$		$\alpha_{g\perp,N}$	V	$\alpha_{g\perp,V\parallel}$	V • •	$\alpha_{g\perp,V\perp}$	

 $\alpha_{\text{edge},N}$ = Reduction factor for tension loads at the free edge for $c_{\text{min}} \le c < c_{\text{cr}}$ (single anchor)

 $\alpha_{\text{edge,V}\perp}$ = Reduction factor for shear loads perpendicular to the free edge for $c_{\text{min}} \leq c < c_{\text{cr}}$ (single anchor)

 $\alpha_{\text{edge,V II}}$ = Reduction factor for shear loads parallel to the free edge for $c_{\text{min}} \le c < c_{\text{cr}}$ (single anchor)

 $\alpha_{g \parallel,N}$ = Group factor for anchors parallel to horizontal joint under tension load

 $\alpha_{g\perp,N}$ = Group factor for anchors perpendicular to horizontal joint under tension load

 $\alpha_{g \parallel, V \parallel}$ = Group factor for anchors parallel to horizontal joint under shear load parallel to the free edge

 $\alpha_{g\perp,V\parallel}$ = Group factor for anchors perpendicular to horizontal joint under shear load parallel to the free edge

 $\alpha_{\alpha \parallel V \perp}$ = Group factor for anchors parallel to horizontal joint under shear load perpendicular to the free edge

 $\alpha_{g\perp,V\perp}$ = Group factor for anchors perpendicular to hor. joint under shear load perpendicular to the free edge

Single anchor at the edge: $N_{RK,b,c} = \alpha_{edge,N} * N_{RK,b}$ resp. $N_{RK,p,c} = \alpha_{edge,N} * N_{RK,p}$

 $V_{Rk,c} \parallel = \alpha_{edge,V} \parallel * V_{Rk,b}$

 $V_{Rk,c\perp} = \alpha_{edge,V\perp} * V_{Rk,b}$

Group of 2 anchors: $N^{g}_{Rk} = \alpha_{g,N} * N_{RK,b}$

 $V^{g}_{Rk \, II} \quad = \alpha_{g,V \, II} \,^{\star} \, V_{Rk,b} \qquad \qquad \text{resp. } V^{g}_{Rk \, \bot} \quad = \alpha_{g,V \, \bot} \,^{\star} \, V_{Rk,b} \qquad \qquad (\text{for } c \geq c_{cr})$

 $V^{g}_{Rk,c \mid I} = \alpha_{g,V \mid I} * V_{Rk,b} \qquad \qquad \text{resp. } V^{g}_{Rk,c \perp} = \alpha_{g,V \perp} * V_{Rk,b} \qquad \qquad (\text{for } c \geq c_{min})$

Group of 4 anchors: $N^{g}_{Rk} = \alpha_{g \; II,N} * \alpha_{g \; \bot,N} * N_{RK,b}$

 $V^{g}_{\mathsf{Rk}\,\mathsf{II}} \quad = \alpha_{\mathsf{g}\,\mathsf{II},\mathsf{V}\,\mathsf{II}} \,^{\star} \,\alpha_{\mathsf{g}\,\mathsf{\bot},\mathsf{V}\,\mathsf{II}} \,^{\star} \,V_{\mathsf{Rk},\mathsf{b}} \quad \text{resp. } V^{g}_{\mathsf{Rk}\,\mathsf{\bot}} \quad = \alpha_{\mathsf{g}\,\mathsf{II},\mathsf{V}\,\mathsf{\bot}} \,^{\star} \,\alpha_{\mathsf{g}\,\mathsf{\bot},\mathsf{V}\,\mathsf{\bot}} \,^{\star} \,V_{\mathsf{Rk},\mathsf{b}} \,\, \text{(for } c \geq c_{cr)}$

 $V^{g}_{\mathsf{Rk},c \, \mathsf{II}} \ = \alpha_{g \, \mathsf{II},\mathsf{V} \, \mathsf{II}} \,^{\star} \, \alpha_{g \, \bot,\mathsf{V} \, \mathsf{II}} \,^{\star} \, V_{\mathsf{Rk},b} \ \text{resp.} \ V^{g}_{\mathsf{Rk},c \, \bot} \ = \alpha_{g \, \mathsf{II},\mathsf{V} \, \bot} \,^{\star} \, \alpha_{g \, \bot,\mathsf{V} \, \bot} \,^{\star} \, V_{\mathsf{Rk},b} \ \text{(for } c \geq c_{\mathsf{min}})$

Equations depend on anchor position and load direction (see table above). Reduction factor, group factor and resistances see annex C 4 – C 56. Reduction for installation in joints see annex B 1.

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances

Definition of the reduction- and group factors

Annex C 3



Brick type: Autoclaved aerated concrete - AAC

Table C4: Stone description

Brick type		Autoclaved aerated concrete AAC
Density	ρ [kg/dm³]	0,35 – 0,6
Normalised mean compressive strenght	f_b [N/mm 2]	≥ 2, ≥ 4 or ≥ 6
Code		EN 771-4:2011+A1:2015
Producer (Country)		e.g. Porit (DE)
Brick dimensions	[mm]	≥ 499 x 240 x 249
Drilling method		Rotary drilling



Table C5: Installation parameter

	200										
Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10		
Installation torque	Tinst	[Nm]	≤5 ≤5 ≤10 ≤10 ≤5 ≤5 ≤1						≤ 10		
Char. Edge distance	Ccr	[mm]	150 (for shear loads perpendicular to the free edge: ccr = 210)								
Minimum Edge Distance	Cmin	[mm]		50							
Characteristic Spacing	Scr, II	[mm]	300								
Characteristic Spacing	Scr, ⊥	[mm]				250					
Minimum Spacing	Smin, II;	[mm]				50					
I willing Spacing	Smin, ⊥	[mini		50							

Table C6: Reduction factors for single anchors at the edge

-	Tension load			Shear load								
	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge						
	with c ≥	αedge, N		with c ≥	αedge, V⊥	1	with c ≥	αedge, V II				
	50	0,85	-	50	0,12		50	0,70				
	30	0,65		125	0,50	Į Į	125	0,85				
	150	1,00	·;····································	210	1,00		150	1,00				

Table C7: Factors for anchor groups under tension load

Anchor position parallel to hor. joint				Anchor position perpendicular to hor. joint					
1	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N		
	50	50	1,10	•	50	50	0,75		
	150	50	1,25		150	50	0,90		
	150	300	2,00		150	250	2,00		

Table C8: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	. joint	Anchor position perpendicular to hor. joint				
Shear load		with c ≥	with s ≥	α _g II,V ⊥	1	with c ≥	with s ≥	$\alpha_{g\perp,V\perp}$	
perpendicular	•••	50	50	0,20		50	50	0,25	
to the free		210	50	1,60		210	50	1,80	
edge		210	300	2,00	.;	210	250	2,00	
Shear load		with c ≥	with s ≥	αg II,V II	1	with c ≥	with s ≥	α _{g ⊥,} ν II	
parallel to the		50	50	1,15	•	50	50	0,80	
free edge		150	50	1,60		150	50	1,10	
l lice cage		150	300	2,00		150	250	2,00	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances Autoclaved Aerated Concrete - AAC

Description of the stone, Installation parameters, Reduction- and Group factors

Annex C 4



Brick type: Aut	oclave	ed aerat	ed concr	ete – AA	С						
Table C9: Ch	aracte	ristic val	ues of ter	sion and	shear loa	d resista	nces				
	4			Charac	cteristic Res	istances w	rith c≥c _{cr}	and s ≥ s _{cr}			
) seve				ion						
	Perforated sleeve	Effecitve Anchorage depth		d/d		w/d w/w	d/d w/d w/w				
Anchor size	Perfor	Anc E	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	All temperature ranges		
	ds	h _{ef}	N	$J_{Rk,b} = N_{Rk,p}$	1)	1	N _{Rk,b} = N _{Rk,}	1) p	V _{Rk,b} 1)		
	[mm]	[mm]				[kN]					
	ed mear		ssive stren		N/mm²; 0,9	0,9		≥ 0,35 kg/d			
M8	-	80	1,2	0,9	0,9	0,9	1,5				
M10 / IG-M6	-	90	1,2	0,9	0,9	0,9	0,9	0,9	2,5		
M12 / M16 / IG-M8 / IG-M10	-	100	2,0	1,5	1,5	1,5	1,5	1,5	2,5		
M8	SH 12	80	1,2	0,9	0,9	0,9	0,9	0,9	1,5		
M8 / M10/ IG-M6	SH 16	≥ 85	1,2	0,9	0,9	0,9	0,9	0,9	2,5		
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85	2,0	1,5	1,5	1,5	1,5	1,5	2,5		
1) N _{Rk,b,c} = N _{Rk,p,c} and	d V _{Rk,c II} =	= V _{Rk,c} ⊥ac	cording to An	inex C 3							
	0	d)		Charac	cteristic Res	istances w	rith c≥c _{cr}	and s ≥ s _{cr}			
	eve	Perforated sleeve Effective Anchorage depth				ion					
	ited sle			d/d			w/d w/w		d/d w/d w/w		
Anchor size	Perfora		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	All temperature ranges		
	ds	h _{ef}	N	$I_{Rk,b} = N_{Rk,p}$	1)	1	N _{Rk,b} = N _{Rk,}	1) p	$V_{Rk,b}^{(1)}$		
	[mm]	[mm]				[kN]					
	ed mear		ssive stren	i -	,	T		≥ 0,50 kg/d			
M8	-	80	3,0	2,5	2,0	2,5	2,0	2,0	4,5		
M10 / IG-M6	-	90	3,0	2,5	2,0	2,5	2,0	2,0	7,5		
M12 / M16 / IG-M8 / IG-M10	-	100	5,0	4,5	4,0	4,5	4,0	4,0	7,5		
M8	SH 12	80	3,0	2,5	2,0	2,5	2,0	2,0	4,5		
M8 / M10/ IG-M6	SH 16	≥ 85	3,0	2,5	2,0	2,5	2,0	2,0	7,5		
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85	5,0	4,5	4,0	4,5	4,0	4,0	7,5		
1) $N_{Rk,b,c} = N_{Rk,p,c}$ and	d V _{Rk,c II} =	= V _{Rk,c} ⊥ac	cording to An	inex C 3							
SOUDAFIX VE400	-SF, SO	UDAFIX	VE400-SF /	ARCTIC fo	r masonry						
Performances aut Characteristic Resi				AAC			Annex C 5				
							1				



Brick type: Autoclaved aerated concrete – AAC												
				Charae	cteristic Res	istances w	ith c≥c _{cr} a	and s ≥ s _{cr}				
			Use condition									
	d sleeve	Effecitve Anchorage depth		d/d			w/d w/w					
Anchor size	Perforated sleeve	Ef And c	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	w/w All temperature ranges			
	"	h _{ef}	$N_{Rk,b} = N_{Rk,p}^{1}$			1	NRK,b = NRK,	1) p	V _{Rk,b} 1)			
		[mm]				[kN]						
Normalis	ed mear	n compre	ssive strer	ight f _b ≥ 6	N/mm²;		Density ρ	≥ 0,65 kg/d	lm³			
M8	-	80	4,0	3,5	3,0	3,5	3,0	3,0	6,0			
M10 / IG-M6	-	90	4,0	3,5	3,0	3,5	3,0	3,0	10,0			
M12 / M16 / IG-M8 / IG-M10	-	100	7,0	6,0	5,5	6,5	5,5	5,5	10,0			
M8	SH 12	80	4,0	3,5	3,0	3,5	3,0	3,0	6,0			
M8 / M10/ IG-M6	SH 16	≥ 85	4,0	3,5	3,0	3,5	3,0	3,0	10,0			
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85	7,0	6,0	5,5	6,5	5,5	5,5	10,0			

¹⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c | I} = V_{Rk,c} \perp$ according to Annex C 3

Table C10: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Alichor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,1	0,1*N _{Rk} / 2,8	2 *δN0	0,3	0,3*V _{Rk} / 2,8	1,5*δ∨0
M16	all	,	,		0,1	0,1*V _{Rk} /2,8	1,5*δ∨ο

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances autoclaved aerated concrete – AAC Characteristic Resistances and Displacements	Annex C 6



Brick type: Solid calcium silica brick KS-NF

Table C11: Stone description

Brick type		Solid calcium silica brick KS-NF
Density	ρ [kg/dm³]	≥ 2,0
Normalised mean compressive strenght	f_b [N/mm 2]	≥ 28
Conversion factor for low compressive strengths	ver	$(f_b / 28)^{0,5} \le 1,0$
Code		EN 771-2:2011+A1:2015
Producer (Country)		e.g. Wemding (DE)
Brick dimensions	[mm]	≥ 240 x 115 x 71
Drilling method		Hammer drilling



Table C12: Installation parameter

Anchor size	[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	T _{inst}	[Nm]	≤ 10	≤ 10	≤ 15	≤ 15	≤ 10	≤ 10	≤ 10
Char. Edge distance (under fire conditions)	Ccr; (Ccr,fi)	[mm]	$\frac{150 (2 h_{ef})}{\text{(for shear loads perpendicular to the free edge: } c_{cr} = 240)}$						
Minimum Edge Distance	Cmin	[mm]	60						
Characteristic Spacing	Scr, II; (Scr,fi, II)	[mm]	240 (4 h _{ef})						
(under fire conditions)	Scr, ⊥; (Scr,fi, ⊥)	[mm]	150 (4 h _{ef})						
Minimum Spacing	Smin, II; Smin, ⊥	[mm]	75						

Table C13: Reduction factors for single anchors at the edge

	Tension load		Shear load perpendicular to free edge			Shear load parallel to free edge		
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II
	60 ¹⁾	0,50		60	0,30		60	0,60
•	100 ¹⁾	0,50		100	0,50		100	1,00
	150 ¹⁾	1,00		240	1,00		150	1.00
	180	1,00		240	1,00		130	1,00

¹⁾ All applications, except for hef = 200mm and without sleeve

Table C14: Factors for anchor groups under tension load

Ar	Anchor position parallel to hor. joint				Anchor position perpendicular to hor. joint				
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	$\alpha_g \perp$, N		
	60 ¹⁾	75	0,70		60 ¹⁾	75	1,15		
	150 ¹⁾	75	1,40		150 ¹⁾	75	2,00		
• •	150 ¹⁾	240	2,00		150 ¹⁾	150	2,00		
	180 ²⁾	75	1,00		180 ²⁾	75	1,15		
	180 ²⁾	240	1,70		180 ²⁾	150	2,00		
	240 ²⁾	240	2,00						

¹⁾ All applications, except for hef = 200mm and without sleeve

Table C15: Factors for anchor groups under shear load

	Ancho	Anchor position parallel to hor. joint				Anchor position perpendicular to hor. joint			
Shear load		with c ≥	with s ≥	α _g II,V ⊥	1	with c ≥	with s ≥	$\alpha_{g\perp,V\perp}$	
perpendicular	• • •	60	75	0,75		60	75	0,90	
to the free		150	75	2,00		150	75	2,00	
edge		150	240	2,00		150	150	2,00	
Shear load		with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	αg ⊥,V II	
parallel to the	• •	60	75	2,00	•	60	75	2,00	
free edge		150	75	2,00	•	150	75	2,00	
l liee eage		150	240	2.00		150	150	2.00	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances solid calcium silica brick KS-NF

Description of the stone, Installation parameters, Reduction- and Group factors

Annex C7

²⁾ Only for application with hef = 200mm and without sleeve



Brick type: Solid calcium silica brick KS-NF

Table C16: Characteristic values of tension and shear load resistances

				Chara	cteristic Res	sistances v	vith c≥c _{cr}	and s ≥ s _{cr}				
	l ø	<u>, o</u>	Use condition									
	sleev	ated sleeve Effecitve Anchorage depth		d/d			w/d w/w		d/d w/w (w/d)			
Auchor size Sleeve	Anc	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	All temperature ranges				
	Pe	h _{ef}	1	$N_{Rk,b} = N_{Rk,j}$	2) o	1	NRK,b = NRK,	2) P	V _{Rk,b} ²⁾			
		[mm]				[kN]	[kN]					
Normalised mean compressive strength f _b ≥ 28 N/mm ^{2 1)}												
M8	-	80										
M10 / IG-M6	_	≥ 90	7,0	6,5	5,0	6,0	5,5	4,0				
M12 / IG-M8	-	≥ 100										
M16 / IG-M10	-	≥ 100	7,0	6,5	5,0	7,0	6,5	5,0				
M10 / M12 / M16 / IG-M6 / IG-M8 / IG-M10	-	200	9,0	8,5	6,5	5,5	5,0	4,0	7,0			
M8	SH 12	80	7,0	6,5	5,0	6,0	5,5	4,0				
M8 / M10/ IG-M6	SH 16	≥ 85										
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85	7,0	6,5	5,0	7,0	6,5	5,0				

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C11. For stones with higher strengths, the shown values are valid without conversion.

Table C17: Displacements

Anchor size	hef	δη / Ν	δΝ0	δN∞	δv / V	δνο	δ∨∞
Alichor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0.1	0.4*NL. / 2.5	0*0	0,3	0,3*V _{Rk} /3,5	1,5*δ∨ο
M16	all	0,1	0,1*N _{Rk} / 3,5	2*δΝο	0,1	0,1*V _{Rk} /3,5	1,5*δ∨ο

Table C18: Characteristic values of tension and shear load resistances under fire exposure

						*	
		Effective		Characteristic	c Resistances		
A mahay aima	Perforated	anchorage depth		$N_{Rk,b,fi} = N_{R}$	$k_{,p,fi} = V_{Rk,b,fi}$		
Anchor size	sleeve	sleeve	h _{ef}	R30	R60	R90	R120
	1	[mm]	[kN]				
M8	-	80					
M10 / IG-M6	-	≥ 90	0,48	0,41	0,34	0,30	
M12 / IG-M8	-	≥ 100	0,40			0,30	
M16 / IG-M10	-	≥ 100					
M8	SH 12	80					
M8 / M10 /IG-M6	SH 16	≥ 85	0,47	0,26	_ 1)	_ 1)	
M12 / M16 / IG-M8 /IG-M10	SH 20	≥ 85	0,47	0,20	- '/	- '/	

¹⁾ no performance assessed

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances solid calcium silica brick KS-NF Characteristic Resistances and Displacements	Annex C 8

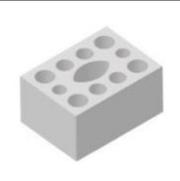
²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow Calcium silica brick KSL-3DF

Table C19: Stone description

Brick type		Hollow calcium silica brick KSL-3DF		
Density	ρ [kg/dm³]	≥ 1,4		
Normalised mean compressive strenght	f_b [N/mm ²]	≥ 14		
Conversion factor for lov compressive strengths	wer	$(f_b / 14)^{0.75} \le 1.0$		
Code		EN 771-2:2011+A1:2015		
Producer (Country)		e.g. KS-Wemding (DE)		
Brick dimensions	[mm]	≥ 240 x 175 x 113		
Drilling method		Rotary drilling		



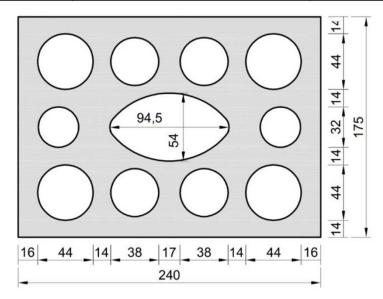


Table C20: Installation parameter

Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10			
Installation torque	Tinst	[Nm]	≤ 5	≤ 5	≤ 8	≤ 8	≤ 5	≤ 8	≤ 8			
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: $c_{cr} = 240$)									
Minimum Edge Distance	Cmin	[mm]	60									
Characteristic Spacing	Scr, II	[mm]		240								
Characteristic Spacing	Scr, ⊥	[mm]	120									
Minimum Spacing	Smin, II;	[mm]	120									
William Spacing	Smin, ⊥	Limin		120								

Table C21: Reduction factors for single anchors at the edge

Tension load			Shear load							
'	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
•	60	1,00	→	60	0,30	1	60	1,00		
	120	1,00		240	1,00		120	1,00		

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow calcium silica brick KSL-3DF

Description of the stone, Installation parameters, Reductionfactors

Annex C 9



Brick type: Hollow Calcium silica brick KSL-3DF Table C22: Factors for anchor groups under tension load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint

	оттот ростиот р			Throng position por portarional to more joint			
ļ	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	$\alpha_{g\perp}$, N
	60	120	1,50	•	60	120	1.00
	120	120	2,00		00	120	1,00
	120	240	2,00		120	120	2,00
	120	120	2,00	•	60 120	120 120	1,00 2,00

Table C23: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	. joint	Anchor position perpendicular to hor. joint			
Shear load		with c ≥	with s ≥	αg II,V ⊥		with c ≥	with s ≥	αg⊥, V⊥
perpendicular		60	120	0,30		60	120	0,30
to the free		120	120	1,00		00	120	0,30
edge		120	240	2,00		240	120	2,00
Shear load	-	with c ≥	with s ≥	αg II,V II	+	with c ≥	with s ≥	αg ⊥,V II
parallel to the	• •	60	120	1,00	•	60	120	1,00
free edge		120	120	1,60	•	60	120	1,00
		120	240	2,00		120	120	2,00

Table C24: Characteristic values of tension and shear load resistances

				Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
	0				0	Use condit	ion						
	eeve	itve rage th		d/d			w/d		d/d				
Anchor size	l s p	Effecitve Anchorage depth		u/u			w/d w/w						
	ate	ΑĀ							All				
	Perforated sleeve	-for	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C					
									ranges				
		h _{ef}	N	$J_{Rk,b} = N_{Rk,p}$	2)	1	$N_{Rk,b} = N_{Rk,j}$	2) p	$V_{Rk,b}^{(2)}$				
		[mm]				[kN]							
		Normalis	ed mean c	ompressi	ve strength	f _b ≥ 14 N/	mm² 1)						
M8 / M10/	SH 16	≥ 85	2,5	2,5	1,5	2,5	2,5	1,5	6,0				
IG-M6	SH 16	130	2,5	2,5	2,0	2,5	2,5	2,0	6,0				
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85	6,5	6,0	4,5	6,5	6,0	4,5	6,0				

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C19. For stones with higher strengths, the shown values are valid without conversion.

Table C25: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all		,	2 0110	0,31	0,31*V _{Rk} / 3,5	1,5*δvo

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow calcium silica brick KSL-3DF Group factors, characteristic Resistances and Displacements	Annex C 10

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow Calcium silica brick KSL-8DF

Table C26: Stone description

Brick type		Hollow Calcium silica brick KSL-8DF
Density	ρ [kg/dm³]	≥ 1,4
Normalised mean compressive strenght	f_b [N/mm ²]	≥ 12
Conversion factor for low compressive strengths	ver	$(f_b / 12)^{0.75} \le 1.0$
Code		EN 771-2:2011+A1:2015
Producer (Country)		e.g. KS-Wemding (DE)
Brick dimensions	[mm]	≥ 248 x 240 x 238
Drilling method		Rotary drilling



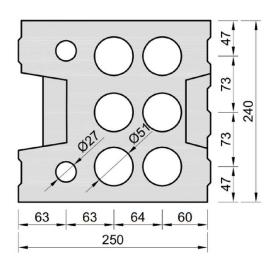


Table C27: Installation parameter

Anchor size	ALAMERICA CONTRACTOR AND CONTRACTOR			M10	M12	M16	IG-M6	IG-M8	IG-M10		
Installation torque	Tinst	[Nm]	≤ 5	≤ 5	≤ 8	≤ 8	≤ 5	≤ 8	≤ 8		
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: c _{cr} = 250)								
Minimum Edge Distance	Cmin	[mm]	50								
Characteristic Spacing	Scr, II	[mm]	250								
Characteristic Spacing	Scr, ⊥	[mm]	120								
Minimum Spacing	Smin, II;	[mm]	50								
William Spacing	Smin, ⊥	[mm]			50						

Table C28: Reduction factors for single anchors at the edge

Tension load			Shear load							
'	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
•	50	1,00		50	0,30	1	50	1,00		
	120	1,00		250	1,00		120	1,00		

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow calcium silica brick KSL-8DF

Description of the stone, Installation parameters, Reductionfactors

Annex C 11



Brick type: Hollow Calcium silica brick KSL-8DF Table C29: Factors for anchor groups under tension load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint with a wi

		,						
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	$\alpha_{g\perp\!\!\!\!\perp\!\!\!\!\perp\!\!\!\!\!\perp}, N$	
• •	50	50	1,00		50	50	1,00	
	120	250	2,00		120	120	2,00	

Table C30: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint				
Shear load	1	with c ≥	with s ≥	αg II,V ⊥		with c ≥	with s ≥	$\alpha_g \perp$, v \perp	
perpendicular	•••	50	50	0,45		50	50	0,45	
to the free		250	50	1,15		250	50	1,20	
edge	.,	250	250	2,00		250	250	2,00	
Shear load		with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	αg ⊥,V II	
parallel to the	• •	50	50	1,30		50	50	1,00	
free edge		120	250	2,00		120	250	2,00	

Table C31: Characteristic values of tension and shear load resistances

			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
				Use condition								
	eve	Effecitve Anchorage depth					w/d		d/d			
	sle	Effecitve Anchorage depth		d/d			w/w		w/d			
Anahar aira	Q	# D 0				••/••			w/w			
Anchor size	ate	An A							All			
	Perforated sleeve	-for		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	Temperature		
		3							ranges			
		h _{ef}	N	$N_{Rk,b} = N_{Rk,p}^{2}$ $N_{Rk,b} = N_{Rk,p}^{2}$					V _{Rk,b} ²⁾			
		[mm]				[kN]						
		Normalis	sed mean c	ompressi	ve strength	f _b ≥ 12 N/	mm² 1)					
M8 / M10/ IG-M6	SH 16	130	5,0	4,5	3,5	5,0	4,5	3,5	3,5			
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 130	5,0	4,5	3,5	5,0	4,5	3,5	6,0			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C26. For stones with higher strengths, the shown values are valid without conversion.

Table C32: Displacements

Anchoroiza	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all	*		_ = 5110	0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow calcium silica brick KSL-8DF Group factors, characteristic Resistances and Displacements	Annex C 12

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|II} = V_{Rk,c} \perp according to Annex C 3$



Brick type: Hollow Calcium silica brick KSL-12DF

Table C33: Stone description

Brick type		Hollow Calcium silica brick KSL-12DF
Density	ρ [kg/dm³]	≥ 1,4
Normalised mean compressive strenght	f _b [N/mm²]	≥ 12
Conversion factor for low strengths	ver compressive	$(f_b / 12)^{0.75} \le 1.0$
Code		EN 771-2:2011+A1:2015
Producer (Country)		e.g. KS-Wemding (DE)
Brick dimensions	[mm]	≥ 498 x 175 x 238
Drilling method		Rotary drilling



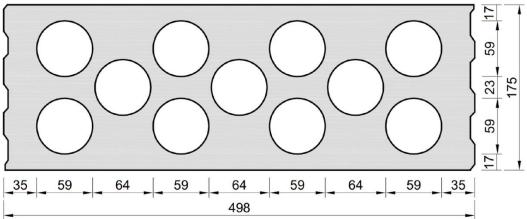


Table C34: Installation parameter

Anchor size	V-10400-104			M10	M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	Tinst	[Nm]	≤ 4	≤ 4	≤ 5	≤ 5	≤ 4	≤ 5	≤ 5	
Char. Edge distance	Ccr; (Ccr,fi)	[mm]	/5			120 (2 h _{ef}		1	500)	
(under fire conditions)	,,,,,,		(for snear loads perpendicular to the free edge: c _{cr} = 500)							
Minimum Edge Distance	Cmin	[mm]	50							
Characteristic Spacing	Scr, II; (Scr,fi, II)	[mm]				500 (4 h _{ef})			
(under fire conditions)	Scr, ⊥; (Scr,fi, ⊥)	[mm]	nm] 120 (4 h _{ef})							
Minimum Spacing	[mm]				50					

Table C35: Reduction factors for single anchors at the edge

Tension load	é V				Shea	ır load			
			Perpendic	ular to the fro	ee edge	Parallel to the free edge			
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II	
•	50	1,00		50	0,45		50	1,00	
	120	1,00		500	1,00		120	1,00	

Table C36: Factors for anchor groups under tension load

Anchor position	on parallel to he	or. joint		Anchor position perpendicular to hor. joint				
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	$\alpha_{g\perp,N}$	
• •	50	50	1,50		50	50	1,00	
	120	500	2,00		120	240	2,00	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	

Performances hollow calcium silica brick KSL-12DF

Description of the stone, Installation parameters, Reductionfactors

Annex C 13

free edge



120

250

2,00

Brick type: Hollow Calcium silica brick KSL-12DF Table C37: Factors for anchor groups under shear load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint Shear load with c ≥ with s ≥ with c ≥ with s ≥ α_g II,V \perp $\alpha_{g\,\perp,\,V\,\perp}$ perpendicular 0,55 50 0,50 50 50 50 to the free 500 50 1,00 500 50 1,00 edae 500 500 2,00 500 250 2,00 with c ≥ with s ≥ with c ≥ with s ≥ Shear load αg II,V II $\alpha_{g\perp,V\;II}$ parallel to the 50 50 2,00 50 50 1,30

2,00

Table C38: Characteristic values of tension and shear load resistances

500

120

				Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$								
	e e	a e		Use condition								
	ee/	ffecitve Ichorag depth		d/d			w/d		d/d			
	<u>8</u>	er pe		u/u			w/w		w/w (w/d)			
Anchor size	Perforated sleeve	Effecitve Anchorage depth							All			
			40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature			
	Ţ								ranges			
	A .	h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2)}$			1	$V_{Rk,b}^{(2)}$					
		[mm]				[kN]						
		Normalis	ed mean c	ompressi	ve strength	f _b ≥ 12 N/	mm² 1)					
M8 / M10/ IG-M6	SH 16	130	3,5	3,5	2,5	3,5	3,5	2,5	3,5			
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 130	3,5	3,5	2,5	3,5	3,5	2,5	7,0			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C33. For stones with higher strengths, the shown values are valid without conversion.

Table C39: Displacements

-							
Anchor size	hef	δ_N / N	δΝο	δN∞	δv / V	δνο	δ∨∞
Afficitor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all			31.10	0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

Table C40: Characteristic values of tension and shear load resistances under fire exposure

		Effective		Characteristic F	Resistances	ATTEL		
A	Perforated	anchorage depth	$N_{Rk,b,fi} = N_{Rk,p,fi} = V_{Rk,b,fi}$					
Anchor size	sleeve	h _{ef}	R30	R60	R90	R120		
		[mm]	[kN]					
M8 / M10 /IG-M6	SH 16	130				_1)		
M12 / IG-M8	SH 20	≥ 130	0,37	0,27	0,17	-17		
M16 / IG-M10	SH 20	≥ 130				0,12		

¹⁾ no performance assessed

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow calcium silica brick KSL-12DF Group factors, characteristic Resistances and Displacements	Annex C 14

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c | II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Solid clay brick 1DF

Table C41: Stone description

Brick type		Solid clay brick Mz-1DF
Density	ρ [kg/dm³]	≥ 2,0
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 20
Conversion factor for low strengths	er compressive	$(f_b / 20)^{0.5} \le 1.0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. Wienerberger (DE)
Brick dimensions	[mm]	≥ 240 x 115 x 55
Drilling method	SEN CO.	Hammer drilling

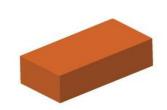


Table C42: Installation parameter

Anchor size	[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10		
Installation torque	Tinst	[Nm]	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	
Char. Edge distance	Ccr	[mm]	150 (for shear loads perpendicular to the free edge: $c_{cr} = 240$)					240)		
Minimum Edge Distance	Cmin	[mm]	60							
Characteristic Cassing	Scr, II	[mm]	240							
Characteristic Spacing	Scr, ⊥	[mm]	130							
Minimum Spacing	Smin, II;	[mm]	CE.							
William Spacing	Smin, ⊥	[mm]	65							

Table C43: Reduction factors for single anchors at the edge

Tension load			Shear load						
Tension load			Perpendicular to the free edge			Parallel to the free edge			
1	with c ≥	αedge, N	1	with c ≥	αedge, V⊥		with c ≥	αedge, V II	
	60	0,75		60	0,10		60	0,30	
	150	1,00		100	0,50	Ţ	100	0,65	
	180	1,00		240	1,00		150	1,00	

Table C44: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Ancho	r position perp	endicular to ho	r. joint
11	with c ≥	with s ≥	αg II, N	1	with c ≥	with s ≥	αg ⊥, N
	60	65	0,85	•	60	65	1,00
	150	65	1,15		150	65	1,20
	150	240	2,00	1	150	130	2,00

Table C45: Factors for anchor groups under shear load

Anchor position parallel to hor. joint					Anchor position perpendicular to hor. joint			
Shear load	1	with c ≥	with s ≥	α _g II,V ⊥	1	with c ≥	with s ≥	$lpha_{g\perp,V\perp}$
perpendicular	•••	60	65	0,40		60	65	0,30
to the free		240	65	2,00		240	65	2,00
edge		240	240	2,00		240	130	2,00
Shear load		with c ≥	with s ≥	α _g II,V II		with c ≥	with s ≥	α _{g ⊥,} ν II
parallel to the	• •	60	65	1,75	•	60	65	1,10
free edge		150	65	2,00		150	65	2,00
lifee edge	- 	150	240	2,00	I	150	130	2,00

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances solid clay brick 1DF Description of the stone, Installation parameters, Reduction- and Group factors	Annex C 15



Brick type: Sol	id clay	brick 1	DF								
Table C46: Ch	aracte	ristic val	ues of ter	nsion and	shear loa	d resista	nces				
			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$								
						Use condit	ion				
	e ve	age h					w/d		d/d		
	Se Se	ffecity chora depth		d/d w/w					w/d		
Anchor size	Perforated sleeve	Effecitve Anchorage depth		1					W/W All		
	ora		40°C/24°C	 80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C			
)erf								ranges		
	"	h _{ef}	N	$J_{Rk,b} = N_{Rk,p}$	2)	1	$N_{Rk,b} = N_{Rk,b}$	2) p	$V_{Rk,b}^{(2)}$		
		[mm]				[kN]					
		Normalis	ed mean c	ompressi	ve strength	f _b ≥ 20 N/	mm² 1)				
M8	-	80									
M10 / IG-M6	-	≥ 90	7,0	6,0	6,0	7,0	6,0	6,0	8,0		
M12 / IG-M8	-	≥ 100									
M16 / IG-M10	-	≥ 100	8,0	6,5	6,5	8,0	6,5	6,5	12,0		
M8	SH 12	80									
M8 / M10/ IG-M6	SH 16		7,0	6,0	6,0	7,0	6,0	6,0	8,0		
M12 / IG-M8	SH 20	≥ 85									
M16 / IG-M10	SH 20	≥ 85	8,0	6,5	6,5	8,0	6,5	6,5	12,0		

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C41. For stones with higher strengths, the shown values are valid without conversion.

Table C47: Displacements

Anchor size	hef	δ _N / N	δΝο	δN∞	δv / V	δνο	δ∨∞
Alichor Size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,1	0,1*N _{Rk} / 3,5	2*δη0	0,3	0,3*V _{Rk} / 3,5	1,5*δ∨ο
M16	all	•	, , , , ,		0,1	0,1*V _{Rk} /3,5	1,5*δνο

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances solid clay brick 1DF Characteristic Resistances and Displacements	Annex C 16

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c \, II} = V_{Rk,c \, \perp}$ according to Annex C 3



Brick type: Solid clay brick 2DF

Table C48: Stone description

Brick type		Solid clay brick Mz- 2DF	
Density	ρ [kg/dm³]	≥ 2,0	
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 28	
Conversion factor for lowe strengths	$(f_b / 28)^{0.5} \le 1.0$		
Code		EN 771-1:2011+A1:2015	
Producer (Country)		e.g. Wienerberger (DE)	
Brick dimensions	[mm]	≥ 240 x 115 x 113	
Drilling method	300	Hammer drilling	

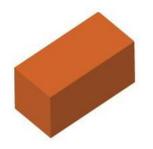


Table C49: Installation parameter

Anchor size	[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	Tinst	[Nm]	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
Char. Edge distance	0 (0 %)	[mm]				150 (2 h _{ef})		
(under fire conditions)	C _{cr;} (C _{cr,fi})	[mm] (for shear loads perpendicular to the free edge: of							= 240)
Minimum Edge Distance	Cmin	[mm]	50						
Characteristic Spacing	Scr, II; (Scr,fi, II)	[mm]	240 (4 h _{ef})						
(under fire conditions)	Scr, ⊥; (Scr,fi, ⊥)	[mm]	240 (4 h _{ef})						
Minimum Spacing	Smin, II; Smin, ⊥	[mm]	n] 50						

Table C50: Reduction factors for single anchors at the edge

Π 7	Tension load		Shear load pe	rpendicular t	o free edge	Shear load parallel to free edge			
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II	
	50 ¹⁾	1,00	-	50	0,20		50	1.00	
	150 ¹⁾	1,00		125	0,50	Ţ	50	1,00	
	180	1,00		240	1,00		150	1,00	

¹⁾ All applications, except for hef = 200mm and without sleeve

Table C51: Factors for anchor groups under tension load

And	chor position pa	arallel to hor. jo	oint	Ancho	chor position perpendicular to hor. joint			
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg ⊥, N	
	50 ¹⁾	50	1,50		50 ¹⁾	50	0,80	
	150 ¹⁾	240	2,00		150 ¹⁾	240	2,00	
	180 ²⁾	60	1,00		180 ²⁾	60	1,00	
	180 ²⁾	240	1,55	 	180 ²⁾	100	2,00	
	240 ²⁾	240	2,00		100-/	120	2,00	

¹⁾ All applications, except for hef = 200mm and without sleeve

Table C52: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor p	nor position perpendicular to hor. joint			
Shear load		with c ≥	with s ≥	α _g II,V ⊥	w.p. :	with c ≥	with s ≥	$\alpha_{g\perp}, v_{\perp}$	
perpendicular		50	50	0,40		50	50	0,20	
to the free edge	•••	240	50	1,20	-	240	50	$\begin{array}{c cccc} ith \ s \ge & \alpha_{g \perp, V \perp} \\ 50 & 0,20 \\ 50 & 0,60 \\ 125 & 1,00 \\ 240 & 2,00 \\ ith \ s \ge & \alpha_{g \perp, V II} \\ 50 & 1,00 \\ 125 & 1,00 \\ \end{array}$	
		240	240	2,00		240	125		
eage		240	240	2,00		240	240	2,00	
Shear load		with c ≥	with s ≥	α _g 11,V 11		with c ≥	with s ≥	αg ⊥,V II	
parallel to the	• •	50	50	1,20	•	50	50	1,00	
free edge	1	150	240	2,00		50	125	1,00	
li ee eage		130	240	2,00		150	240	$\begin{array}{c} \alpha_{g \perp, V \perp} \\ 0,20 \\ 0,60 \\ 1,00 \\ 2,00 \\ \alpha_{g \perp, V II} \\ 1,00 \end{array}$	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances solid clay brick 2DF

Description of the stone, Installation parameters, Reduction- and Group factors

Annex C 17

²⁾ Only for application with hef = 200mm and without sleeve



Brick type: Solid clay brick 2DF

Table C53: Characteristic values of tension and shear load resistances

Table 055. Of	iui actci	istic vai	ucs or ter	ision and	Silcai Ioa	u icsista	ICCS					
			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
		ated sleeve Effecitve Anchorage depth	Use condition									
Anchor size	Perforated sleeve		d/d				d/d w/d w/w					
	erforate	Ar	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	All temperature ranges			
	ш.	h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2}$			1	$\mathbf{V}_{Rk,b} = \mathbf{N}_{Rk,b}$	2) p	V _{Rk,b} ²⁾			
		[mm]		,_		[kN]						
		Normalis	sed mean c	ompressi	ve strength	f _b ≥ 28 N/	mm² 1)					
M8	-	80						7.5	0.5			
M10 / IG-M6	-	≥ 90	9,0	9,0	7,5	9,0	9,0	7,5	9,5			
M12 / IG-M8	•	≥ 100	9,0	9,0	7,5	9,0	9,0	7,5	12			
M16 / IG-M10	-	≥ 100	9,0	9,0	7,5	9,0	9,0	7,5	12 ³⁾			
M10 / M12 / IG-M6 / IG-M8	-	200	11,5	11,5	10,0	6,0	6,0	5,0	8,0			
M16 / IG-M10	•	200	11,5	11,5	10,0	6,0	6,0	5,0	12,0			
M8	SH 12	80	0.0	م م	7.5	0.0	0.0	7.5	0.5			
M8 / M10/ IG-M6	SH 16	≥ 85	9,0	9,0	7,5	9,0	9,0	7,5	9,5			
M12 / IG-M8	SH 20	≥ 85	9,0	9,0	7,5	9,0	9,0	7,5	12,0			
M16 / IG-M10	SH 20	≥ 85	9,0	9,0	7,5	9,0	9,0	7,5	12,0 ³⁾			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C48. For stones with higher strengths, the shown values are valid without conversion.

Table C54: Displacements

Anchor size	hef	δn / N	δΝ0	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,1	0,1*N _{Rk} / 3,5	2*δΝ0	0,3	0,3*V _{Rk} / 3,5	1,5*δνο
M16	all	•	,		0,1	0,1*V _{Rk} /3,5	1,5*δvo

Table C55: Characteristic values of tension and shear load resistances under fire exposure

						•				
		Effecitve		Characteristic						
A	Perforated	Anchorage depth		$N_{Rk,b,fi} = N_{Ri}$	$k_{i,p,fi} = V_{Rk,b,fi}$					
Anchor size	sleeve	h _{ef}	R30	R60	R90	0,33 0,10 0,10				
		[mm]		[k	N]					
M8	-	80								
M10 / IG-M6	-	≥ 90	0.51	0,44	0,36	0.22				
M12 / IG-M8	-	≥ 100	0,51	0,44		0,33				
M16 / IG-M10	-	≥ 100								
M8	SH 12	80	0,36	0,26	0,15	0,10				
M8 / M10 /IG-	SH 16	≥ 85	0,36	0,26	0,15	0,10				
M6	30 16	130	0,92	0,74	0,57	0,49				
M12/M16/	SH 20	≥ 85	0,36	0,26	0,15	0,10				
IG-M8 /IG-M10	J 3FI ZU	≥ 130	0,92	0,74	0,57	0,49				

Performances solid clay brick 2DF

Characteristic Resistances and Displacements

Annex C 18

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|II} = V_{Rk,c} \perp$ according to Annex C 3

³⁾ Valid for all stone strengths with min. 10 N/mm²



Brick type: Hollow clay brick 10 DF

Table C56: Stone description

Brick type		Hollow clay brick HLZ-10DF	
Density	ρ [kg/dm³]	≥ 1,25	
Normalised mean compressive strenght	f _b [N/mm²]	≥ 20	
Conversion factor for low strengths	$(f_b / 20)^{0.5} \le 1.0$		
Code		EN 771-1:2011+A1:2015	
Producer (Country)		e.g. Wienerberger (DE)	
Brick dimensions	[mm]	300 x 240 x 249	
Drilling method		Rotary drilling	



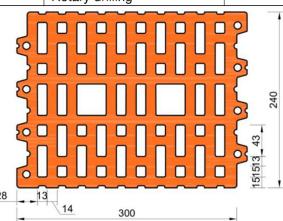


Table C57: Installation parameter

Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10		
Installation torque	T _{inst}	[Nm]	≤ 5	≤ 10	≤ 10	≤ 10	≤ 5	≤ 5	≤ 10		
Char. Edge distance (under fire conditions)	Cer; (Cer,fi)	[mm]	m] $120 (2 h_{ef})$ (for shear loads perpendicular to the free edge: $c_{cr} = 300$)								
Minimum Edge Distance	Cmin	[mm]	50								
Characteristic Spacing	Scr, II; (Scr,fi, II)	[mm]	300 (4 h _{ef})								
(under fire conditions)	$Scr, \perp; (Scr,fi, \perp)$	[mm]	250 (4 h _{ef})								
Minimum Spacing	Smin, II; Smin, ⊥	[mm]	50								

Table C58: Reduction factors for single anchors at the edge

-	Tension load			Shear load							
Tension load			Perpendic	ular to the fr	ee edge	Parallel to the free edge					
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II			
•	50	1,00	→	50	0,20	•	50	1,00			
	120	1,00		300	1,00		120	1,00			

Table C59: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint				
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	α _{g ⊥, N}	
• •	50	50	1,55		50	50	1,00	
	120	300	2,00		120	250	2,00	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow clay brick HLZ 10DF

Description of the stone, Installation parameters, Reductionfactors

Annex C 19



Brick type:	Brick type: Hollow clay brick 10 DF											
Table C60: Factors for anchor groups under shear load												
	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint							
Shear load perpendicular		with c ≥	with s ≥	α _g II,V ⊥		with c ≥	with s ≥	$\alpha_{g\perp,V\perp}$				
	•••	50	50	0,30		50	50	0,20				
to the free		300	50	1,40		300	50	1,00				
edge		300	300	2,00		300	250	2,00				
Shear load		with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	α _{g ⊥,} ν II				
parallel to the	• •	50	50	1,85		50	50	1,00				
free edge		120	300	2,00		120	250	2,00				

Table C61: Characteristic values of tension and shear load resistances

			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
		Effective Anchorage depth		Use condition								
Anchor size	Perfora			d/d			d/d w/d w/w					
			40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	All temperature ranges			
		h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2)}$			1	$N_{Rk,b} = N_{Rk,b}$	2) p	V _{Rk,b} ²⁾			
		[mm]				[kN]						
		Normalis	sed mean c	ompressi	ve strength	f _b ≥ 20 N/	mm² 1)					
M8	SH 12	80	0.5	0.5	0.0	0.5	0.5	0.0	0.0			
M8 / M10/ IG-M6	SH 16	≥ 85	2,5	2,5	2,0	2,5	2,5	2,0	8,0			
M12 / IG-M8	SH 20	≥ 85	5,0	5,0	4,5	5,0	5,0	4,5	8,0			
M16 / IG-M10	SH 20	≥ 85	5,0	5,0	4,5	5,0	5,0	4,5	11,5			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C56. For stones with higher strengths, the shown values are valid without conversion.

Table C62: Displacements

Anchor size	hef	δn / N	δΝο	δN∞	δv / V	δνο	δ∨∞
	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δΝο	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all		,	2 3140	0,31	0,31*V _{Rk} / 3,5	1,5*δνο

Table C63: Characteristic values of tension and shear load resistances under fire exposure

		Effecitve	Characteristic Resistances					
Anchor cizo	Perforated	Anchorage depth $N_{Rk,b,fi} = N_{Rk,p,fi} = V_{Rk,b,fi}$						
Anchor size	sleeve	h _{ef}	R30	R60	R90	R120		
		[mm]	[kN]					
M8 / M10 /IG-M6	SH 16	130						
M12 / M16 / IG-M8 IG-M10	SH 20	≥ 130	0,57	0,39	0,21	0,12		

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick HLZ 10DF Group factors, characteristic Resistances and Displacements	Annex C 20

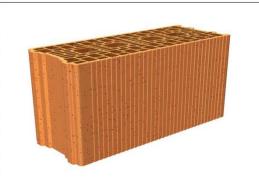
²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c | II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow Clay brick Porotherm Homebric

Table C64: Stone description

Brick type		Hollow clay brick Porotherm Homebric	
Density	ρ [kg/dm³]	≥ 0,70	
Normalised mean compressive strenght	f _b [N/mm²]	≥ 10	
Conversion factor for lov strengths	$(f_b / 10)^{0.5} \le 1.0$		
Code		EN 771-1:2011+A1:2015	
Producer (Country)		e.g. Wienerberger (FR)	
Brick dimensions	[mm]	500 x 200 x 300	
Drilling method		Rotary drilling	



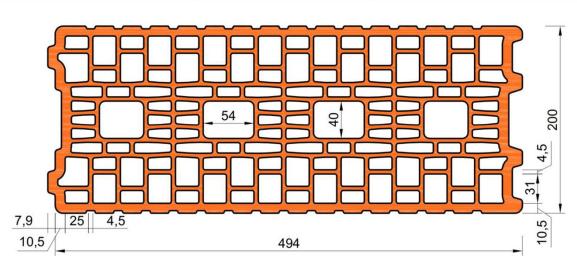


Table C65: Installation parameter

Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10		
Installation torque	Tinst	[Nm]	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2		
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: c _{cr} = 500)								
Minimum Edge Distance	Cmin	[mm]	120								
	Scr, II	[mm]	500								
Characteristic Spacing	Scr, ⊥	[mm]		300							
Minimum Spacing	Smin, II; Smin, ⊥	[mm]	120								

Table C66: Reduction factors for single anchors at the edge

Tension load		Shear load						
Tension load			Perpendic	ular to the fr	ee edge	Parallel to the free edge		
11	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II
	120	1,00		120	0,30	1	120	0,60
	120	1,00		250	0,60	Ţ	120	0,00
o journal and the second	120	1,00		500	1,00		200	1,00

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow clay brick Porotherm Homebric

Description of the stone, Installation parameters, Reductionfactors

Annex C 21



Brick type: Hollow Clay brick Porotherm Homebric Table C67: Factors for anchor groups under tension load

An	chor position p	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint					
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N		
••	120	100	1,00	•	120	100	1,00		
	200	100	2,00		200	100	1,20		
	120	500	2,00	1	120	300	2,00		

Table C68: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	. joint	Anchor position perpendicular to hor. joint				
Shear load		with c ≥	with s ≥	αg II,V ⊥		with c ≥	with s ≥	αg⊥, V⊥	
		120	100	0,30		120	100	0,30	
perpendicular to the free	•••	250	100	0,60		250	100	0,60	
edge		500	100	1,00		120	300	2,00	
cago		120	500	2,00				2,00	
Shear load		with c ≥	with s ≥	αg II,V II	*	with c ≥	with s ≥	αg ⊥,V II	
parallel to the free edge	• •	120	100	1,00		120	100	1,00	
		120	500	2,00		120	300	2,00	

Table C69: Characteristic values of tension and shear load resistances

Tubic 665. Officiality values of terision and silear four resistances											
			Characteristic Resistances with c ≥ c _{cr} and s ≥ s _{cr}								
			Use condition								
	Perforated sleeve	Effective Anchorage depth					w/d		d/d		
	<u>e</u>	E o cti		d/d			w/w		w/d		
A	ğ	Effective inchoragi depth					w/w				
Anchor size	ate	A							All		
	for		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature		
)er								ranges		
	_	h _{ef}	$N_{Rk,b} = N_{Rk,p}^{(2)}$			1	$V_{Rk,b}^{(2)}$				
		[mm]				[kN]					
	T	Normalis	sed mean c	ompressiv	ve strength	f _b ≥ 10 N/	mm² 1)				
M8	SH 12	80			1,	2			3,0		
M8 / M10/	SH 16	≥ 85			1,	2			3,0		
IG-M6		130			1,	5			3,5		
M12 / M16/	SH 20	≥ 85		1,2							
IG-M8 / IG-M10	SH 20	≥ 130			1,	5			4,0		

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C64. For stones with higher strengths, the shown values are valid without conversion.

Table C70: Displacements

Anghar siza	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all		2 2 33 33 33 33 33		0,31	0,31*V _{Rk} / 3,5	1,5*δvo

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Porotherm Homebric Group factors, characteristic Resistances and Displacements	Annex C 22

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|I} = V_{Rk,c} \perp$ according to Annex C 3

Table C73:



Brick type: Hollow Clay brick BGV Thermo Table C71: Stone description Hollow clay brick Brick type **BGV Thermo** Density ρ [kg/dm³] ≥ 0,60 Normalised mean f_b [N/mm²] ≥ 10 compressive strenght Conversion factor for lower compressive $(f_b / 10)^{0,5} \le 1,0$ strengths EN 771-1:2011+A1:2015 Code Producer (Country) e.g. Leroux (FR) [mm] Brick dimensions 500 x 200 x 314 Drilling method Rotary drilling

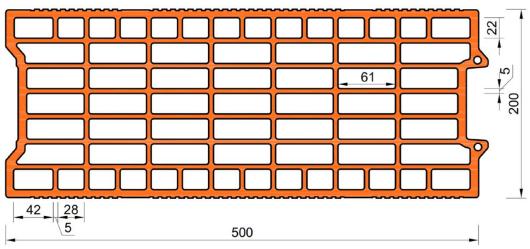


Table C72: Installation parameter											
Anchor size	[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10			
Installation torque	Tinst	[Nm]	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2		
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: $c_{cr} = 500$)								
Minimum Edge Distance	Cmin	[mm]	120								
Characteristic Spacing	Scr, II	[mm]	500								
Characteristic Spacing	Scr, ⊥	[mm]				315					
Minimum Spacing	Smin, II; Smin, ⊥	[mm]	120								

Table C/3.	Table 073. Reduction factors for single anchors at the edge												
Tension load			Shear load										
'	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge							
+	with c ≥	αedge, N		with c ≥	αedge, V⊥	1	with c ≥	αedge, V II					
	120	1.00		120	0,30		120	0,60					
	120	1,00		250	0,60	Ţ	120	0,00					
	120	1,00		500	1,00		250	1,00					

Reduction factors for single anchors at the edge

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick BGV Thermo Description of the stone, Installation parameters, Reductionfactors	Annex C 23

200

120

English translation prepared by DIBt



200

120

100

315

1,10

2,00

Brick type: Hollow Clay brick BGV Thermo Table C74: Factors for anchor groups under tension load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint with c ≥ with s ≥ with c ≥ with s ≥ α_g II, N $\alpha_{g\perp,\,N}$ 120 100 1,00 120 100 1,00

1,70

2,00

Table C75:	Factors 1	for anchor	aroups	under shear	load

100

500

Tubic O/O.	i dotors for	unonor g	oups and	Ci Silcui i	ouu				
	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint				
Shear load		with c ≥	with s ≥	αg II,V ⊥		with c ≥	with s ≥	αg⊥, V⊥	
perpendicular to the free	•••	120	100	1,00	•	120	100	1,00	
edge		120	500	2,00		120	315	2,00	
Shear load		with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	αg ⊥,V II	
parallel to the	•	120	100	1,00] [120	100	1,00	
free edge		120	500	2,00		120	315	2,00	

Table C76: Characteristic values of tension and shear load resistances

00 100,000,000,000 000 No 200,000 Policina			porte and the resolution conservation									
			Characteristic Resistances with c ≥ c _{cr} and s ≥ s _{cr}									
		Effecitve Anchorage depth	Use condition									
Anchor size	d sleeve		d/d				d/d w/d w/w					
	ate	ΑĀ							All			
	Perforated		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature			
									ranges			
		h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2}$			1	$V_{Rk,b}^{(2)}$					
		[mm]				[kN]						
		Normalis	sed mean d	ompressi	ve strength	f _b ≥ 10 N/	mm² 1)					
M8	SH 12	80		\$**	0,	9			3,5			
M8 / M10/	SH 16	≥ 85			0,	9			3,5			
IG-M6		130	2	,0	1,5	2	,0	1,5	4,0			
M12 / M16	M12 / M16 SH 20 ≥ 85				0,	9	4,0					
IG-M8 / IG-M10	3H 20	≥ 130	2	,0	1,5	2	,0	1,5	4,0			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C71. For stones with higher strengths, the shown values are valid without conversion.

Table C77: Displacements

Anchor size	hef	δn / N	δΝο	δN∞	δv / V	δνο	δ∨∞
Afficior size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δΝο	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all		200 Zamilyondar harone distribution and and		0,31	0,31*V _{Rk} / 3,5	1,5*δνο

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick BGV Thermo Group factors, characteristic Resistances and Displacements	Annex C 24

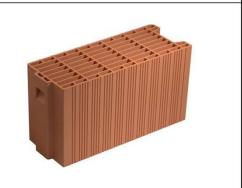
²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c | II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow Clay brick Calibric R+

Table C78: Stone description

	Brick type		Hollow clay brick Calibric R+
	Density	ρ [kg/dm³]	≥ 0,60
	Normalised mean compressive strenght	f _b [N/mm²]	≥ 12
	Conversion factor for lowe strengths	r compressive	$(f_b / 12)^{0.5} \le 1.0$
	Code		EN 771-1:2011+A1:2015
	Producer (Country)		e.g. Leroux (FR)
	Brick dimensions	[mm]	500 x 200 x 314
	Drilling method		Rotary drilling
1			



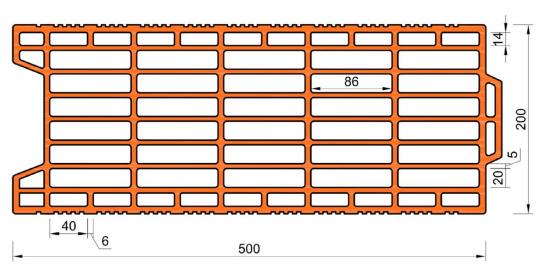


Table C79: Installation parameter

	l									
Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	T _{inst}	[Nm]	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	
Char. Edge distance	Ccr	[mm]	120	120 (for shear loads perpendicular to the free edge: $c_{cr} = 500$)						
Minimum Edge Distance	Cmin	[mm]	120							
Characteristic Spacing	Scr, II	[mm]				500				
Characteristic Spacing	Scr, ⊥	[mm]	315							
Minimum Spacing	Smin, II;	[mm]				120				
mmmam spasing	Smin, ⊥	[]				0				

Table C80: Reduction factors for single anchors at the edge

Tension load			Shear load							
			Perpendic	ular to the fro	ee edge	Parallel to the free edge				
1	with c ≥	αedge, N		with c ≥	αedge, V⊥	1	with c ≥	αedge, V II		
	120	1,00		120	0,15	‡	120	0,30		
	120	1,00		250	0,30		120	0,30		
	120	1,00		500	1,00		250	1,00		

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
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Performances hollow clay brick Calibric R+

Description of the stone, Installation parameters, Reductionfactors

Annex C 25



Brick type: Hollow Clay brick Calibric R+

Table C81: Factors for anchor groups under tension load

An	chor position p	arallel to hor. jo	oint	Ancho	r position perp	endicular to ho	r. joint
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N
	120	100	1,00		120	100	1,00
	175	100	1,70		175	100	1,10
	120	500	2,00	1	120	315	2,00

Table C82: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint			
Shear load perpendicular to the free edge		with c ≥	with s ≥	α _g II,V ⊥		with c ≥	with s ≥	αg⊥, V⊥
	•••	120	100	1,00	•	120	100	1,00
		120	500	2,00		120	315	2,00
Shear load		with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	α _g ⊥,ν II
parallel to the free edge		120	100	1,00		120	100	1,00
		120	500	2,00		120	315	2,00

Table C83: Characteristic values of tension and shear load resistances

			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
	-			Use condition								
	Perforated sleeve	Effective Anchorage depth		d/d			w/d w/w					
Anchor size	rate	An An	4000/0400	9090/5090	10000/7000	4000/0400	90°C/E0°C	12000/7000	All			
) July	erfo	40°0/24°0	80°0/50°0	120°0/72°0	40°0/24°0	80°C/50°C	120°C/72°C	temperature			
	٦	α —							ranges			
	_	h _{ef}	١	$N_{Rk,b} = N_{Rk,p}$	2)	1	$V_{Rk,b}^{2)}$					
		[mm]		[kN]								
	30	Normalis	sed mean o	compressi	ve strengt	h f _b ≥ 12 N	/mm² ¹⁾	5)				
M8	SH 12	80	1,2	1,2	0,9	1,2	1,2	0,9	4,0			
M8 / M10/	CLL1C	≥ 85	1,2	1,2	0,9	1,2	1,2	0,9	5,5			
IG-M6	SH 16	130	1,5	1,5	1,2	1,5	1,5	1,2	5,5			
M12 / M16	011.00	≥ 85	1,2	1,2	0,9	1,2	1,2	0,9	8,5			
IG-M8 /IG-M10	SH 20	≥ 130	1,5	1,5	1,2	1,5	1,5	1,2	8,5			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C78. For stones with higher strengths, the shown values are valid without conversion.

Table C84: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	all 0,13 0,13*N	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all	*			0,31	0,31*V _{Rk} / 3,5	1,5*δνο

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow Clay brick Calibric R+ Group factors, characteristic Resistances and Displacements	Annex C 26

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c \, II} = V_{Rk,c} \bot according to Annex C 3$

120

1.00



Brick type: Hollow Clay brick Urbanbric Stone description Table C85: Hollow clay brick Brick type Urbanbric Density ≥ 0,70 ρ [kg/dm³] Normalised mean f_b [N/mm²] ≥ 12 compressive strenght Conversion factor for lower compressive $(f_b / 12)^{0.5} \le 1.0$ strengths EN 771-1:2011+A1:2015 Code Producer (Country) e.g. Imerys (FR) [mm] **Brick dimensions** 560 x 200 x 274 Drilling method Rotary drilling 5,5 040 5 63 9 40_ 9,5 560 Table C86: Installation parameter Anchor size M10 IG-M6 IG-M8 IG-M10 [-] **M8** M12 M16 ≤ 2 ≤ 2 ≤ 2 ≤ 2 ≤ 2 ≤ 2 ≤ 2 Installation torque Tinst [Nm] Char. Edge distance 120 (for shear loads perpendicular to the free edge: $c_{cr} = 500$) Ccr [mm] Minimum Edge Distance 120 [mm] Cmin [mm] 560 Scr, II Characteristic Spacing 275 [mm] Scr, ⊥ Smin, II; Minimum Spacing [mm] 100 Smin, \bot Table C87: Reduction factors for single anchors at the edge Shear load Tension load Perpendicular to the free edge Parallel to the free edge with c ≥ with c ≥ with c ≥ αedge, V⊥ αedge, V II αedge, N 120 0,25 120 1,00 120 0,50 250 0,50

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Urbanbric Description of the stone, Installation parameters, Reductionfactors	Annex C 27

500

1,00

250

1.00



Brick type: Hollow Clay brick Urbanbric Table C88: Factors for anchor groups under tension load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint

with c ≥ 120	with s ≥	α _{g II, N} 1,00	with c ≥ 120	with s ≥	α _{g ⊥, N} 1,00
185	100	1,90	185	100	1,10
 120	560	2,00	 120	275	2,00

Table C89: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	. joint	Anchor position perpendicular to hor. joint				
Shear load		with c ≥	with s ≥	αg II,V ⊥		with c ≥	with s ≥	αg⊥, V⊥	
perpendicular to the free	•••	120	100	1,00	•	120	100	1,00	
edge		120	560	2,00		120	275	2,00	
Shear load		with c ≥	with s ≥	α _g II,V II		with c ≥	with s ≥	αg ⊥,V II	
parallel to the		120	100	1,00		120	100	1,00	
free edge		120	560	2,00		120	275	2,00	

Table C90: Characteristic values of tension and shear load resistances

				Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$										
					ji	Use condit	ion							
Anchor size	Perforated sleeve	Effective Anchorage depth		d/d			d/d w/d w/w							
		A A	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C						
									ranges					
		h _{ef}	N	$J_{Rk,b} = N_{Rk,p}$	2)	1	$V_{Rk,b}^{(2)}$							
		[mm]				[kN]								
		Normalis	sed mean d	ompressi	ve strength	f _b ≥ 12 N/	mm² 1)							
M8	SH 12	80	1,2	1,2	0,9	1,2	1,2	0,9	4,5					
M8 / M10/	SH 16	≥ 85	1,2	1,2	0,9	1,2	1,2	0,9	4,5					
IG-M6	20 10	130	3,0	3,0	2,5	3,0	3,0	2,5	4,5					
M12 / M16	CH 20	≥ 85	1,2	1,2	0,9	1,2	1,2	0,9	5,0					
IG-M8 / IG-M10	SH 20	≥ 130	3,0	3,0	2,5	3,0	3,0	2,5	5,0					
1\														

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C85. For stones with higher strengths, the shown values are valid without conversion.

Table C91: Displacements

17.0							
Anchor size	hef	δ_N / N	δΝο	δN∞	δv / V	δνο	δ∨∞
Afficior size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δΝο	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2 0110	0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Urbanbric Group factors, characteristic Resistances and Displacements	Annex C 28

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c | II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow Clay brick Brique creuse C40

Table C92: Stone description

Brick type		Hollow clay brick Brique creuse C40	
Density	ρ [kg/dm³]	≥ 0,70	
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 12	
Conversion factor for lowe strengths	$(f_b / 12)^{0,5} \le 1,0$		
Code		EN 771-1:2011+A1:2015	
Producer (Country)		e.g. Terreal (FR)	
Brick dimensions	[mm]	500 x 200 x 200	
Drilling method		Rotary drilling	



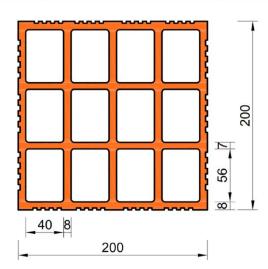


Table C93: Installation parameter

at anyther others. Other motions on the interest and anyther a										
Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	Tinst	[Nm]	≤2 ≤2 ≤2 ≤2 ≤2 ≤2 ≤2							
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: $c_{cr} = 500$)							
Minimum Edge Distance	Cmin	[mm]	120							
Characteristic Spacing	Scr, II	[mm]	500							
Characteristic Spacing	Scr, ⊥	[mm]	200							
Minimum Spacing	Smin, II;	[mm]	200							
Williman Spacing	Smin, ⊥	[iiiiii]	200							

Table C94: Reduction factors for single anchors at the edge

Tension load					Shea	r load			
			Perpendicular to the free edge			Parallel to the free edge			
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II	
•	120	1,00	→	120	0,83	1	120	1,00	
	120	1,00		500	1,00		250	1,00	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Brique Creuse C40 Description of the stone, Installation parameters, Reductionfactors	Annex C 29



Brick type:	Holl	low Cla	ay brick	Bri	que c	reuse C	40														
Table C95:	and record	Section of the Property of the Parket				under tei	nsion														
Anch			arallel to		1			An	chor p			ndicular to hor									
	Wit	th c ≥	with:	S ≥	С	Xg II, N		•	1 -	with	C≥	with s ≥	αg ⊥, N								
	1	120	500)	2	2,00		•		12	.0	200	2,00								
Table C96:	Fac	ctors fo	or ancho	r gro	oups (under sh	ear Id	oad													
		Ancho	or positio	n para	allel to	hor. joint			Anch	or pos	sition pe	rpendicular to	hor. joint								
Shear load	E		with c	≥ with s		≥ αg I	I,V ⊥				with $c \ge $ with $s \ge $		$\alpha_{g\perp,V\perp}$								
perpendicular to the free edge		•••	120		500	2,0	00		•	→	120	200	2,00								
Shear load	F	with		2	with s	≥ ag	I,V II	H			with c ≥	with s ≥	αg ⊥,V II								
parallel to the free edge		•	120		500	2,0	00		ţ		120	200	2,00								
Table C97: Characteristic values of tension and shear load resistances																					
						Chara	cterist	ic Re	sistar	ices v	vith c≥ d	c _{cr} and s ≥ s _{cr}									
		ø	_ O						Use	condi	tion										
		d sleev	eev	leev	leev	eev	eeve	leev	sleev	sleev	Effective Anchorage depth			d/d					w/c		d/d w/d
A			ffec ichc dep	d/d							w/w	<i>1</i>	w/w								
Anchor size Perforated sleeve		orate	ΑĀ	4000	10400	90°C/E0°C	12000	7/7000	1000	10400	00°C/E	12000/7200	All								
		erfo		40°C	,/24°C	80°C/50°C	120°0	J/72°C	7 40°C	,/24°C	80°C/50)°C 120°C/72°C	temperature ranges								
			h _{ef}		N	$I_{Rk,b} = N_{Rk,b}$	2)				$N_{Rk,b} = N_{Rk,b}$	V _{Rk,p} ²⁾	V _{Rk,b} ²⁾								
			[mm]			,			1	[kN]											
				sed m	nean c	ompressi	ve str	engt	h f _b ≥	12 N	/mm ^{2 1)}		T								
M8		SH 12	80																		
M8 / M10/ IG-M6		SH 16	≥ 85	1	,2	1,2	C),9			1,2	0,9	1,5								
M12 / M16 / IG-M8 / IG-M1		SH 20	≥ 85																		
 For lower cor with higher st 	rengt	ths, the s	hown valu	es are	valid v	vithout con			nversi	on fac	tor accor	ding to Table C9	2. For stones								
2) $N_{Rk,b,c} = N_{Rk,p}$				cordin	g to An	nex C 3															
Table C98:	DIS	splacen		9	NI / NI	20	VIO.		SN1	9	v / V	SVO	21/								
Ancho	r size	е	hef [mm]	0.000	in / N im/kN]		N0 m]	200	δΝ∞ mm]	10001	v / v m/kN]	δv0 [mm]	δ∨∞ [mm]								
1 – 8M			all		-		-),55	0,55*V _{Rk} / 3,5									
IG-M6 - M1		10	all	-	0,13	0,13*N	Rk / 3,	5 2	!*δΝ0),31	0,31*V _{Rk} / 3,5	323 334								
	0		all								,,,,,,	0,01 VHK7 0,0	7,5 600								
SOUDAFIX VE Performances Group factors, ch	holl	low clay	/ brick B	rique	Creus	se C40	or mas	sonry	ŗ			Annex C	30								



Brick type: Hollow Clay brick Blocchi Leggeri

Table C99: Stone description

Brick type		Hollow clay brick Blocchi Leggeri	
Density	ρ [kg/dm³]	≥ 0,60	
Normalised mean compressive strenght	f _b [N/mm²]	≥ 12	
Conversion factor for low strengths	$(f_b / 12)^{0.5} \le 1.0$		
Code		EN 771-1:2011+A1:2015	
Producer (Country)		e.g. Wienerberger (IT)	
Brick dimensions	[mm]	250 x 120 x 250	
Drilling method		Rotary drilling	



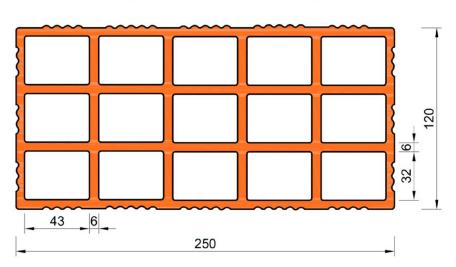


Table C100: Installation parameter

Table 0100. Ilistaliati	Table 0100. Installation parameter											
Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10			
Installation torque	Tinst	[Nm]	≤2 ≤2 ≤2 ≤2 ≤2 ≤2									
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: $c_{cr} = 250$)									
Minimum Edge Distance	Cmin	[mm]	60									
Characteristic Spacing	Scr, II	[mm]	250									
Characteristic Spacing	Scr, ⊥	[mm]	250									
Minimum Spacing	Smin, II;	[mm]	100									
I will in a chacing	Smin, ⊥	[]				100						

Table C101: Reduction factors for single anchors at the edge

Tension load			Shear load								
'	ension load		Perpendicular to the free edge			Parallel to the free edge					
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II			
•	60	1,00		60	0,40	1	60	0,40			
	120	1,00		250	1,00		120	1,00			

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Blocchi Leggeri Description of the stone, Installation parameters, Reductionfactors	Annex C 31

free edge



120

250

2,00

Brick type: Hollow Clay brick Blocchi Leggeri Table C102: Factors for anchor groups under tension load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint with c ≥ with s ≥ with c ≥ with s ≥ αg II, N $\alpha_{g\perp,\,N}$ 60 100 1,00 60 100 2,00 120 250 2,00 120 250 2,00

Table C103: Factors for anchor groups under shear load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint with c ≥ with s ≥ with c ≥ with s ≥ αg II,V ⊥ $\alpha_{g \perp, V \perp}$ Shear load 0,40 perpendicular 60 100 60 100 0,40 to the free 250 100 1,00 250 100 1,00 edge 250 250 2,00 250 250 2,00 with c ≥ with s ≥ with c ≥ with s ≥ αg II,V II αg ⊥,V II Shear load 100 0,40 100 60 60 0,40 parallel to the 120 100 1,00 120 100 1,00

2,00

Table C104: Characteristic values of tension and shear load resistances

250

120

			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$							
		20	Use condition							
	Perforated sleeve	Effective Anchorage depth					w/d		d/d	
	<u>9</u>	ffectiv chora depth		d/d			w/w		w/d	
Ancharaiza	Ö	iffe de de					w/w			
Anchor size	ate	ΑĀ							All	
	for		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature	
] er								ranges	
	_	h _{ef}	N	$N_{Rk,b} = N_{Rk,p}^{2)}$			$N_{Rk,b} = N_{Rk,p}^{(2)}$			
		[mm]				[kN]				
		Normalis	sed mean c	ompressiv	e strength	f _b ≥ 12 N/	mm² 1)			
M8	SH 12	80								
M8 / M10/ IG-M6	SH 16	≥ 85	0,6	0,6	0,6	0,6	0,6	0,6	3,5	
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85	***							

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C99. For stones with higher strengths, the shown values are valid without conversion.

Table C105: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Alichor Size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δΝ0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all			- 0,10	0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Blocchi Leggeri Group factors, characteristic Resistances and Displacements	Annex C 32

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c \, II} = V_{Rk,c} \bot according to Annex C 3$



Brick type: Hollow Clay brick Doppio Uni

Table C106: Stone description

Brick type		Hollow clay brick Doppio Uni
Density	ρ [kg/dm³]	≥ 0,90
Normalised mean compressive strenght	f _b [N/mm²]	≥ 28
Conversion factor for lowe strengths	er compressive	$(f_b / 28)^{0.5} \le 1.0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. Wienerberger (IT)
Brick dimensions	[mm]	250 x 120 x 120
Drilling method		Rotary drilling



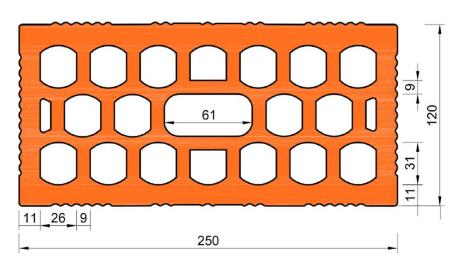


Table C107: Installation parameter

6. 34/06/25/376/9 9 346-7/15/376/376/376/376/376/376/376/376/376/376										
Anchor size					M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	Tinst	[Nm]	≤2 ≤2 ≤2 ≤2 ≤2 ≤2						≤ 2	
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: c _{cr} = 250)							
Minimum Edge Distance	Cmin	[mm]	100							
Characteristic Spacing	Scr, II	[mm]	250							
Characteristic Spacing	Scr, ⊥	[mm]	120							
Minimum Spacing	Smin, II;	[mm]				100				
Williman Spacing	Smin, ⊥	[iiiiii]	100							

Table C108: Reduction factors for single anchors at the edge

Tension load			Shear load							
	ension load		Perpendic	ular to the fro	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
•	100	1,00	→	100	0,50	<u> </u>	100	1,00		
	120	1,00		250	1,00		120	1,00		

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Doppio Uni Description of the stone, Installation parameters, Reductionfactors	Annex C 33



Brick type: Hollow Clay brick Doppio Uni Table C109: Factors for anchor groups under tension load

Anchor position parallel to nor. joint				Anchor position perpendicular to nor. joint			
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N
• •	100	100	1,00		100	120	2,00
	120	250	2,00		120	120	2,00

Table C110: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint			
Shear load		with c ≥	with s ≥	α _g II,V ⊥		with c ≥	with s ≥	$\alpha_g \perp$, v \perp
perpendicular	•••	100	100	1,00		100	100	1,00
to the free edge		250	250	2,00		250	120	2,00
Shear load		with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	α _g ⊥,ν II
parallel to the	•	100	100	1,00		100	100	1,00
free edge		120	250	2,00		120	120	2,00

Table C111: Characteristic values of tension and shear load resistances

		V					11.70-00			
			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$							
			Use condition							
	Perforated sleeve	Effective Anchorage depth					w/d		d/d	
	sle	ffectiv ichora depth		d/d			w/w		w/d	
Anchor size									w/w	
Allohol 3izo	ate	₽₹							All	
	for		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature	
	e								ranges	
		h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2}$			1	$V_{Rk,b}^{(2)}$			
		[mm]				[kN]				
		Normalis	sed mean d	ompressiv	ve strength	f _b ≥ 28 N/	mm² ¹⁾			
M8	SH 12	80								
M8 / M10/ IG-M6	SH 16	≥ 85	1,2	1,2	0,9	1,2	1,2	0,9	2,5	
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85								

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C106. For stones with higher strengths, the shown values are valid without conversion.

Table C112: Displacements

Anghorgiza	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δvo
M16	all	550 * \$8-00			0,31	0,31*V _{Rk} / 3,5	1,5 *δvo

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Doppio Uni Group factors, characteristic Resistances and Displacements	Annex C 34

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c \, II} = V_{Rk,c} \bot$ according to Annex C 3



Brick type: Hollow clay brick Coriso WS07 with insulation

Table C113: Stone description

Brick type		Hollow clay brick Coriso WS07
Insulationmaterial		Rock wool
Density	ρ [kg/dm³]	≥ 0,55
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 6
Conversion factor for lowe strengths	r compressive	$(f_b / 6)^{0,5} \le 1,0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. Unipor (DE)
Brick dimensions	[mm]	248 x 365 x 249
Drilling method		Rotary drilling



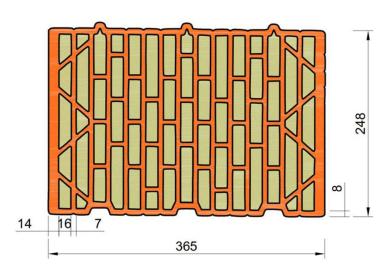


Table C114: Installation parameter

Table of the mountainer parameter											
Anchor size [-			M8	M8 M10 M12 M16 IG-M6 IG-M8 IG-							
Installation torque	Tinst	[Nm]	≤ 5	≤ 5	≤ 10	≤ 10	≤ 5	≤ 5	≤ 5		
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: ccr = 250)								
Minimum Edge Distance	Cmin	[mm]	50								
Characteristic Spacing	Scr, II	[mm]	250								
Characteristic Spacing	Scr, ⊥	[mm]	250								
Minimum Spacing	Smin, II;	[mm]	50								
Willimani Spacing	Smin, ⊥	[iiiiii]				50					

Table C115: Reduction factors for single anchors at the edge

Tension load				Shear load							
Tension load			Perpendic	ular to the fr	ee edge	Parallel to the free edge					
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II			
•	50	1,00		50	0,30	1	50	1,00			
	120	1,00		250	1,00		120	1,00			

Performances hollow clay brick Coriso WS07 with insulationDescription of the stone, Installation parameters, Reduction factors

Annex C 35



Brick type: Hollow clay brick Coriso WS07 with insulation

Table C116: Factors for anchor groups under tension load

An	chor position p	arallel to hor. jo	oint	Ancho	r position perp	endicular to ho	r. joint
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	α _{g ⊥, N}
• •	50	50	1,50		50	50	1,00
	120	250	2,00		120	250	2,00

Table C117: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint				
Shear load		with c ≥	with s ≥	α _g II,V ⊥	1	with c ≥	with s ≥	$\alpha_{g}\bot,v\bot$	
perpendicular to the free		50	50	0,40		50	50	0,40	
		250	50	1,00		250	50	1,20	
edge	***************************************	250	250	2,00		250	250	2,00	
Shear load		with c ≥	with s ≥	α _g II,V II		with c ≥	with s ≥	α _{g ⊥,} ν II	
	•	50	50	1,65		50	50	1,00	
		120	250	2,00		120	250	2,00	

Table C118: Characteristic values of tension and shear load resistances

			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
				Use condition								
	eve	Effective Anchorage depth					w/d		d/d			
	sle	ffectiv ichora depth		d/d			w/w		w/d			
Anchor size	g	# 5 8							w/w			
Alichor Size	ate	ΑĀ							All			
	l for	Effective Effective Anchorage 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	temperature			
	J _e								ranges			
	h _{ef}		N	$I_{Rk,b} = N_{Rk,p}$	2)	N	$V_{Rk,b}^{(2)}$					
		[mm]				[kN]						
		Normali	sed mean d	compressi	ve strengtl	n f _b ≥6 N/n	nm² ¹⁾					
M8	SH 12	80		1000								
M8 / M10/ IG-M6	SH 16	≥ 85	1,5	1,5	1,5	1,5	1,5	1,5	5,0			
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85										

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C113. For stones with higher strengths, the shown values are valid without conversion.

Table C119: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δΝ0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all	anne • della della			0,31	0,31*V _{Rk} / 3,5	1,5*δνο

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow Clay brick Coriso WS07 with insulation Group factors, characteristic Resistances and Displacements	Annex C 36

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow clay brick T7 MW with insulation

Table C120: Stone description

Brick type		Hollow clay brick T7 MW
Insulation material		Rock wool
Density	ρ [kg/dm³]	≥ 0,59
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 8
Conversion factor for lowe strengths	er compressive	$(f_b / 8)^{0,5} \le 1,0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. Wienerberger (DE)
Brick dimensions	[mm]	248 x 365 x 249
Drilling method		Rotary drilling



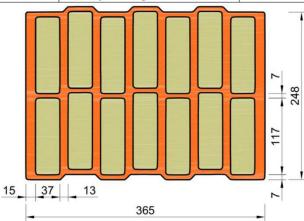


Table C121: Installation parameter

an									
Anchor size			M8	M10	M12	M16	IG-M6	IG-M8	IG-M10
Installation torque	T _{inst}	[Nm]	≤ 5	≤ 5	≤ 10	≤ 10	≤ 5	≤ 5	≤ 5
Char. Edge distance (under fire conditions)	Ccr; (Ccr,fi)	C _{cr;} (C _{cr,fi}) [mm]				120 (2 h _{ef}) the free e	odgo: o -	250)
,	W1 ***	f	(101 8	near luac	is perpen		the hee e	euge. Ccr =	= 230)
Minimum Edge Distance	Cmin	[mm]				50			
Characteristic Spacing	Scr, II; (Scr,fi, II)	[mm]			- :	250 (4 h _{ef})		
(under fire conditions)	$S_{cr, \perp; (S_{cr,fi, \perp})}$	[mm]	250 (4 h _{ef})						
Minimum Spacing	Smin, II; Smin, ⊥	[mm]	50						
337.00									ï

Table C122: Reduction factors for single anchors at the edge

_	ension load		Shear load							
'	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
•	50	1,00		50	0,35	 	50	1,00		
	120	1,00		250	1,00		120	1,00		

Table C123: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint			
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N
• •	50	50	1,40		50	50	1,15
	120	250	2,00		120	250	2,00

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow clay brick T7 MW with insulation

Description of the stone, Installation parameters, Reductionfactors

Annex C 37

free edge



120

250

2,00

Brick type: Hollow clay brick T7 MW with insulation											
Table C124: Factors for anchor groups under shear load											
	Anchor position parallel to hor. joint Anchor position perpendicular to hor. join										
Shear load		with c ≥	with s ≥	α _g II,V ⊥		with c ≥	with s ≥	$\alpha_{g\perp,V\perp}$			
perpendicular		50	50	0,60		50	50	0,40			
to the free		250	50	1,55		250	50	1,00			
edge		250	250	2,00		250	250	2,00			
Shear load parallel to the		with c ≥	with s ≥	αg II,V II	1	with c ≥	with s ≥	α _{g ⊥,V II}			
		50	50	2,00		50	50	1,20			

2,00

Table C125: Characteristic values of tension and shear load resistances

250

120

			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$										
				Use condition									
	eve	Effective Anchorage depth					w/d		d/d				
Anchor size	sle	ffectiv ichora depth		d/d			w/w		w/d				
	D D	# 5 B					w/w						
	Perforated sleeve	Ar							All				
			40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature				
									ranges				
	_	h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2}$			1	2) p	$V_{Rk,b}^{(2)}$					
		[mm]		[kN]									
		Normali	sed mean o	compressi	ive strengtl	n f _b ≥8N/n	nm² ¹⁾						
M8	SH 12	80											
M8 / M10/ IG-M6	SH 16	≥ 85	0.0	0.0		0.0	2,0		3,0				
M12 / IG-M8	SH 20	≥ 85	2,0	2,0	1,5	2,0		1,5	77				
M16 / IG-M10	SH 20	≥ 85							4,5				

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C120. For stones with higher strengths, the shown values are valid without conversion.

Table C126: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Afficitor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all		,	7110	0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

Table C127: Characteristic values of tension and shear load resistances under fire exposure

		Effecitve	Resistances					
Anchor size	Perforated	Anchorage depth						
Afficitor size	sleeve	h _{ef}	R30	R60	R90	R120		
		[mm]	[kN]					
M8 / M10 /IG-M6	SH 16	130				Leaders.		
M12 / M16 / IG-M8 IG-M10	SH 20	≥ 130	0,64	0,37	0,11	_1)		

¹⁾ no performance assessed

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick T7 MW with insulation Group factors, characteristic Resistances and Displacements	Annex C 38

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c | II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow clay brick T8 P with insulation

Table C128: Stone description

Brick type		Hollow clay brick T8 P
Insulation material		Perlite
Density	ρ [kg/dm³]	≥ 0,56
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 6
Conversion factor for lowe strengths	er compressive	$(f_b / 6)^{0,5} \le 1,0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. Wienerberger (DE)
Brick dimensions	[mm]	248 x 365 x 249
Drilling method		Rotary drilling



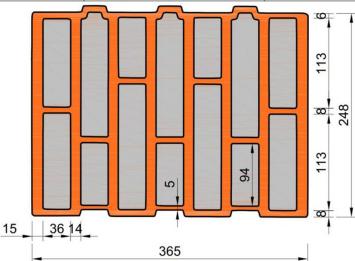


Table C129: Installation parameter

Table 0123. Installation parameter											
Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10		
Installation torque T _{inst}		[Nm]	≤ 4	≤ 4	≤ 10	≤ 10	≤ 4	≤ 4	≤ 4		
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: c _{cr} = 250)								
Minimum Edge Distance	Cmin	[mm]	50								
Characteristic Spacing	Scr, II	[mm]		250							
Characteristic Spacing	Scr, ⊥	[mm]		250							
Minimum Spacing	Smin, II;	[mm]		50							
I willing	Smin, ⊥	[iiiiii]									

Table C130: Reduction factors for single anchors at the edge

Tension load			Shear load							
_ '	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
•	50	1,00	→	50	0,25] <u>†</u>	50	1,00		
	120	1,00		250	1,00		120	1,00		

Performances hollow clay brick T8 P with insulation

Description of the stone, Installation parameters, Reductionfactors

Annex C 39



Brick type: Hollow clay brick T8 P with insulation

Table C131: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint			
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N
• •	50	50	1,30		50	50	1,10
	120	250	2,00		120	250	2,00

Table C132: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint			
Shear load perpendicular to the free edge	·:	with c ≥	with s ≥	α _g II,V ⊥	1	with c ≥	with s ≥	$\alpha_{g\perp,V\perp}$
	•••	50	50	0,40		50	50	0,30
		250	50	1,35		250	50	1,20
		250	250	2,00		250	250	2,00
Shear load parallel to the free edge		with c ≥	with s ≥	α _g II,V II		with c ≥	with s ≥	α _{g ⊥,} ν II
	•	50	50	1,70		50	50	1,00
		120	250	2,00		120	250	2,00

Table C133: Characteristic values of tension and shear load resistances

				Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
			Use condition										
	Perforated sleeve	Effective Anchorage depth					w/d		d/d				
	Se	Effective inchoragi depth		d/d			w/w		w/d				
Anchor size	g	# 5 8					•••		w/w				
Alichor Size	ate	ΑĀ							All				
	- fo		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature				
)er								ranges				
	_	h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2}$			<u> </u>	$N_{Rk,b} = N_{Rk,p}^{2}$						
		[mm]				[kN]							
		Normali	sed mean d	compressi	ve strengtl	n f _b ≥ 6 N/n	nm² ¹⁾						
M8	SH 12	80		1009									
M8 / M10/ IG-M6	SH 16	≥ 85	1,5	1,5	1,5	1,5	1,5	1,5	4,5				
M12 / IG-M8	SH 20	≥ 85	9	100									
M16 / IG-M10	SH 20	≥ 85	2,5	2,5	2,0	2,5	2,5	2,0	7,0				

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C128. For stones with higher strengths, the shown values are valid without conversion.

Table C134: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Afficior size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δΝ0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all	•	,		0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick T8 P with insulation Group factors, characteristic Resistances and Displacements	Annex C 40

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c \mid I} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow clay brick Thermoplan MZ90-G with insulation

Table C135: Stone description

Brick type		Hollow clay brick Thermoplan MZ90-G
Insulation material		Rock wool
Density	ρ [kg/dm³]	≥ 0,68
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 12
Conversion factor for low strengths	er compressive	$(f_b / 12)^{0.5} \le 1.0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. Mein Ziegelhaus (DE)
Brick dimensions	[mm]	248 x 365 x 249
Drilling method		Rotary drilling



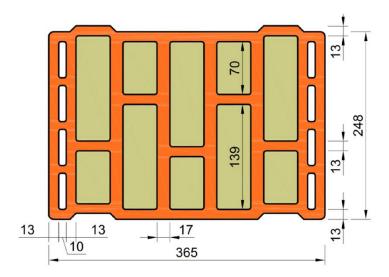


Table C136: Installation parameter

Table Greet Interance	on pan	41110101								
Anchor size	1800.07 (F-1800.12 1900 - F-1940.98 - 2000)				M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	Tinst	[Nm]	≤ 4	≤ 4	≤ 10	≤ 10	≤ 4	≤ 4	≤ 4	
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: $c_{cr} = 250$)							
Minimum Edge Distance	Cmin	[mm]	50							
Characteristic Spacing	Scr, II	[mm]	250							
Characteristic Spacing	Scr, ⊥	[mm]	250							
Minimum Spacing	Smin, II;	[mm]				50				
William Spacing	Smin, ⊥	[[[]]				50				

Table C137: Reduction factors for single anchors at the edge

,	Tension load			Shear load							
'	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge					
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II			
•	50	1,00	→	50	0,25	1	50	1,00			
	120	1,00		250	1,00		120	1,00			

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Thermoplan MZ90-G with insulation	Annex C 41
Description of the stone, Installation parameters, Reductionfactors	



Brick type: Hollow clay brick Thermoplan MZ90-G with insulation

Table C138: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Ancho	r position perp	endicular to ho	r. joint
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N
• •	50	50	1,00		50	50	1,00
	120	250	2,00		120	250	2,00

Table C139: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint			
Shear load perpendicular to the free edge		with c ≥	with s ≥	α _g II,V ⊥	1	with c ≥	with s ≥	αg⊥, V⊥
	•••	50	50	0,75		50	50	0,50
		250	50	2,00		250	50	1,70
		250	250	2,00		250	250	2,00
Shear load parallel to the free edge		with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	α _{g ⊥,} ν II
	•	50	50	1,65] [50	50	1,15
		120	250	2,00		120	250	2,00

Table C140: Characteristic values of tension and shear load resistances

							The Property of Control of						
				Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
			Use condition										
	Perforated sleeve	Effective Anchorage depth					w/d		d/d				
	Se	Effective Anchorage depth		d/d			w/w		w/d				
Anchor size	g	# 5 8							w/w				
Anchor Size	ate	Ā							All				
	- fo		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature				
	Je.								ranges				
	"		$N_{Rk,b} = N_{Rk,p}^{2}$			1	$N_{Rk,b} = N_{Rk,p}$	2)	V _{Rk,b} ²⁾				
		[mm]				[kN]							
		Normalis	sed mean c	ompressiv	e strength	f _b ≥ 12 N/	mm² 1)						
M8	SH 12	80											
M8 / M10/ IG-M6	SH 16	≥ 85	3,0	3,0	2,5	3,0	3,0	2,5	4,0				
M12 / IG-M8	SH 20	≥ 85											
M16 / IG-M10	SH 20	≥ 85	3,5	3,5	3,0	3,5	3,5	3,0	7,5				

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C135. For stones with higher strengths, the shown values are valid without conversion.

Table C141: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all		,		0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Thermoplan MZ90-G with insulation Group factors, characteristic Resistances and Displacements	Annex C 42

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c \mid I} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow clay brick Poroton FZ7,5 with insulation

Table C142: Stone description

Brick type		Hollow clay brick Poroton FZ7,5
Insulation material		Rock wool
Density	ρ [kg/dm³]	≥ 0,70
Normalised mean compressive strenght	f _b [N/mm²]	≥ 8
Conversion factor for lower strengths	compressive	$(f_b / 8)^{0,5} \le 1,0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. Schlagmann (DE)
Brick dimensions	[mm]	248 x 365 x 249
Drilling method		Rotary drilling



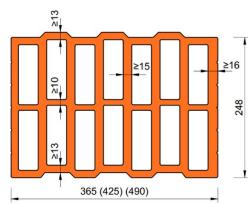


Table C143: Installation parameter

A			1.40	1110	1440	1110	10.140	10.140	10.1440	
Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	T _{inst}	[Nm]	≤ 5	≤ 5	≤ 10	≤ 10	≤ 5	≤ 5	≤ 5	
Char. Edge distance	Ccr; (Ccr,fi)	[mm]				120 (2 h _{ef}				
(under fire conditions)	Ccr; (Ccr,fi)	[mm]	(for shear loads perpendicular to the free edge: $c_{cr} = 250$)							
Minimum Edge Distance	Cmin	[mm]	50							
Characteristic Spacing	Scr, II; (Scr,fi, II)	[mm]			- :	250 (4 h _{ef})			
(under fire conditions)	Scr, ⊥; (Scr,fi, ⊥)	[mm]	250 (4 h _{ef})							
Minimum Spacing	Smin, II; Smin, ⊥	[mm]	[mm] 50							

Table C144: Reduction factors for single anchors at the edge

Tension load			Shear load							
			Perpendic	ular to the fr	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
•	50	1,00	→	50	0,35	•	50	1,00		
	120	1,00		250	1,00		120	1,00		

Table C145: Factors for anchor groups under tension load

An	Anchor position parallel to hor. joint			Anchor position perpendicular to hor. joint			
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg ⊥, N
• •	50	50	1,40		50	50	1,15
	120	250	2,00		120	250	2,00

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow clay brick Poroton FZ7,5 with insulation Description of the stone, Installation parameters, Reduction factors

Annex C 43

free edge



120

250

2,00

Brick type: Hollow clay brick Poroton FZ7,5 with insulation									
Table C146: Factors for anchor groups under shear load									
	Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint								
Shear load perpendicular	•••	with c ≥	with s ≥	α _g II,V ⊥		with c ≥	with s ≥	$\alpha_{g\perp,V\perp}$	
		50	50	0,60		50	50	0,40	
to the free		250	50	1,55		250	50	1,00	
edge	•	250	250	2,00		250	250	2,00	
Shear load		with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	α _{g ⊥,} ν II	
parallel to the	• •	50	50	2,00]	50	50	1,20	

2,00

Table C147: Characteristic values of tension and shear load resistances

250

120

145.5 5 1 17 1 5.1											
			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$								
			Use condition								
	eve	Effective Anchorage depth					w/d		d/d w/d		
	sle	ffectiv ichora depth		d/d			w/u w/w				
Anchor size		불호형					VV/ VV				
7 (1101101 6.120	Perforated sleeve	rforate E Ar	0.0000000000000000000000000000000000000	0.000-000000000000000000000000000000000				se vi oscielada jadroasie kara	All		
			40°C/24°C	80°C/50°C 1	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature		
					- 20				ranges		
	_	h _{ef}	N	$N_{Rk,b} = N_{Rk,p}^{2)}$			$N_{Rk,b} = N_{Rk,p}^{(2)}$				
		[mm]				[kN]					
		Normali	sed mean o	compressi	ve strengtl	h f _b ≥8 N/n	nm² 1)				
M8	SH 12	80									
M8 / M10/ IG-M6	SH 16	≥ 85	2.0	2.0	1.5	2,0	0.0	1,5	3,0		
M12 / IG-M8	SH 20	≥ 85	2,0	2,0	1,5		2,0				
M16 / IG-M10	SH 20	≥ 85							4,5		

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C142. For stones with higher strengths, the shown values are valid without conversion.

Table C148: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δvo
M16	all				0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

Table C149: Characteristic values of tension and shear load resistances under fire exposure

		Effecitve	Characteristic Resistances					
I Anchor size I .	Perforated	Anchorage depth	$N_{Rk,b,fi} = N_{Rk,p,fi} = V_{Rk,b,fi}$					
	sleeve	h _{ef}	R30	R60	R90	R120		
		[mm]	[kN]					
M8 / M10 /IG-M6	SH 16	130				750.00		
M12 / M16 / IG-M8 IG-M10	SH 20	≥ 130	0,64	0,37	0,11	-1)		

¹⁾ no performance assessed

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Poroton FZ7,5 with insulation Group factors, characteristic Resistances and Displacements	Annex C 44

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c \mid I} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow clay brick Poroton FZ9 with insulation

Table C150: Stone description

Brick type		Hollow clay brick Poroton FZ9
Insulation material		Rock wool
Density	ρ [kg/dm³]	≥ 0,90
Normalised mean compressive strenght	f _b [N/mm²]	≥ 10
Conversion factor for lower strengths	r compressive	$(f_b / 10)^{0.5} \le 1.0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. Schlagmann (DE)
Brick dimensions	[mm]	248 x 365 x 249
Drilling method		Rotary drilling



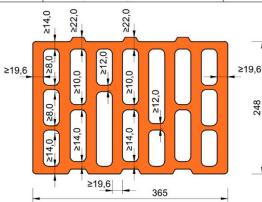


Table C151: Installation parameter

Anchor size	[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10		
Installation torque	T _{inst}	[Nm]	≤ 5	≤ 5	≤ 10	≤ 10	≤ 5	≤ 5	≤ 5	
Char. Edge distance	0 (0 ")	[mm]	,			120 (2 h _{ef})			
(under fire conditions)	Ccr; (Ccr,fi)	[[iiiiii]	(for shear loads perpendicular to the free edge: $c_{cr} = 250$)							
Minimum Edge Distance	Cmin	[mm]			3) 878	50				
Characteristic Spacing	Scr, II; (Scr,fi, II)	[mm]			2	250 (4 h _{ef})			
(under fire conditions)	$S_{cr, \perp;}(S_{cr,fi, \perp})$	[mm]	m] 250 (4 h _{ef})							
Minimum Spacing	Smin, II; Smin, ⊥	[mm] 50								

Table C152: Reduction factors for single anchors at the edge

,	ension load		Shear load							
!	ension load		Perpendic	ular to the fro	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
•	50	1,00	→	50	0,35	•	50	1,00		
	120	1,00		250	1,00		120	1,00		

Table C153: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint				
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	α _{g ⊥, N}	
• •	50	50	1,40		50	50	1,15	
	120	250	2,00		120	250	2,00	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow clay brick Poroton FZ9 with insulationDescription of the stone, Installation parameters, Reduction factors

Annex C 45

free edge



120

250

2,00

Brick type: Hollow clay brick Poroton FZ9 with insulation Table C154: Factors for anchor groups under shear load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint with c ≥ with s ≥ with c ≥ with s ≥ $lpha_{g}$ II,V $oldsymbol{\perp}$ $\alpha_{\text{g}}\,\bot,\,\text{V}\,\bot$ Shear load 50 50 0,60 50 50 0,40 perpendicular to the free 250 50 1,55 250 50 1,00 edge 250 250 2,00 250 250 2,00 with c ≥ with s ≥ with c ≥ with s ≥ αg II,V II αg ⊥,V II Shear load parallel to the 50 50 2,00 50 50 1,20

2,00

Table C155: Characteristic values of tension and shear load resistances

250

120

			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
		-		Use condition								
Anchor size	Perforated sleeve	Effective Anchorage depth					w/d		d/d			
	S e	ffectiv ichora depth		d/d			w/w		w/d w/w			
	g	# 2 B				5	VV/ VV					
	ate	ΑĀ							All			
	Į į		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature			
) er								ranges			
	_	h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2}$				$N_{Rk,b} = N_{Rk,p}$	2)	$V_{Rk,b}^{(2)}$			
		[mm]	[kN]									
		Normalis	ed mean c	ompressiv	e strength	f _b ≥ 10 N/	mm ^{2 1)}					
M8	SH 12	80		~4.00	1,000.00							
M8 / M10/ IG-M6	SH 16	≥ 85	2.0	2.0	1.5	2.0	0.0	4.5	3,0			
M12 / IG-M8	SH 20	≥ 85	2,0	2,0	1,5	2,0	2,0	1,5				
M16 / IG-M10	SH 20	≥ 85							4,5			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C150. For stones with higher strengths, the shown values are valid without conversion.

Table C156: Displacements

W PROMPOSITION AND ACCORDANCE OF THE PROMPOSITION AND ACCOUNT AND											
Anchor size	hef	δn / N	δΝ0	δN∞	δv / V	δνο	δ∨∞				
Afficitor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]				
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δΝο	0,55	0,55*V _{Rk} / 3,5	1,5*δνο				
M16	all		,	= 5140	0,31	0,31*V _{Rk} / 3,5	1.5*δγο				

Table C157: Characteristic values of tension and shear load resistances under fire exposure

			Effecitve	Characteristic Resistances							
Analasu aisa	Perforated	Anchorage depth $N_{Rk,b,fi} = N_{Rk,p,fi} = V_{Rk,b,fi}$									
	Anchor size	sleeve	h _{ef}	R30	R60	R90	R120				
			[mm]	[kN]							
	M8 / M10 /IG-M6	SH 16	130				70.00				
	M12 / M16 / IG-M8 IG-M10	SH 20	≥ 130	0,64	0,37	0,11	_1)				

¹⁾ no performance assessed

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Poroton FZ9 with insulation Group factors, characteristic Resistances and Displacements	Annex C 46

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|I} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow clay brick Poroton S9 with insulation

Table C158: Stone description

Hollow clay brick Poroton S9
Perlite
] ≥ 0,85
2] ≥ 12
sive $(f_b / 12)^{0,5} \le 1,0$
EN 771-1:2011+A1:2015
e.g. Schlagmann (DE)
248 x 365 x 249
Rotary drilling



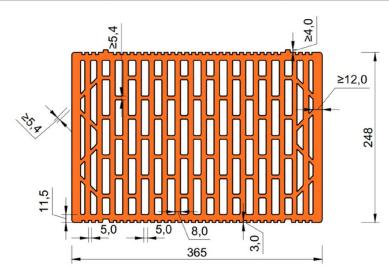


Table C159: Installation parameter

Table 6 Test Metallation parameter											
Anchor size	[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10			
Installation torque	Tinst	[Nm]	≤5 ≤5 ≤10 ≤10 ≤5 ≤5 ≤5								
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: c _{cr} = 250)								
Minimum Edge Distance	Cmin	[mm]	50								
Characteristic Spacing	Scr, II	[mm]	250								
Characteristic Spacing	Scr, ⊥	[mm]	250								
Minimum Spacing	Smin, II;	[mm]				50					
William Spacing	Smin, ⊥	[[[]]	50								

Table C160: Reduction factors for single anchors at the edge

,	ension load		Shear load								
'	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge					
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II			
•	50	1,00	→	50	0,30	1	50	1,00			
	120	1,00		250	1,00		120	1,00			

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow clay brick Poroton S9 with insulationDescription of the stone, Installation parameters, Reduction factors

Annex C 47



Brick type: Hollow clay brick Poroton S9 with insulation

Table C161: Factors for anchor groups under tension load

An	chor position p	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint				
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N	
• •	50	50	1,50		50	50	1,00	
	120	250	2,00		120	250	2,00	

Table C162: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint				
Shear load perpendicular to the free edge		with c ≥	with s ≥	α _g II,V ⊥	1	with c ≥	with s ≥	$\alpha_g \perp$, v \perp	
		50	50	0,40		50	50	0,40	
		250	50	1,00		250	50	1,20	
		250	250	2,00		250	250	2,00	
Shear load parallel to the free edge		with c ≥	with s ≥	α _g II,V II		with c ≥	with s ≥	α _g ⊥,ν II	
	•	50	50	1,65		50	50	1,00	
		120	250	2,00		120	250	2,00	

Table C163: Characteristic values of tension and shear load resistances

			Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
				Use condition								
Anchor size	Perforated sleeve	Effective Anchorage depth					w/d		d/d			
	sle	Effective inchorag depth		d/d			w/w		w/d			
	g	# 5 9	- 4						w/w			
	ate	ΑĀ							All			
	je j		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature			
	Je l								ranges			
	-	h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2)}$			N	$V_{Rk,b}^{(2)}$					
		[mm]		[kN]								
		Normalis	ed mean c	ompressiv	e strength	f _b ≥ 12 N/ı	mm² 1)					
M8	SH 12	80										
M8 / M10/ IG-M6	SH 16	≥ 85	1,5	1,5	1,5	1,5	1,5	1,5	5,0			
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85	92									

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C158. For stones with higher strengths, the shown values are valid without conversion.

Table C164: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Alichor Size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all	. 1775,750.00			0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow clay brick Poroton S9 with insulation Group factors, characteristic Resistances and Displacements	Annex C 48

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow clay brick Thermopor TV8+ with insulation

Table C165: Stone description

Brick type		Hollow clay brick Thermopor TV8+
Insulation material		Rock wool
Density	ρ [kg/dm³]	≥ 0,70
Normalised mean compressive strenght	f₀ [N/mm²]	≥ 10
Conversion factor for lowe strengths	er compressive	$(f_b / 10)^{0.5} \le 1.0$
Code		EN 771-1:2011+A1:2015
Producer (Country)		e.g. THERMOPOR GmbH (DE)
Brick dimensions	[mm]	248 x 365 x 249
Drilling method		Rotary drilling



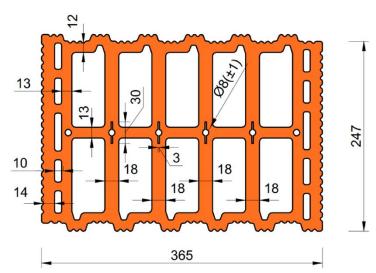


Table C166: Installation parameter

Table 0100. Illstallati	on pan	unicici							
Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10
Installation torque	Tinst	[Nm]	≤ 4	≤ 4	≤ 10	≤ 10	≤ 4	≤ 4	≤ 4
Char. Edge distance	Ccr	[mm]	[mm] 120 (for shear loads perpendicular to the free edge: c _{cr} = 250)				250)		
Minimum Edge Distance	Cmin	[mm]				50			
Characteristic Spacing	Scr, II	[mm]	250						
Characteristic Spacing	Scr, ⊥	[mm]	250						
Minimum Spacing	Smin, II;	[mm]	50						
William Spacing	Smin, ⊥	[[,,,,,,]				50			

Table C167: Reduction factors for single anchors at the edge

Tension load				Shear load						
Tension load			Perpendicular to the free edge			Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
• 1	50	1,00	→	50	0,25] <u>†</u>	50	1,00		
	120	1,00		250	1,00		120	1,00		

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	

Performances hollow clay brick Thermopor TV8+ with insulation

Description of the stone, Installation parameters, Reductionfactors

Annex C 49



Brick type: Hollow clay brick Thermopor TV8+ with insulation

Table C168: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Ancho	or position perp	endicular to ho	r. joint
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	$\alpha_g \perp$, N
• •	50	50	1,00		50	50	1,00
	120	250	2,00		120	250	2,00

Table C169: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	joint	Anchor position perpendicular to hor. joint			
Shear load		with c ≥	with s ≥	α _g II,V ⊥	1	with c ≥	with s ≥	$\alpha_{g\perp,V\perp}$
perpendicular	•••	50	50	0,75		50	50	0,50
to the free		250	50	2,00		250	50	1,70
edge	.,	250	250	2,00		250	250	2,00
Shear load		with c ≥	with s ≥	α _g II,V II		with c ≥	with s ≥	α _{g ⊥,} ν II
parallel to the	•	50	50	1,65		50	50	1,15
free edge		120	250	2,00		120	250	2,00

Table C170: Characteristic values of tension and shear load resistances

01 000-00-00-0000 NSSC (0001-00-00-00-00-00-00-00-00-00-00-00-00		I					HEADER TO STATE OF				
				Charac	teristic Res	istances w	ith c≥c _{cr} a	and s≥s _{cr}			
			Use condition								
	Perforated sleeve	Effective Anchorage depth					w/d		d/d		
	sle	Effective Anchorage depth		d/d			w/w		w/d		
Anchor size	ğ	# 5 8							w/w		
Alichor Size	ate	Ā				become control and a second control and a second a second and a second a second and			All		
	- je		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	temperature		
	Je J								ranges		
	_	h _{ef}	N	$J_{Rk,b} = N_{Rk,p}$	2)	1	$N_{Rk,b} = N_{Rk,j}$	2)	$V_{Rk,b}^{(2)}$		
		[mm]				[kN]					
		Normalis	sed mean c	ompressiv	e strength	ı f _b ≥ 10 N/mm² 1)					
M8	SH 12	80		0.00							
M8 / M10/ IG-M6	SH 16	≥ 85	3,0	3,0	2,5	3,0	3,0	2,5	3,5		
M12 / IG-M8	SH 20	≥ 85		**							
M16 / IG-M10	SH 20	≥ 85	3,5	3,5	3,0	3,5	3,5	3,0	7,0		

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C165. For stones with higher strengths, the shown values are valid without conversion.

Table C171: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all	, , , , , , , , , , , , , , , , , , , ,	,		0,31	0,31*V _{Rk} / 3,5	1,5*δ∨0

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry		
Performances hollow clay brick Thermopor TV8+ with insulation Group factors, characteristic Resistances and Displacements	Annex C 50	

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c \mid I} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow light weight concrete brick HBL 16DF

Table C172: Stone description

Brick type		Hollow light weight concrete brick HBL 16DF
Density	ρ [kg/dm³]	≥ 1,0
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 3,1
Conversion factor for low strengths	er compressive	$(f_b/3,1)^{0,5} \le 1,0$
Code		EN 771-3:2011+A1:2015
Producer (Country)		e.g. KLB Klimaleichtblock (DE)
Brick dimensions	[mm]	500 x 250 x 240
Drilling method		Rotary drilling



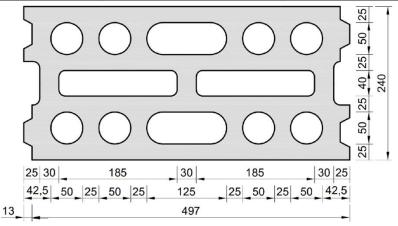


Table C173: Installation parameter

30 30 30 30 30 30 30 30 30 30 30 30 30 3	The state of the s								
Anchor size	[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	T _{inst}	[Nm]	≤ 2	≤ 2	≤ 5	≤ 5	≤ 2	≤ 5	≤ 5
Char. Edge distance (under fire conditions)	Cer; (Cer,fi)	[mm]	(for s	shear load		120 (2 h _{ef} dicular to	,	edge: c _{cr}	= 250)
Minimum Edge Distance	Cmin	[mm]	18		0. (6.)	50		1000	
Characteristic Spacing	Scr, II; (Scr,fi, II)	[mm]	nm] 500 (4 h _{ef})						
(under fire conditions)	Scr, ⊥; (Scr,fi, ⊥)	[mm]	250 (4 h _{ef})						
Minimum Spacing	Smin, II; Smin, ⊥	[mm]	m] 50						

Table C174: Reduction factors for single anchors at the edge

١ ,	Tension load		Shear load							
	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
•	50	1,00		50	0,30	<u> </u>	50	1,00		
	120	1,00		250	1,00		120	1,00		

Table C175: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint				
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N	
• •	50	50	2,00		50	50	1,55	
	120	500	2,00		120	250	2,00	

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances hollow light weight concrete brick HBL 16DF Description of the stone, Installation parameters, Reductionfactors

Annex C 51

free edge



120

250

2,00

Brick type: Hollow light weight concrete brick HBL 16DF Table C176: Factors for anchor groups under shear load Anchor position parallel to hor. joint Anchor position perpendicular to hor. joint with c ≥ with s ≥ αg II,V⊥ with c ≥ with s ≥ $\alpha_{\text{g}}\,\bot,\,\text{V}\,\bot$ Shear load 50 50 0,60 50 50 0,35 perpendicular to the free 120 50 2,00 120 50 1,15 edge 120 500 2,00 120 250 2,00 with c ≥ with s ≥ with c ≥ with s ≥ αg II,V II αg ⊥,V II Shear load 50 50 1,30 parallel to the 50 1,00 50 120 250 2,00

2,00

Table C177: Characteristic values of tension and shear load resistances

500

120

				Charac	cteristic Res	istances w	ith c≥c _{cr} a	and s≥s _{cr}				
	0			Use condition								
	eve	Effective Anchorage depth					w/d		d/d			
	se l	ffectiv ichora depth		d/d			w/w		w/d			
Anchor size	D	# 5 8					w/w					
Andrior Size	Perforated sleeve	Ar Ar				40°C/24°C			All			
			40°C/24°C	80°C/50°C	120°C/72°C		80°C/50°C	120°C/72°C	temperature			
									ranges			
		h _{ef}	$N_{Rk,b} = N_{Rk,p}^{2}$			1	$V_{Rk,b}^{(2)}$					
		[mm]		[kN]								
		Normalis	ed mean c	ompressiv	e strength	f _b ≥ 3,1 N/	mm ^{2 1)}					
M8 / M10/ IG-M6	SH 16	≥ 85	1,2	1,2	0,9	1,2	1,2	0,9	2,0			
M12 / IG-M8	SH 20	≥ 85	1.5	1.5	1.0	1.5	1.5	10	3,0			
M16 / IG-M10	SH 20	≥ 85	1,5	1,5	1,2	1,5	1,5	1,2	5,0			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C172. For stones with higher strengths, the shown values are valid without conversion.

Table C178: Displacements

Anghor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
Anchor size	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δΝο	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all	200 • ANTON	300,000,000	3110	0,31	0,31*V _{Rk} / 3,5	1,5*δνο

Table C179: Characteristic values of tension and shear load resistances under fire exposure

		Effecitve	1 hg (public of which per						
Anchor size	Perforated	Anchorage depth	$N_{Rk,b,fi} = N_{Rk,p,fi} = V_{Rk,b,fi}$						
Afficitor size	sleeve	h _{ef}	R30	R60	R90	R120			
		[mm]							
M8 / M10 / IG-M6	SH 16	130	0,29	0,21	-1)	_1)			
M12 / IG-M8	SH 20	≥ 130	0,29	0,21	-1)	-1)			
M16 / IG-M10	SH 20	≥ 130	0,29	0,21	0,12	_1)			

¹⁾ no performance assessed

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow light weight concrete brick HBL 16DF Group factors, characteristic Resistances and Displacements	Annex C 52

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|II} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Hollow concrete brick Bloc Creux B40

Table C180: Stone description

Brick type		Hollow concrete brick Bloc Creux B40	
Density	ρ [kg/dm ³]	≥ 0,8	
Normalised mean compressive strenght	f _b [N/mm ²]	≥ 5,2	
Conversion factor for low strengths	$(f_b / 5,2)^{0,5} \le 1,0$		
Code		EN 772-1	
Producer (Country)		e.g. Leroux (FR)	
Brick dimensions	[mm]	500 x 200 x 200	
Drilling method		Rotary drilling	



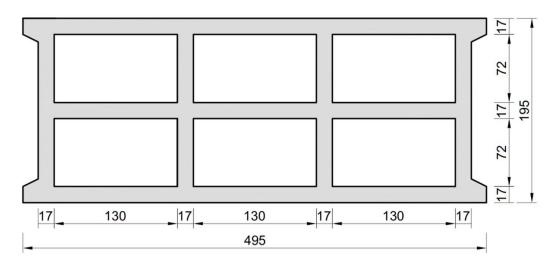


Table C181: Installation parameter

at all the production of the p	8. 34 PM 24 V 16 PM									
Anchor size		[-]	M8	M10	M12	M16	IG-M6	IG-M8	IG-M10	
Installation torque	Tinst	[Nm]	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	
Char. Edge distance	Ccr	[mm]	120 (for shear loads perpendicular to the free edge: c _{cr} = 170)							
Minimum Edge Distance	Cmin	[mm]	50							
Characteristic Spacing	Scr, II	[mm]	170							
Characteristic Spacing	Scr, ⊥	[mm]	200							
Minimum Spacing	Smin, II;	[mm]				50				
William Opacing	Smin, ⊥	[[[[]				30				

Table C182: Reduction factors for single anchors at the edge

т	ension load		Snear load							
'	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge				
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II		
• [50	1,00	→	50	0,35] <u>†</u> [50	1,00		
	120	1,00		170	1,00		120	1,00		

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow concrete brick Bloc Creux B40 Description of the stone, Installation parameters, Reductionfactors	Annex C 53



Brick type: Hollow concrete brick Bloc Creux B40

Table C183: Factors for anchor groups under tension load

An	chor position pa	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint			
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg⊥, N
	50	50	1,50		50	50	1,40
	50	170	2,00		50	200	2,00
	120	170	2,00		120	200	2,00

Table C184: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	. joint	Anchor position perpendicular to hor. joint				
Shear load perpendicular to the free edge		with c ≥	with s ≥	αg II,V ⊥		with c ≥	with s ≥	αg⊥, V⊥	
	•••	50	50	0,55		50	50	0,35	
		120	50	1,30		120	50	0,85	
		120	170	2,00		120	200	2,00	
		with c ≥	with s ≥	αg II,V II	+	with c ≥	with s ≥	αg ⊥,V II	
Shear load	••	50	50	1,10	•	50	50	1,00	
parallel to the free edge		*	2,00	•	50	200	2,00		
		120	120 170			120	200	2,00	

Table C185: Characteristic values of tension and shear load resistances

				Charac	Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$							
		Effective Anchorage depth		Use condition								
Anchor size	Perfor ated sleeve			d/d			d/d w/d w/w					
		A	40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	All temperature ranges			
		h _{ef}	N	$J_{Rk,b} = N_{Rk,p}$	2)	1	V _{Rk,b} ²⁾					
		[mm]		[kN]								
		Normalis	ed mean c	ompressiv	e strength	f _b ≥ 5,2 N/	mm ^{2 1)}					
M8 / M10/ IG-M6	SH 16	130	2,0	1.5	1.2	2,0	1,5	1.2	6.0			
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 130	2,0	1,5	1,2	2,0	1,5	1,2	6,0			

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C180. For stones with higher strengths, the shown values are valid without conversion.

Table C186: Displacements

Anchor size	hef	δN / N	δΝ0	δN∞	$\delta v / V$	δνο	δ∨∞
	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,13	0,13*N _{Rk} / 3,5	2*δN0	0,55	0,55*V _{Rk} / 3,5	1,5*δνο
M16	all			_ 3110	0,31	0,31*V _{Rk} / 3,5	1,5*δνο

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry	
Performances hollow concrete brick Bloc Creux B40 Group factors, characteristic Resistances and Displacements	Annex C 54

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|l} = V_{Rk,c} \perp$ according to Annex C 3



Brick type: Solid light weight concrete brick

Table C187: Stone description

Brick type		Solid light weight concrete brick	
Density	ρ [kg/dm³]	≥ 0,6	
Normalised mean compressive strenght	f _b [N/mm²]	≥ 2	
Conversion factor for low strengths	$(f_b / 2)^{0,5} \le 1,0$		
Code		EN 771-3:2011+A1:2015	
Producer (Country)		e.g. Bisotherm (DE)	
Brick dimensions	[mm]	≥ 240 x 300 x 113	
Drilling method		Rotary drilling	



Table C188: Installation parameter

Table Creek motanati	on pan										
Anchor size	Anchor size			M10	M12	M16	IG-M6	IG-M8	IG-M10		
Installation torque	Tinst	[Nm]	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2		
Char. Edge distance	Ccr	[mm]	150								
Minimum Edge Distance	Cmin	[mm]	60								
Characteristic Spacing	Scr, II	[mm]	300								
Characteristic Spacing	Scr, ⊥	[mm]	300								
Minimum Spacing	Smin, II;	[mm]				120					
I willing opacing	Smin, ⊥	[mm]				120					

Table C189: Reduction factors for single anchors at the edge

Tension load			Shear load								
	ension load		Perpendic	ular to the fr	ee edge	Parallel to the free edge					
	with c ≥	αedge, N		with c ≥	αedge, V⊥		with c ≥	αedge, V II			
•	60	1,00	→	60	0,25	1 !	60	0,40			
	150	1,00		150	1,00		100	1,00			

Table C190: Factors for anchor groups under tension load

An	chor position p	arallel to hor. jo	oint	Anchor position perpendicular to hor. joint				
	with c ≥	with s ≥	αg II, N		with c ≥	with s ≥	αg ⊥, N	
• •	60	120	1,00		60	120	1,00	
	150	300	2,00		150	300	2,00	

Table C191: Factors for anchor groups under shear load

	Anchor	position pa	rallel to hor.	. joint	Anchor position perpendicular to hor. joint			
Shear load perpendicular to the free edge	·	with c ≥	with s ≥	α _g II,V ⊥		with c ≥	with s ≥	$\alpha_g \perp$, v \perp
	•••	60	120	0,25		60	120	0,25
		150	120	1,00		150	120	1,00
	***************************************	150	300	2,00		150	300	2,00
	·!	with c ≥	with s ≥	αg II,V II		with c ≥	with s ≥	α _{g ⊥,} ν II
Shear load		60	120	0,40		60	120	0,40
parallel to the free edge		100	120	1,00		100	120	1,00
	- 	150	300	2,00		150	300	2,00

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances solid light weight concrete brick

Description of the stone, Installation parameters, Reduction- and Group factors

Annex C 55



Brick type: Solid light weight concrete brick

Table C192: Characteristic values of tension and shear load resistances

				Characteristic Resistances with $c \ge c_{cr}$ and $s \ge s_{cr}$									
	_	Perforated sleeve Effective Anchorage	Use condition										
Anchor size	d sleeve			d/d				d/d w/d w/w					
	erforate		40°C/24°C	80°C/50°C	120°C/72°C	40°C/24°C	80°C/50°C	120°C/72°C	All temperature ranges				
		h _{ef}	N	N _{Rk,b} = N _{Rk,p}	2)		V _{Rk,b} ²⁾						
		[mm]		$N_{Rk,b} = N_{Rk,p}^{2}$ $N_{Rk,b} = N_{Rk,p}^{2}$ $V_{Rk,b}^{2}$ [kN]									
	Normalised mean compressive strength f _b ≥ 2 N/mm ^{2 1)}												
M8	-	80											
M10 / IG-M6	-	90	3,0	2,5	2,0	2,5	2,0	1,5					
M12 / M16 / IG-M8 / IG-M10	-	100					·	·					
M8	SH 12	80							3,0				
M8 / M10/ IG-M6	SH 16	≥ 85	2,5	2,5	2,0	2,5	2,0	1,5					
M12 / M16 / IG-M8 / IG-M10	SH 20	≥ 85											

¹⁾ For lower compressive strengths resistances must be multiplied by the conversion factor according to Table C187. For stones with higher strengths, the shown values are valid without conversion.

Table C193: Displacements

Anchor size	hef	δη / Ν	δΝο	δN∞	δv / V	δνο	δ∨∞
	[mm]	[mm/kN]	[mm]	[mm]	[mm/kN]	[mm]	[mm]
M8 – M12 / IG-M6 – M10	all	0,1	0,1*N _{Rk} / 3,5	2*δN0	0,3	0,3*V _{Rk} /3,5	1,5*δ∨ο
M16	all	,	,		0,1	0,1*V _{Rk} /3,5	1,5*δ∨ο

SOUDAFIX VE400-SF, SOUDAFIX VE400-SF ARCTIC for masonry

Performances solid light weight concrete brick
Characteristic Resistances and Displacements

Annex C 56

²⁾ $N_{Rk,b,c} = N_{Rk,p,c}$ and $V_{Rk,c|II} = V_{Rk,c} \perp$ according to Annex C 3